

FINAL ENVIRONMENTAL IMPACT REPORT

**Coast Seafoods Company
Humboldt Bay Shellfish Aquaculture
Permit Renewal and Expansion Project
Humboldt County, California**

SCH # 2015082051

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Lead Agency:



Humboldt Bay Harbor, Recreation and Conservation District
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Section 1.0 Introduction

1.1 Purpose of Environmental Impact Report

In accordance with California Environmental Quality Act (CEQA) Guidelines §§ 15088, 15088.5, 15089, and 15132 (California Code of Regulations (CCR) 15000 et seq.), this Final Environmental Impact Report (FEIR) has been prepared to respond to the public comments received on the Recirculated Draft Environmental Impact Report (R-DEIR) for the Coast Seafoods Company's (Coast) Humboldt Bay Shellfish Aquaculture: Permit Renewal and Expansion Project (Project). The R-DEIR 45 day public comment period was from July 18 through September 1, 2016 and was extended an additional 15 days to September 16, 2016.

The California Environmental Quality Act requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority prior to taking action on those projects. Project approval is a discretionary action by the Humboldt Bay Harbor Recreation and Conservation District (Harbor District). Pursuant to CEQA § 21067, the lead agency means "the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment." As the first public agency to act on the Project, the Harbor District is the lead agency and has the responsibility for determining the CEQA compliance method. The Harbor District determined that an EIR, describing potential environmental impacts of the Project, be prepared and certified; and a Mitigation Monitoring and Reporting Plan (MMRP), to ensure that required mitigation measures are implemented during the course of the Project, be adopted.

1.2 Background

The Project proposes a comprehensive management plan for Coast's owned and leased area and shellfish farm expansion in Humboldt Bay. The Project involves: (1) extending regulatory approvals for Coast's existing approximately 300 acres of shellfish culture; (2) increasing shellfish culture within an already permitted floating upwelling system by adding eight culture bins; (3) authorizing culture of Pacific and Kumamoto oysters within Coast's existing clam rafts; (4) relocating approximately 5 acres of existing cultch-on-longline culture; and (5) permitting up to an additional 622 acres of intertidal culture in two phases.

As noted above, the R-DEIR was circulated for public review and comment from July 18 through September 16, 2016. The Project as described in the R-DEIR was developed in response to comments received on the DEIR circulated on October 26, 2015. Because of substantial revisions to the Project, Project alternatives, and the resulting analysis of impacts, the Harbor District recirculated the R-DEIR in its entirety for public review. Consistent with CEQA Guidelines § 15088.5(f)(1), the Harbor District thus advised reviewers that while previous comments will remain part of the administrative record, they do not require a written response in the Final EIR (FEIR); and new comments must be submitted for response and consideration in the FEIR. Therefore, only comments submitted during the R-DEIR public comment period are responded to in this FEIR.

1.3 Environmental Procedures

This EIR is an informational document intended to disclose the potential environmental impacts of approving and implementing the Project. The preparation of the FEIR focuses on the responses to comments on the R-DEIR. The Harbor District must certify that the FEIR adequately discloses the environmental effects of the project and has been completed in conformance with CEQA, and that the decision-making body independently reviewed and considered the information contained in the EIR prior to taking action on the project. The FEIR will also support assessments by other agencies, including responsible and trustee agencies

As set forth in the CEQA Guidelines § 15132, the FEIR shall consist of:

1. The Draft EIR or a revision of the Draft;
2. Comments and recommendations received on the Draft EIR either verbatim or in summary;
3. A list of persons, organizations, and public agencies commenting on the Draft EIR;
4. The responses of the Lead Agency to significant environmental points raised in the review and consultation process; and
5. Any other information added by the Lead Agency.

In accordance with these requirements, the Coast Humboldt Bay Shellfish Aquaculture: Permit Renewal and Expansion Project EIR is comprised of the following:

1. R-DEIR for the Project, Humboldt Bay Harbor, Recreation, and Conservation District, State Clearinghouse No. 2015082051, July 2016; and
2. This FEIR document, December 2016, that incorporates requirements 2-5 above.

This document has been prepared in accordance with CEQA and CEQA Guidelines and represents the independent judgment of the Harbor District. The responses to comments contained herein, together with the R-DEIR, technical appendices, and other written documentation prepared during the EIR process, make up the FEIR, in accordance with the requirements as defined in CEQA Guidelines § 15132.

Revisions to the R-DEIR

FEIR Section 4 provides changes to the R-DEIR that have been made to clarify, correct, or add to the environmental impact analysis for the Project. Such changes are the result of public and agency comments received in response to the R-DEIR. In consideration of comments received, an additional project alternative was identified to address concerns related to eelgrass, the East Bay Management Area (EBMA), black brant, green sturgeon, herring, recreational hunting, and boating. The additional alternative proposes the same culture methods evaluated in the R-DEIR, but changes the area dedicated to each culture method type, decreases the overall size of the proposed expansion area, and proposes no new culture plots within the EBMA or on Sand Island. See FEIR Section 4 for a complete discussion and analysis of the additional alternative. The analysis of the additional alternative is within the overall scope of analysis in the R-DEIR and changes described in this section do not constitute significant new information per CEQA Guidelines § 15088.5(a).

The alternative is proposed to further lessen Project impacts and is similar to other alternatives included in the R-DEIR, like the Reduced Density Alternative (Alternative 2). The responses to comments contained in this FEIR provide additional information and revisions; however, Harbor District staff has reviewed the material and determined that the information does not constitutes the type of significant new information that requires recirculation of the R-DEIR for further public comment under CEQA Guidelines § 15088.5. None of this additional information indicates that the Project will result in a significant new environmental impact not previously disclosed in the R-DEIR. Additionally, none of this material indicates that there would be a substantial increase in the severity of a previously identified environmental impact that will not be mitigated, or that there would be any of the other circumstances requiring recirculation described in CEQA Guidelines § 15088.5.

Mitigation Monitoring and Reporting Program

Public Resources Code § 21081.6 requires that agencies adopt a monitoring or reporting program for any project for which it has prepared an EIR. Such a program is intended to ensure that the implementation of all mitigation measures adopted through the preparation of an EIR. The MMRP for the Project will be completed prior to consideration of the Project by the Harbor District Board of Commissioners and adopted as part of project approval.

1.4 Document Organization

This FEIR has been formatted as described below.

Section 1. Introduction: Summarizes the Project background, purpose and format of the FEIR, and describes environmental procedures, certification, and mitigation monitoring requirements.

Section 2. Topical Response to Comments: Provides a summary of topical responses to recurring comments raised by responding agencies and the public.

Section 3. Responses to Comments: Provides a list of agencies, organizations and individuals that submitted comments on the R-DEIR during the comment period. Includes comments and recommendations received on the R-DEIR, and the Harbor District response to comments. To facilitate review of the responses, each comment has been assigned a number.

Section 4. Revisions to the R-DEIR: provides changes to the R-DEIR that have been made to clarify, correct, or add to the environmental impact analysis for the project.

Section 5. References: A list of the technical reports, studies, and other documentation used in the preparation of this FEIR

Appendices. Appendices containing the following supplemental information are presented as attachments to the FEIR, as follows:

- Appendix A: Proposed Herring Monitoring Plan;
- Appendix B: Eelgrass Avoidance Alternative Economic Analysis;
- Appendix C: Proposed Eelgrass Monitoring Plan; and
- Appendix D: Proposed RWQCB Benthic Habitat Mitigation Plan.

Section 2.0 Topical Responses

Topical responses have been prepared to address commonly raised issues as reflected in the comments regarding the R-DEIR. This section provides a summary of general responses to recurring comments raised by responding agencies and the public. These topical responses include:

Topical Response No. 1: Impacts Associated with Existing Operations

Topical Response No. 2: Eelgrass Impacts

Topical Response No. 3: Pacific Herring Impacts

Topical Response No. 4: Brant Impacts

Topical Response No. 5: Eelgrass Avoidance Alternative

Topical Response No. 6: Hunting Impacts

Topical Response No. 7: Recreational Impacts

Topical Response No. 8: Shorebird Impacts

Topical Response No. 1: Impacts Associated with Existing Operations

Several comments request that the EIR consider impacts and/or require mitigation for impacts associated with Coast's existing operations.

Impacts Associated with Existing Operations

The R-DEIR appropriately considers Coast's existing operations as part of the environmental baseline. CEQA mandates a thorough review of the project's environmental effects, which are determined by "comparison with the existing baseline physical conditions." 14 CCR § 15125; *In re Bay-Delta etc.*, 43 Cal.4th 1143, 1167 (2008); *North Coast Rivers Alliance v. Westlands Water Dist.*, 227 Cal.App.4th 832, 872 (2014). The "actual environmental conditions existing at the time of CEQA analysis," including existing projects and developments, makes up this environmental baseline. *Community for a Better Env't v. South Coast Air Quality Mgmt. Dist.*, 48 Cal.4th 310, 321 (2010); *North Coast Rivers Alliance, supra*, 227 Cal. App. 4th at 872; *Citizens for East Shore Parks v. California State Lands Comm'n*, 202 Cal.App.4th 549, 558-60 (2011). If some version of the project exists at the time of environmental review, the existing development and operations forms part of the environmental baseline, even if the existing project has not undergone prior environmental review. "How present conditions come to exist may interest enforcement agencies, but that is irrelevant to CEQA baseline determinations – even if it means preexisting development will escape environmental review under CEQA." *Citizens for East Parks, supra*, 202 Cal.App.4th at 559.

Because Coast's existing farm footprint is part of the environmental baseline, CEQA review is limited to an analysis of the environmental effects associated with the proposed changes to farm operations and the farm expansion as compared to its existing operations. As the court explained in *Citizens for East Shore Parks*, the inclusion of existing operations in the CEQA baseline is consistent:

with the categorical exemption in CEQA for existing facilities, meaning a facility as it exists at the time of the agency’s determination . . . We presume that thousands of permits are renewed each year for the ongoing operation of regulated facilities, and we discern no legislative or regulatory directive to make each such renewal an occasion to examine past CEQA compliance.

Citizens for East Parks, supra, 202 Cal.App.4th at 561. The Court specifically rejected the argument that the potential for permit denial permitted consideration of the environmental impacts associated with existing operations under CEQA. *Id.* at 560-61. Therefore, consideration of environmental impacts associated with Coast’s existing farm is inappropriate and unwarranted under CEQA.

Mitigation of Impacts Associated with Existing Operations

While CEQA requires that a project’s environmental effects be mitigated or avoided wherever feasible, CEQA does not require mitigation for impacts associated with existing development that is part of the environmental baseline. Pub. Res. Code § 21002.1(b); *Paulek v. Cal. Dep’t of Water Res.*, 231 Cal.App.4th 35, 44 (2014). This is consistent with CEQA statutes, regulations, and case law cited above regarding impacts associated with existing operations. This is also consistent with recent federal determinations, including the approach the National Marine Fisheries Service (“NMFS”) articulated in its recent programmatic biological opinion for shellfish aquaculture activities in Washington State, which evaluated impacts associated with approximately 14,650 acres of existing shellfish operations co-located with eelgrass. NMFS did not place restrictions or limitations on those activities. Nor did NMFS require mitigation for the continued suppression of eelgrass in those areas. Thus, NMFS either considered 14,650 acres of existing shellfish culture as part of the environmental baseline, or it considered continued eelgrass suppression in those areas to result in an insignificant impact (under the Endangered Species Act and Magnuson-Stevens Fishery Conservation and Management Act).

Further, Coast previously fully mitigated for impacts associated with its existing farm operations, which continues to provide the anticipated ecological benefits. In evaluating Coast’s existing operations approved in its 2006 Coastal Development Permit (“CDP”), the California Coastal Commission (“Coastal Commission”) evaluated impacts to eelgrass associated with Coast’s operations on its 300-acre farm footprint, determining that Coast’s operations were expected to result in the loss of 137 acres of eelgrass in North Bay. *See* Coastal Commission, Coastal Development Permit E-06-003 Final Adopted Findings (“CDP Findings”), at 26 (2006). No discount was provided or analysis conducted regarding the temporal effects of this loss. The Coastal Commission specifically imposed several mitigation measures to mitigate for the estimated eelgrass impacts, including but not limited to: (1) requiring the permanent conveyance of 50 acres of intertidal habitat by Coast for habitat preservation and (2) partial support of a salmonid habitat restoration project. With imposition of these mitigation measures and others included in Coast’s existing CDP, Commission staff concluded that:

The Commission finds that Coast’s applicant-proposed measures to avoid, reduce or compensate for potential impacts to marine resources, in combination with the implementation of Special Condition Nos. 1 through 8, will reduce impacts to eelgrass, Pacific herring, listed salmonids, and essential fish habitat such that the proposed project is consistent with the marine resources policies (Sections 30230 and 30231) of the Coastal Act.

The mitigation previously required by the Coastal Commission actually overcompensated for the actual impacts from Coast's existing operations. Based on the best available science, it is estimated that Coast's existing culture operations result in the suppression of approximately 81 acres of eelgrass growth within Coast's planted area. That estimate is 56 acres less than the impact estimated by the Coastal Commission in its 2006 approval of the CDP and approximately 63.5 acres less than the mid-point of the range of impacts estimated by NMFS in its 2005 biological opinion (which provided an estimated range of impact between 59 and 230 acres). Therefore, no additional mitigation would be required for Coast's existing operations beyond that previously provided by Coast pursuant to its 2006 CDP, even if CEQA's constraints were overridden by other authority.

The previous mitigation measures imposed by the Coastal Commission in 2006 continue to provide ecological function. For example, the Coastal Commission required transfer of at least 50 acres of Coast's owned tidelands to be held in conservation and free of development in perpetuity. Coast deeded a 54-acre parcel just east of the Mad River Slough, selected with the help of the California Department of Fish and Wildlife ("CDFW"), to the Harbor District to be held pursuant to a conservation easement. Based on 2009 habitat mapping (NOAA 2012), there are approximately 25 acres of patchy eelgrass within this habitat.

Coast also provided \$100,000 to partially fund a salmonid restoration project in Humboldt Bay. Coast's total contribution represented 9.1% of the restoration effort, which resulted in a 212-acre wetland restoration to restore tidal flow and fish passage to former salt marsh wetlands and enhance wildlife habitat in the McDaniel Slough and Janes Creek region in Humboldt Bay (Figure 2.1). The project removed barriers to anadromous fish, deepened historic slough channels, and removed failing and obsolete levees. The California Coastal Conservancy (2012) noted the multitude of habitat benefits provided by the project:

Restoring tidal habitat to Humboldt Bay and McDaniel Slough/Janes Creek benefits salmonids, including federally-listed Coho salmon, Chinook salmon, Tidewater goby, and Steelhead-Northern California ESU. It also benefits state-listed "species of special concern" such as coastal cutthroat trout, by restoring access to historic rearing and spawning habitat. Restoration of tidal wetland habitat also benefits resident and migratory water-associated wildlife . . . [providing] critical feeding and resting opportunities for migrating birds.

The Conservancy noted that Coast's funding for the project was "required to mitigate adverse impacts of development under [the CDP] to eelgrass habitat in Humboldt Bay and the corresponding reduction in available Coho salmon rearing habitat."

Both the transfer for conservation of intertidal habitat and the salmonid restoration project represent habitat connectivity for salmonid migration. Sampling efforts by CDFW (Overholm 2014) showed use of this habitat by both cutthroat trout and coho salmon in 2013 and 2014. While Janes Creek is not a major component of fish use in Humboldt Bay, the salt marsh restoration represents a major management priority for improvement of salmonid habitat. The historic loss of salt marsh habitat in Humboldt Bay has significantly restricted key areas used by salmonids for rearing and smoltification (NMFS 2014b and Wallace and Allen 2015). This is based on estimates that indicate

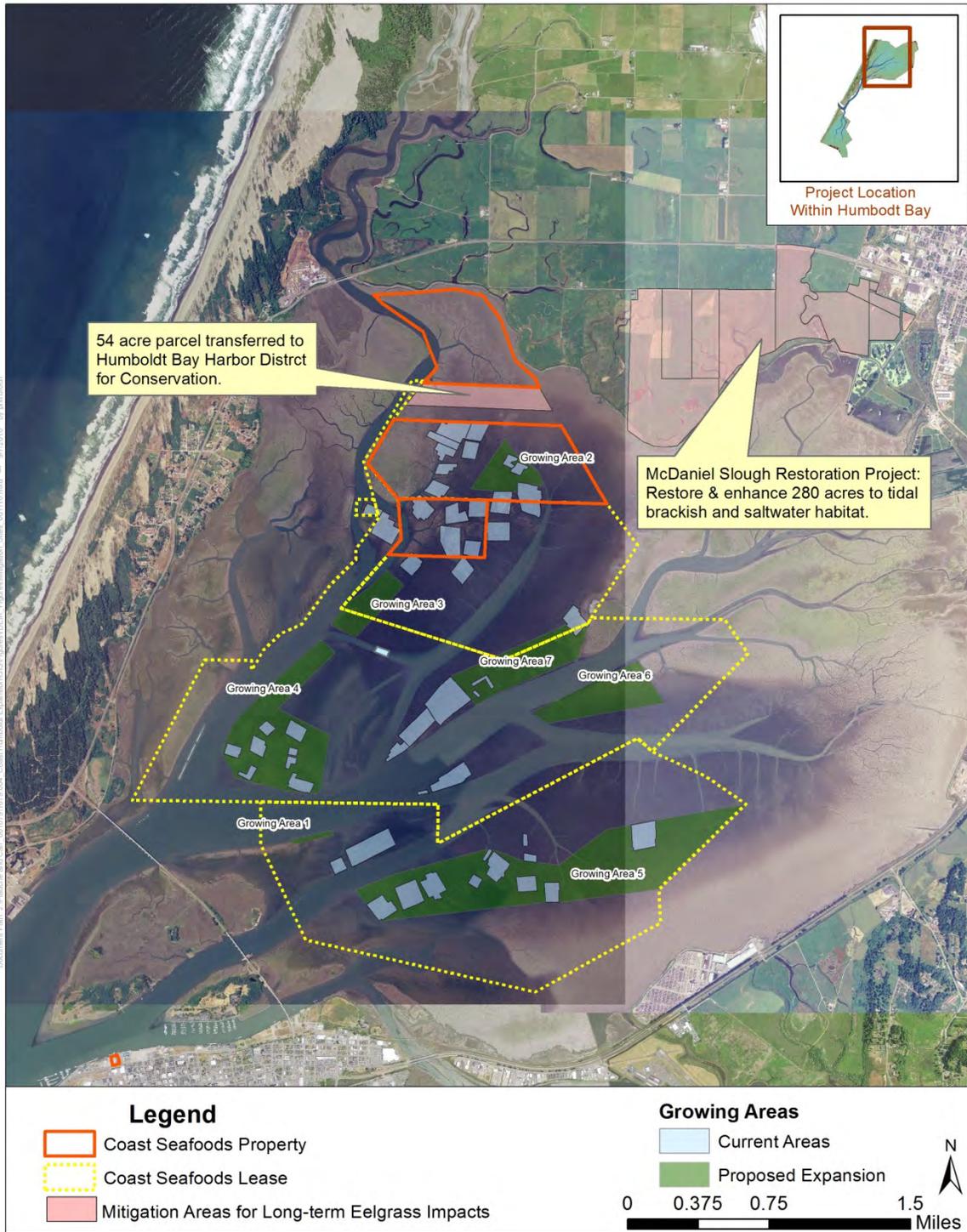


Figure 2.1 Previous Mitigation Actions Currently Providing Ecological Functions for Salmonid Habitat.

up to a 90% loss of salt marsh habitat currently behind levees or dikes installed for upland agricultural purposes (Schlosser and Eicher 2012). While McDaniel Slough does not contain eelgrass habitat, it is listed by NMFS as having high intrinsic potential for coho salmon because of the low gradient, non-natal rearing function.

The mitigation adopted by the Coastal Commission (Dettmer 2006) was specifically imposed to mitigate the amount of anticipated eelgrass loss identified by the Commission. This mitigation is continuing to provide benefits. The continuing benefits of the previous mitigation, combined with the over-mitigation of eelgrass beyond the actual project impacts, fully mitigate for any ongoing eelgrass impacts from Coast's existing footprint. Because impacts from Coast's existing operations have been fully mitigated, the ecological lift provided by reconfiguring 100 acres of Coast's existing footprint to 10-ft spaced longlines provides additional mitigation for Coast's proposed expanded footprint.

Topical Response No. 2: Eelgrass Impacts

There are five major themes that appear throughout the public comments in relation to eelgrass: (1) size of the project, (2) general impacts to eelgrass, (3) impacts associated with 10-ft spacing, (4) applicability of Rumrill and Poulton (2004) and other eelgrass studies, and (5) estimates of the width of effect.

Project Size

Some comments received stated that the project is too large; however, the purpose of the EIR is to evaluate the environmental impacts associated with the proposed project. A claim that a project or development is "too large," independent of environmental concerns, is outside the scope of an EIR analysis. *See Bowman v. City of Berkeley*, 122 Cal.App.4th 572 (2004). Impacts to eelgrass and other habitat related to the scope of the proposed expansion are discussed in relation to each individual impact in the R-DEIR.

The R-DEIR includes several alternatives that evaluate a reduced scale or farm footprint, including a reduced footprint alternative (Alternative 2) and an existing footprint alternative (Alternative 3). Additionally, in response to the comments received, the FEIR includes an additional alternative that also reduces the proposed Project footprint. All expansion areas would avoid the East Bay Management Area ("EBMA") and would instead focus on areas that either consolidate existing operations (e.g., Bird Island and Mad River vicinities) and/or avoid eelgrass where possible (e.g., Gunther Island and East Bay expansion areas).

Phase I of the EBMA Avoidance Alternative is approximately 165.2 acres:

- 4.0 acres = rack-and-bag culture outside of eelgrass habitat
- 71.9 acres = basket-on-longline with alternating 9-feet and 16-feet between pairs of lines
- 89.3 acres = 10-ft double-hung longline with 10-feet between lines

Phase I of the EBMA Avoidance Alternative also includes the removal of 42 acres of Coast's existing 2.5-ft spaced cultch-on-longline culture on Sand Island to mitigate for Phase I impacts to

eelgrass. The remaining 258 acres of existing aquaculture activity, including basket-on-longline, longline, nursery, and FLUPSY will continue using current culture methods during Phase I.

Phase II is comprised of an additional 90.8 acres of expansion, using the same cultivation methods and longline spacing proposed in Phase I, thereby resulting in a cumulative total expansion area of 256 acres. Phase II would remove an additional 22.7 acres of Coast's existing 2.5-ft spaced cultch-on-longline culture near Sand Island, Gunther Island, and Arcata Channel to mitigate for Phase II eelgrass impacts. Overall, the EBMA Avoidance Alternative would result in continuation of 235.3 acres of Coast's existing culture and 256 acres of expansion plots, thereby resulting in a net increase of 191.3 acres under cultivation (after mitigation). Phase II will not begin prior to the review of three years of monitoring data following the implementation of Phase I. As compared to the proposed project, the EBMA Avoidance Alternative would result in 366 acres less proposed cultivated footprint, 282 acres less proposed cultivation in continuous eelgrass, 58.3 acres less proposed cultivation in patchy eelgrass, and 310 acres less proposed cultivation within the EBMA. For additional analysis of this alternative, *see* FEIR Section 4, *Revisions to the R-DEIR*.

General Impacts to Eelgrass

The R-DEIR acknowledges that the project is anticipated to result in significant adverse impacts to eelgrass (before mitigation), and proposes in-kind mitigation to achieve no-net-loss of eelgrass. Based on the analysis presented in Impact BIO-3 and Mitigation Measure BIO-1, the potential reduction in eelgrass density that occurs from the Phase I expansion would be offset by increasing the line spacing within 100 acres of the existing culture plots. Included in the Phase I activities are a monitoring plan, peer-reviewed by independent experts, which includes monitoring eelgrass areal and density changes from the activity. If the monitoring shows a higher level of impact because of the project than accounted for in the proposed mitigation, additional mitigation will be provided. This step-wise approach will provide confirmation of the impact analysis presented in the R-DEIR and additional assurances of being able to meet the no-net-loss of ecological function of eelgrass standard incorporated into the R-DEIR. In addition, shellfish aquaculture has ecological functions that benefit the Humboldt Bay ecosystem that are widely reported in the literature, including improvements to water quality, increased prey resources, and habitat structure provided by the oysters and culture gear (*see* R-DEIR Impacts BIO-2, BIO-12, and WQ-1). The R-DEIR analysis is considered conservative, in that these benefits to water quality, which similarly benefit eelgrass growth, are not taken into consideration when conducting a quantitative assessment of the project's impacts to eelgrass.

Impacts Associated with 10-ft Spacing

Healthy eelgrass beds and shellfish aquaculture operations are not mutually exclusive, especially at a 10-ft spacing. As noted below, studies performed in Humboldt Bay and elsewhere on the West Coast support the R-DEIR conclusion that 10-ft spaced longlines will result in a neutral or beneficial impact to eelgrass. Further, there are many examples along the West Coast, including Humboldt Bay and Willapa Bay, where both habitats co-occur and both thrive. Additional information is discussed in the R-DEIR related to ecological function of oyster longline culture, including prey resources, fish use, water quality, sediment quality, and habitat structure. The literature supports a conclusion that oyster longlines provide similar ecological functions compared to eelgrass habitat, especially in terms of prey resources and nursery habitat for smaller fish (Hosack 2003, Rumrill and Poulton 2004, Hosack et al. 2006, Ferraro and Cole 2007, 2011, 2012, NMFS 2016).

A similar conclusion was reached in the recent NMFS (2016) and U.S. Fish and Wildlife Service (“US FWS”) (2016) programmatic biological opinions. While Willapa Bay does not include habitat for listed salmon species, it currently has approximately a 30% overlap between shellfish aquaculture and eelgrass (Figure 2.2), which is estimated to increase to almost 50% within the next 20 years. It is notable that Willapa Bay operations include longline culture harvest methods, as well as culture methods that can be more impactful to eelgrass, such as mechanical dredge harvesting, that are no longer used in Humboldt Bay. No mitigation was required by NMFS and US FWS for potential expansion into eelgrass habitat, partly because of the comparable ecological functions provided by shellfish aquaculture and the fact that eelgrass and shellfish aquaculture has successfully co-occurred within Willapa Bay for over 100 years (as well as the lack of habitat associated with listed salmon species). Willapa Bay and the aquaculture longline operations used there are similar to the underlying ecology and proposed operations in Humboldt Bay. In Puget Sound and Hood Canal, NMFS and US FWS identified 10-ft spacing of longline culture (including flip bag/basket culture) as the only culture method that can be used in fallow culture areas with listed salmon species where eelgrass has recolonized (over 2,700 acres in Washington State) without any required mitigation.

The R-DEIR analysis is further supported by a comparison of aerial photography of Coast’s existing planted footprint, collected 2009 and 2016 (NOAA 2012, SHN 2016). In general, the 2016 observations suggest that eelgrass can thrive within aquaculture beds in locations where it is naturally abundant. A typical example of this is aquaculture bed SI 2-2 on Sand Island. In 2009 aerial images suggest that eelgrass was present and abundant within and adjacent to the longline plots. Slightly lower eelgrass cover may be associated with the aquaculture plots, which may be the result of Coast’s historic dredge harvesting activities (Figure 2.3). In 2016, these same areas show no or almost no difference in eelgrass cover within and adjacent to these beds (Figure 2.4). These beds have longlines spaced approximately 2.5 to 3-feet apart. This comparison provides additional support that (1) eelgrass can coexist with shellfish aquaculture (consistent with the determinations from NMFS and US FWS discussed above) and (2) that areas previously studied by Rumrill and Poulton (2004) have continued to rebound from Coast’s historic dredge harvesting activities and have shown further eelgrass regrowth, even in areas where Coast continues to operate its shellfish farm.

Applicability of Rumrill and Poulton (2004) and Other Eelgrass Studies

The meso-scale study from Rumrill and Poulton (2004) indicated that eelgrass density values in the treatment plot with 10-ft spacing were “within the range of plant density values observed for the eelgrass reference sites located throughout Arcata Bay [North Bay].” While the commercial-scale results collected at the end of the experiment still showed a depression from the previous dredge harvesting culture methods, there was only one data collection event and eelgrass recovery was still in progress. While these data were more related to recovery of eelgrass within longline plots from dredge harvest activities, the results indicate that eelgrass can survive at densities equivalent to reference sites and control plots. Despite some differences in the studied plots as compared to effects from the proposed project, because the study evaluated the impacts associated with the specific proposed cultivation method on eelgrass within Humboldt Bay, it is the best science available to inform the R-DEIR concerning project impacts to eelgrass.

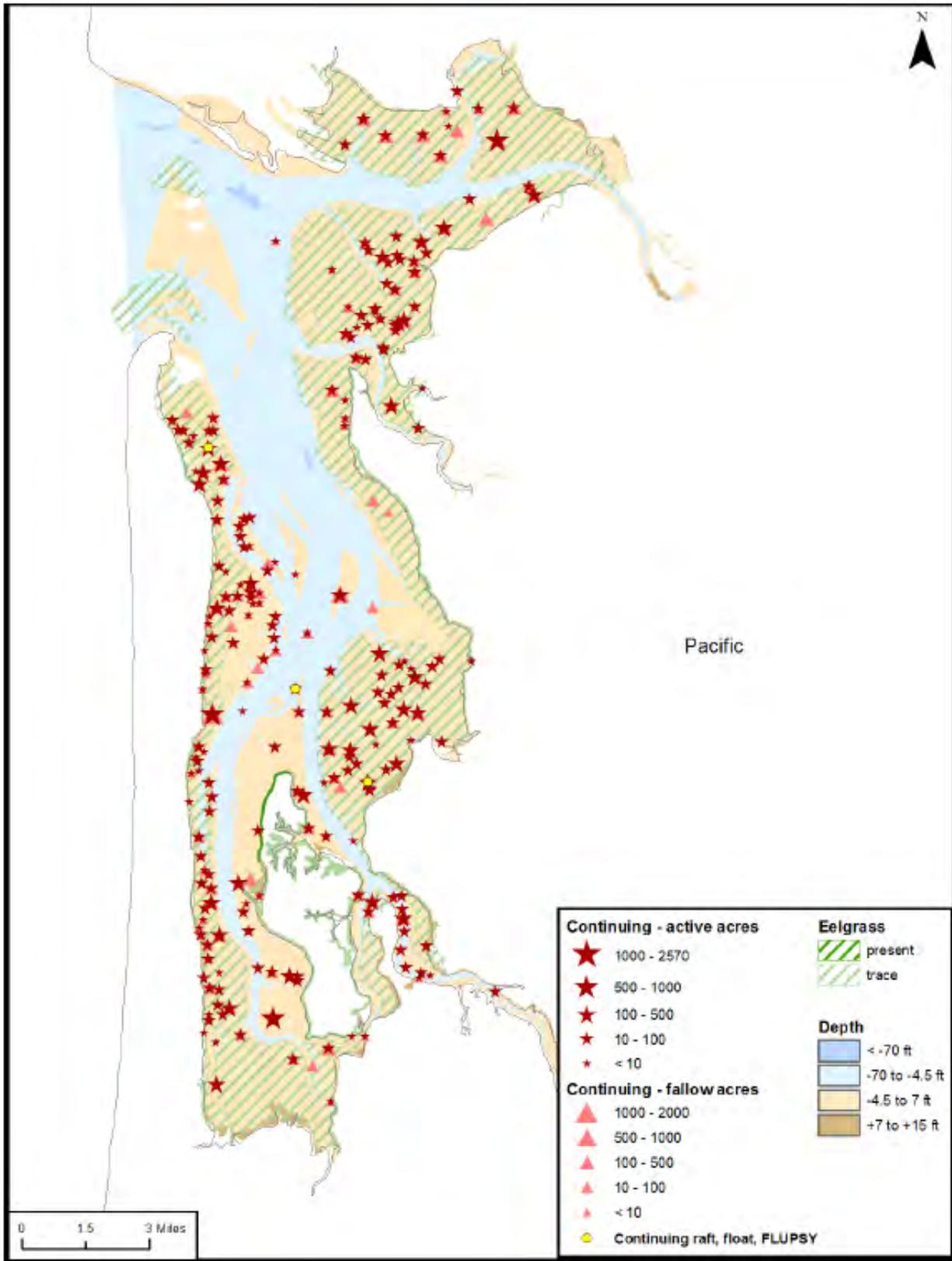


Figure 2.2 Shellfish Operations (Active and Fallow) and Presence of Eelgrass in Willapa Bay, Washington.

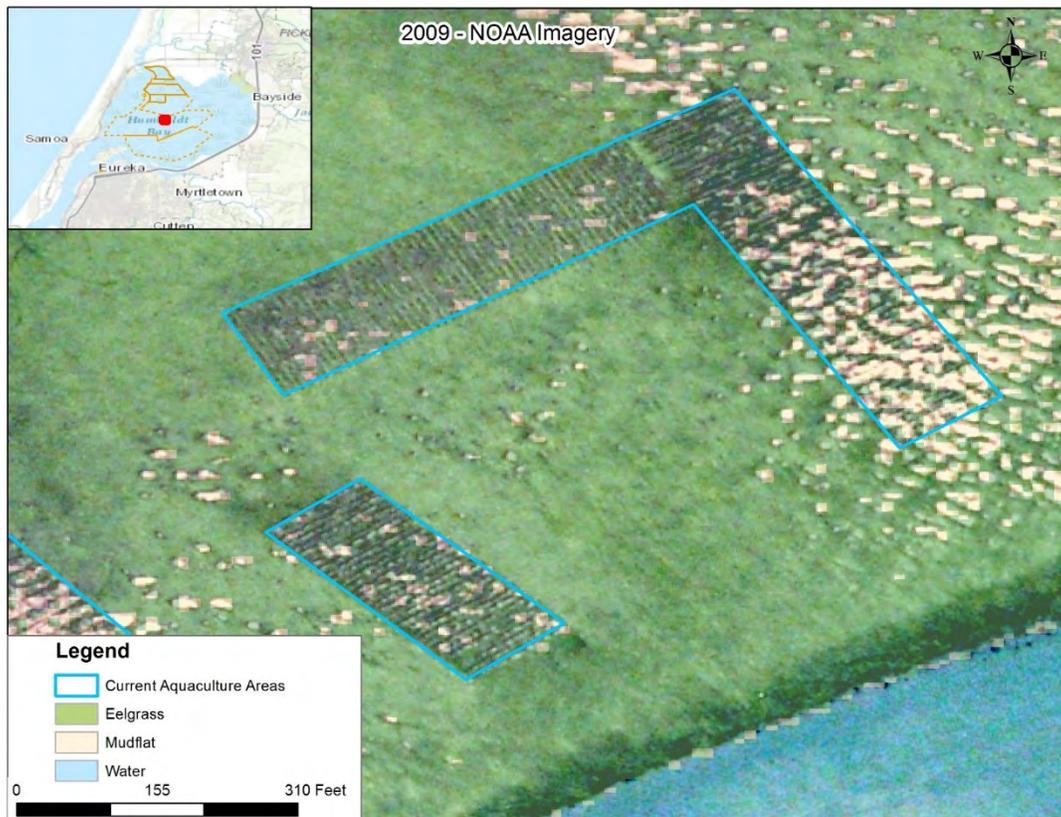


Figure 2.3 2009 NOAA imagery overlaid with habitat classifications derived from imagery.

Further, by comparing the potential recovery at a 10-ft spacing from Rumrill and Poulton (2004) with other literature on longline culture methods and eelgrass recovery timing (Major et al. 2004, Tallis et al. 2009, Ruesink et al. 2012, Yang et al. 2013), it can be understood that the cyclical nature of shellfish aquaculture operations result in short-term impacts, but that recovery of eelgrass would also occur within the same culture cycle. In fact, in the communication with Dr. Rumrill (2015) indicated that: “It is appropriate to state that addition of oyster aquaculture in Humboldt Bay (and perhaps other estuaries) can be neutral in direct effects to spatial cover and density of eelgrass when the oyster cultch-on-longline mariculture operations are conducted at line spacings of 5 ft or 10 ft. Implementation of best management practices that include reduced density of oysters (i.e., oyster culture at 5 ft and 10 ft spacing between the longlines) can allow the eelgrass communities to coexist in a healthy manner beneath the oyster longlines.”

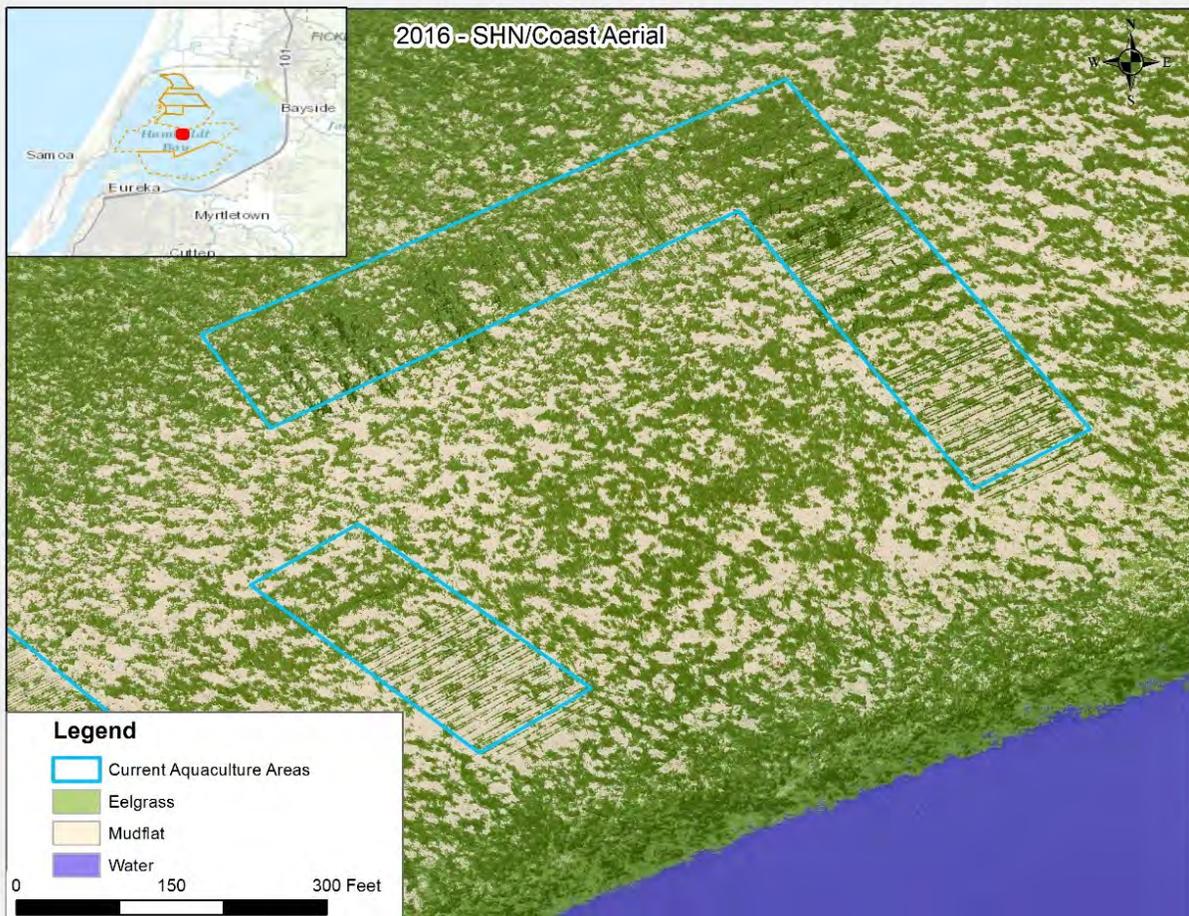


Figure 2.4 2016 SHN Aerial imagery overlaid with habitat classifications from imagery.

The analysis presented in the R-DEIR also went beyond the results of the Rumrill and Poulton (2004) study, and presented a range of impact scenarios. The results of this analysis were then compared to existing literature to provide a “proof of concept” analysis. The potential range of eelgrass impacts within the existing culture area (2.5-ft spaced plots, 2.5-ft spaced plots with 5-ft boat rows, and 3-ft spaced baskets with 20-ft boat rows) using the impact scenarios ranged from -7% to -49.5%. Comparatively, the Tallis et al. (2009) study, that provided data for 2.5-ft and 3-ft spacing typically used in Willapa Bay, Washington, reported an average of $-35 \pm 20\%$ in eelgrass density for three years of data. The Wisheart et al. (2007) study reported a higher reduction in eelgrass density (-52%) from 2.5-ft spaced longlines from one year of data, but also indicated that disturbance typically resulted in a higher flowering frequency of eelgrass shoots, which would lead to faster recovery rates. Together, these studies indicate that the R-DEIR impact scenarios accurately calculated potential impacts to eelgrass under current culture conditions in Humboldt Bay, especially considering the wider spacing in many parts of the existing culture area associated with 20-ft and 5-ft boat rows between groups of lines that were not always part of the Willapa Bay bed designs (e.g., Wisheart et al. 2007 study).

This comparison of the impact analysis to the literature also led to the understanding that the impact scenarios presented in the R-DEIR likely over-estimated impacts in the medium and maximum footprint scenarios (i.e., -42.2% and 49.5%, respectively). Based on aerial photography information and more recent SHN (2015) data, the actual impacts from the existing culture likely fall somewhere in the middle, which equates to approximately 28.5% of eelgrass suppression. Finally, one of the lead researchers of the Tallis et al. (2009) and Wisheart et al. (2007) studies, Dr. Brett Dumbauld, and one of the lead researchers of the Rumrill and Poulton (2004) study, Dr. Steve Rumrill, were consulted during development of the impact scenarios used to estimate impacts from the proposed project, and confirmed that the R-DEIR accurately described their findings and analysis. Overall, the analysis provided in the R-DEIR was robust, compared well to existing literature, and was further refined in consultation with eelgrass experts.

Use of Width of Effect for the Analysis

Use of “width of effect” as a method of predicting eelgrass impacts is a conservative approach that uses the best available eelgrass science and data. Thom et al. (2003) evaluated the potential width of the effects to eelgrass from oyster longlines, concluding that: “A long line oyster operation initiated over the Toke Point site in 1999 showed very minor effects on the eelgrass. We only saw a loss of eelgrass within an approximately 0.25 m wide band directly underneath the suspended lines. Since lines were spaced approximately 3 m apart and were suspended approximately 0.5 m above the ground, eelgrass between the lines was not affected.” The use of a width of effect is a common mechanism for characterizing potential effects from a disturbance in ecology and is the basis for buffers and other measurements of potential effects associated with habitat edges.

While the impact analysis presented in the R-DEIR used this information, the R-DEIR analysis and conclusions were based on several additional sources of data. As described above, the eelgrass impact analysis was conducted in consultation with eelgrass experts and verified by comparing the R-DEIR’s impact calculations for existing culture areas to effects for 2.5-ft and 3-ft spaced single-hung longlines reported in other studies. It is notable that the studies reported above are based on empirical observations that inherently include operational effects (e.g., trampling, harvesting, etc.) that may extend beyond the width of effect used to estimate potential impacts. Given that the R-DEIR impact scenarios are similar to other reported observations regarding impacts to eelgrass associated with oyster longline culture, this consistency provides validation to use this same method to calculate potential impacts for the proposed expansion. This analysis is considered conservative, in that it did not account for potential beneficial impacts from longlines to eelgrass. Expanding the R-DEIR calculations to the entire bed is well beyond the potential impacts expected from a shellfish aquaculture operation and would result in estimated impacts significantly larger than those reported in the other studies cited in the R-DEIR.

The resulting calculations of impact, using a range of widths and a range of potential reductions in eelgrass density, resulted in a calculated range of eelgrass density reduction from 2.2% to 17.1% associated with the proposed project. As noted above, the calculations at the extreme ends of these impact scenarios are not likely to occur.

Topical Response No 3: Pacific Herring impacts

There are three major themes that appear throughout the public comments in relation to Pacific herring: (1) loss of herring eggs from desiccation or predation, (2) loss of spawning area, and (3) lack

of suitable mitigation measure. As further described below, while desiccation of herring eggs deposited on suspended lines can increase egg mortality, this effect is expected to be limited and offset by reductions in predation due to reduction in predation for eggs on lines. Longlines are not predicted to cause a reduction in area available for spawning since herring access to spawning areas and the total eelgrass cover are not predicted to be impacted. The R-DEIR recognizes that the removal of lines with herring spawn would represent a potential impact to herring and has, therefore, identified a mitigation measure to prevent the accidental removal of viable herring spawn from Humboldt Bay. Finally, in response to comments received on this issue, the FEIR includes an additional alternative that avoids expansion of Coast's shellfish operations within the EBMA to further reduce potential impacts to herring. See FEIR Section 4, *Revisions to the R-DEIR*.

Loss of Herring Eggs from Desiccation or Predation

In terms of herring egg loss due to desiccation, the R-DEIR contains a discussion of the results of the Palsson (1984) master's thesis as well as peer reviewed literature and a technical report (Hourston et al. 1984) describing the survival of herring spawn on natural and artificial substrates (R-DEIR pages 6.5-85 to 6.5-87). In terms of loss due to predation, the R-DEIR contains a discussion of key literature, including Keeling (2013), Hessing-Lewis et al. (2012), and Rooper and Haldorson (2000). The following discussion expands upon the information presented in R-DEIR.

Although the abstract of Palsson (1984) notes that "overall artificial substratum egg loss rates and non-viable egg ratios were higher than adjacent natural substrata" the complete thesis highlights experimental design challenges and other issues that provide perspective for interpreting the study. For example, Palsson (1984) notes that his experimental arrays of artificial substrata appeared to attract Dungeness crabs and perhaps snails which predated heavily on herring eggs, likely accounting for a portion of the observed egg loss. Observations of egg loss were further complicated because of characteristics of the materials tested. For example, "hemp rope quickly disintegrated in salt water (Palsson 1984)," which likely affected egg retention and is a fate unlikely to occur to rope used for longlines. After accounting for egg loss, Palsson (1984, page 130) reports that herring eggs on artificial turf mats and hemp rope both have higher survival than eelgrass (20.00% and 5.30% vs. 0.97%). Therefore, while Palsson's observations provide qualified support for the claim that artificial substrates may result in greater egg loss, his study does not support the contention that artificial substrates similar to those used for oyster longline culture are associated with increased egg death. Palsson (1984) also cites two other local studies where "eggs spawned in light densities upon artificial substrata had dead eggs ratios that were similar to natural substratum dead egg ratios (Millikan and Penttila 1973, Penttila and Day 1976)." While Palsson (1984) reports that total production of larvae from herring eggs spawned on artificial substrates was lower than for natural substrates, it is unclear if this observation is due to effects of the study design on predation rates or an aspect of the tested material.

The findings of Palsson (1984) should be considered in the context of other similar studies such as one performed by Hourston et al. (1984) that studied herring egg hatch across 14 substrates including plastic. Hourston et al. (1984) found that "there would appear to be little adverse effect on egg survival in natural spawnings on any substrate" until very dense egg deposition occurs which can affect hatching success independent of any substrate effect. Rates of herring hatch and normal development from eggs deposited on PVC reported by Vines et al. (2000) were 96% and 90% respectively, sufficiently high to be used as a control in that study and were comparable to natural substrate control rates reported by Incardona et al. (2012).

The R-DEIR also recognizes that there are multiple factors potentially affecting herring spawn activity and survival of spawn to larval stage associated with the project. Some of these interactions are likely to be beneficial for herring egg survival (e.g., decreased predation by fish and invertebrates, potential to reduce desiccation at higher elevations), while others may adversely affect survival (e.g., increased predation by birds). The factors related to predation or egg loss are very complex, and hard to disentangle from what are related to project impacts vs. what are related to natural loss. However, there are four main points that lead to a conclusion that impacts from the proposed project are less than significant to herring:

- Aquaculture gear occurring in spawning areas is not equivalent to a loss of herring eggs in that location. There needs to also be: (1) activities that disturb herring that occur at the time that eggs are present (2-week period) and/or (2) loss of herring eggs because of gear presence. Neither of these is expected to result from the proposed project in a significant portion of herring egg locations because ground disturbing activities are isolated both spatially and temporally.
- Based on information provided from previous reports by CDFW, when herring spawner biomass was higher, herring used approximately 10% of the available habitat per year. This does not indicate that herring are limited by spawning substrate.
- Lack of evidence that presence of gear or aquaculture activities is correlated to Pacific herring spawning biomass or presence of eggs. Based on a comparison of spawner biomass and aquaculture activities, there does not appear to be a relationship. Herring spawner biomass decreased during a period when aquaculture activities were reduced in Humboldt Bay. There are anecdotal reports that herring spawner biomass may have increased from low levels documented in 2005, although CDFW has not collected herring biomass data in Humboldt Bay since 2005 to support that observation.
- Mitigation Measure BIO-2 (discussed more below) is proposed to reduce/avoid interactions between shellfish aquaculture operations and herring eggs, and is proposed to reduce potentially significant impacts to less than significant. It is notable that this approach is used by CDFW for other projects in herring spawning areas and a similar measure is being used in Washington State, and the federal agencies in Washington have all determined that this measure adequately protects herring eggs from shellfish aquaculture activities (Corps 2015, NMFS 2016, and US FWS 2016). Although not all interactions are avoided, according to US FWS (2016): “these temporal losses will rarely, if ever, occur at a scale, or with a duration or severity, sufficient to measurably reduce the quality or availability” of marine forage fish as prey species to listed salmonids. This conclusion was reached even though shellfish aquaculture overlaps with 5,815 acres of herring spawning locations.

Loss of Spawning Area

There were numerous comments related to use of the EBMA or reduction in eelgrass, in general, for the proposed expansion and conflicts with herring spawning habitat. Herring are reported to use approximately 10% of the available habitat in Humboldt Bay during most years, which does not indicate that there is a limitation in spawning substrate. In addition, there is no data to suggest that overlap with herring spawning habitat by the proposed shellfish aquaculture expansion would result in population-level changes to herring, as discussed above. However, to further address this

concern, the FEIR includes an additional alternative that avoids expansion of Coast's shellfish operations within the EBMA. See FEIR Section 4, *Revisions to the R-DEIR*.

Lack of Suitable Mitigation Measures

Mitigation Measure BIO-2 is intended to provide herring egg monitoring and coordination with CDFW. The exact language from the R-DEIR was:

Coast will ensure that all employees who supervise work on the tidelands are trained by a qualified biologist to conduct pre-work herring spawn surveys. During the months of December through March, trained Coast employees will perform a pre-work herring spawn survey at each location where work is scheduled to take place to determine whether herring have spawned on eelgrass, culture materials, or substrate. If herring spawn is observed, Coast will: (1) notify the CDFW's Eureka Marine Region office within 24 hours, and (2) postpone activities on those beds until all eggs have hatched. In addition, Coast will work with CDFW during spawning surveys to sample within culture gear and identify whether herring are spawning in the longlines.

As noted above, Mitigation Measure BIO-2 expands upon a similar measure used in Washington State that was found to adequately protect Pacific herring spawn deposition within 5,815 acres of shellfish aquaculture that overlaps with herring spawning locations. Both NMFS (2016) and US FWS (2016) concluded that there would be potential losses of herring eggs due to shellfish aquaculture operations, but that the magnitude of this loss would not rise to a level of significance in any one water body or estuary.

While not proposed as mitigation, in response to comments received from CA DFW, Coast has also agreed to a herring monitoring plan, included as Appendix A of the FEIR.

Topical Response No 4: Brant Impacts

Potential impacts to black brant from the project primarily take two forms: loss of foraging opportunity due to exclusion from eelgrass beds when project infrastructure is exposed above the water's surface, and disturbance from the increased activity necessary to accommodate additional aquaculture. Several public comments expressed concern about these impacts, sometimes stating that impacts were underestimated. In addition, some commenters expressed concern regarding the appropriateness of using the Stillman et al. (2015) modeling results, or the interpretation presented in the R-DEIR, to draw conclusions regarding impacts to brant.

Potential for Aquaculture Operations to Disturb Brant

The R-DEIR included a quantitative assessment of impacts to brant associated with the project's operations based on the expansion of the project's footprint and increases in harvesting and boat activity. Increased disturbances were substantially overestimated in the R-DEIR based on two very conservative assumptions: all boat traffic in Humboldt Bay is attributable to Coast Seafoods, and all of Coast Seafoods' boat activity will disturb brant. Based on these assumptions, the increase in disturbance due to the project represents less than one percent increase over existing conditions. When this is compared to the best available science evaluating the effects of disturbance on brant in Humboldt Bay (Stillman et al. 2015), the increased disturbance is not expected to have a significant

adverse impact on brant. Some commenters also suggested that avoidance of aquaculture areas when infrastructure is exposed (i.e., loss of foraging opportunity) should be considered disturbance and added to the disturbance associated with human presence and activity. However, because the effects of this avoidance behavior are already accounted for in the R-DEIR as an impact to foraging opportunities (*see* Impacts BIO-25 and BIO-26), to consider the avoidance to also be disturbance would represent “double counting” of impacts. Avoidance of areas has not been considered a disturbance in previous studies (Owens 1977, Ward et al. 1994, Riddington et al. 1996, and Schmidt 1999), and the only responses to disturbance that have been considered are alertness and flight, neither of which would result from inanimate structures.

Use of Stillman et al. (2015) Model

The model presented by Stillman et al. (2015) is directly relevant to potential impacts to brant, given that it is a model specifically developed for Humboldt Bay to evaluate impacts to brant from reductions in food availability and human disturbances. The most relevant empirical data for eelgrass and brant available for Humboldt Bay are used as model inputs, and outputs predict the response of brant to reductions in eelgrass biomass and increases in disturbance.

The R-DEIR uses a 10% change in either eelgrass abundance (decrease) or disturbance (increase) as a threshold for significance under CEQA because this is the lowest level that is demonstrated to have a statistically significant effect based on their modeling results. It should be noted that the threshold incorporated into the R-DEIR to evaluate brant impacts is significantly more conservative than the general CEQA Thresholds of Significance adopted by the CEQA Guidelines, which define a significant impact as a reduction in “fish or wildlife populations below self-sustaining levels,” a substantial reduction in fish or wildlife habitat, a substantial adverse effect on a listed or special status species, or substantial interference with migration (*see* R-DEIR § 6.5.3). The Stillman model assumes that an exceedance of the 10% threshold will result in a measurable effect to brant, without any discussion as to whether it would be a *significant* effect as that term is used in CEQA. Regardless, the Stillman model is the best science available to assess impacts of the project on brant. Because the R-DEIR uses this conservative threshold for determining significance under CEQA, the analysis presented in the R-DEIR is appropriate and sufficient for evaluating project effects on brant for CEQA purposes.

Impacts to Foraging Opportunities

As discussed in Topical Response 2, the project is anticipated to result in no net loss to eelgrass resources available to brant. The R-DEIR used the Stillman et al. (2015) model discussed above and project-specific modeling to objectively estimate impacts to foraging opportunities (*see* Impact BIO-25). The R-DEIR acknowledges that impacts to brant foraging will occur due to exposed longline above water levels during low tides, but determined that these impacts will be less than significant. Specifically, the R-DEIR estimated that brant will be excluded from less than three percent of available eelgrass biomass bay-wide, which, when compared to published modeling results of brant foraging in Humboldt Bay (Stillman et al. 2015), does not suggest there would be substantial adverse effects on brant. Several commenters also suggested that brant would be completely excluded from all aquaculture areas, and that this further exacerbated impacts to foraging opportunities. However, the R-DEIR analysis of brant avoidance is based on two sources of empirical observations studying brant avoidance of Coast’s existing longlines in Humboldt Bay. Brant surveys in North Bay

indicated that brant occur in approximately equal densities in aquaculture areas and in control areas when infrastructure is not exposed above the water's surface (R-DEIR Appendix E), which was confirmed with time-lapse video of aquaculture beds (see Impact BIO-25). Therefore, impacts associated with foraging activities are less than significant.

Topical Response No 5: Eelgrass Avoidance Alternative

R-DEIR § 5.2.1 included an analysis of an eelgrass avoidance alternative. The alternative was deemed to be infeasible, given that it did not meet the project's basic objectives and was economically infeasible, finding that there was very little ground within Coast's leased and owned footprint which was at an elevation suitable for oyster cultivation that did not consist of patchy or continuous eelgrass beds. Several commenters requested further evaluation of this alternative, further discussion regarding the elevation suitable for growing oysters, and support as to why the alternative was rejected from further analysis. As shown in Figure 2.5 below, there is very little acreage available for expansion of Coast's operations that is at an elevation suitable for growing oysters.

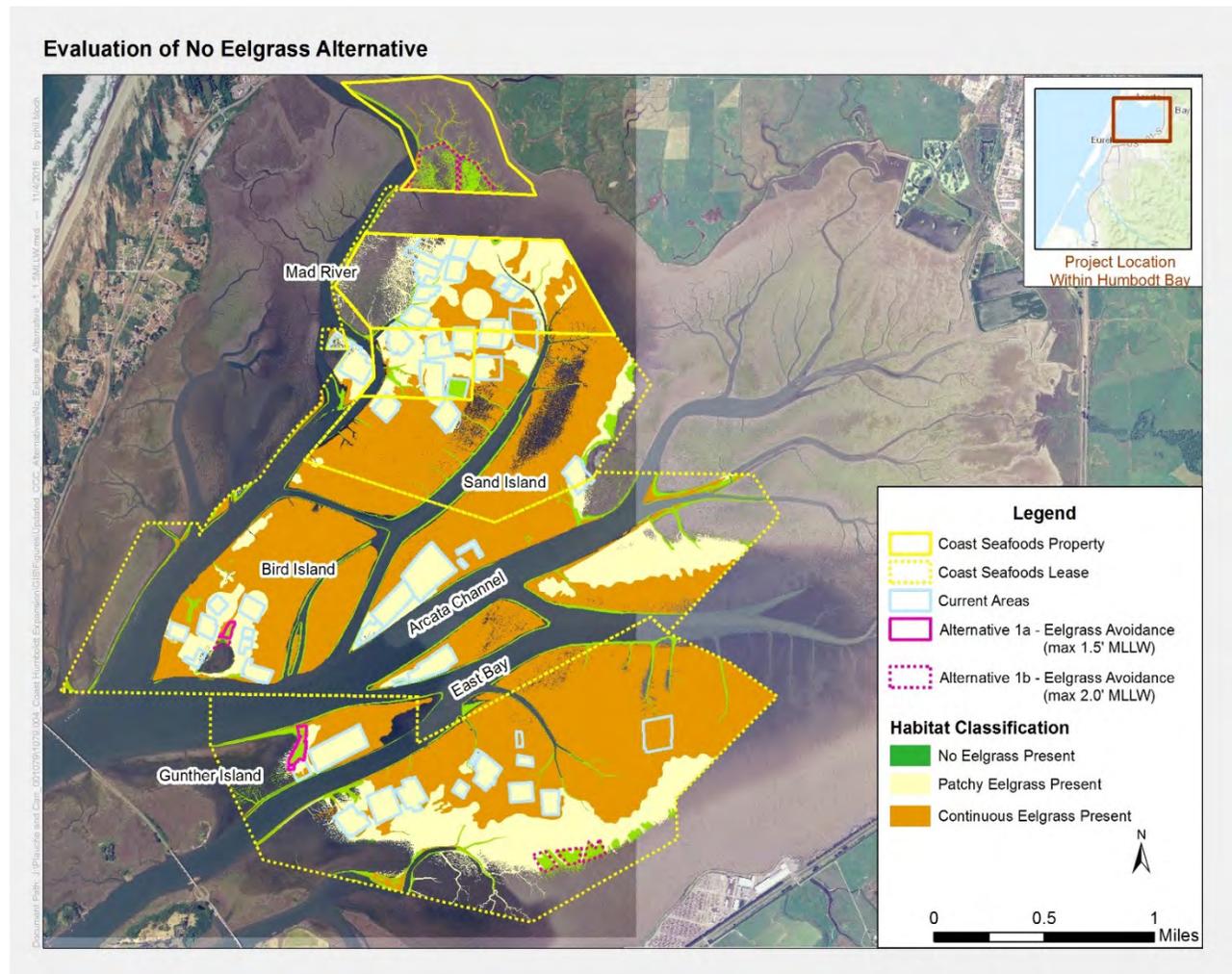


Figure 2.5 Overlap between project area, eelgrass beds, and tidal elevations.

The total amount of additional acreage available at the elevation that Coast believes is suitable for growing oysters (below +1.5-ft MLLW) is approximately 6.4 acres, which is primarily located on the southwest side of Gunther Island, with a small amount of acreage available on Bird Island. There is an additional 50.4 acres available for cultivation between +1.5-ft MLLW and +2.0-ft MLLW although, as discussed below, such areas are not practicable for shellfish cultivation and have other limitations (including tidal elevation) that restrict their utility.

If the proposed expansion were only limited to 6.4 acres of additional longlines, the project would not be economically feasible. As shown in FEIR Appendix B, Eelgrass Avoidance Economic Analysis, given the costs of preparing the EIR and associated studies, conducting the eelgrass monitoring required by several regulatory agencies, and cost of product (shellfish seed) this alternative would result in a projected loss of \$3 million over the permit term. Further, the majority of potential additional acreage located below +1.5-ft is located on Gunther Island at the same elevation reviewed in the elevation study referenced in the R-DEIR. While the elevation study concluded that oysters could potentially be grown at that elevation, the quality of the oysters produced was significantly inferior as compared to lower elevations and Coast is concerned that, based on prior experience seeking to grow oysters at that elevation and its experience farming shellfish in Humboldt Bay for over 70 years, the oysters produced above +1.5-ft will be unmarketable. *See* response to Comment 8-7 for additional discussion of the elevation study.

While a total of 56.8 acres could be planted below a +2-ft elevation in areas that do not include eelgrass, there are a number of operational concerns associated with the additional areas. First, the additional areas located on the eastern side of Coast's leased footprint are located in the EBMA. Several commenters have requested that Coast avoid planting additional acreage within the EBMA (*see, e.g.*, Comments 13-8 and 17-86) due to concerns regarding brant and herring impacts. In response to this concern, the FEIR incorporates discussion of an additional alternative that does not include any expansion of Coast's operational footprint within the EBMA. For additional analysis of this alternative, *see* FEIR Section 4, *Revisions to the R-DEIR*. Further, both potential areas located within the EBMA and east of the Mad River are extremely remote and would take hours for Coast workers to access the plots, given that they are not easily accessed by channels. These areas are also not currently certified for shellfish cultivation by the California Department of Public Health, which would require additional testing and certification of those areas prior to planting and cultivation.

Ultimately, this alternative would require Coast to invest over \$10 million in planting oysters at elevations where it is uncertain that shellfish will grow successfully and that, based on Coast's experience farming in Humboldt Bay and other West Coast estuaries, it does not believe that the farm will succeed. Potential failure of the crop at elevations above +1.5-ft would result in a total loss of investment, which represents an unacceptable risk to the company, particularly when the proposed project is expected to result in no net loss of eelgrass after incorporation of the proposed mitigation. As further described in FEIR Appendix B, Eelgrass Avoidance Economic Analysis, even if such cultivated plots are successful, in comparing the costs of preparing the EIR and associated studies, conducting eelgrass monitoring required by the regulatory agencies, installation and maintenance of the aquaculture equipment, and costs of shellfish seed, this alternative is projected to result in an overall loss of \$2.485 million over the permit term. Therefore, this alternative is unlikely to meet the project objectives of (1) expanding Coast's shellfish farm to increase future oyster production, (2) creating additional job opportunities, (3) enhancing sources of local sustainable seafood, and (4) locating oyster beds in areas with optimal growing conditions to maximize efficiency and limit the spatial footprint of the farm. It also is not considered economically feasible.

Because this alternative represents an unreasonable financial risk to the applicant, is not operationally or economically feasible, and does not meet the basic project objectives, it is rejected from further consideration.

Topical Response No. 6: Hunting Impacts

Comments received on the R-DEIR included concerns that the project would restrict access to Humboldt Bay hunting grounds and that the project would reduce brant and waterfowl populations available for hunting. As noted in the R-DEIR, the project may result in the sporadic flushing of birds due to noise from boats and Coast's operations; however, this impact is considered less than significant because the increase in boat trips would only be two to three additional boat trips per day. To reduce impacts to brant hunting, the R-DEIR incorporates Conservation Measure REC-1, where Coast will avoid primary brant hunting areas in the EBMA during brant hunting season. To further address this concern, the FEIR incorporates discussion of an additional alternative that does not include any expansion of Coast's operational footprint within the EBMA. For additional analysis of this alternative, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Conservation Measure REC-1 was developed based on conversations with several sources knowledgeable of Humboldt Bay hunting sites, including meeting with the Humboldt County Fish and Game Advisory Commission on April 21, 2015. Further, the Humboldt Bay Management Plan ("HBMP") identifies the designated hunting areas for waterfowl and brant, including the Eel River Wildlife Area, the Humboldt Bay National Wildlife Refuge, Mad River Slough Wildlife Area, and the Fay Slough Wildlife Area (Harbor District 2007). Overlap between the proposed project footprint and these areas is shown in Figure 2.6. The HBMP also notes that South Bay is a key area for brant hunting.

The total overlap between the proposed project footprint and hunting areas identified in the HBMP is approximately 335 acres, which represents approximately 5.7% of the identified hunting areas. However, comments from several hunters indicate that they use the entire North Humboldt Bay for hunting. *See, e.g.,* Comment 28-13; Romo, personal communication, 2016. If these statements are correct, the project overlaps with 8.5% of the total available intertidal and subtidal hunting area in North Bay and 5.2% of the total available Humboldt Bay hunting area (including Entrance Bay and South Bay).

While the project would expand Coast's operational footprint within North Bay, it would not eliminate the availability of those areas for brant hunting. As noted in the R-DEIR § 4.3.7, each longline plot is visited infrequently, and many plots will not be visited at all during hunting season. Further, as noted in Impact REC-2 and Topical Response 7, below, Coast's expanded footprint would not limit boat access. The increased 10-ft spacing incorporated into the R-DEIR would permit passage through areas planted with longlines for most boats used for hunting. Even if hunters choose not to hunt within Coast's planted footprint, there are still ample areas available for hunting in North Bay and South Bay, including all areas designated as prime hunting areas by the Harbor District.

As noted in Topical Responses 4 and 8, impacts to brant and other waterfowl are considered less than significant and the project is not anticipated to result in reductions in brant or waterfowl populations available for hunting. As described R-DEIR § 6.5, the Pacific Flyway black brant population size from 2004-2014 ranged from approximately 112,000-177,000 birds with an average

of approximately 153,000. Thus, the background variance in population size is substantial. It should also be noted that there is significant annual variance in the number of brant taken by hunters from the California North Zone. From 1990-2012 annual numbers of brant harvested from this zone varied from 212 to 5,064 birds. Thus, it would require very significant impacts to the brant population to negatively impact the number of birds harvested relative to background levels and annual variability in population levels and harvest. There is no evidence that the project will reduce brant populations, particularly not to the extent that it would limit brant availability for hunting.

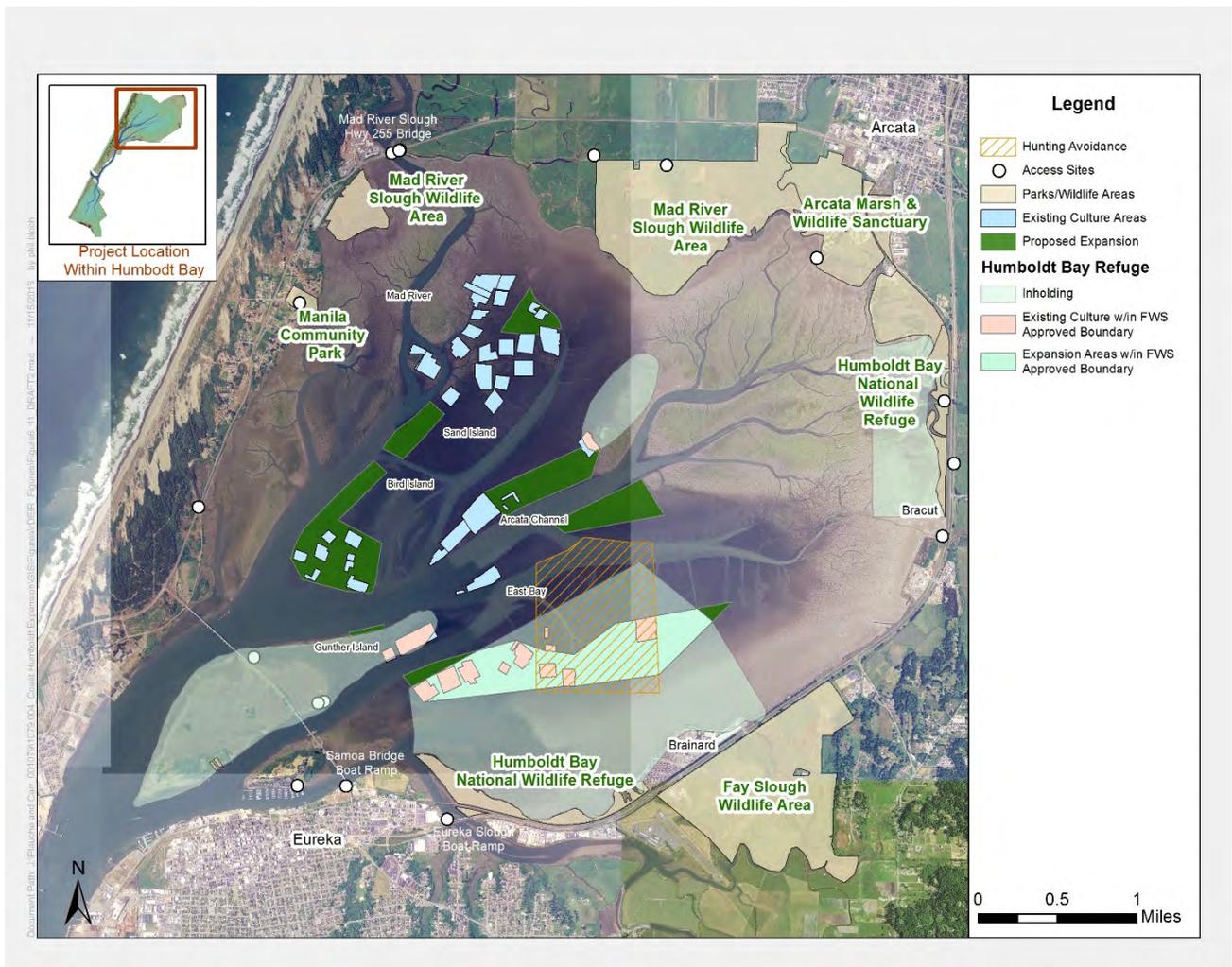


Figure 2.6 Overlap between Project area and identified recreational hunting areas.

Topical Response No 7: Recreational Impacts

Recreation activities in and around North Humboldt Bay include boating, paddling (e.g., kayaks, canoes and stand-up paddle boards), fishing, clamming, birdwatching, and hunting. Pertinent laws and regulations, significance criteria, and potential effects to recreational users of Humboldt Bay are described in R-DEIR § 6.11 (Impacts REC-1 and REC-2). Potential hazards from the abandonment or loss of aquaculture equipment are discussed in R-DEIR § 6.10 (Impact HAZ-2).

Navigation Hazards to Recreational Bay Users

The R-DEIR states that “The increased presence of aquaculture equipment in the bay has the potential to impact recreational users of the water including hunters, kayakers, canoers, and stand-up paddle boarders.” (R-DEIR pg. 6.11-2). The R-DEIR also states that the project’s aquaculture equipment could be located in areas of watercraft (e.g., boats, kayaks) access in intertidal areas. Impact REC-2 discusses potential impacts to recreational boaters and hunters including access in intertidal areas. Numerous commenters noted that increased presence of aquaculture equipment in the bay could also result in safety impacts to recreational users including boat damage, entanglement, and potential physical harm to boaters and hunting dogs.

The increased presence of aquaculture equipment in the bay has the potential to impact watercraft navigation in intertidal areas as discussed in the R-DEIR. Aquaculture infrastructure can occasionally damage boat bottoms or engines and snag watercraft that get caught on longlines. These potential safety impacts are also affected by weather conditions such as fog, low lighting, wind and tidal influences. However, these interactions are likely to be infrequent. As discussed in the R-DEIR (pgs. 6.11-3 and -4):

This [aquaculture] equipment would only affect watercraft when the tides are high enough for small vessels with shallow drafts to move through intertidal areas occupied by culture equipment, but so low that the vessels can’t move readily over the equipment. Given the low elevation of the proposed longline culture equipment, the additional amount of time that vessels would be prevented from accessing the Project site as compared to existing conditions would be minimal. Wide 10-ft (cultch) and 16-ft (basket) spaces between longlines would allow smaller watercraft (e.g., kayaks) to move through shellfish beds when the tide height was adequate for navigation but not for passing over the longlines...

Recreational users will be able to visually identify culture areas by the presence of marker stakes driven into the substrate at the corners of each culture area; these markings are visible at all tidal elevations. Pursuant to Conservation Measure REC-2, Coast will also ensure that recreational and other users have up-to-date information to plan and conduct outings on the bay and navigate through or avoid Coast’s planted plots.

With Coast’s continued practice of marking the corners of each culture area with PVC marker stakes visible at all tidal elevations and compliance with the Conservation Measure REC-2 (culture areas mapping), potential safety impacts to recreational bay users would be less than significant. Therefore, based on the discussion above and the significance criteria outlined in R-DEIR § 6.11.3, impacts to North Bay recreational uses would be less than significant.

Recreational Opportunities

With regards to the availability of recreational opportunities in Humboldt Bay and access within aquaculture areas, the R-DEIR documents the expected small increase in boat traffic related to project activities (Table 4.4) and the increased coverage of aquaculture related infrastructure on intertidal areas in the bay (Impact REC-1 and -2). As described in the R-DEIR (pg. 6.11-2):

Boat-based recreational users could navigate over the lines when tidal height allows and between the widely-spaced longlines when the tide height is not adequate to allow boat passage over the lines (but still adequate for navigation). Boats too big to navigate between lines may be temporarily excluded from culture areas at low tides, however many such boats would likely be excluded from shallow intertidal areas at low tides regardless of the presence of culture equipment.

The R-DEIR also states that “On average, culture in the expansion area will be exposed by falling tides approximately 13% (Phase I) to 18% (Phase II) of any 24-hour period; the total time that watercraft will be excluded from navigating over the lines will be somewhat greater and will primarily depend on the draft of the watercraft in question.” (R-DEIR pg. 6.11-4).

The proposed culture areas would not block any North Bay watercraft navigation routes identified by the USFWS, such as Arcata and Mad River Channels, as shown on the Humboldt Bay Water Trails Map, as shown in Figure 2.7 (USFWS 2016). These areas are located in subtidal channels, where no new shellfish culture plots will be planted pursuant to Conservation Measure BIO-9. The project would also not impede access to existing marinas or boat ramps, and proposed planting locations are located at least 0.5 mile away from the Woodley Island Marina, Eureka Slough Boat Ramp, Arcata Marsh and Wildlife Sanctuary, and Samoa Bridge Boat Ramp. The project location also avoids CDFW public access lands (*see* Figure 2.6), including the Mad River Slough Wildlife Area, which is identified in the HBMP as the most popular area for boating in North Bay (Harbor District 2007). While the project would expand shellfish cultivation within North Bay, there would be ample areas still available for recreational uses, even if recreational users choose to avoid Coast’s proposed planted areas. Watercraft movement in subtidal areas, including in the primary and secondary navigation channels for watercraft, would not be adversely affected. Watercraft operators have defined routes to follow, noted in the Humboldt Bay Water Trails Map and other navigation guides. Therefore, based on the discussion above and the significance criteria outlined in R-DEIR § 6.11.3, the level of significance stated in the R-DEIR related to effects on recreational facilities remains less than significant.



S:\Maps\Humboldt Bay Water Trails Map_2 sided.pdf (print 11x17 in color using HP Pro69180 printer)

Figure 2.7 US FWS Humboldt Bay Water Trails Map.

Topical Response No 8: Shorebird Impacts

Several commenters expressed concern about project impacts to shorebirds and the high value of Humboldt Bay to shorebirds. The high value of Humboldt Bay to migratory shorebirds on the Pacific Flyway is recognized and acknowledged in the R-DEIR (*see* Section 6.5).

The most relevant study assessing whether shorebirds forage in aquaculture longline plots in Humboldt Bay is presented in Connolly and Colwell (2005), as reviewed in the R-DEIR. The study results indicated greater shorebird species diversity on cultch-on-longline oyster plots relative to control tidal flats lacking oyster culture. In addition, five taxonomic groups (willet, whimbrel, dowitchers, small sandpipers and black turnstone) were more abundant on the longline plots than control plots during the study (whereas black-bellied plovers were more abundant on control plots), and the authors speculate that the increased abundance of these shorebirds on longline plots may be related to an increase in foraging opportunity or an increase in prey density or diversity relative to control plots. Connolly and Colwell conclude “Overall, birds did not appear to avoid longline areas compared with adjacent tidal flats. Rather, many species were more abundant and diversity was greater on longline plots.” The Connolly/Colwell study represents the best available science evaluating the specific off-bottom cultivation method proposed by the project.

A study by Kelly et al. (1996) conducted in 1989–1994 in Tomales Bay is also mentioned in comments. Kelly et al. (1996) found decreased abundance on aquaculture plots relative to control plots by two species of shorebirds (western sandpipers and dunlin), increased abundance by another (willet) and no difference in relative abundance between aquaculture and control sites for black-bellied plovers, marbled godwits, sanderlings and least sandpipers. The results in Kelly et al. (1996) from Tomales Bay are not as directly applicable to the project as the Connolly and Colwell (2005) study, because rows of plastic mesh bags (in a mix of two positions: on the ground and elevated on racks) were being used in Tomales Bay, whereas exclusively off-bottom, longline aquaculture will be used in the project (except for a small 4-acre area of rack-and-bag operations). In addition, the National Research Council (NRC 2009) reviewed the Kelly et al. (1996) study in relation to oyster culture in Drakes Estero, California and concluded that that shorebirds would be minimally impacted by continuation of on-bottom culture in the Estero, with “only the obligate probers”, dunlin and western sandpiper, likely to be negatively affected, and that “most species [of shorebirds] remain unaffected and some that forage visually on surface prey may benefit from invertebrates associated with culture bags and epibiotic growth on the bags and oysters.” Notably, western sandpipers and dunlin forage by probing into substrates and may be less suited for feeding on or around on-bottom oyster cultivation methods (as found in Tomales Bay) as compared to the off-bottom methods proposed by the project that would still provide foraging access to the substrate below the lines. Connolly and Colwell (2005) did not report a pattern of lower abundance by dunlin or western sandpipers on longline plots versus control plots. Finally, with respect to human activities associated with aquaculture, Kelly et al. (1996) “observed no movements of shorebirds into or out of plots in response to human activity and the distributions of shorebirds were not significantly related to the presence of oyster workers on aquaculture plots.”

As presented in the R-DEIR, results of recent monitoring efforts in North Bay also suggest that shorebirds readily forage under aquaculture longlines. Wildlife-monitoring cameras were deployed in North Bay to observe bird behavior in existing aquaculture plots (as well as in non-developed areas for comparison) in relation to tide height and aquaculture infrastructure (H. T. Harvey &

Associates 2015). Cameras were deployed in April 2015 such that time-lapse photography could be recorded for approximately three days. One camera was set up to record activity in an area occupied by eelgrass that is proposed for aquaculture expansion. This camera did not capture shorebird activity, because the bed was too low in tidal elevation and water levels were not sufficiently low enough for shorebirds to access the site. In imagery taken by the other camera on a longline plot, shorebirds were observed in large numbers foraging in and adjacent to the aquaculture plots when water levels were low enough for shorebirds to access the site. Although no quantitative assessment of the camera imagery was conducted, shorebird use within and outside of the aquaculture plots (i.e., within view of the camera) appeared to be similar. No behavioral differences in shorebird use within the plot were observed (e.g., shorebirds readily foraged under the lines). Shorebirds were observed first accessing the area when water levels were low enough for shorebirds to stand and forage and they continued to forage until water levels rose to levels that forced them to cease foraging and leave the site. During the recordings, larger marbled godwits would arrive before small species (i.e., small sandpipers [Calidris spp.]), as the smaller birds can only access the sites when fully exposed or in very shallow water. Although the camera imagery represents a small sample size, the recordings confirm the previous findings of Connolly and Colwell (2005) that indicate that, in general, shorebird foraging occurred irrespective of the presence of longlines. Shorebird presence in or out of aquaculture areas was primarily dependent on water levels and access to food resources in shallow water or exposed mudflat.

Several of the comments expressed concern about impacts on shorebird species that are not special-status species and are common, widespread species on the west coast of North America (e.g., black-bellied plover, dunlin and western sandpiper). Although the R-DEIR found no evidence that the project would result in a significant adverse impact on shorebirds (as described above), adverse impacts to such species are generally not considered a significant impact under CEQA, which generally focuses on analyzing potential significant impacts to special-status species, especially those comprising species listed under the Federal Endangered Species Act and the California Endangered Species Act and as California Species of Special Concern (*see* R-DEIR § 6.5.3).

Section 3.0 Responses to Comments

3.1 List of Commenters and Organization of Response to Comments

The table below lists agencies, organizations and individuals that submitted written comments on the R-DEIR. Final EIR Section 2 *Topical Responses* includes responses that address commonly raised topics during that comment period and Section 3 *Response to Comments* provides individual comments with responses immediately following; each comment letter was assigned a number and reproduced with individual comments numbered. For example, the response to the second comment of the first letter would be indicated as Response to Comment 1-2. The response to comments includes one sample of the standard language for the each of the form-based email comments received and the response to each. Form-based emails with modified language and additional comments are listed below and were responded to individually. The original letters and emails are on file at the Harbor District Office.

The focus of the responses to comments is on the disposition of significant environmental issues that are raised in the comments, as required by State CEQA Guidelines § 15088(c). In some instances, R-DEIR text clarifications may be required. In those cases, the R-DEIR text is revised and the changes compiled in FEIR Section 4 *Revisions to the R-DEIR*.

Number	Comment Type	Where From	Author	Date
Agencies				
1.	Comment Letter	State Clearinghouse	Scott Morgan	09/02/16
2.	Comment Letter	Blue Lake Rancheria	Janet Eidsness	09/13/16
3.	Comment Letter	NMFS, California Coastal Office	Alecia Van Atta	09/12/16
4.	Comment Letter	Wiyot Tribe	Ted Hernandez	09/13/16
5.	Comment Letter	Humboldt County Planning and Building	Robert Wall	08/16/16
6.	Comment Letter	Pacific Fishery Management Council	Charles Tracy	08/22/16
			D.O. McIsaac	12/03/15
7.	Comment Letter	Humboldt Bay National Wildlife Refuge, UFWs	Eric Nelson	09/15/16
8.	Comment Letter	California Water Board	Matthias St. John	09/15/16
		California Water Board	Matthias St. John	12/30/15
9.	Comment Letter	CA Dept. of Fish and Wildlife	Craig Shuman	09/16/16 12/31/15 09/23/15 02/27/15 07/11/14
10.	Comment Letter	Dept. of the Army, San Francisco Corps of Engineers	L. Kasey Sirkin	09/16/16
11.	Comment Letter	CA State Lands Commission	Cy R. Oggins	09/16/16
12.	Comment Letter	CA Coastal Commission	Cassidy Teufel	09/16/16
15.	Comment Letter	Bear River Rancheria	Barry Brenard	09/14/16
71.	Comment Email	CA Dept. of Fish and Wildlife	James Ray	09/27/16

Number	Comment Type	Where From	Author	Date
Non-Governmental Organizations				
13.	Comment Letter	Redwood Region Audubon Society	Jim Clark	09/12/16
14.	Comment Letter	Explore North Coast	Sandy Haux	08/22/16
<i>Note: For Comment Letter #15 See under Agencies/ Bear River Rancheria, Barry Brenard</i>				
16.	Comment Letter	Humboldt Baykeeper	Jennifer Kalt	09/16/15
17.	Comment Letter	Audubon California	Anna Weinstein	09/16/16
		Earthjustice	Andrea Treece	09/16/16
		Oceana	Geoff Shester	09/16/16
18.	Comment Letter	California Waterfowl Assoc.	Mark Hennelly	09/16/16
		Tulare Basin Wetlands Assoc.	Dennis Slater	09/16/16
		Suisan Resource Conservation District	Steve Chappell	09/16/16
		Cal-Ore Wetlands and Waterfowl Council	Don Kirby	09/16/16
		Black Brant Group	Ed Miller	09/16/16
19.	Comment Email	National Wild Turkey Federation	Kevin Vella	09/14/16
Individual Commenters				
20.	Petition	Jimmy Smith plus 40 others, some of whom wrote individual letters below		06/17/16
21.	Comment Letter	John Prangley		09/01/16
22.	Comment Letter	Bill Breen		08/27/16
23.	Comment Letter	Dr. Stanley Harris		08/29/16
24.	Comment Letter	David Ward, MS; Jeff Black, Ph.D.		09/08/16
25.	Comment Letter	Edward Macan, Ph.D.		09/12/16
26.	Comment Letter	James Sedinger		09/13/16
27.	Comment Letter	Cliff Feldheim		08/23/16
28.	Comment Letter	Stan Brandenburg		08/24/16
29.	Comment Letter	Dean Glaser		08/24/16
30.	Comment Letter	Allen A. Pierce, Jr.		08/24/16
31.	Comment Letter	Kenny Jameson		08/24/16
32.	Comment Letter	Arthur H. Lange		08/24/16
33.	Comment Letter	Jim Moore		08/24/16
34.	Comment Letter	Kent Barnes		08/24/16
35.	Comment Letter	David J. Orluck		08/24/16
36.	Comment Letter	Mike Flockhart		08/24/16
37.	Comment Letter	Patrick Conaty		08/24/16
38.	Comment Letter	Xou Her		08/24/16
39.	Comment Letter	Kev McClendon		08/24/16
40.	Comment Letter	Allen Terry		08/24/16
41.	Comment Letter	Travis Dortch		08/24/16
42.	Comment Letter	Chao Her		08/24/16
43.	Comment Letter	James Roberts		08/24/16
44.	Comment Letter	Charlotte Holland		08/24/16
45.	Comment Letter	Linda Lange, Wiyot Member		08/24/16
46.	Comment Letter	Janet L. Smith		08/24/16
47.	Comment Letter	Roman Parlich		08/24/15
48.	Comment Letter	Steven Grantham		08/14/16
49.	Comment Email	Jeremy Rasmussen		08/05/16
50.	Comment Letter	Ken Bates		08/15/16
51.	Comment Email	Phil Grunert		08/22/16

Number	Comment Type	Where From	Author	Date
52.	Comment Email	Stephen Rosenberg		08/25/16
53.	Comment Letter	Terry Cook		08/26/16
54.	Comment Email	Aaron Moore		09/14/16
55.	Comment Email	Phil Lantsberger		09/15/16
56.	Comment Letter	Richard A. Todoroff, DVM		09/11/16
57.	Comment Email	Richard F. Schussel		09/15/16
58.	Comment Email	Scott E. Frazer		09/14/16
59.	Comment Email	Casey Ganskie		09/14/16
60.	Comment Email	Fred H. Todd		08/26/16
61.	Comment Email	Ted M. Romo		09/05/16
62.	Comment Email	Daniel Schwartz		09/16/16
63.	Comment Email	Scott McMorrow		09/15/16
64.	Comment Email	Steve Brott		09/15/16
65.	Comment Email	Doug Dahme		09/14/16
66.	Comment Email	Thomas Orgain		09/15/16
67.	Comment Email	Geoff Belyea		09/14/16
68.	Comment Email	Jesse Limas		09/14/16
69.	Comment Email	Juliette Bohn		09/16/16
70.	Comment Letter	Brad Endicott		08/26/16
<i>Note: For Comment Letter #71 See under Agencies/ CA Dept. of Fish & Wildlife, James Ray Email</i>				
Form Letter (email) #1 - Audubon.org - Six Paragraphs				
72.	Comment Email	Heike Lessman (Example of Standard Language)		08/28/16
		Form Letter #1 – Audubon.org – Modified Language		
73.	Comment Email	John Stokes		01/24/16
74.	Comment Email	Judy Lundquist		01/15/16
Form Letter (email) #2 – Audobon.org – One Paragraph				
75.	Comment Email	Michael Sullivan (Example of Standard Language)		09/09/16
		Form Letter #2 – Audubon.org – Modified Language		
76.	Comment Email	Joan Paul & PJ Sullivan		09/09/16
77.	Comment Email	Kristey Harrington		09/09/16
78.	Comment Email	Norma Campbell		09/09/16
79.	Comment Email	Graciela Huth		09/09/16
80.	Comment Email	Michal Lynch		09/09/16
81.	Comment Email	William Mitchel		09/09/16
82.	Comment Email	Neel Siebold		09/09/16
83.	Comment Email	Phyllis Act		09/09/16
84.	Comment Email	Wendy Williams		09/09/16
85.	Comment Email	Ellen Franzen		09/09/16
86.	Comment Email	Cassie Webb		09/09/16
87.	Comment Email	Nancy Higbee		09/09/16
88.	Comment Email	Jane H. Beattie		09/09/16
89.	Comment Email	Beverly Minn		09/09/16
90.	Comment Email	Auna Harris		09/09/16
91.	Comment Email	Patricia Gussler		09/09/16
92.	Comment Email	Judith Kahle		09/09/16
93.	Comment Email	Gail Marshall		09/09/16
94.	Comment Email	Deb & Randy Buckler		09/09/16
95.	Comment Email	Kathy Forrest		09/09/16

Number	Comment Type	Where From	Author	Date
96.	Comment Email	Nancy Miller		09/09/16
97.	Comment Email	John Pasqua		09/09/16
98.	Comment Email	Celia Scott		09/09/16
99.	Comment Email	R. Jane Gagner		09/09/16
100.	Comment Email	R. Eng		09/09/16
101.	Comment Email	Mr. C.S.		09/09/16
102.	Comment Email	Anne Adams		09/09/16
103.	Comment Email	Robin Keister, MS		09/09/16
104.	Comment Email	Greg Cahill		09/09/16
105.	Comment Email	Monica Schwalbenberg-Pena		09/09/16
106.	Comment Email	Frank Kiernan		09/09/16
107.	Comment Email	Pat Marriott		09/09/16
108.	Comment Email	Monica DuClaud		09/09/16
109.	Comment Email	Linda Goetz		09/09/16
110.	Comment Email	Evan Hauge		09/09/16
111.	Comment Email	Melinda Isaacson		09/09/16
112.	Comment Email	Julie Fisher		09/09/16
113.	Comment Email	Janet Lee		09/09/16
114.	Comment Email	Virginia Becchine		09/09/16
115.	Comment Email	Jean Piette		09/09/16
116.	Comment Email	Beatrijs Irena Olender		09/09/16
117.	Comment Email	Donna Nancy		09/10/16
118.	Comment Email	Michelle Turner		09/10/16
119.	Comment Email	Dean Griswold		09/10/16
120.	Comment Email	Liz Taylor		09/10/16
121.	Comment Email	Gayle Spencer		09/10/16
122.	Comment Email	Susan Potluru		09/10/16
123.	Comment Email	Diane Armstrong		09/10/16
124.	Comment Email	Myrna Barth		09/10/16
125.	Comment Email	Jacalyn Booth		09/10/16
126.	Comment Email	Lorinda Smith		09/10/16
127.	Comment Email	Jill Denton		09/10/16
128.	Comment Email	Diane Langejans		09/10/16
129.	Comment Email	Barbara Minneman		09/10/16
130.	Comment Email	Carolyn Moser		09/10/16
131.	Comment Email	April Garbat Vaughan		09/10/16
132.	Comment Email	Richard Nielson		09/10/16
133.	Comment Email	Carolyn Frazee		09/10/16
134.	Comment Email	Thamar Wherrit		09/10/16
135.	Comment Email	Sheila Toner		09/10/16
136.	Comment Email	Channon Doughty		09/10/16
137.	Comment Email	Dr. Lawrence Thompson		09/10/16
138.	Comment Email	Dr. Sally Bianco		09/10/16
139.	Comment Email	Eric Atherton		09/10/16
140.	Comment Email	Dr. Janet Baas		09/10/16
141.	Comment Email	Norbert Beising		09/10/16
142.	Comment Email	Mary Ann Ambrose		09/10/16
143.	Comment Email	Mona Gevarter		09/10/16

Number	Comment Type	Where From	Author	Date
144.	Comment Email	Mr. Apollo Environmental Artist		09/10/16
145.	Comment Email	Veronica Smith		09/10/16
146.	Comment Email	Dr. Kimberly Jannarone		09/10/16
147.	Comment Email	Rachael Denny		09/10/16
148.	Comment Email	Kimberly Paige		09/10/16
149.	Comment Email	Christa Romanowski		09/10/16
150.	Comment Email	Dr Kathlyn Grabenstein		09/10/16
151.	Comment Email	Leslie Swallow		09/10/16
152.	Comment Email	Suzannah Ferron		09/10/16
153.	Comment Email	Freda Salatino		09/10/16
154.	Comment Email	Becky Bowen		09/10/16
155.	Comment Email	Jan Nolte		09/10/16
156.	Comment Email	Deborah Filipelli, PhD		09/13/16
157.	Comment Email	Kevin & Colleen McCoy		09/13/16
158.	Comment Email	Margaret Hunter		09/12/16
159.	Comment Email	Laura Peck		09/12/16
160.	Comment Email	Allen Royer		09/12/16
161.	Comment Email	Denise Louie		09/12/16
162.	Comment Email	Janice Keber		09/12/16
163.	Comment Email	Dr. J.P. Hollenbeck		09/12/16
164.	Comment Email	Linda Morgan		09/12/16
165.	Comment Email	Tashia Spradley		09/12/16
166.	Comment Email	Lane Whitlow		09/12/16
167.	Comment Email	Arlene Bryles		09/12/16
168.	Comment Email	Renee Nelson		09/12/16
169.	Comment Email	Paul Jacobson		09/12/16
170.	Comment Email	Jim Tietz		09/12/16
171.	Comment Email	Jodie Crandell		09/12/16
172.	Comment Email	Naomi Zuckerman		09/12/16
173.	Comment Email	Mark Young		09/12/16
174.	Comment Email	MaryAlice Denson		09/12/16
175.	Comment Email	Elizabeth Morata		09/12/16
176.	Comment Email	Barbara Kelley		09/12/16
177.	Comment Email	Leigh Fonseca		09/12/16
178.	Comment Email	Eric Caine		09/12/16
179.	Comment Email	Ann Schieding		09/12/16
180.	Comment Email	Gina Bilwin		09/11/16
181.	Comment Email	Maryellen McKee		09/11/16
182.	Comment Email	Linda Winkler		09/11/16
183.	Comment Email	Pamela Parsons		09/11/16
184.	Comment Email	Terri Middlemiss		09/11/16
185.	Comment Email	Nancy Berry		09/11/16
186.	Comment Email	Ian Frazer		09/11/16
187.	Comment Email	Diana Thatcher		09/11/16
188.	Comment Email	Josephine Polifroni		09/11/16
189.	Comment Email	Daniel O'Connell		09/11/16
190.	Comment Email	Sandy Kuicinski		09/11/16
191.	Comment Email	Sheila Desmond		09/11/16

Number	Comment Type	Where From	Author	Date
192.	Comment Email	William Schoene		09/11/16
193.	Comment Email	Guildford Windley		09/11/16
194.	Comment Email	Kay Gillis		09/11/16
195.	Comment Email	Cheryl Freeman		09/11/16
196.	Comment Email	Andarin Arvola		09/11/16
197.	Comment Email	Ian Taylor		09/11/16
198.	Comment Email	Ruth Cain		09/11/16
199.	Comment Email	Dr. Caroline Hall		09/11/16
200.	Comment Email	Jim Royer		09/11/16
201.	Comment Email	Joan Herskowitz		09/11/16
202.	Comment Email	Daniel McGinnis		09/13/16
203.	Comment Email	Dorothea A. Petrosky		09/13/16
204.	Comment Email	Libby Maynard		09/13/16
205.	Comment Email	Lucinda Adamson		09/13/16
206.	Comment Email	Don Baccus		09/13/16
207.	Comment Email	Nancy Paradiso		09/13/16
208.	Comment Email	Jerry Fox		09/14/16
209.	Comment Email	Patricia Witman		09/14/16
210.	Comment Email	Kathleen Svien		09/14/16
211.	Comment Email	Martha Longshore		09/14/16
212.	Comment Email	Sandra Andersen		09/14/16
213.	Comment Email	Kathryn Waste		09/14/16
214.	Comment Email	Sally Schwartz		09/14/16
215.	Comment Email	Greg Chapman		09/14/16
216.	Comment Email	Deborah Salizzoni		09/14/16
217.	Comment Email	Alice Howard		09/15/16
218.	Comment Email	Patricia Lotus		09/15/16
219.	Comment Email	Riley McIntire		09/15/16
220.	Comment Email	Tom Leskiw		09/15/16
Form Letter (email) #3 – EveryActionCustom.org – One Paragraph				
221.	Comment Email	S. Silan (Example of Standard Language)		09/19/16
		Form Letter #3 – EveryActionCustom.org - Modified Language		
222.	Comment Email	Richard B. Kramer, Ph.D.		09/16/16
223.	Comment Email	Warren Fries		09/17/16

3.2 Responses to Agency Comments

Comment Letter No. 1

Scott Morgan
Director, State Clearinghouse
Governor's Office of Planning and Research
1400 10th Street /P.O. Box 3044
Sacramento, California 95812-3044

Comment No. 1-1

The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on September 1, 2016, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Response to Comment No. 1-1

The comment notes the close of the public comment period and that the Harbor District has complied with State Clearinghouse review requirements. No further response is necessary.

Comment Letter No. 2

Janet P. Eidsness, M.A., Tribal Heritage Preservation Officer
Blue Lake Rancheria
P.O. Box 428
Blue Lake, CA 95525
(707)668-5101

Comment No. 2-1

The Blue Lake Rancheria, California ("Tribe") is a federally-recognized sovereign nation located within Wiyot ancestral territory, and appreciates the opportunity to comment on the subject RDEIR and understand the importance of oyster mariculture to our local economy. The Tribe does not have the qualified staff or expertise to fully evaluate the biological and environmental potential for significant impacts on near- and long-term integrity and viability of eelgrass beds.

Response to Comment No. 2-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 2-2

The Tribe agrees these beds comprise a tribal cultural landscape and, pursuant to CEQA, qualifies as a Tribal Cultural Resource of significance to the Wiyot Tribe (9/12/16 comments to Crider by Chair Ted Hernandez), as defined by AB 52 (Sec. 4.21074(a)(2)) and the California PRC Article 2, Section 5024.1 (c)(1). The Harbor District, as the lead CEQA agency for this action, rightfully acknowledges the significance of the eelgrass beds in Humboldt Bay as a vital cultural landscape and habitat important to contemporary Wiyot people as a focal and traditional source since time immemorial of various aquatic and avian species used for food, regalia making and other arts (RDEIR 6.4.1).

Response to Comment No. 2-2

The comment agrees with the R-DEIR's recognition of eelgrass as a culturally significant resource for the Wiyot Tribe. No further response is necessary.

Comment No. 2-3

Damage to the eelgrass beds from expansion of oyster mariculture may seriously impact the Wiyot Tribe's ability to engage in traditional subsistence gathering, hunting and fishing, regalia making, and their ability to conduct ceremony. Age-old traditions associated with this Wiyot eelgrass cultural landscape are rooted in the history of the Wiyot people and are central to their on-going cultural identity, supporting the position that it also qualifies for the California and National Registers as a Traditional Cultural Property (National Register Bulletin 38).

Response to Comment No. 2-3

Coast Seafood (Coast) has incorporated mitigation measures to ensure no net loss of eelgrass resources in Humboldt Bay; therefore, the project is not anticipated to result in a significant impact to eelgrass. Coast will also be implementing a monitoring plan to confirm that there is no loss of eelgrass. See Topical Response 2. While the R-DEIR provides that eelgrass is an important cultural resource, it does not appear to meet the qualifications for designation on the National Register as a Traditional Cultural Property. While natural resources can be designated as Traditional Cultural Properties, to qualify as eligible for listing in the National Register, the natural resource must be associated with a specific site or property. See 54 USC § 302706; 36 CFR § 800.4; National Parks Service, U.S. Department of the Interior, *Guidelines for Evaluating and Documenting Traditional Cultural Properties*, National Register Bulletin 38 (1998). While eelgrass, salmon, and other natural resources are recognized as significant and important resources for the Wiyot Tribe and others, the resources themselves do not appear to be eligible for listing in the National Register. The Harbor District and Coast have consulted with the Wiyot Tribe to confirm that its proposed cultivation areas avoid all known sites of tribal cultural significance.

Comment No. 2-4

We urge the Harbor District to continue its compliance with all applicable Executive Orders, laws, and regulations, and continue its government-to-government consultation with the Wiyot Tribe to fully research, analyze, and mitigate potential impacts to the eelgrass beds associated with this Tribal Cultural Landscape from the proposed project. As for potential impacts to Native American

archaeological resources discovered inadvertently during project implementation, we support Mitigation Measures CR-1, CR-2 and CR-3.

Response to Comment No. 2-4

In 2014, the Harbor District and Coast met with the Tribal Historic Preservation Officers for the Wiyot Tribe, Trinidad Rancheria Tribe, and Blue Lake Rancheria Tribe to discuss the project's impacts to Tribal cultural resources. This discussion led to the development and inclusion of R-DEIR Mitigation Measures CR-1 through CR-3. This meeting was followed by another meeting in 2014 with the Wiyot Tribe to confirm that the project's proposed locations were not sited on Tribal culturally significant sites, including sites on Indian Island. The Harbor District and Coast presented the project to the Wiyot Tribal Council three additional times in 2015 and 2016, including seeking to address Tribal comments made in response to the Initial Study and R-DEIR. Coast and the Harbor District will continue to discuss the project with the Wiyot Tribe and attempt to address any remaining concerns. Specifically, Coast has committed to share information from the monitoring plan and adaptive management plan described in Mitigation Measure BIO-1 with the Wiyot Tribe and involve the Wiyot Tribe in any discussions regarding additional actions (if any) that need to be taken under the adaptive management plan to address eelgrass impacts. The Harbor District will continue its government-to-government consultation with the Wiyot Tribe in compliance with applicable Executive Orders, laws, and regulations. Pertinent laws and regulations to manage potentially significant and/or sensitive archaeological and Native American resources are set forth in R-DEIR § 6.4.2.

Impacts to eelgrass as a tribal cultural landscape and other species with tribal cultural significance are discussed in the R-DEIR (*see* Impacts CR-2 and CR-3). Additionally, potential impacts from the placement of oyster longlines in eelgrass are fully discussed in R-DEIR § 6.5, Biological Resources (*see* Impacts BIO-3, BIO-4, and BIO-6). With incorporation of applicable Conservation and Mitigation Measures, these impacts are expected to be less than significant.

The commenter also notes support for that Mitigation Measures CR-1, CR-2 and CR-3, which protect archaeological resources discovered inadvertently during project implementation. All mitigation measures and monitoring will be included in the Mitigation Monitoring and Reporting Program (MMRP).

Comment Letter No. 3

Alecia Van Atta, Assistant Regional Administrator
NOAA, National Marine Fisheries Service, West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

Comment No. 3-1

This letter constitutes NOAA's National Marine Fisheries Service's (NMFS) comments on the Humboldt Bay Harbor, Recreation, and Conservation District's (District) Re-Circulated Draft Environmental Impact Report (R-DEIR) for the proposed Coast Seafoods Company (Coast) Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project) in Humboldt

County, California. Coast proposes to continue operations on 300 acres and expand shellfish aquaculture operations into 622 intertidal acres of Humboldt Bay in two phases.

Response to Comment No. 3-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 3-2

The Project is located within the jurisdiction of the NMFS West Coast Region California Coastal Office, and requires a new U.S. Army Corps of Engineers (Corps) permit. As the lead federal action agency, the Corps must conduct an Endangered Species Act (ESA) Section 7 consultation and a Magnuson-Stevens Fishery Conservation and Management Act (MSA) - Essential Fish Habitat (EFH) consultation with NMFS. For each of these consultations, we will analyze the ongoing effects of Coast's current aquaculture operations as well as those effects anticipated from the proposed expansion. Therefore, we expect Coast will expand their effects analysis to include both the ongoing and future activities in their biological assessment and permit application to the Corps. The R-DEIR and subsequent FEIR are information sources to consider when completing Corps consultation.

Response to Comment No. 3-2

This comment provides information regarding NMFS' jurisdiction and authority over the project and environmental review conducted pursuant to federal statutes and regulations. As this comment does not provide a direct comment on environmental issues or the EIR content or adequacy, no further response is required.

Comment No. 3-3

NMFS is the lead federal agency responsible for the stewardship of the nation's offshore living marine resources and their habitats, and implements the ESA, the MSA, and the Marine Mammal Protection Act (MMPA) to fulfill its mission of promoting healthy ecosystems. Federally-managed living marine resources provide an important source of food and recreation for the nation, as well as thousands of jobs and a traditional way of life for many coastal communities, healthy ocean populations and ecosystems. NMFS also plays a central role in developing and implementing policies that enable marine aquaculture and works to ensure that aquaculture complies with existing federal laws and regulations that NOAA implements under its marine stewardship mission.

Response to Comment No. 3-3

This comment provides information regarding NMFS' jurisdiction and regulatory authority. As this comment does not provide a direct comment on environmental issues or the content or adequacy of the EIR, no further response is required.

Comment No. 3-4

NOAA's aquaculture goals and objectives as outlined in both the Department of Commerce and NOAA's National Marine Aquaculture policies issued in June 2011, encourage and foster development of sustainable marine aquaculture in the context of NOAA's multiple stewardship missions, and social and economic goals. Also in June 2011, NOAA issued a National Shellfish Initiative to further the goal of increasing populations of bivalve shellfish in our nation's coastal waters through sustainable commercial production and native shellfish restoration activities. NOAA recognizes the broad suite of economic, social, and environmental benefits potentially provided by shellfish, including jobs and business opportunities; meeting the growing demand for seafood; habitat for important commercial, recreational, and endangered and threatened species; species recovery; cleaner water and nutrient removal; and shoreline protection.

We reviewed the sections of the R-DEIR that pertain to our trust resources and identified several fundamental issues that require further explanation or revision before we can support the District's conclusions.

Response to Comment No. 3-4

The comment notes NOAA's aquaculture goals and objectives and the overall benefits of shellfish cultivation. No further response is required.

Comment No. 3-5

While we recognize Coast's primary objective is to increase aquaculture production within their lease area, and appreciate the new preferred alternative has made significant progress in avoiding areas of continuous eelgrass, the R-DEIR lacks alternatives that avoid eelgrass to the maximum extent practicable (with the exception of Alternative 4: the no project alternative). As per NMFS' California Eelgrass Mitigation Policy (CEMP), we recommend compensatory mitigation for the loss of existing eelgrass habitat function only after avoidance and minimization of effects to eelgrass are pursued to the maximum extent practicable. As such, we encourage the District to consider additional alternatives that further avoid and minimize impacts to eelgrass. We believe this is particularly important because the projected loss of eelgrass reported in the R-DEIR is likely a substantial underestimate, especially considering the R-DEIR did not consider the continued suppression of eelgrass from the existing 300-acres of culture.

Response to Comment No. 3-5

“The range of alternatives required in an EIR is governed by a ‘rule of reason’ that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.” CEQA Guidelines § 15126.6(f). The EIR must only examine in detail the alternatives that could feasibly attain most of the basic objectives of the project. *Id.* An eelgrass avoidance alternative was analyzed in R-DEIR § 5.2.1; however, this alternative was rejected as infeasible, noting “Restricting Coast’s expansion to areas within its owned and leased areas that are without existing eelgrass, combined with the difficulty in producing market-quality oysters at higher tidal elevations, would severely limit Coast’s ability to increase its production of shellfish in Humboldt Bay.” The R-DEIR also considered a

reduced density alternative that reduced the expansion acreage in eelgrass (*see* R-DEIR § 5.3.2). *See* Topical Response 5 for additional discussion of the eelgrass avoidance alternative.

However, in response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the East Bay Management Area ("EBMA") and further reduces Coast's proposed footprint within eelgrass as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 3-6

Our most significant concerns pertain to the lack of proposed mitigation and the assumptions made in the eelgrass impact analysis. Overall, we found the analysis relied heavily on one study (Rumrill and Poulton 2004), which likely led to a substantial underestimate of the potential impact to eelgrass, as evidenced by personal communications with Dr. Rumrill (Rumrill, personal communication, 2015). NMFS believes that the continued presence and installation of several hundred acres of longlines within and adjacent to eelgrass habitat does not result in a neutral effect to eelgrass. Installing longlines within and adjacent to current eelgrass habitat will have an effect on the biomass, shoot density, and aerial extent of eelgrass. We strongly recommend Coast reevaluate their approach used for Phase 2 of the project that relies on a neutral effect to eelgrass during Phase I of the project, which NMFS believes is not possible. Other issues we found within the analysis include:

Response to Comment No. 3-6

The 2015 personal communication with Rumrill referenced by NMFS was based on Dr. Rumrill's original data from the Rumrill and Poulton (2004) study, and thus does not represent another source of data related to potential reduction of eelgrass density associated with longline aquaculture. The Rumrill and Poulton (2004) study is relied upon because it is the most relevant scientific study for the project. It occurred in the same location (e.g., North Bay) and measured the effects of the same culture methods proposed by Coast. Confluence had multiple meetings with Dr. Rumrill to discuss this data, how the data were being used in the eelgrass analyses, and the conclusions presented in the R-DEIR. Dr. Rumrill has reviewed the analysis and expressed support for both the analyses and conclusion presented. In addition, the way in which eelgrass density loss was analyzed is consistent with results reported in other peer reviewed scientific studies related to longline aquaculture, including Tallis et al. (2009) and Wisheart et al. (2007). A detailed comparison of the eelgrass analysis for the project and these other data sources was provided in R-DEIR Appendix D. This information was then summarized and incorporated into Impact BIO-3 in R-DEIR § 6.5.4. For additional discussion of the project's eelgrass impacts and the Rumrill and Poulton study, *see* Topical Response 2.

The R-DEIR analysis is further supported by a recent programmatic biological opinion (PBO) released by NMFS (2016a) for shellfish aquaculture in Washington State, in which 10-ft spacing of longline culture (including flip bag/basket culture) is identified as the only culture method that can be used in fallow culture areas with listed salmon species where eelgrass has recolonized (over 2,700 acres in Washington State) without any required mitigation.

Comment No. 3-7

The R-DEIR failed to analyze effects to eelgrass from Coast's current operations in Humboldt Bay. The eelgrass density reduction analysis relies on impact scenarios to predict the range of impacts to eelgrass density. The revised eelgrass impact analysis identifies a total maximum of 4.7 to 35.9 acres of eelgrass that would be impacted in the 210-acre Phase 1 expansion area; however, the analysis does not consider the current operations despite ongoing impacts to eelgrass from existing culture. Therefore, the eelgrass density reduction analysis should incorporate the 296-acres of existing shellfish culture to more accurately capture ongoing impacts in addition to anticipated future impacts.

Response to Comment No. 3-7

See Topical Response 1 regarding evaluation of Coast's existing operations under CEQA.

Comment No. 3-8

The R-DEIR proposes to convert 100-acres of its existing footprint from 2.5-ft spaced, single-hung cultch on-longline to 10-ft spaced, double-hung cultch-on-longline to mitigate for impacts to eelgrass from the Phase 1 expansion. According to Coast's analysis, Phase I of the re-designed project is calculated to result in a net neutral or potentially beneficial overall impact to eelgrass density. For example, the mitigation lift is predicted to range from 6 to 36.8 acres of new eelgrass depending on the impact scenario. While the conversion of existing operations from 2.5-ft spacing to 10-ft spacing results in a calculated net neutral or potentially beneficial impact to eelgrass density for the Phase 1 expansion, the R-DEIR fails to consider or offer mitigation for the current operations on 296 acres. Therefore, NMFS believes that the continued suppression of eelgrass and effects associated with existing culture requires additional mitigation in order to be permitted in the future.

Response to Comment No. 3-8

See Topical Response 1 regarding mitigation of impacts associated with Coast's existing operations.

Comment No. 3-9

The R-DEIR does not adequately address effects to federally listed species (green sturgeon, Chinook salmon, coho salmon, and steelhead) and their designated critical habitat and does not incorporate information provided by NMFS. More thorough analyses would likely reveal the need for further conservation measures to reduce the negative effects of the project to listed species.

Response to Comment No. 3-9

The R-DEIR includes an analysis of federally listed species, including the species mentioned in the comment. *See* R-DEIR § 6.5 and responses to Comments 3-10 through 3-13 for additional discussion of these issues.

Comment No. 3-10

The District should evaluate potential harm, injuries, and stranding potential for individual green sturgeon caused by encounters or entanglement with suspended longlines and sharp oyster cultch adjacent to areas known to be frequently occupied by green sturgeon. Dense line spacing (2.5ft longline spacing) creates a high likelihood for harm, entanglement, and stranding as sturgeon are known to become stranded on mudflats even in the absence of longlines (Dumbauld et al. 2008). The statement in the R-DEIR that " ... green sturgeon do not typically frequent shallow habitat where shellfish aquaculture is located" is not supported by the available scientific literature.

Numerous publications and personal observations document green sturgeon use of shallow areas, as well as areas with shellfish aquaculture (Patten and Norelius 2016; Moser et al. in press; Pinnix, personal communication, 2016; Dumbauld et al. 2008; Kelly et al. 2007). NMFS designated critical habitat for green sturgeon in 2009 (74 FR 52300), which includes a primary constituent element, or physical biological feature (PBF), of estuary critical habitat to be 'water depth'. The 'water depth' PBF indicates that a diversity of depths is important to support different life stages and habitat uses for green sturgeon within estuarine areas. Subadult and adult green sturgeon occupy a diversity of depths within bays and estuaries for feeding and migration (74 FR 52300). Tagged adults and subadults within the San Francisco Bay estuary primarily occupy waters over shallow depths of less than 10 m, either swimming near the surface or foraging along the bottom (Kelly et al. 2007).

Response to Comment No. 3-10

Long lines are installed on approximately 300 acres of existing habitat in Humboldt Bay and hundreds of additional acres in other areas with green sturgeon presence. To date, no strandings of green sturgeon are known to have occurred that have been associated with longline culture. Use of Dumbauld et al. (2008) to suggest a risk associated with longlines is inappropriate in this context and the author does not agree that oyster culture causes strandings. In an email exchange with the study author, Brett Dumbauld, he stated:

So these observations would have occurred on ground cultured beds before long-lines were ever used and we put this anecdotal information in the discussion to simply indicate that sturgeon were more abundant historically. There was certainly no reference to whether aquaculture would have somehow influenced stranding behavior in these anecdotes and it seems highly unlikely to me that it would. I've witnessed intertidal salmon and dogfish strandings, but again not associated with culture per se and very rare in my time on Willapa. We also often had large holes in our small research gillnets that I attributed to sturgeon, but never caught or witnessed any of these fish so who knows what made them. (Dumbauld, pers. comm., 2016)

The sentence quoted from the R-DEIR in the above comment does not reflect the entirety of the impact analysis. The R-DEIR did not indicate that green sturgeon would not use shallow habitat, only that they do not typically frequent these areas, especially when eelgrass is present. The Patten and Norelius (2016) study cited in the comment is discussed in the R-DEIR, which agrees that sturgeon occasionally use shallow areas and that sturgeon feed within longline aquaculture areas. *See* R-DEIR Figure 6.5.21.

While sturgeon use of oyster longlines with high shrimp densities was not reported as frequently as use of mudflats with high shrimp densities, sturgeon can feed within longline habitat. The R-DEIR

concludes that sturgeon will make foraging excursions into shallow habitat, and oyster longlines spaced 10 ft apart do not impact use of that habitat for foraging.

The cited information from Kelly et al. (2007) from San Francisco Bay is only part of the understanding about green sturgeon habitat use provided in this publication. This study also reported that sturgeon spent the most time at a mean depth of 5.3 m (17.4 ft) during directional movements (e.g., migration), which is notably outside of the depth typically used for shellfish aquaculture. When fish were at shallow depths (2-3m [6.6-9.8 ft.]), where they could be slightly exposed, it was typically for short periods of time (<30 minutes). Non-directional movements (e.g., foraging) were typically located at depths of 8 m to 12 m (26.3-39.4 ft), which is well outside of the depths used for oyster aquaculture. Green sturgeon were not recorded shallower than a depth of 1.7 m (5.6 ft), which indicates that while fish make occasional excursions into oyster culture areas, they do not appear to frequent these locations.

Comment No. 3-11

The critical habitat designation for green sturgeon also identifies a PBF for 'migratory pathway', which indicates that: "Within bays and estuaries outside of the Delta and the Suisun, San Pablo, and San Francisco bays, unimpeded passage is necessary for adult and subadult green sturgeon to access feeding areas, holding areas, and thermal refugia, and to ensure passage back out into the ocean. " The analyses provided in the R-DEIR lacks detail on the implications of adding several hundred acres of longlines and structured area to the ability of green sturgeon to feed and access thermal refugia.

Response to Comment No. 3-11

The requested analysis is contained in the R-DEIR. This was the primary discussion presented in both Impact BIO-2 (Amount of gear to be installed and changes to unstructured habitat from the addition of shellfish aquaculture gear) and Impact BIO-18 (Potential impacts to sturgeon from the expansion of oyster aquaculture in Humboldt Bay).

The relevant points discussed in the R-DEIR include: (1) the amount of gear added to unstructured habitat is a small portion of the unstructured habitat present in North Bay (0.7%) and (2) the majority of gear being added is to habitat that is already considered structured habitat (eelgrass), which therefore is not expected to substantially change sturgeon use of that habitat. Most importantly, adding oyster longlines at 10-ft spacing was not seen as an impact to the deeper areas of North Bay used for migration or use of shallow habitats occasionally used for foraging, as further discussed in response to Comment 3-10 above. The R-DEIR conclusions are confirmed by other researchers that have experience with both use of estuaries by green sturgeon and longline aquaculture (Pinnix, pers. comm., 2015, Patten, pers. comm., 2016).

Comment No. 3-12

The R-DEIR suggests that green sturgeon will avoid structured habitat, but there is no analyses of habitat lost to green sturgeon resulting from structured habitat (shellfish aquaculture) in Humboldt Bay. The existing and expanded project (-900-acres) represent a significant loss of habitat for green sturgeon if the assertion made the R-DEIR is valid regarding sturgeon avoidance of structured habitat. The existing and expanded project either represents a significant loss of habitat for green

sturgeon, or represents an increased likelihood of harm, injury, or mortality due to contact or entanglement with longline gear depending on whether sturgeon will avoid or utilize these areas.

Response to Comment No. 3-12

The comment provides no data or information that longline aquaculture will result in loss of habitat for green sturgeon. As stated in response to Comment 3-11, avoidance of structured habitat is based on information regarding lower use of structured eelgrass habitat. Adding longlines to eelgrass habitat represents a similar structured habitat rather than a change in habitat type. Therefore, longlines within the already structured eelgrass habitat is not likely to alter this predicted avoidance and therefore does not represent a loss. This conclusion is further supported by the programmatic biological opinion issued by NMFS (2016a) for shellfish aquaculture in Washington State. The biological opinion found that shellfish longline activities in areas of green sturgeon critical habitat in Washington State would have no discernable effect on green sturgeon population or productivity. The biological opinion found that green sturgeon are "strong swimmers that can use a variety of habitats in the estuarine environment." The only change to culture methods recommended by NMFS (2016a) was limiting mechanical dredge harvesting of shellfish to approximately 21,000 acres. The scope of aquaculture activity evaluated in the Washington State PBO is over 21 times the footprint proposed for Coast's project, which does not include mechanical harvesting. The biological opinion did not identify any increased likelihood of harm, injury, or mortality to green sturgeon or loss of critical habitat due to contact or entanglement with longline gear. The fact that green sturgeon are strong swimmers was also used in a recent biological opinion for Humboldt Bay to support that green sturgeon were likely to avoid harm, injury, or mortality from channel maintenance dredging activities by the Corps over a 2-month period (NMFS 2016b).

Comment No. 3-13

Salmonids. Reductions in the biomass of eelgrass in the project area are likely to reduce the quantity, quality, and spatial extent of floating eelgrass cover available to salmonids as they out migrate from Humboldt Bay and into the open ocean. Oyster longlines also create a sieve affect where floating eelgrass is detained on longlines in North Bay, rather than being allowed to drift freely throughout Humboldt Bay and into the open ocean where it provides both cover and prey resources for juvenile salmonids and many other species. Pinnix (2005, 2016) found most juvenile salmonids in Humboldt Bay were associated with floating eelgrass cover, likely relying on this cover to provide protection from predators while they transition into the marine environment. Reducing the biomass and spatial distribution of floating eelgrass throughout Humboldt Bay and the open ocean likely presents negative effects to many species, including all federally listed salmonids. The District should evaluate and mitigate for these effects. The R-DEIR did not adequately evaluate the presence of adult Chinook salmon in Humboldt Bay, despite recent communications with NMFS regarding the presence of Chinook salmon adults throughout the summer. Adult salmon also rely on the floating cover provided by eelgrass to access prey often found associated with this habitat feature.

Response to Comment No. 3-13

Reduction in eelgrass biomass from the addition of longline culture may contribute to minor reductions of floating rafts and wrack. The presence of longlines could affect the movement of floating materials and cause some material to become entangled in lines or transition from floating

to submerged detached eelgrass. It is important to note that the longlines would represent a “sieve” only during the limited portion of the tidal cycle where longlines interact with the surface water layer. That occurs during a small fraction of the day when tides are low enough to expose the longlines. Additionally, it is anticipated that most eelgrass material will only be detained temporarily and will continue to travel to the areas where material is either concentrated into rafts by surface currents or becomes a component of beach wrack. Eelgrass that remains entangled in the lines will contribute to food resources and detritus in that location. In terms of the overall overlap with actual gear, these locations represent approximately 1.9% of eelgrass in Humboldt Bay (72 acres out of 3,818 acres), which includes 100 acres of Coast’s existing culture area converted from a 2.5-ft to a 10-ft spacing. There are also a number of significant controlling variables independent of the project that determine the quantity, quality, and spatial extent of floating eelgrass cover, including seasonal eelgrass abundance as well as wave and storm events during tidal stages which expose eelgrass to erosive forces.

The citations referenced in the comment (Pinnix et al. 2005, 2016) do not relate to salmonid use of eelgrass floating mats. The Pinnix et al. 2005 study did not capture any salmonids throughout the entire study period. Pinnix (2016) is referenced as a personal communication addressing green sturgeon. The comment most closely relates to data presented in Pinnix et al. (2013) which provides that, “Coho salmon smolts, as observed from mobile tracking, used deep channels and channel margins more often than floating eelgrass mats, pilings, and docks.” The study goes on to state that “the importance of eelgrass to coho salmon smolts is not entirely apparent from our study.” In addition, the Pinnix et al. (2013) study provides the percentage of observations of juvenile coho salmon in each habitat (Table 3.1, provided below), of which eelgrass floating mats represent 9% of the observations in 2007 and 2% in 2008. Together, this information does not indicate that most juvenile salmonids in Humboldt Bay were associated with floating eelgrass cover, or even substantial use by coho salmon, for which the study reported data. These observations were confirmed directly with Pinnix (pers. comm., 2015) when the author reviewed the language from the original DEIR to verify that his data were reported correctly.

Habitat Type	2007	2008
deep channels	60%	72%
channel margins	30%	26%
floating eelgrass mats	9%	2%
pilings/docks	1%	0%

Table 3.1 Table 3 from the Pinnix et al. (2013) study reporting on the percentage of time coho salmon spent in different habitat types within the Humboldt Bay drainage in 2007 and 2008. Data used is from active tracking of tagged fish and represents percent of detections in the different habitats.

Further, the claim that floating eelgrass cover is a limiting factor or its reduction a mechanism of effect for salmonids, or that floating eelgrass is necessary for predator protection, is not scientifically supported. The ephemeral nature, seasonally driven abundance, limited spatial extent, and cited data on observed use of floating eelgrass mats all undermine the statement that salmonids rely on this habitat in any more than an opportunistic fashion. Finally, it is not an effect that was identified in the NMFS (2016a) comprehensive biological opinion analyzing effects of shellfish aquaculture on salmonids, which describes in detail various interactions between aquaculture, eelgrass, and

salmonids; or any other known scientific study of evaluating the interactions between shellfish aquaculture and salmonids.

The observations that adult Chinook salmon occur in Humboldt Bay throughout the summer appear to be based on anecdotal observations with no indication of whether these fish were wild or hatchery-origin. There does not appear to be any data to indicate that this was a standard scientifically accepted trend in salmonid migration timing, that the observed fish were from the ESA-listed stock rather than hatchery-origin fish, or that this observation represented a majority of the Chinook population present in Humboldt Bay. The information presented in the R-DEIR was based on published literature and status reports for the species, and represents the timeframe in which salmon primarily occur in Humboldt Bay.

Comments on Chinook salmon timing in Humboldt Bay have been incorporated into the Final EIR. See FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 3-14

Provided the concerns expressed in this letter are addressed, the Project has the potential to be responsive to NOAA's aquaculture policy and initiative goals and may further NOAA's efforts to maintain and protect healthy and productive marine ecosystems, while balancing competing uses of the marine environment. Please contact Mr. Matt Goldsworthy at (707) 825-1621, or via e-mail at Matt.Goldsworthy@noaa.gov if you have any questions concerning these comments.

Response to Comment No. 3-14

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 4

Ted Hernandez, Tribal Chairman
Wiyot Tribe
1000 Wiyot Drive
Loleta, California 95551

Comment No. 4-1

The Wiyot Tribe has been the stewards and caretakers of Humboldt Bay since time immemorial. The Bay is an essential part of the tribe, and this is recognized in the Humboldt Harbor Historical District's designation as a California Historical Landmark (Ref. 882) and is listed in the California Register of Historical Places. Therefore, the Wiyot Tribe recognizes your incorporation of our concerns in our letter dated December 31, 2015. This letter was in response to the first Draft Environmental Impact Report (DEIR) for Coast Seafoods Company's proposed Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project in Humboldt Bay, California. The

Wiyot Tribe recognizes the importance of oyster mariculture to both the economy and environment of the Humboldt Bay area.

Response to Comment No. 4-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 4-2

The Recirculated Draft Environmental Impact Report, dated July 2016, continues to have potential cultural impact. For that reason, we thank Coast Seafoods for taking the time to visit with the Wiyot Tribal Council and staff to continue to address our concerns with the project.

As we have previously noted, it is the opinion of the Wiyot Tribe that the eelgrass beds should be defined as a cultural landscape as defined by AB 52 (Section 4.21074(a) (2)) and the California Public Resource Code (Article 2 Section 5024.1(c)(1)). We recognize that the recirculated draft concurs with our view that eelgrass beds are important cultural resources. As previously mentioned, The Wiyot Tribe has used Humboldt Bay for ceremony, gathering and subsistence since time immemorial. The eelgrass beds themselves support species that are important for subsistence, such as black brant, Dungeness crab, as well as other avian and aquatic species. In addition, many species provide materials such as feather, shell, and skins that were used for regalia making and other traditional arts.

Response to Comment No. 4-2

The comment agrees with the R-DEIR's recognition of eelgrass as a culturally significant resource for the Wiyot Tribe. The R-DEIR agrees with the comment that eelgrass is an important resource for the Wiyot Tribe, as well as black brant, Dungeness crab, and other species. The Harbor District and Coast will continue to consult with the Wiyot Tribe concerning the proposed project and potential impacts to Tribal cultural resources.

Comment No. 4-3

In other words, any damage to the eelgrass beds would seriously impact the Tribe's ability to engage in traditional subsistence hunting and fishing, as well as have a considerable impact on regalia making, and thus our ability to conduct ceremony. This would be damaging to the historical relationship the Tribe has had with the bay, and thus damage the overall historical and cultural heritage of the Tribe.

Response to Comment No. 4-3

The Harbor District has incorporated mitigation measures to ensure no net loss of eelgrass resources in Humboldt Bay; therefore, the project is not anticipated to result in a significant impact to eelgrass. Coast will also be implementing a monitoring plan to confirm that there is no loss of

eelgrass. *See* Topical Response 2. Therefore, the project is not anticipated to adversely impact the Tribe's utilization of eelgrass as a cultural resource.

Comment No. 4-4

For these reasons, we are heartened that you included a full consideration of tribal cultural resources as required under AB 52 in this most recent draft. However, until the studies associated with this project fully consider Tribal use of the eelgrass beds, the Wiyot Tribal Council feels that it is impossible to make a determination that the project would have a less than significant impact. Therefore, we cannot support full implementation of this project. Once the full impact of increased oyster farming on cultural use is determined, we would be better able to determine how further expansion of the commercial oysterbeds might be achieved. We urge you to continue your consultation with the Tribe so that the cultural associations of the Tribe with the eelgrass beds can receive full consideration and proper mitigation in your final review.

Response to Comment No. 4-4

In 2014, the Harbor District and Coast met with the Tribal Historic Preservation Officer for the Wiyot Tribe to discuss the project's impacts to Tribal cultural resources. This discussion led to the development and inclusion of R-DEIR Mitigation Measures CR-1 through CR-3. This meeting was followed by another meeting in 2014 with the Tribe to confirm that the project's proposed locations were not sited on Tribal culturally significant sites, including sites on Indian Island. The Harbor District and Coast presented the project to the Wiyot Tribal Council three additional times in 2015 and 2016, including seeking to address Tribal comments made in response to the Initial Study and DEIR. To the extent that Tribal uses of eelgrass beds have been communicated to Coast and/or the Harbor District, a description of those activities has been included in R-DEIR § 6.4.1.

From a landscape perspective, eelgrass is the dominant habitat of North Bay (38.6%) and although most of the proposed expansion areas overlap eelgrass habitat, "there is no predicted net change to eelgrass areal extent under the proposed Project" (R-DEIR pg. 6.5-122). Additionally, the project would not exclude Tribal use of eelgrass beds and the other species they support. Therefore, the project is not anticipated to reduce Tribal access to eelgrass resources for use in cultural practices.

As described in R-DEIR § 6.5, the goal of the project is to comply with the "no net loss" of ecological function standard described in the CEMP. Pursuant to this goal, the project proposes to use in-kind mitigation to potential eelgrass impacts under the Phase I expansion. Based on the analysis presented in Impact BIO-3 and Mitigation Measure BIO-1, the potential reduction in eelgrass density that occurs from the Phase I expansion would be balanced by increasing the line spacing within 100 acres of Coast's existing culture plots. The project will also include a robust monitoring plan, which evaluates areal and density changes from the proposed project as compared to natural variability. If the monitoring shows a higher level of impact than accounted for in the proposed mitigation, additional mitigation will be provided. Further, if the monitoring does not show that longlines spaced 10-ft apart can result in a neutral impact to eelgrass, then mitigation will be provided prior to starting the cultivation described in Phase II. Given all of these precautions, it is anticipated that the project will result in no net loss of ecological function for Humboldt Bay. This does not account for the potential beneficial aspects of shellfish aquaculture to ecosystem functions that are widely reported in the literature, including improvements to water quality,

increased prey resources, and habitat structure provided by the oysters and culture gear. *See* Topical Response 2 for additional detail regarding eelgrass impacts. Because the project is not anticipated to result in any overall losses to eelgrass, which will be confirmed by monitoring, it is not anticipated to negatively affect the Wiyot Tribe's cultural use of eelgrass in Humboldt Bay.

Coast and the Harbor District will continue to discuss the project with the Wiyot Tribe and attempt to address any concerns. Specifically, Coast has committed to share information from the monitoring plan and adaptive management plan with the Wiyot Tribe and involve the Wiyot Tribe in any discussions regarding additional actions (if any) that need to be taken under the adaptive management plan to address eelgrass impacts. Similarly, the Harbor District will continue its government-to-government consultation with the Wiyot Tribe in compliance with applicable Executive Orders, laws, and regulations. Pertinent laws and regulations to manage potentially significant and/or sensitive archaeological and Native American resources are set forth in R-DEIR Section 6.4.2.

Comment No. 4-5

Despite our overall concerns with the project, the Wiyot Tribe supports mitigation measures CR- 1, CR-2, and CR-3 to protect archaeological resources that might be uncovered by this project.

Response to Comment No. 4-5

The comment supports the inclusion of R-DEIR Mitigation Measures CR-1 through CR-3. No further response is required.

Comment No. 4-6

We thank you for your consideration of this matter. The ongoing relationship that the Tribe has with the native habitats of Humboldt Bay is essential to the ongoing cultural heritage of the Wiyot people. We appreciate the opportunity to comment on this proposed project submitted by Coast Seafoods. My staff and I are available if you have any concerns or questions.

Response to Comment No. 4-6

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 5

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Comment No. 5-1

The Humboldt County Planning Division has reviewed the Recirculated Draft Environmental Impact Report (RDEIR) that describes the potential impacts of the Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project). We have also reviewed comments from the various resource agencies on the Initial Study, Notice of Preparation, and DEIR, including the California Department of Fish and Wildlife (CDFW), California Coastal Commission, North Coast Regional Water Quality Control Board, Humboldt State University Professors, and waterfowl hunters. We are concerned the RDEIR again does not fully avoid, minimize and mitigate impacts of the Project as proposed, especially impacts to protected wetland habitats, migrating shorebirds, waterfowl and recreational users.

Response to Comment No. 5-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 5-2

We are particularly concerned that the size and scale of the Project will significantly impact ecological as well as economically important components of north Humboldt Bay. Given the number of acres and the layout of the Project, we are concerned the Project will reduce the carrying capacity of the habitat essential for recreational and commercial fisheries such as Dungeness crab and Chinook salmon. In addition, the layout of the proposed Project includes areas covered in aquaculture gear spread out over 41 acres that would otherwise be available as habitat and as areas for recreational uses such as waterfowl hunting, bird watching, kayaking, fishing, boating and sailing.

Response to Comment No. 5-2

The R-DEIR analyzes and describes potential effects to salmonids, and concludes that the project will have a less than significant impact to salmon. *See* Impact BIO-19. This conclusion is consistent with a recent PBO for shellfish aquaculture in Washington State which also addresses similar activities proposed for approximately 37,000 acres of activity (NMFS 2016a). That PBO analyzed longline culture for potential effects and found that it is not likely to adversely affect listed salmonids, including Chinook salmon. The R-DEIR also reviews impacts to Dungeness crab, concluding that impacts will be less than significant. *See* Impact BIO-16. A review of the potential effects of aquaculture to the estuarine environment by Dumbauld et al. (2009) notes shellfish aquaculture is associated with improved productivity of juvenile Dungeness crabs, although larger crabs preferentially use and move across unstructured habitats that lack features like eelgrass or aquaculture gear. Increased use of longline areas by juvenile Dungeness crab compared to adjacent eelgrass habitat in Humboldt Bay also appears to be an initial conclusion by the S-K Grant (S-K Grant 15WCR025) effort conducted in 2016 in Humboldt Bay (Hudson 2016). The R-DEIR also analyzes the project's impacts to the ecological carrying capacity of Humboldt Bay, and concludes that the project will have a less than significant impact. *See* Impact BIO-9.

Regarding recreational impacts, while it is true that the proposed expansion includes a total of 622 acres of oyster plots, aquaculture gear would be present on only a fraction of that area. 10-ft spaced longlines cover approximately 5% of the plot footprint and represents a very small percentage of the overall area within North Bay available for recreational uses. The expansion area would not exclude other recreational uses. As further described in R-DEIR § 6.11 and Topical Response 7, all of the activities described in the comment can be supported in concert with shellfish aquaculture operations, with the exception of fairly limited times when specific areas are being planted/harvested during the 18- to 36-month culture cycle. There is no data to suggest that shellfish culture activities would significantly inhibit recreational or commercial opportunities in Humboldt Bay. Coast will limit work in portions of the EBMA during early morning and daylight hours on designated days during brant hunting season (Hunting Avoidance Area) to both support waterfowl hunting and the safety of the shellfish employees. This would result in a restriction on Wednesdays, Saturdays, and Sundays between mid-November and mid-December. *See* Conservation Measure REC-1.

Comment No. 5-3

In addition, Resource Agencies, such as CDFW, have repeatedly requested the Project be reduced in scale and modified to incorporate buffers between new development and sensitive habitats such as eelgrass beds. Moreover, given the extensive comments received from waterfowl hunters regarding the Project, we are concerned additional aquaculture gear will further impact our unique and economically important scull brant hunting community.

Response to Comment No. 5-3

The comment requests that the project be reduced in scale. The R-EIR has considered this alternative through including a reduced footprint alternative. *See* R-DEIR Section 5.3.2. In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA and further reduces Coast's proposed footprint within eelgrass as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

The comment also requests the inclusion of eelgrass buffers recommended by CDFW. The CDFW buffer is a recommended buffer for leases managed by the California Fish and Game Commission; it is not a regulatory restriction and the Harbor District is not required to implement the recommended buffer. Further, CDFW's recommendation makes no distinction between different types of shellfish cultivation techniques, which can have significantly different impacts on eelgrass and other aquatic resources. While Coast has included Conservation Measure BIO-4, which requires rack-and-bag culture plots to incorporate a 25-ft buffer from existing eelgrass beds, appropriately spaced longline culture has significantly different impacts to eelgrass. *See* Topical Response 2. This distinction is recognized in the CEMP, which acknowledges that appropriately spaced shellfish longlines may not require mitigation for eelgrass losses (NMFS 2014). Further, both the U.S. Army Corps of Engineers and NMFS have concluded that longlines spaced 10-ft apart may be placed in fallow aquaculture areas in Washington State without further mitigation or buffer requirements (Corps 2015; NMFS 2016a). Given the extensive analysis in the R-DEIR regarding the impacts of the specific culture proposed cultivation methods on eelgrass and recognition from other regulatory

agencies that appropriately-spaced shellfish longlines do not have an adverse impact to eelgrass, incorporation of CDFW's general eelgrass buffer is unwarranted. *See* Topical Response 6 for additional discussion of hunting impacts.

Comment No. 5-4

We recommend that comments from Resource Agencies be fully addressed in revisions to the RDEIR before it is certified and that all impacts be fully mitigated to ensure no net loss of wetland habitats or recreational opportunities. We support the development of additional alternatives that minimize impacts to Humboldt Bay eelgrass beds, an important biological resource identified in the Humboldt Bay Area Plan, and consolidate operations to allow greater use for recreational users.

Response to Comment No. 5-4

See Topical Response 5 and response to Comment 3-5 for additional discussion regarding the alternatives selected for analysis in the R-DEIR, an additional alternative included in the FEIR, and the eelgrass avoidance alternative. Notably, the FEIR includes another alternative, the EBMA Avoidance Alternative, that reduces the project's footprint in eelgrass as compared to the proposed project. As further discussed in Topical Responses 2 and 7, impacts associated with eelgrass habitat and recreational opportunities are anticipated to be less than significant after mitigation.

Comment Letter No. 6

Pacific Fishery Management Council
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Comment No. 6-1

The Pacific Fishery Management Council (Council) is writing to comment on the Coast Seafoods Company Shellfish Aquaculture Recirculated Draft Environmental Impact Report (RDEIR) for the proposed expansion of aquaculture operations into 622 acres of eelgrass habitat. The comment period for the RDEIR did not coincide with a Council meeting. However, we are reiterating our concerns and background information relevant to the proposed project. In addition, the Notice of Recirculation and Availability of the RDEIR states that while previous comments will remain part of the administrative record, they do not require a written response in the Final EIR. Therefore, we are enclosing our previous comments submitted December 3, 2015, and request that these be included in the record and in the response to comments in the EIR.

Response to Comment No. 6-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 6-2

The Council is one of eight Regional Fishery Management Councils established by the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA), and recommends management actions for Federal fisheries off Washington, Oregon, and California. The MSA includes provisions to identify, conserve, and enhance essential fish habitat (EFH) for species managed under a Council fisheries management plan. The MSA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Council is authorized under MSA to comment on any Federal or state activity that may affect the habitat, including EFH, of a fishery resource under its authority, and is required to comment on actions that may significantly affect the habitat of an anadromous fishery resource under its authority. In addition, Regional Fishery Management Councils may, at their discretion, designate Habitat Areas of Particular Concern (HAPCs). HAPCs are specific habitat types or areas within EFH that are of particular ecological importance in the fish life cycle or are especially sensitive, rare, or vulnerable. HAPCs designated by this Council are rocky reefs, estuaries, kelp forests, eelgrass beds, seagrass beds, and unique geologic features. The proposed shellfish culture activities will occur in Humboldt Bay, within the estuarine and eelgrass HAPCs.

Response to Comment No. 6-2

This comment describes the jurisdiction and regulatory authority of the Pacific Fisheries Management Council. The comment is hereby noted and no further response is necessary.

Comment No. 6-3

Although the project has been re-designed to minimize impacts, we are enclosing our previous comment letter that highlights the following concerns. Each of these is described in further detail in the enclosure.

- No net loss of eelgrass,
- Avoidance of existing eelgrass beds,
- Long line spacing that minimizes eelgrass impacts,
- Buffers between rack and bag aquaculture and eelgrass beds,
- Mitigation activities, and
- Impacts to fish resources, including salmon, groundfish, and herring.

Response to Comment No. 6-3

The comment has been noted and the Final EIR responds to each of the comments previously raised by the Pacific Fisheries Management Council, as further described below.

Comment No. 6-4

Finally, we note that part of the revised project includes double-hung longlines. We are interested in knowing whether there has been any relevant research on the impacts of double-hung longlines versus single longlines.

Response to Comment No. 6-4

Data specific to double-hung longlines have not been reported in the literature. However, this method of culturing has been used in other areas along the West Coast (Willapa Bay), including by Pacific Seafood who owns Coast. The feasibility of this method as a culture technique has been tested. Another culture method that is similar to the double-hung design, longline flipbags, has also been used in Willapa Bay. Data collected within longline flipbag culture has included chlorophyll *a*, water quality, eelgrass density, water circulation, and light. Some of this data has been published (e.g., Banas et al. 2007, Wheat and Ruesink 2013), although more recent data is not yet ready for publication (Cooper, pers. comm., 2016). In terms of potential impacts to eelgrass or other surrounding habitats, preliminary results indicate that effects from longline flipbags are similar to single-hung longline culture methods. However, in an abundance of caution, the R-DEIR concluded that double-hung longlines would result in a significant impact to eelgrass, even at a 10-ft spacing, and mitigation for these impacts was provided in Mitigation Measure BIO-1.

The recent PBO from NMFS (2016a) on shellfish aquaculture in Washington State, which included consultation on double-hung longlines and longline flipbags, did not incorporate data specific to these culture methods. The PBO relied upon numerous studies related to off-bottom culture, which are discussed in the R-DEIR, and concluded that longline culture methods spaced 10 ft apart was a suitable conservation measure for culturing in fallow areas that contained eelgrass in Puget Sound and Hood Canal. It is also notable that this conservation measure did not include mitigation requirements for using these culture methods in eelgrass when placed in fallow culture areas where eelgrass has recolonized. Further, no restrictions were placed on culture methods or spacing in Willapa Bay or Grays Harbor, including areas that incorporate double-hung longlines and/or longline flipbags.

Comment No. 6-5

The Pacific Fishery Management Council (Council) is writing to comment on Coast Seafoods Company Shellfish Aquaculture Draft Environmental Impact Report (DEIR) for the proposed expansion of aquaculture operations into 600 acres of eelgrass habitat. We thank you for delaying the release of the DEIR to provide us the opportunity to comment.

Response to Comment No. 6-5

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 6-6

The Council is one of eight regional fishery management councils established by the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA), and recommends management actions for Federal fisheries off Washington, Oregon, and California. The MSA includes provisions to identify, conserve, and enhance essential fish habitat (EFH) for species managed under a Council Fishery Management Plan (FMP). The MSA defines EFH as “those waters and substrate necessary

to fish for spawning, breeding, feeding, or growth to maturity.” The Council is authorized under MSA to comment on any Federal or state activity that may affect the habitat, including EFH, of a fishery resource under its authority, and is required to comment on actions that may significantly affect the habitat of an anadromous fishery resource under its authority. In addition, Regional Fishery Management Councils may, at their discretion, designate Habitat Areas of Particular Concern (HAPCs). HAPCs are specific habitat types or areas within EFH that are of particular ecological importance in the fish life cycle or are especially sensitive, rare, or vulnerable. The proposed shellfish culture activities will occur in Humboldt Bay, within the estuarine and eelgrass/marine and estuarine submerged aquatic vegetation HAPCs.

Response to Comment No. 6-6

This comment describes the jurisdiction and regulatory authority of the Pacific Fisheries Management Council. The comment is hereby noted and no further response is necessary.

Comment No. 6-7

Because Coast Seafoods’ shellfish aquaculture expansion project proposed for Humboldt Bay would occupy a substantial amount (>17%) of eelgrass habitat in the bay, the Council remains concerned that the project may have significant adverse effects on the EFH of several Council managed species, including salmon and groundfishes; and on herring, an important prey item of salmon and groundfishes. The Council has specific concerns because of the spatial extent and layout of the proposed project in Humboldt Bay. Those key concerns are as follows.

Response to Comment No. 6-7

See responses to Comments 6-8 through 6-16 below.

Comment No. 6-8

1. No Net Loss. The DEIR describes significance criteria for eelgrass that result in a change in areal extent of eelgrass and/or a greater than 25 percent change in eelgrass density. The DEIR bases these criteria on the National Marine Fisheries Service California Eelgrass Mitigation Policy and Implementing Guidelines (NMFS CEMP). The Council disagrees with Coast Seafoods’ interpretation of the CEMP recommendation as guidelines rather than significance criteria under the California Environmental Quality Act. The DEIR uses criteria outlined in the CEMP that are appropriate for small footprint projects, but may not apply to the proposed project due to its scale. The Council again recommends the threshold of significance be changed to no net loss of eelgrass function as recommended in the CEMP and by the State of California. Furthermore, the Council supports the NMFS CEMP and recommends full in-kind mitigation for loss of both eelgrass density and the spatial extent of eelgrass beds, as proxies for eelgrass habitat function.

Response to Comment No. 6-8

The R-DEIR used a no net loss of ecological function threshold for analysis of eelgrass impacts. *See* IMPACT BIO-3. Consistent with the comment, the R-DEIR incorporates in-kind mitigation. To compensate for potential impacts to eelgrass density, the existing culture areas are proposed to be

expanded to a 10-ft double-hung design to increase eelgrass density between lines and provide in-kind mitigation for Phase I activities. Note that the project is not anticipated to result in a reduction in the spatial extent of eelgrass.

Additional information was discussed in the R-DEIR related to ecological function of oyster longline culture, including prey resources, fish use, water quality, sediment quality, and habitat structure. The literature supports a conclusion that oyster longlines provide similar ecological functions compared to eelgrass habitat. A similar conclusion was reached in the recent NMFS (2016) PBO. NMFS (2016a) determined that “there are no ESA-listed salmon stocks in any of the watersheds that feed Willapa Bay and Grays Harbor, suggesting that aquaculture, which has been in place in these areas for over 100 years, is not a limiting factor there.” Based on recent estimates provided by NMFS (2016a), Willapa Bay has 39,861 acres of eelgrass and 12,170 acres of shellfish aquaculture co-located in eelgrass habitat, with approximately 7,448 acres anticipated to be planted within fallow culture areas that contain eelgrass in the next 20 years. This amount of shellfish aquaculture in the bay would result in nearly a 50% overlap with eelgrass habitat. No mitigation was required, partly because of the compensatory functions provided by shellfish products and gear. Comparatively, the proposed project provides mitigation for the expansion (even in fallow eelgrass areas) and robust monitoring. Given the conclusions from the recent PBO that shellfish aquaculture gear itself can provide similar ecological functions as eelgrass, the project is anticipated to result in no net loss of ecological function.

Comment No. 6-9

2. Eelgrass Avoidance Alternative. The Council has reviewed the alternatives within the DEIR. The Eelgrass Avoidance Alternative was removed from further analysis as it would have reduced the amount of area in which Coast could expand operations. In concert with the No Net Loss recommendation of the CEMP, the Council disagrees with the removal of the Eelgrass Avoidance Alternative from the suite of alternatives. This alternative could have resulted in a project with reduced impacts to EFH. The Council recommends including this alternative and an analysis of its impacts in the Final Environmental Impact Report (FEIR).

Response to Comment No. 6-9

The EIR must only examine in detail the alternatives that could feasibly attain most of the basic objectives of the project. CEQA Guidelines § 15126.6(f). An eelgrass avoidance alternative was analyzed in Section 5.2.1 of the R-DEIR; however, this alternative was rejected as infeasible, noting “Restricting Coast’s expansion to areas within its owned and leased areas that are without existing eelgrass, combined with the difficulty in producing market-quality oysters at higher tidal elevations, would severely limit Coast’s ability to increase its production of shellfish in Humboldt Bay.” See Topical Response 5 for additional analysis of the eelgrass avoidance alternative.

Comment No. 6-10

3. Loss of Eelgrass within Beds at Five-foot Spacing. Data on the effects of cultch-on-longline oyster culture on eelgrass percent cover and turion density were collected by Rumrill and Poulton (2004) and summarized by Dumbauld et al. (2009) and Rumrill (2015). A summary of these results is also presented in the DEIR (Appendix D, page 37, Table 3). In a short-term (two-year) experiment in an area that was previously dredge-harvested, data indicate that areas of longline oyster culture at

five-foot spacing showed a 48 percent reduction in spatial cover and a 64 percent reduction in turion density compared to nearby control plots. Tests indicated that the differences were not statistically significant. Rumrill (2015) indicates that these estimates, because of study-design constraints, “will result in an underestimate of the actual levels of loss to eelgrass located beneath the larger-scale commercial oyster longline operations that have been in operation for many years.” To better reflect the expected long-term effects, Rumrill (2015) suggested that the results from East Bay plots should be used. At a five-foot longline spacing, those data showed a 79-81 percent reduction in spatial cover and a 53-94 percent reduction in turion density compared to nearby control plots. Tests of the statistical significance of those results were not provided. Based on these studies, which were summarized in the DEIR, longline oyster culture at a five-foot spacing is expected to result in a substantial reduction in both eelgrass percent cover and turion density compared to areas without longline culture. Given the spatial extent of the proposed project, the Council is concerned that these reductions represent a substantial impact to eelgrass habitat within Humboldt Bay.

Response to Comment No. 6-10

In response to this comment and others, the R-DEIR revised the proposed spacing to 10-ft spacing for cultch-on-longline culture and 9-ft spacing for basket-on-longline culture that occurs in eelgrass habitat. The proposal no longer includes a 5-ft alternative to suggested spacing. In terms of the results of the 10-ft spacing, the meso-scale study from Rumrill and Poulton (2004) indicated that eelgrass density values in the treatment plot with 10-ft spacing were “within the range of plant density values observed for the eelgrass reference sites located throughout Arcata Bay [North Bay].” While the commercial-scale results collected at the end of the experiment still showed a depression from the previous dredge harvesting culture methods, there was only one data collection event and eelgrass recovery was in progress. By comparing the potential recovery at a 10-ft spacing from Rumrill and Poulton (2004) with other literature on longline culture methods and eelgrass recovery timing (Major et al. 2004, Tallis et al. 2009, Ruesink et al. 2012, Yang et al. 2013), it can be understood that the cyclical nature of shellfish aquaculture operations can result in short-term impacts but also recovery within the same culture cycle. In fact, in the communication with Dr. Rumrill (2015) referenced above, he indicated that: “It is appropriate to state that addition of oyster aquaculture in Humboldt Bay (and perhaps other estuaries) can be neutral in direct effects to spatial cover and density of eelgrass when the oyster cultch-on-longline mariculture operations are conducted at line spacings of 5 ft or 10 ft. Implementation of best management practices that include reduced density of oysters (i.e., oyster culture at 5 ft and 10 ft spacing between the longlines) can allow the eelgrass communities to coexist in a healthy manner beneath the oyster longlines.” In considering comparisons to the control plots and reference sites in Rumrill and Poulton (2004), control plots were in close proximity to experimental sites, although they did not have mechanical dredge harvest activities, and so were not at the same starting point as the treatment plots. Similarly, the reference sites were at lower elevations, which can bias results, given that site elevation is an important factor limiting eelgrass density in Humboldt Bay. *See* Topical Response 2 for additional discussion regarding eelgrass impacts.

Comment No. 6-11

4. Buffers. The Council’s Pacific Coast Salmon Fishery Management Plan specifically recommends that new or expanded aquaculture farms implement 25-30 foot buffers from existing native eelgrass beds to avoid and minimize impacts to eelgrass (Appendix A, Pacific Coast Salmon Fishery

Management Plan 2014, page 61). For this project, the buffer would apply to rack-and-bag culture only. That recommendation has been accepted and we understand it will appear in the FEIR. Based on the current buffer proposals in the DEIR, the buffer recommendations for longline aquaculture will not be met. To protect and enhance EFH for salmon in Humboldt Bay, the Council recommends a minimum 25- foot buffer, consistent with the salmon FMP.

Response to Comment No. 6-11

PFMC's recommended 25- to 30-ft buffer for shellfish aquaculture from eelgrass areas makes no distinction between different types of shellfish cultivation techniques, which can have significantly different impacts on eelgrass and other aquatic resources. In response to concerns raised by the PFMC, Coast included Conservation Measure BIO-4, which requires rack-and-bag culture plots to incorporate a 25-ft buffer from existing eelgrass beds; however, appropriately spaced longline culture has significantly different impacts to eelgrass. *See* Topical Response 2. This distinction is recognized in the CEMP, which acknowledges that appropriately spaced shellfish longlines may not require mitigation for eelgrass loss (NMFS 2014). Further, both the U.S. Army Corps of Engineers and NMFS have concluded that longlines spaced 10-feet apart may be placed in fallow aquaculture areas in Washington State without further mitigation or buffer requirements (Corps 2015; NMFS 2016a).

Appendix A of PFMC's Pacific Coast Salmon Fishery Management Plan suggests a number of potential conservation measures for artificial propagation of fish and shellfish along the Pacific Coast but recommends that the action agency undertake them on a site-specific basis and acknowledges that more specific or different measures may be implemented based on current science. The recommendations do not suggest a fixed or one-size-fits all approach to conservation. PFMC, Appendix A to the Pacific Coast Salmon Fishery Management Plan 60-61 (Sept. 2014). Imposing a "one-size-fits-all" buffer for all shellfish projects would negate the hard work of Coast and other shellfish companies to design new culture methods that are less impactful on the surrounding environment, including eelgrass.

Given the extensive analysis in the R-DEIR regarding the impacts of the specific culture proposed cultivation methods on eelgrass and recognition from other regulatory agencies that appropriately-spaced shellfish longlines do not have an adverse impact to eelgrass, incorporation of PFMC's general eelgrass buffer is unwarranted.

Comment No. 6-12

5. Mitigation Activities. The FEIR should specify the methods to be used to restore eelgrass in salt marsh channels and the acres of eelgrass to be anticipated. Monitoring and adaptive management methods should also be defined.

Response to Comment No. 6-12

There is no salt marsh restoration proposed in the R-DEIR. Based on feedback from the original DEIR, the Project was revised to include wider spacing (10-ft spacing), in-kind mitigation, and adaptive management. The Project no longer proposes out-of-kind salt marsh restoration.

Comment No. 6-13

6. Impacts to Fish Resources. Salmon: The Council disagrees with the assessment of “less than significant impacts” for salmon. Salmonids have been shown to extensively use eelgrass in both Oregon and Washington (Murphy 2000, Semmens 2008). The Council is concerned the DEIR only references studies from Humboldt Bay that were not designed to detect salmonid use of eelgrass habitat and neglects to reference the multitude of studies showing extensive eelgrass use by salmonids throughout the Pacific Northwest. The Project may significantly impact salmonid populations by reducing and altering EFH eelgrass habitat that provides foraging and refugia.

Response to Comment No. 6-13

The R-DEIR discussed the relevant literature related to salmonid use of intertidal habitats. The Johnson et al. (2003)¹ paper only provided observations of fish assemblages in eelgrass, kelp, or filamentous algae near Craig, Alaska. The study did not compare sites with oyster aquaculture, and only used seining methods to determine species composition. It is notable that the authors reported that salmonids used eelgrass and non-eelgrass sites to the same extent, except for chum salmon in June that were found in lower abundance within eelgrass sites. This paper shows that salmonids use habitats opportunistically, but do not necessarily depend on eelgrass habitat. Similarly, the Semmens (2008) paper was an enclosure study that, while useful, does not provide information on how salmonids would typically use oyster longline culture areas in eelgrass habitat within a natural setting. Salmonids in this study were predominantly found along the edge of the nets, which was also coincidental with the lowest elevation habitat type (eelgrass) within the enclosure area, which describes a correlation that may be unrelated to species use in natural settings.

Comparatively, the R-DEIR discussed numerous studies throughout the Pacific Northwest, looking at how salmonids use both eelgrass habitat and oyster culture areas (e.g., Simenstad et al. 1991, Brooks 1995, Magnusson and Hilborn 2003, Dumbauld et al. 2015, David et al. 2016). The most relevant studies to understand specific use of eelgrass habitat by salmonids in Humboldt Bay are those that were performed in the bay itself. The studies performed in Humboldt Bay were designed to detect salmonid use of these habitats. Both the Pinnix et al. (2005) and Garwood et al. (2013) studies were designed to collect all fish using intertidal habitats in Humboldt Bay. The Pinnix et al. (2005) study used six different gear types in order to reduce the bias of any one method. These authors considered the fyke net system to be particularly effective at capturing the entire composition of fish that were present in the sampling area, but even the fyke nets did not find samples of juvenile salmonids (Pinnix, pers. comm., 2015). Finally, the Pinnix et al. (2013) tagging study used coho smolts and followed their movements within Humboldt Bay, including potential use of eelgrass habitat.

The R-DEIR does not dispute that salmonids use eelgrass habitats. On the contrary, it is an accepted paradigm that eelgrass habitats are important for salmonids (page 6.5-79 of the R-DEIR). Rather, the R-DEIR concludes that the pProject will not have a significant impact on salmon because the ecological functions of eelgrass habitat are not significantly changed in terms of PBFs for salmonid critical habitat or essential fish habitat. This is the same conclusion reached by NMFS (2016a) for shellfish aquaculture in Washington State for both salmonid critical habitat and EFH.

¹ Note that this was mis-cited as Murphy (2000).

Therefore, the conclusion that the project will not result in significant changes to salmonid use of eelgrass habitat is well supported in the literature.

Comment No. 6-14

Groundfish: Groundfish extensively use eelgrass habitat within estuaries along the Pacific Coast and rely on eelgrass habitat for predator avoidance and prey species. Reduction or thinning of the eelgrass may have detrimental effects on the juvenile groundfish population. The Council disagrees with the “less than significant impact” assessment cited in the DEIR.

Response to Comment No. 6-14

Groundfish are an extremely diverse group of species, many of which have life stages that depend on eelgrass for predator avoidance and prey resources. As a group, there can be no blanket statement about one habitat being more important than others. In addition, there is no literature to indicate that reduction in eelgrass density, and installation of a structured habitat that functions in a similar manner to eelgrass habitat, would significantly change the use of North Bay by most groundfish species. In contrast, there is a great deal of literature that indicates specific groundfish species in Humboldt Bay would use this habitat in a similar manner. For example, as noted in Impact BIO-22, Pinnix et al. (2005) reported that fish abundance and diversity (including juvenile rockfish and flatfish species) was higher in oyster culture areas and eelgrass habitat compared to open mudflats. As discussed in Impact BIO-22, there are certain species (e.g., California halibut) and even life stages (e.g., adult rockfish) that will tend to avoid eelgrass beds, especially high density eelgrass beds. The literature cited by NMFS (2014) in the CEMP to define the functions of an eelgrass bed also consistently found no differences in species presence in a seagrass bed when densities or percent cover were approximately 30% of the natural seagrass beds (Fonseca et al. 1998). This indicates that changes in eelgrass density from the proposed project will not significantly affect the functions of the eelgrass beds for groundfish where longlines are placed. Finally, the recent PBO by NMFS (2016a) indicated that adding 10-ft spaced longlines to over 2,700 acres in Washington State would not significantly affect groundfish EFH. Therefore, the conclusions in the R-DEIR related to groundfish EFH are well supported in the literature and consistent with recent consultations.

Comment No. 6-15

Herring: While the DEIR cites successful herring spawn on substrate other than eelgrass, uncertainty remains about the survival of herring eggs on aquaculture gear relative to natural vegetated substrates. Palsson (1984) evaluated egg survival on several types of artificial substrate (including polypropylene and hemp rope, polyethylene netting, tubing and turf mats, and plastic sheeting) deployed within natural eelgrass habitat. Total survival and larval production was significantly lower for the artificial substrates when compared to natural eelgrass spawning substrate. This study highlights that spawning on non-natural substrates may lead to significantly reduced survival of herring eggs through both egg loss (eggs displaced from substrate) and egg death (non-viability of eggs).

Response to Comment No. 6-15

See Topical Response 3 regarding the Project's impacts on herring and herring spawn.

Comment No. 6-16

Numerous comments have been provided to Coast Seafoods regarding potentially significant impacts to Pacific herring caused by placing aquaculture infrastructure within core herring spawning areas, including loss of native eelgrass habitat, increased desiccation of eggs deposited on aquaculture gear, differential survival of eggs deposited on artificial substrates (aquaculture gear), and changes in fish community structure within core herring spawning areas that may increase predation of eggs and early larval herring. The Council is concerned that, although the DEIR determines impacts to Pacific herring will be less than significant under California Environmental Quality Act, no substantive information is provided to support this determination. The Council is concerned that a large-scale shift in the type of spawning substrate available to herring in the core eelgrass spawning areas of Humboldt Bay could have impacts on spawning success and negatively impact the population.

Response to Comment No. 6-16

Impact BIO-21 discusses relevant scientific research on herring spawning, and herring biologists in the United States and Canada were consulted to identify and interpret emerging science regarding potential effects to herring spawning. This includes additional information presented in the R-DEIR that was included based on this comment, which concerned the original DEIR. While the comment states that the discussion related to Pacific herring in the R-DEIR does not adequately support the conclusions, it does not identify deficiencies in the R-DEIR's analysis or data. It is notable that Mitigation Measure BIO-2 expands a similar measure used in Washington State that was found to adequately protect Pacific herring spawn deposition within 5,815 acres of shellfish aquaculture that overlaps with herring spawning locations. Both NMFS (2016a) and US FWS (2016) concluded that there would be potential losses of herring eggs due to shellfish aquaculture operations, but that the magnitude of this loss would not rise to a level of significance in any one water body or estuary. The R-DEIR appropriately concludes that project impacts to herring spawn will be less than significant, based on a thorough review of the available scientific literature. *See* Topical Response 3 for additional analysis regarding the project's impacts on herring and herring spawn. In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA, which has been identified in comments as key herring spawning ground. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment Letter No. 7

Eric Nelson, Refuge Manager
US Fish & Wildlife Service, Humboldt Bay National Wildlife Refuge Complex
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Comment No. 7-1

The staff at the Humboldt Bay National Wildlife Refuge has reviewed the Recirculated DEIR (R-DEIR) submitted for the proposed Coast Seafoods Permit Renewal and Expansion Project. We feel strongly that our concerns with the Initial Study (IS), which were laid out in a previous comment letter, have not been sufficiently addressed in the R-DEIR. Our primary concerns involve a disregard for the “disturbance” impact on Pacific brant (brant) that would result from the proposed expansion, as well as the lack of consideration for the impact reduced brant grazing would have on the eelgrass beds themselves, and potential cumulative impacts to brant from this and other proposed aquaculture projects combined with ever increasing incidental disturbance to brant from both recreation and commerce. The R-DEIR states findings of Less Than Significance (LS) or Potentially Significant for pertaining to black brant (IMPACT BIO-25, 26, 27). In this letter we lay out how just the presence of aquaculture infrastructure significantly effects brant use, resulting in a functional loss of foraging habitat and a significant alteration to vital food resources, with the proposed mitigation likely ineffective, and potentially exacerbating negative effects.

Response to Comment No. 7-1

See Topical Response 4 and responses to Comments 7-2 through 7-6 for additional discussion of brant impacts.

Comment No. 7-2

Humboldt Bay is well documented as a key Pacific Flyway migratory stopover location for brant (and many other species of waterbirds). Wintering and migratory locations for brant by necessity have healthy eelgrass beds as eelgrass makes up 90+% of their diet at these locations. Humboldt Bay supports the largest stands of eelgrass between the brant wintering grounds in Baja, Mexico and Willapa Bay, Washington, making it a crucial stopover site. Brant’s reliance on healthy eelgrass beds meant that North Bay was functionally useless as a result of the on-ground aquaculture practices of the past. Brant use of Humboldt Bay has also been shown to be very sensitive to increased disturbance in spring, with steep declines in use due to spring hunting from the 1950’s-1980’s (Moore and Black 2006a). During this same time period brant distribution on Humboldt Bay was ~80% on South Bay and 20% on North Bay (Henry 1980, Moore 2004). However, as eelgrass has returned to North Bay, it appears the brant have as well. Recent surveys indicate brant distribution on Humboldt Bay has shifted significantly, with spring of 2015 monitoring showing greater use of North Bay (192,400 bird use days) compared to South Bay (147,930 bird use days). While the exact reason has not been documented, hypotheses include increased disturbance on South Bay and improved eelgrass beds in North Bay, or likely a combination thereof. However, studies on both Willapa and Dungeness Bays in Washington state during the 1980’s and early 90’s showed that a reduction in eelgrass led to a corresponding reduction in brant use and that on Willapa Bay aquaculture operations were associated with declines in dense eelgrass beds which resulted in a significant reduction in brant use of those areas (Wilson and Atkinson 1995).

Response to Comment No. 7-2

The R-DEIR agrees with this comment that Humboldt Bay is a key stopover location for brant, that eelgrass is critical to brant diet, and that reductions in eelgrass availability can adversely impact brant. *See* R-DEIR pgs. 6.5-32 through 6.5-35, Impact BIO-25.

Comment No. 7-3

A comprehensive evaluation of disturbance to brant must consider more than direct human contact causing birds to flush. Due to brant's dietary specialization, which is exacerbated by tidal restrictions in space and time and the relatively low nutritional value of eelgrass, reduction in foraging time caused by infrastructure and/or human use must be considered a disturbance. More specifically, a reduction in "bed-feeding" could be especially impactful on migrating individuals' ability to acquire sufficient nutrient reserves. While brant will feed on loose, floating pieces of eelgrass (drift-feeding), they show significantly higher intake rates while feeding on eelgrass blades still attached to the turion (bed-feeding; Elkinton 2013). In line with what those knowledgeable about brant behavior might have presumed, H.T. Harvey's report mentioned in there is found that brant did not use areas of longline aquaculture once the tide was low enough for infrastructure to be an impediment to swimming (CSF 2015). If we estimate that brant require ~0.5 ft for their feet to clear while swimming, this would mean that brant will abandon areas with cultch-on-longline when the water is 1.5 ft above the substrate and 3.8 ft for areas with basket-on-longline (longlines 1 ft and 3.3 ft above substrate) for current structure heights. Currently, operations occur on substrate elevations as high as +3 ft relative to MLLW, with the proposed areas of expansion -2.0 ft to +1.5 ft relative to MLLW (CSF2105). Utilizing a substrate elevation of 0 ft, then accounting for infrastructure height, and foot clearance, brant will not use areas of basket-on-longline when tide height is below 3.8 ft, and cultch-on-longline below 1.5 ft MLL W. Previous researchers have found that brant are able to bed-feed at 2.95 ft (0.9 m MLLW; Moore and Black 2006b, Elkinton 2013), with the majority of the flock bed-feeding when the tide is below 1.64 ft (0.5 m MLLW). Utilizing the eelgrass same shoot length equation as in the IS, turions growing at 0 ft MLLW would extend shoots approximately 1.9 ft (0.59 m). This would render areas with cultch-on-longline unavailable for the majority of the tide window at which bed-feeding occurs, and areas with basket-on-longline would be functionally useless for bed-feeding. The R-DEIR proposes "double-hanging" longlines in some areas to "mitigate" impacts to eelgrass beds. However, this would further reduce the time brant would utilize these areas, and functionally eliminate them for bedfeeding access. Again, for a species as specialized as brant we must consider any human-caused reduction in foraging time a "disturbance". While the direct human contact is addressed in the IS, we believe the impact of disturbance is underestimated when also considering loss of foraging time across all hours of the day and night as a result of infrastructure.

Response to Comment No. 7-3

The R-DEIR agrees with the comment that black brant can be adversely affected by reductions in foraging opportunities. Both Impacts BIO-25 and BIO-26 discuss the potential impacts associated with reductions in eelgrass available for brant foraging and project-related disturbances to brant foraging opportunities. The R-DEIR assumes that brant will be excluded from aquaculture plots due to exposed gear at 0.3 m (1 ft) for cultch-on-longline expansion plots, 0.4 m (16 in) for double-hung cultch-on-longline plots, and 1.2 m (40 in) for basket-on-longline plots. At these heights, brant would still have enough clearance to swim between the lines.

Two sources of empirical evidence indicate that brant only avoid aquaculture areas when infrastructure is exposed above the water surface, as described in Impact BIO-25 and Appendix E. First, time lapse video footage indicates that brant will traverse areas with longline infrastructure until the infrastructure emerges above the water surface. The time lapse video indicated that brant return to aquaculture areas once water begins to cover the infrastructure, as opposed to when the infrastructure is ~0.5 ft below the water surface (as assumed in the comment above). In addition, results of the 2015 North Bay brant surveys (Appendix E) indicate that brant traverse aquaculture plots when infrastructure is submerged at a similar rate to areas that lack infrastructure. The impacts analysis in the R-DEIR uses these empirical observations to explicitly account for brant avoidance of aquaculture infrastructure and the associated loss of foraging opportunities as part of the project-specific modeling. This project-specific modeling used empirically estimated eelgrass shoot lengths, biomass, and digital elevation models specific to North Bay, and compared the proposed project plots with specific tidal elevations. The comment assumes a bed elevation of 0 ft relative to MLLW to infer that brant will be excluded from aquaculture sites at tide elevations less than 3.8 ft and 1.5 ft MLLW for basket-on-longline and cultch-on-longline areas, respectively. However, aquaculture infrastructure and dense eelgrass beds occur across a range of tidal elevations, which is explicitly accounted for in the project-specific modeling. Thus, the project-specific modeling provides a more precise assessment of the loss of foraging opportunity that incorporates specific tidal elevation data in comparison to the calculations provided in the comment, and support the conclusion in the R-DEIR that there would not be a significant impact to brant foraging.

Comment No. 7-4

While numerous other agencies and experts have voiced concerns regarding the impact of aquaculture on eelgrass, there is an additional potential impact on eelgrass as a result of reduced brant grazing. Enhanced production by monocots after moderate grazing has been demonstrated in both terrestrial and marine ecosystems (McNaughton 1983, Moran and Bjorndal 2005, Valentine and Duffy 2006). Ferson (2007) conducted an experiment in Humboldt Bay to mimic the relationship between brant grazing and eelgrass productivity. The results showed that moderate grazing increased the below-ground biomass (rhizomes) and above-ground shoot biomass. There was even an increase (though not statistically significant likely due to sample size) in flowers, for a plant that primarily reproduces asexually. These results exemplify an important symbiosis between graminoid and grazer that exists in other ecosystems as well. Therefore, a significant reduction in brant grazing time is likely to impact the long-term health of eelgrass beds.

Response to Comment No. 7-4

As noted in Topical Response 4, the project is not anticipated to significantly impact brant grazing opportunities. Further, many of the impacts to eelgrass associated with brant grazing have been similarly observed with shellfish aquaculture. There appear to be two sources of potential improvement to eelgrass health associated with brant grazing, as noted in the comment: (1) a moderate level of disturbance, and (2) nutrient inputs to the sediment (i.e., increased fertilization). Both conditions are also coincident with the presence of shellfish aquaculture operations, and both brant grazing and shellfish aquaculture operations reach a limit where the benefits are not realized and may result in adverse effects.

In terms of literature associated with effects to eelgrass health from shellfish aquaculture, there are similar responses from eelgrass to the presence of shellfish aquaculture in terms of both disturbance and nutrient inputs. For example, activities within longline plots result in disturbance to the area around the longline (*e.g.*, leaves breaking from getting hung up on the lines). Further, the resulting reaction from the plant to aquaculture is similar to that from grazing pressure (*e.g.*, increased growth/flowering). This was reported in Tallis et al. (2009) and Wisehart et al. (2007) in relation to a variety of shellfish aquaculture operations. However, frequent or high levels of disturbance can produce adverse impacts, such as reduced plant size. Disturbance is a common environmental state for a plant that occurs within an active energy environment (*e.g.*, intertidal habitat), and eelgrass has evolved to be able to accommodate moderate levels of disturbance. The R-DEIR concludes that the frequency and level of disturbance to eelgrass anticipated from the proposed project is more moderate, similar to existing background conditions, as compared to the more intense or frequent levels of disturbance found in certain studies.

Similarly, the potential to fertilize the sediment surface is also a common observed effect of shellfish aquaculture, especially off-bottom culture. As discussed in Impact BIO-11, shellfish consume nutrients via filtration and create biodeposits, which then promote microbially-mediated nitrogen cycling within the sediment. Too much addition of biodeposits without suitable circulation can result in changes to sediment quality. However, the density of organisms associated with the project contributing biodeposits is well below levels at which negative changes to the sediment have been reported in the literature. In fact, Peterson and Heck (1999) suggested that by increasing sediment nutrient levels, shellfish may improve conditions for seagrass colonization. Although this potential is noted in the literature, studies in the Pacific Northwest (*e.g.*, Wagner et al. 2012, Ruesink and Rowell 2012, Wheat and Ruesink 2013) have reported that shellfish cultivation at densities similar to those proposed do not have a significant effect to sediment quality. The recent US FWS (2016a) PBO also addressed nutrient enhancement, which is further discussed in the response to Comment 7-5.

Therefore, at appropriate levels of frequency and activity, both brant grazing and shellfish aquaculture can be potentially beneficial to eelgrass health. Given that the project is not anticipated to result in significant reductions in brant grazing opportunities, both activities could provide certain benefits to eelgrass.

Comment No. 7-5

Last but not least are cumulative impacts. This project alone proposes a threefold areal impact on eelgrass, and therefore, as documented above, brant. There is also another project in the works to allow additional aquaculture in North Bay along the west shore of Indian Island. In addition to these proposed aquaculture projects is the ever increasing disturbance from recreational activities (*ie.* touring and fishing kayaks, kiteboards, paddleboards, jetskis, etc.) which occur throughout the bay.

Response to Comment No. 7-5

The Harbor District is not aware of any proposed project for additional aquaculture on Indian Island other than the areas included in the Harbor District's Pre-Permitting Project, which is included in the discussion of cumulative impacts in R-DEIR § 7. The Harbor District is also not aware of any proposed projects that would result in significant increases in recreational uses of

Humboldt Bay as compared to the environmental baseline. While the Harbor District approved a Mitigated Negative Declaration for the Humboldt Bay Water Trails Project in 2014, the project is still seeking regulatory approvals from other agencies (*i.e.* the Coastal Commission and U.S. Army Corps of Engineers). The project involved minor improvements to existing recreational facilities and is not expected to result in significant increases to recreational uses as compared to existing conditions.

Overlap with habitat and potential impacts are not the same in terms of how oyster longline gear interacts with the surrounding habitat. While the Project proposes to expand operations into 622 acres, that does not equate to 622 acres of impact. Similarly, the Harbor District's Pre-Permitting Project proposes to expand culture into 266 acres, but that does not result in 266 acres of impact. Based on the discussion presented in R-DEIR § 6.5.4, Impact BIO-3 discussed the potential impacts to eelgrass from the proposed expansion. In-kind mitigation (Mitigation Measure BIO-1) is proposed to provide compensatory mitigation for the reduction in eelgrass density. Therefore, the Project is not predicted to result in a net decrease in eelgrass areal extent or density. Similarly, the Harbor District's Pre-Permitting Project is proposed to be located mostly outside of eelgrass habitat, and any potential significant impacts to eelgrass will similarly require mitigation. *See* Topical Response 4 for additional discussion concerning the Project's impacts to brant. Additional discussion of cumulative impacts to brant and eelgrass are included in R-DEIR §§ 7.2.1.3 and 7.2.3.8.

The interactions between shellfish aquaculture and submerged aquatic vegetation was recently summarized by US FWS (2016) in their PBO for Washington State shellfish aquaculture operations:

Interactions between submerged aquatic vegetation, such as native eelgrass (*Zostera marina*) or rooted kelp (attached brown algae in the order Laminariales), and shellfish activities are complex and not easily characterized with simple generalizations. These interactions include competition for space, competition for light (or shading), and physical damage that results from some activities, practices, and techniques. However, not all of these interactions are detrimental to the health of native eelgrass and rooted kelp. For instance, shellfish culturing provides a source of nutrient enhancement, which supports plant growth and vigor, and frequently improves water quality. The variety of factors influencing eelgrass recovery suggests the potential for significant site-by-site and temporal variability. Culturing methods and techniques have variable effects to patterns of eelgrass disturbance, recovery, and persistence, but the majority of these temporal impacts are not likely to be persistent at the estuarine landscape scale. (US FWS 2016, page 5).

Consistent with this analysis, interactions between shellfish aquaculture and eelgrass are both negative and positive. Overall, the R-DEIR incorporates a threshold of no net loss of eelgrass ecological functions, and has proposed in-kind mitigation to account for potential reductions in eelgrass density, an adaptive management plan, and robust monitoring plan to ensure that the project complies with this threshold.

Comment No. 7-6

In summary, healthy eelgrass beds are an increasingly rare ecosystem susceptible to minute environmental changes with potentially devastating consequence. Black brant are a species of

concern in California which are dependent on this ecosystem for survival. Humboldt Bay is the second largest estuary in California, and supports the largest stands of eelgrass between brant wintering grounds in Baja, Mexico and Willapa Bay, Washington. The assertion that there is more than sufficient eelgrass available is an unproven paradigm that unfortunately has been played out with irreversible results for other ecosystems and species in the past. As stewards and trustees of these unique natural resources we ask that you critically consider the full implications of the proposed expansion project. Given the facts above it appears that the project would very likely have a significant impact on important bay resources, which should be considered in the final decision.

Response to Comment No. 7-6

The R-DEIR acknowledges the ecological importance of both eelgrass and black brant; however, these species can coexist with shellfish aquaculture. There are many examples along the West Coast, including Humboldt Bay and Willapa Bay, where the system can support both eelgrass and shellfish aquaculture. *See* Topical Response 2 for additional discussion of the Project's impact on eelgrass. There is no data to suggest that presence of shellfish aquaculture is impacting black brant use of eelgrass in this estuary. Studies of brant use of Humboldt Bay correlate with reductions in brant use with hunting activity and found that "other forms of disturbance and habitat conditions [including interactions between historical aquaculture and eelgrass probably contributed relatively little" to observed historical declines (Moore and Black 2006a). The R-DEIR conclusions are also supported by the recent PBO from the US FWS (2016) in Washington State. The PBO quoted Dumbauld and McCoy (2015), which stated: "Bivalve aquaculture has not been implicated [in Willapa Bay] in shifts to alternate states or reduced adaptive capacity of the larger ecological system."

Further, the R-DEIR takes a very conservative approach concerning eelgrass management that recognizes its importance as a resource. Despite the fact that the R-DEIR concludes that the project will meet the "no net loss" threshold discussed in the R-DEIR, it incorporates a robust monitoring plan and adaptive management plan to confirm the R-DEIR's assumptions, which would include project revisions or additional mitigation if the actual impacts associated with the project exceed the estimated impacts. The "no net loss" of eelgrass threshold incorporated in the R-DEIR is very conservative, in that it will mitigate for any loss in areal extent of eelgrass or eelgrass density, and does not rely upon a determination of how much eelgrass loss would result in a significant impact to brant.

Comment No. 7-7

In addition to impacts on brant, the project as proposed will also obviously have impacts on other estuarine dependent species from eelgrass to fish to shorebirds. Time did not allow us to go into detailed analysis of impacts on these other species, but we understand other commenters on the proposal have evaluated impacts to these species and their comments should be strongly considered.

Response to Comment No. 7-7

See Topical Response 8 regarding the Project's impacts to shorebirds. Impacts to eelgrass and fish are thoroughly discussed in R-DEIR § 6.5.

Comment Letter No. 8

Matthias St. John, Executive Officer
North Coast Regional Water Quality Control Board
Contact: Brendan Thompson
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Comment No. 8-1

Thank you for the opportunity to comment on the Recirculated Draft Environmental Impact Report, Coast Seafoods Company, Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project issued in July 2016, SCH #2015082051 (RDEIR). The Humboldt Bay Harbor Recreation and Conservation District (Harbor District) previously issued an Environmental Impact Report for the Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project (Project) in October 2015 (2015 EIR), but issued the RDEIR after the Project scope was revised.

Response to Comment No. 8-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 8-2

The North Coast Regional Water Quality Control Board (Regional Water Board) provided comments on the 2015 EIR in a letter dated December 30, 2015 (attached). The Harbor District will respond to comments provided on the RDEIR, but not those comments previously submitted on the 2015 EIR. The Regional Water Board staff finds that our comments on the 2015 EIR are still valid and are hereby incorporated by reference into this comment letter.

In addition, we offer the following comments for your consideration.

Response to Comment No. 8-2

The Regional Water Quality Control Board's comments on the 2015 EIR are addressed in this Final EIR, as noted below.

Comment No. 8-3

The RDEIR splits the Project into two implementation phases. Phase I of the Project would include continuance of oyster aquaculture operations within the existing approximately 300-acre cultivation footprint, a 210-acre expansion of cultch-on-longline (156 acres max.) and basket-on-longline aquaculture (54 acres max.), and an additional 4 acres of rack-and bag culture. Phase II of the Project would involve a 412 acre expansion of 10-foot-spaced, single-hung, cultch-on-longline aquaculture.

Response to Comment No. 8-3

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 8-4

Impacts and Mitigation

The RDEIR concludes that the 210-acre Phase I expansion would have potential impacts on eelgrass, and proposes to increase 100 acres of existing longline aquaculture spacing from 2.5 feet to 10 feet to reduce eelgrass impacts to a less than significant level. The remaining approximately 200 acres of existing longline aquaculture would remain at 2.5-foot spacing. Phase II longlines would be spaced 10 feet apart. The RDEIR notes that "cultch-on-longline spaced at 10-foot intervals has been shown to result in no net loss of eelgrass" and that "this impact assumption will be verified via monitoring of Phase I culture prior to implementation of Phase II"

We cannot use information provided in the RDEIR to assess the extent of Project impacts that may occur to eelgrass because adequate scientific monitoring studies have not yet been performed to assess the eelgrass effect of longline oyster cultivation. It appears that the study cited to support the claim of no eelgrass effect from longlines spaced at 10-foot intervals (Rumrill and Poulton (2004)) was not designed to determine the width of effect from longline operations, and did not show a neutral effect to eelgrass, and therefore cannot be relied upon as the basis for the assumption of no eelgrass effect from longlines spaced 10 feet apart. Without full understanding of the potential impacts to eelgrass, it is impossible to assess whether the mitigation proposed for potential impacts in the RDEIR is sufficient.

Response to Comment No. 8-4

The R-DEIR includes sufficient information to make a determination of potential impacts from the project. The assumptions used to determine potential impacts to eelgrass habitat were supported using the best available science, and the comment provides no information to refute the data and information used, or additional information or studies that should be considered. As further described in Topical Response 2, there is ample evidence that a 10-ft single-hung oyster longline design can result in neutral or beneficial impacts to eelgrass habitat. Further, there are long-term and persistent beneficial effects from shellfish and the presence of a shellfish industry in Humboldt Bay to result in a no net loss of ecological functions. Recent opinions from federal agencies in Washington State (NMFS 2016a, US FWS 2016), using similar information and analyzing a larger and more diverse set of proposed actions, similarly concluded that potential impacts to eelgrass from proposed aquaculture activities would be less than significant. The R-DEIR acknowledges that there is some uncertainty associated with eelgrass impacts due to the natural variability of the resource and variety of positive and negative interactions between shellfish longlines and eelgrass. The R-DEIR accounts for this uncertainty through implementation of a monitoring plan to confirm the R-DEIR's assumptions regarding the project's anticipated impacts on eelgrass and ecological lift provided through reconfiguration of Coast's existing longlines. CEQA and the Clean Water Act do not require or authorize delaying a project to collect data from additional monitoring; rather the lead

agency and RWQCB are required to make their decisions informed by the best science available at the time.

Comment No. 8-5

The RDEIR proposes mitigation for Phase I expansion of longline acreage by increasing the existing longline spacing from 2.5 feet to 10 feet on approximately 100 of 300 existing longline acres. Rumrill (2004) is cited in the RDEIR to indicate that eelgrass density is significantly higher in longline configurations of 5- and 10-foot spacing when compared to 2.5-foot spacing. Implicit in this mitigation proposal is that Coast Seafoods will maintain 200 acres of existing longline operations that are negatively affecting eelgrass in Humboldt Bay by limiting eelgrass growth. Due to these cumulative impacts, the Project should be modified to avoid and minimize negative effects on eelgrass that result from existing operations by providing longline spacing that has less effect on eelgrass. For significant and unavoidable impacts, the Coast Seafoods should propose compensatory mitigation. The Regional Water Board expects the same approach to be applied to any expansion into eelgrass habitats beyond the existing 300 acre cultivation footprint. Completion of acceptable eelgrass monitoring studies to definitively determine effects on eelgrass from longline placement would be a necessary first step. Currently, a scientifically peer reviewed eelgrass monitoring study is planned for implementation concurrent with Phase 1 expansion-any expansion should occur only after the monitoring study has been completed and its findings can inform expansion design. Moreover, the RDEIR should not conclude that impacts have been mitigated to levels of insignificance until the sufficient scientific monitoring studies have been performed to substantiate that conclusion.

Response to Comment No. 8-5

CEQA does not require an analysis or mitigation of impacts associated with Coast's existing operations. *See* Topical Response 1 for further analysis of this issue. However, the EIR analyzes impacts associated with Coast's existing footprint and proposed expansion in its analysis of cumulative impacts. *See* R-DEIR Section 7. In-kind mitigation for the proposed expansion has been provided, as well as a robust monitoring and adaptive management plan. As noted in response to Comment 8-4 above, neither CEQA, the Clean Water Act, or the CEMP require monitoring prior to project approval. Rather, CEQA requires that the lead agency make an informed decision based on the best science available at the time. An EIR does not require certainty in its analysis; rather, it must analyze reasonably foreseeable impacts. If uncertainties exist, "an EIR may satisfy CEQA if it acknowledges the degree of uncertainty involved, discusses the reasonably foreseeable alternatives . . . and discloses the significant foreseeable environmental effect of each alternative." *Habitat & Watershed Caretakers v. City of Santa Cruz*, 213 Cal.App.4th 1277, 1291 (2013). The R-DEIR complies with this standard through identifying the range of potential effects to eelgrass based on existing data sources, describing the underlying basis for eelgrass impact assessment and estimated impact within that range, and implementing a monitoring plan and adaptive management plan to confirm those assumptions. A summary of the proposed monitoring plan is attached as Appendix C of this FEIR. Note that the draft monitoring plan has undergone peer review and may be subject to further revision based on those comments.

Comment No. 8-6

Eelgrass Avoidance Alternative. The RDEIR does not include an eelgrass avoidance alternative, citing the lack of available potential aquaculture areas without eelgrass and the decline oyster productivity in areas above 1.5' mean lower low water (MLLW), which is where eelgrass is not found. Section 5.2.1 of the RDEIR discusses the feasibility of using lands not currently owned or leased by Coast Seafoods as a means to identify potential expansion areas without eelgrass, but concludes it is infeasible due to the time and expense involved in identifying locations suitable for oyster cultivation as well as the "likely and significant delay, cost, and difficulty of pursuing new leases with multiple additional landowners." While we understand these are real challenges, the RDEIR does not provide convincing evidence that this is impracticable or infeasible. For instance, the eelgrass avoidance alternative could examine existing Humboldt Bay bathymetry data and compare that to existing hydrologic and water quality data to get a general idea of potential suitable aquaculture locations. This information could then be used to determine who the land owners are in these candidate areas. This type of analysis should be included in the RDEIR as an eelgrass avoidance alternative. The Regional Water Board does not find that the RDEIR has demonstrated that identifying suitable alternative aquaculture locations outside of existing owned and leased areas is infeasible.

Response to Comment No. 8-6

See Topical Response 5 regarding discussion of the eelgrass avoidance alternative. Regarding an investigation of additional available sites, the Harbor District conducted such an analysis as part of the Pre-Permitting Project and included all viable acreage suitable for shellfish cultivation that met the following requirements: (1) it had good potential for successful shellfish cultivation; (2) it attempted to avoid continuous eelgrass (to the extent possible) and avoid marine mammal haul-out areas; (3) it avoided existing tidelands leases (including Coast's); (4) it must avoid areas prohibited for shellfish cultivation by the California Department of Public Health ("CA DPH"); and (5) the alignment of the proposed leases were consistent to improve navigability within North Bay (Harbor District 2015). A full discussion of the site selection criteria is included in Appendix D of the Harbor District's Humboldt Bay Mariculture Pre-Permitting Project Draft EIR. Coast and the Harbor District are not aware of any additional intertidal areas suitable for shellfish cultivation that are not within either Coast's owned and leased areas or the Harbor District's Pre-Permitting Project. *See* R-DEIR Figure 7.1 for the combined footprint of Coast's owned and leased areas and the Pre-Permitting Project. Areas outside of the combined footprint are almost exclusive above +2.5 MLLW, which is not suitable habitat to grow shellfish. *See* R-DEIR Figure 5.1.

Comment No. 8-7

Section 5.2.1 of the RDEIR cites and incorporates an elevation study to demonstrate the decline in oyster productivity at elevations above 1.5' MLLW. The RDEIR relies heavily upon the elevation study (RDEIR Appendix C) to support the claim that oyster production is infeasible at higher elevations. However, as noted in the RDEIR, the initial count of oysters planted in the test (1.5-2 ft. above MLLW) and control plots (0.5-1 ft. above MLLW) differed from the number of oysters counted at harvest, which leaves the possibility that the number of oysters planted in the control plot differed from those in the test plot. This is important, since the study showed no other indicators of decreased oyster quality or productivity except for quantity of oysters per cluster and

total oyster weight per cluster. Also, there is no discussion of the methodology employed for selecting spat for use in the control and test plots. The study design should have described how the spat were selected and employed for use in the control and test plots to demonstrate that variables that could affect growth and number were eliminated (e.g., were spat chosen from the same population and applied in the same manner, and placed in the field at roughly the same time?). The infeasibility of producing oysters above 1.5' MLLW cannot be solely supported by the elevation study. Even if we were to accept the study results, it does not demonstrate the infeasibility of oyster growth at higher elevations between 1.5'-2' MLLW, it instead shows that oyster growth at these elevations would be less profitable per unit area than at lower elevations.

Response to Comment No. 8-7

The comment is correct that the elevation study (R-DEIR Appendix C1) was not designed to account for a potential source of bias in estimating productivity (as a surrogate for survival) based on the number of oysters/cluster observed at the end of the study. The study assumes, as the comment correctly points out, that an equal number of oysters occurred on clusters at the time of planting between the high and low elevation plots, on average. The results of the study, however, would only be invalidated if either 1) counts of spat on treatment clusters were systematically lower than on control clusters even though the true numbers were similar (negative observation bias on treatments was larger, on average, than on controls), or 2) the difference in true spat counts between treatment and control clusters were significantly different at the beginning of the experiment. As noted in the study, "Each cultch had a similar number of spat attached, as determined by counting random samples and calculating the average spat count for each cultch."

To further investigate whether there was a bias in the number of spat counted per cluster at the beginning of the experiment, H. T. Harvey & Associates reviewed the original data and found that spat counts were very similar at the beginning of the experiment between treatment ($> 1.5'$ MLLW) and control ($< 1.5'$ MLLW). Likelihood ratio tests were conducted on negative binomial generalized linear mixed effects models, using plot ID as a random effect (see Appendix C1 of the R-DEIR for further details), for Pacific and Kumamoto oysters separately. Spat counts for treatments were slightly lower, but not significantly different for either species ($p = 0.3027$ for Kumamoto, $p = 0.3908$ for Pacific; Figure 3.1). There is no reason to expect that observation bias differed between treatment and control clusters at the beginning of the experiment. Assuming no such bias, the magnitude of the difference in mean spat counts between treatments and controls is expected to remain the same if survival was equal between treatments and controls. Instead, spat counts for treatments were significantly lower at the end of the study, where they were not at the beginning of the study. This implies that survival, and thus the number of harvestable oysters per cluster, was lower for the treatment ($> 1.5'$ MLLW) as compared to the control ($< 1.5'$ MLLW).

As part of the largest shellfish company on the West Coast, it has been Coast's experience that (1) it is extremely risky to plant shellfish at elevations higher than +1.5 ft MLLW, where changing seasonal conditions could result in failure of the entire crop; (2) oysters grown at elevations higher than +1.5 ft MLLW do not grow as well as lower elevations; and (3) the oysters grown above +1.5 ft MLLW, including those produced in the elevation study, are not of a quality that is marketable. Given the significant financial investment required to plant and cultivate oysters, the risk associated with planting above +1.5 ft is considered unacceptable by Coast. Further, even if Coast planted all available acreage that does not contain eelgrass up to +2 MLLW, this alternative is projected to

result in an economic loss of \$2.485 million, and is therefore economically infeasible. See Topical Response 5 for additional discussion of the elevation study.

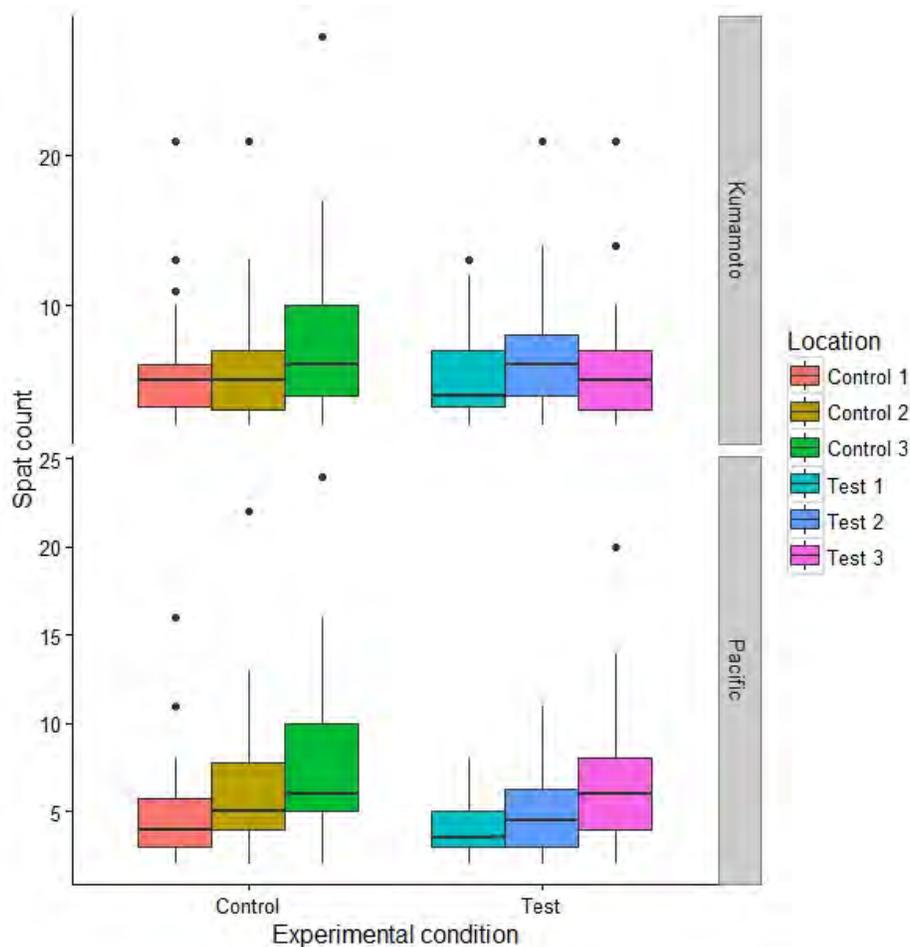


Figure 3.1 Boxplot of spat counts per cluster for Pacific and Kumamoto oysters at the initiation of the Feasibility Study (Appendix C1 of R-DEIR).

Comment No. 8-8

The RDEIR too readily dismisses eelgrass avoidance and should be revised to include a Project alternative that either significantly reduces the total amount of acreage cultivated or proposes an alternative location that moves the Project expansion areas to avoid eelgrass impacts.

Response to Comment No. 8-8

See Topical Response 5 for additional discussion of the eelgrass avoidance alternative. The R-DEIR considered significant reductions in acreage through including a reduced footprint alternative. See R-DEIR Section 5.3.2. In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast’s

operations within the EBMA and further reduces Coast's proposed footprint within eelgrass as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 8-9

Thank you for considering these comments on the RDEIR. If you have any questions or comments, please contact my staff person, Mr. Brendan Thompson at (707)576-2699 or Brendan.Thompson@Waterboards.ca.gov.

Response to Comment No. 8-9

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 8-10

Thank you for the opportunity to comment on the DRAFT Environmental Impact Report Coast Seafoods Company, Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project issued on October 2015, SCH #2015082051 (DEIR).

The North Coast Regional Water Quality Control Board (Regional Water Board) submitted comments on the Draft Initial Study on February 23, 2015, and was issued a response on August 27th, 2015, from Mr. Robert M. Smith, Plauche & Carr, 811 first Avenue, Suite 630, Seattle, WA 98104 (Plauche & Carr response). This letter addresses both the DEIR and the Plauche & Carr response to our Draft Initial Study comments.

Response to Comment No. 8-10

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 8-11

We disagree with the assertion included in the Plauche & Carr response that the Regional Water Board lacks permitting jurisdiction over the Humboldt Bay Coast Shellfish Aquaculture Permit Renewal and Expansion Project (Project). The Regional Water Board does have permitting jurisdiction through both section 401 of the Clean Water Act and the state Porter-Cologne Water Quality Control Act (Water Code). DEIR Table 4.5 suggests that there is uncertainty whether a Clean Water Act section 401 water quality certification (401 certification) would be necessary to continue and expand activities impacting waters of the state and US; the Regional Water Board is certain that certification will be necessary because Coast Seafoods Company would be applying for a Section 10 Rivers and Harbors Act permit for the Project. Additionally, the Regional Water Board

demonstrated the need and authority to issue 401 certifications to Coast Seafoods Company for nearly identical activities on April 18, 2007, and May 7, 2013.

Section 401 of the Clean Water Act (33 U.S.C. § 1341) requires every applicant for a federal license or permit to conduct an activity which may result in a discharge into navigable waters to provide the licensing or permitting federal agency with certification that the project will be in compliance with water quality standards and any other appropriate requirement of state law. Section 401 further provides that state certification conditions shall become conditions of any federal license or permit for the project. (33 U.S.C. § 1341(d)).

Section 401 typically applies to dredge-and-fill activities in wetlands and other waters that require permits from the U.S. Army Corps of Engineers or hydropower projects seeking a license from the Federal Energy Regulatory Commission (FERC). While the term "discharge" applies to point sources under section 401, this is distinct and broader than "discharge of a pollutant" subject to National Pollutant Discharge and Elimination System (NPDES) permitting under section 402 of the Clean Water Act. 1 Water quality certification often covers pollution exempted from the NPDES permitting program for point source discharges (see e.g., *National Wildlife Federation v. Gorsuch* (1982) 693 F.2d 156, 166). Section 401 "applies not only for licenses from FERC, but to all federal licenses and permits for activities which may result in a discharge into the Nation's navigable waters. For example, a permit from the U.S. Army Corps of Engineers is required for the installation of any structure in the navigable waters which may interfere with navigation, including piers, docks, and ramps". (*PUD No. 1 of Jefferson County v. Washington Department of Ecology* (1994) 511 U.S. 700, 722).

In this case, the Project involves "the placement of oysters and equipment necessary to grow oysters into the Bay" (Plauche & Carr response). This Project proposes continuing existing shellfish culture on approximately 294.5 acres and (depending on the chosen alternative) approximately 622 acres of additional intertidal activities. Project activities include placing additional "cultch-on-longline," "basket-on-longline," and "rack-and-bag" into intertidal waters. Section 4.6 of the DEIR states that the Project proponent would seek Project approval from the U.S. Army Corps of Engineers under section 10 of the Rivers and Harbors Act. This constitutes an activity that would result in a discharge into a navigable water requiring a federal permit and therefore a water quality certification would be required under section 401 of the Clean Water Act. The 401 certification would contain requirements for all controllable water quality factors associated with the Project, including measures to avoid, minimize and mitigate unavoidable impacts.

Should a 401 certification not be required, the Regional Water Board has jurisdiction over discharges of waste under the state Porter-Cologne Water Quality Control Act. Water Code section 13260(a) requires that any person discharging waste or proposing to discharge waste within any region that could affect the quality of waters of the state, other than into a community sewer system, shall file with the appropriate regional water board a Report of Waste Discharge (ROWD) containing such information and data as may be required by the Regional Water Board. The Regional Water Board may waive the requirements of Water Code section 13260 for specific types of discharge if the waiver is consistent with the Water Quality Control Plan for the North Coast Region (Basin Plan) and in the public interest (Water Code, § 13269). Pursuant to Water Code section 13263, the Regional Water Board shall prescribe requirements as to the nature of any proposed or existing discharge with relation to the receiving water conditions. Requirements shall implement any relevant

Basin Plan requirements and take into consideration beneficial uses of water, relevant water quality objectives, and other relevant factors.

"Waste" is defined broadly in the Water Code and includes "sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation..." (Water Code, § 13050, subd. (d)). The proposed Project includes the placing of oysters and structures into waters of the state, which would disturb the floor of Humboldt Bay, may physically displace intertidal wetland eelgrass, mudflats and associated obligate species or impact ecological functions and beneficial uses through shading, human trampling, or other Project-specific activities, as compared to a site with no culture activities.

Typically, section 401 water quality certifications are issued by the Executive Officer without a Board hearing and may also serve automatically as WDRs. (State Water Resources Control Board Order No. 2003-0017-DWQ). However, the Regional Water Board may issue individual waste discharge requirements (WDRs) pursuant to Article 4 of the Water Code. Unlike a 401 certification, WDRs do not require a federal permitting nexus, but may also serve as a 401 certification should there be a federal nexus. Issuance of WDRs are not delegated to the Regional Water Board Executive Officer like typical 401 certifications, but are instead subject to review and approval by the Regional Water Board in a public meeting, and is typically a lengthier process than issuance of 401 certifications without individual WDRs.

Response to Comment No. 8-11

While Coast does not necessarily agree with the Regional Water Quality Control Board's assertion of jurisdiction and authority discussed in this comment, Coast has complied with the RWQCB's request and has submitted a request for modification and extension of Coast's 401 Water Quality Certification (WDID No. 1B1140WNHU). Coast's application is currently pending with the RWQCB.

Comment No. 8-12

The total area of Project impacts to ecological functions and beneficial uses must be quantified and reported to the Regional Water Board during the 401 certification or WDR application process. Project impacts would include placement of "stakes," "posts" or other materials into sediment within intertidal wetlands or mud flats, as well as other Project related activities that may result in impacts to functions and beneficial uses of state waters. For instance, shading of eelgrass by oysters and the associated equipment may decrease eelgrass density and negatively affect the aquatic habitat that relies upon the eelgrass. Also, trampling of the mudflats by workers during harvesting and maintenance may harm eelgrass and/or other aquatic organisms. Any impact assessment must include a complete inventory of function loss, whether a complete or partial loss of functions. Through the application review and 401 certification and/or WDRs issuance process, Regional Water Board staff will determine what requirements, including compensatory mitigation, are appropriate to address Project impacts.

Response to Comment No. 8-12

In discussion with the RWQCB, Coast has committed to mitigate for impacts associated with stakes or posts to comply with RWQCB regulatory requirements. These calculations and compensatory mitigation are required by the RWQCB independent of the CEQA process. As discussed in Impact BIO-2, independent of RWQCB requirements, installation of PVC stakes and posts into the substrate is anticipated to result in a less than significant impact to unstructured mudflats and the surrounding benthic environment. Compliance with RWQCB requirements and the compensatory mitigation proposed through Coast's 401 certification process will further reduce impacts associated with the placement of PVC posts and other structures in unstructured habitat. The proposed RWQCB benthic habitat mitigation plan is attached as Appendix D of this FEIR.

In terms of a review of overall ecological functions, the R-DEIR provides a robust discussion of the potential changes due to the proposed project. Calculations of potential impacts to eelgrass consider shading, trampling, and stranding as potential mechanisms affecting eelgrass within culture areas (*see* Impacts BIO-3, BIO-4, and BIO-5). Overall, the literature supports the R-DEIR conclusions that impacts from shellfish aquaculture activities are short-term, localized, limited in physical extent, and of low intensity. In terms of long-term effects to ecological functions, especially in relation to water quality concerns, these are summarized well by US FWS (2016) in their recent PBO for shellfish aquaculture in Washington State, stating:

The Service expects that shellfish activities will generally, and in the majority of cases, provide long-term benefits in the form of improved water quality and sequestration of carbon and nutrients. These ecosystem services may be important as a means to control and prevent the effects of excess nutrient additions occurring elsewhere in the contributing watersheds and may lessen or counteract the potential for climate-induced ocean acidification and hypoxia. (US FWS 2016, pages 4/5, 134, 184, 196, 199, 202).

Therefore, especially in the context of water quality conditions under a 401 certification, the benefits to shellfish and a shellfish aquaculture industry in Humboldt Bay supports long-term water quality conditions.

Comment No. 8-13

Please note that the beneficial uses that may be impacted by the Project also fall under the jurisdiction and expertise of other governmental regulatory agencies (e.g., California Department of Fish and Wildlife, California Coastal Commission, and the National Marine Fisheries Service). During the review of the Project 401 certification application or ROWD, we will be consulting with these agencies to assess Project impacts and appropriate levels of mitigation. It is important that the Humboldt Bay Harbor District and Coast Seafoods Company continue to engage these agencies and provide their requested information to ensure the permitting process moves forward efficiently.

Response to Comment No. 8-13

See response to Comment 8-11 regarding Coast's application for 401 Water Quality Certification. Coast and the Harbor District continue to consult with both the RWQCB and other state and federal permitting agencies regarding project impacts and potential mitigation.

Comment No. 8-14

We appreciate Coast Seafoods Company's mitigation measure proposal to avoid direct impacts to eel grass by avoiding "rack-and-bag" activities (Conservation Bio-5). Additionally, Conservation Bio-6, 7, 8 and 9 are appropriate avoidance and minimization measures and we support their incorporation.

Response to Comment No. 8-14

The comment supports conservation measures incorporated into the proposed project. No further response is required.

Comment No. 8-15

DEIR Table 6.5.6 outlines "frequency of activity" or "human presence" relative to culture method. Since rack-on-bag activities are not conducted where eelgrass is present, we would not expect human presence to have an impact on eelgrass habitat. The majority of Coast Seafoods Company's acres are currently cultivated with cultch-on-longline and the frequency of human presence is comparatively low and primarily conducted in eelgrass beds. Basket-on-longline, though a smaller fraction of proposed culture methods, is proposed for expansion within patchy and continuous eelgrass beds. Because human presence frequency is significantly greater for basket-on-longline than cultch-on-longline, we request you to consider basket-on-longline be cultured only in areas of patchy or no eelgrass, where feasible, to avoid and minimize potential impacts to state waters and their beneficial uses.

Response to Comment No. 8-15

The project described in the R-DEIR includes approximately 29.2 acres of basket-on-longlines proposed in continuous eelgrass and 15.8 acres of basket-on-longlines in patchy eelgrass. To further avoid eelgrass as much as possible, the project also proposes to put baskets at higher elevations (above 1.5 ft MLLW). Note that, as described in the R-DEIR, this overlap does not equate to the estimated impact to eelgrass described in R-DEIR § 6.5. As further described in Topical Response 5, due to the restrictions of the leased and owned land available, there are relatively few areas that do not have eelgrass that are considered suitable for growing high quality oysters.

In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which reduces the overall proposed expansion footprint. Despite the fact that more basket-on-longline cultivation is proposed under this alternative, the alternative significantly reduces the amount of overall proposed cultivation in continuous eelgrass, from approximately 409.7 acres proposed for the preferred alternative to approximately 127 acres proposed for the EBMA Avoidance Alternative. The total overlap between basket-on-longline culture and continuous eelgrass areas was also reduced by an additional 8.6 acres. For a detailed description of this alternative and its impacts, see FEIR Section 4, *Revisions to the R-DEIR*.

It is notable that there are also advantages with basket-on-longline culture in terms of avoiding direct eelgrass effects because many of the operations can be conducted by floating over the lines when the area is inundated. While baskets-on-longlines are maintained more frequently, the

maintenance impact may be minimized, because approximately 80% of maintenance activities can be conducted at a time when the area is inundated, as described on R-DEIR pages 6.5-55 and 6.5-69.

Comment No. 8-16

Compensatory mitigation for unavoidable impacts to waters of the state, discussed in Conservation Bio-3, should implement in-kind mitigation to an extent that satisfies the Clean Water Act section 401, the State no net loss of wetlands policy EO WS9-93, and the Basin Plan. The process of approval of appropriate mitigation projects will be finalized during the 401 certification/WDRs application review and approval process.

Response to Comment No. 8-16

The R-DEIR proposes achieving no net loss of eelgrass functions by maintaining the existing amount of eelgrass present in the project area. The R-DEIR proposes in-kind, on-site mitigation through the conversion of existing 2.5-ft spaced single-hung longlines to 10-ft spaced double-hung longlines, which the R-DEIR concludes will promote sufficient eelgrass regrowth within Coast's existing planted footprint to compensate for anticipated eelgrass density reductions associated with the project. If monitoring shows that the increased density from this conversion will not fully compensate for the proposed activities, then additional mitigation will be discussed with the resource agencies through the adaptive management process. Additional mitigation could include BuDS, salt marsh restoration, or other mitigation options, if needed. However, the proposed impacts as currently understood are predicted to be fully compensated by the proposed in-kind mitigation described under Mitigation Measure BIO-1.

Comment No. 8-17

Mitigation for loss of eelgrass (density, function or area) should exhaust in-kind opportunities before out-of-kind mitigation is considered. The Buoy-Deployed Seeding System (BuDS) offers the possibility of increased eelgrass density in areas where deployed. However, success of this method is uncertain as outlined in the DEIR. We would support this concept as part of a package including other in-kind eelgrass mitigation projects before considering out-of-kind projects. Other eelgrass mitigation projects in Humboldt Bay have focused on debris removal in continuous and patchy eelgrass beds and salt marsh tidal mitigation where eelgrass may recruit in part of the mitigation area. Of the conceptual projects proposed in the DEIR, the Elk River Estuary mitigation proposal does appear to include eelgrass creation as well as salt marsh enhancement, and may be considered by the Regional Water Board after Project impact avoidance and minimization opportunities are exhausted. However, because Coast Seafoods Company has not yet submitted a 401 certification/WDR application, the Regional Water Board cannot say what requirements may be appropriate for the proposed Project activities.

Response to Comment No. 8-17

This comment was received before publication of the R-DEIR. Based on comments received on the DEIR, the previously proposed mitigation regarding BuDS and salt marsh restoration has been replaced with proposed in-kind eelgrass regrowth facilitated through reconfiguration of Coast's existing longlines. *See* response to Comment 8-16.

Comment Letter No. 9

Craig Shuman, D Env.
Regional Manager, Marine Region
1933 Cliff Drive, Suite 9
Santa Barbara, CA 93109

Comment No. 9-1

The California Department of Fish and Wildlife (Department) has reviewed the July 2016 Revised Draft Environmental Impact Report (RDEIR; State Clearinghouse # 2015082051) for the proposed Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project). The RDEIR was developed by the Humboldt Bay Harbor, Recreation and Conservation District (HBHD) which is the Lead Agency under the California Environmental Quality Act (CEQA). The Project proposes to continue Coast Seafoods Company's (CSF) existing operations on 300 acres, relocate 5 acres of existing culture, and expand farming operations into an additional 622 acres of intertidal habitats. The expansion is proposed to occur in two Phases, with 210 acres planted in Phase I and 412 acres planted in Phase II. The proposed Project includes 194 acres of cultch on longlines (COLL) spaced at 2.5ft; the conversion over two years of an additional 100 acres of COLL from spacing of 2.5ft to 10ft; 418 acres of COLL spaced at 10ft; 150 acres of double-hung COLL spaced at 10ft; 50 acres of basket on longline (BOLL) cultivation; 4 acres of racks-and-bag cultivation; ~ 6 acres of rafts and nursery areas; expanded floating upwelling system rafts; and the inclusion of oysters on the list of species allowed to be grown in existing clam rafts. The expansion area consists primarily of wetland habitats, including dense eelgrass (409.7 acres), patchy eelgrass (<85% cover; 184.4 acres), and areas of unvegetated mudflat habitat or other habitats such as subtidal channels (27.9 acres). This Project would bring the operational footprint of CSF to a total of 922 acres.

Response to Comment No. 9-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 9-2

As a trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection and management of fish, wildlife, and habitats necessary for biologically sustainable populations of those species (Fish and Game Code §1802). The Department is also charged to implement the statutory policy of the state to encourage the conservation, maintenance, and utilization of living marine resources to promote the development of fisheries and commercial aquaculture in a manner that maintains sufficient populations of all species and that recognizes the importance of aesthetic, educational, scientific, and non-extractive recreational uses (Fish and Game Code §1700). In the role of trustee agency, the Department administers the California Endangered Species Act, the Native Plant Protection Act, and other provisions of the California Fish and Game Code that afford protection to the State's fish and wildlife resources. The Department is also

responsible for marine biodiversity protection under the Marine Life Protection Act (MLPA) in coastal marine waters of California and is recognized as a “Trustee Agency” under the CEQA (Pub. Resources Code, § 21000 et seq.; hereafter CEQA; Cal. Code Regs., § 15000 et seq.; hereafter CEQA Guidelines). As a Trustee Agency, the Department is responsible for providing biological expertise to review and comment upon environmental documents and impacts arising from the Project activities (CEQA Guidelines, § 15386; Fish and G. Code, § 1802).

Response to Comment No. 9-2

This comment describes the jurisdiction and regulatory authority of the California Department of Fish and Wildlife. The comment is hereby noted and no further response is necessary.

Comment No. 9-3

Project Impacts

The Department wishes to acknowledge the efforts of CFS and HBHD to revise the Project proposal to include additional measures to avoid or reduce impacts to the resources and habitats that are realized in the Project footprint. However the Department remains concerned the Project will result in significant impacts to Public Trust resources, including eelgrass and mudflat wetland habitats, and species such as Pacific herring, shorebirds, black brant, and widgeon. The RDEIR proposes revised locations for aquaculture expansion, with the stated purpose of decreasing impacts to herring spawning areas and eelgrass. Though the RDEIR achieves some improvements regarding herring and eelgrass impacts, significant impacts to these resources remain a possibility. Cultivation continues to be proposed within areas of consistently utilized herring spawning habitat, with 95.5% (594 acres) of the proposed expansion area remaining in sensitive eelgrass habitat. Furthermore, the revised locations for aquaculture proposed in the RDEIR are significantly more dispersed throughout North Humboldt Bay and may cause increased impacts to shorebirds and waterfowl. The RDEIR discusses many of the topics outlined in the Department’s previous comment letters; however, it concludes that most Project activities result in impacts that are “less than significant” under CEQA. The Department finds these conclusions are not well supported by the citations and analyses. Furthermore, the proposed minimization and mitigation measures remain insufficient given the size, scale and potential impacts of the Project.

Response to Comment No. 9-3

The issues raised in this comment are specifically addressed in responses to Comments 9-4 through 9-27 below.

Comment No. 9-4

Based on our review of the RDEIR the Department remains concerned that the Project may cause significant environmental impacts to the Public Trust resources of North Humboldt Bay. In a letter dated December 31, 2015 The Department identified concerns and made comments and recommendations on the first DEIR for the Project. The majority of those concerns, comments and recommendations remain applicable to the current Project as described in the RDEIR. In addition to the comments provided here, we recommend the FRIER fully address the comments and recommendations included in the December 31, 2015 letter. We are enclosing the December 31,

2015 letter along with our previous comment letters on this Project, and request these be included in the record and in the response to comments in the FREIR (see the Incorporation by Citation section below). In addition, pursuant to our jurisdiction, the Department offers the following comments and recommendations regarding the Project.

Response to Comment No. 9-4

Pursuant to the Department's request, the Final EIR addresses the Department's comments and recommendations included in its December 31, 2015 letter. Those comments are addressed below.

Comment No. 9-5

2007 CEQA Findings. The findings and mitigation requirements from the 2007 CEQA process are not addressed in the RDEIR. The January 2007 Mitigated Negative Declaration adopted by the HBHD states that CSF's cultured acres be reduced from 500 to 300 acres as a "primary mitigation measure for the potential adverse impacts to biological resources" (page 3-12) for impacts from the 300 acre footprint (HBHD 2007). This reduction in acreage was used to reduce impacts to a level of less than significant. CSF is proposing to culture in a portion of those 200 acres identified for mitigation in 2007 thus negating the mitigation identified for the existing 300 acre footprint. Mitigation for continuing impacts from the majority of the existing 300 acre footprint has not been accounted for in the RDEIR, and no mitigation has been included to address the wetland habitat lost or impacted due to existing operations. This does not meet the State's no net loss for wetlands policy, as the proposed Project does not provide mitigation for all impacted acreage. The Department recommends the FREIR include a comprehensive discussion on adequate compensatory mitigation for impacts from existing operations that would comply with the Fish and Game Commission's no net loss for wetlands policy.

Response to Comment No. 9-5

While the Harbor District limited Coast's planted footprint to 300 acres in its 2007 permit approval, the limitation in acreage was intended to ensure that Coast did not expand its footprint during the term of its permit rather than mitigate for any identified environmental impact. This condition was proposed by Coast; Coast was not credited for any mitigation in either its Harbor District or Coastal Commission approvals for preserving its remaining leased and owned tidelands in an undeveloped state. Indeed, the 2006 Mitigated Negative Declaration approved by the Harbor District did not find that the project would result in a significant impact on eelgrass that required mitigation. Further, Coast adequately mitigated for eelgrass impacts associated with its existing footprint through funding a salmon restoration project and transferring a 54-acre parcel to the Harbor District to be held for preservation in perpetuity. These previously imposed mitigation measures continue to provide the ecological benefits for which they were intended. *See* Topical Response 1 for additional analysis of analyzing existing project impacts under CEQA and mitigation of Coast's existing operations.

Comment No. 9-6

Sand Island. Sand Island is one of the few locations in Humboldt Bay that remains exposed at all but the most extreme high tides. As such, it provides unique habitat within the bay, supporting nesting

colonies of Caspian terns and double crested cormorants, a marine mammal haul-out site, and a grit site currently identified for black brant (Colwell et al. 2003; Capitolo et al. 2004; Adkins & Roby 2010; RDEIR 2016). In addition, the adjacent waters are an important area for green sturgeon use in the Bay (Pinnix 2008; Lindley et al. 2011; RDEIR 2016). The RDEIR includes an existing setback distance for aquaculture gear of 100m around Sand Island to reduce impacts to marine mammals and nesting birds (Mitigation Measure BIO-3). However, the Department believes the 100m buffer may not be sufficient to prevent significant impacts due to disturbance of black brant at the grit site, nesting bird colonies, and marine mammals. In order to protect the resources that utilize the areas in and around Sand Island, including marine mammals, shorebirds, nesting birds, green sturgeon, and black brant from disturbance and loss of habitat, the Department recommends the setback distance for aquaculture gear be increased to reduce impacts. The FREIR should include a discussion of an alternative buffer distance to reduce the impacts to less than significant. The Department would be willing to assist in the development of an appropriate buffer.

Response to Comment No. 9-6

As noted in the comment, the 100 m buffer incorporates the existing setback distance approved by the Harbor District pursuant to a 2006 Mitigated Negative Declaration evaluating Coast's existing planted footprint, which determined that a 100 m buffer was sufficient to mitigate for the impacts discussed above, including disturbances to birds and marine mammals. As shown in R-DEIR Figure 6.5.28, no expansion plots are located closer than Coast's existing cultivated footprint.

There are some studies that recommend a greater buffer for human activity from brant and certain species of shorebirds. For example, Mathers et al. (2000) recommends a 250 m buffer from human activity for wigeon, which is identified as a particularly sensitive species. Borgmann (2011) suggests that a 250 m buffer from human disturbance impacts would likely lessen impacts on most sensitive waterfowl species. Laursen et al. (2005) recommends a 384 m buffer from brant; however, the recommended buffer may not be directly applicable given that it discusses a buffer from human approach on foot rather than boats. However, the frequency of disturbance in these studies was much greater than the proposed project; in Mathers et al. (2000), the mean interval of disturbance varied from every 7 to 68 minutes. In Laursen et al. (2005)'s study, observers experimentally approached and disturbed waterbirds over a thousand times (n=1,371) in spring and autumn in 1980-1984, which likely amounted to at least one disturbance per day during the study. West et al. (2002) concluded that numerous small disturbances would be more damaging to shorebirds than large, infrequent disturbances, and although they did not suggest a disturbance frequency threshold, the frequency of disturbances (both infrequent and frequent) were still on the order of daily to hourly, much greater than the level of disturbance associated with the proposed project.

While the above buffers may be appropriate for significant or intense levels of disturbance, they do not appear to be appropriate for the level of disturbance associated with the proposed project. Consistent with the buffers recommended in Mathers et al. (2000) and Borgmann (2011), the closest new plots would be immediately south of Coast's existing cultivated footprint, approximately 450 feet (300 m) from the MHHW line of Sand Island. Therefore, disturbances associated with new plots would not be any greater than existing conditions, given that there will be a greater buffer between the proposed plots and Sand Island. While there may be a slight increase in boat traffic to service the additional plots proposed for Phase II of the project, these plots would only be visited approximately once every four months (*see* R-DEIR Table 4.2), and would not result in a significant

increase in project activity in the area. Therefore, while the project may have some impact on brant and nesting birds, potential impacts associated with the proposed project are considered to be adequately mitigated through the incorporation of Mitigation Measure BIO-3 to less than significant levels.

Coast has also committed through Conservation Measures BIO-10 and BIO-11 to not conduct activities when marine mammals are observed to be hauled out in or near culture areas, or to intentionally approach or harass marine mammals during vessel transits. NOAA has established guidelines for managing marine mammals to prevent their harassment whether in water or when hauled out which identifies a buffer zone of 100 yards (approximately 91 m) as protective and allows for cautious approaches by vessel to marine mammals in the water up to 50 yards (NOAA 2006). As mentioned above, the proposed expansion plots would be located approximately 300 m from the MHHW line of Sand Island, well beyond the NOAA-recommended buffer zone.

In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which proposes to mitigate anticipated impacts through removal or fallowing of Coast's existing culture plots near Sand Island. 42 acres of Coast's existing plots would be removed to mitigate for impacts associated with Phase I of the alternative and the remaining 3.3 acres of existing plots would be removed or fallowed to mitigate for Phase II of the alternative. The removal of these culture plots adjacent to Sand Island will reduce even incidental activity and the potential to disturb birds and marine mammals. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 9-7

Brant Grit Sites

The RDEIR recognizes two grit sites for black brant in North Humboldt Bay, one at Sand Island and one at Indian Island. Grit sites are rare and are a critical part of the feeding process (Lee et al. 2004; Spragens et al. 2013). Given the rarity and limited access to grit sites, anthropogenic disturbance and development of these sites have been cited as further limiting factors for black brant populations, with grit sites recognized as important areas for protection (Lee et al. 2007; Spragens et al. 2013). Black brant are also some of the most sensitive waterfowl to disturbance (Laurson et al. 2005; Pacific Flyway Council 2002). The RDEIR states that impacts to black brant grit sites are less than significant, and does not provide measures to avoid or minimize disturbance from Project activities (IMPACT BIO-27). The Department recommends that the FDEIR include a discussion of possible additional mitigation measures that could be implemented to reduce these impacts to less than significant. Additional measures may include a larger buffer as discussed above.

Response to Comment No. 9-7

See response to Comment 9-6.

Comment No. 9-8

Eelgrass. The Department has reviewed the eelgrass analysis and associated technical reports (RDEIR & Appendix D). Based on our review of the Project in the RDEIR, the Department remains concerned that the Project does not meet the Fish and Game Commission's no net loss

policy threshold for eelgrass habitat impacts. Within the 210 acre Phase I expansion area, the RDEIR finds the Project will reduce eelgrass density by 58% over 48.1 acres under COLL and reduce density by 60% over 13.2 acres under BOLL (for a total of 61.3 acres) using a “width of effect” model. In addition, the RDEIR finds there will be no impacts from Phase II of the Project (412 acres of single hung COLL spaced 10ft apart) and relies on monitoring in lieu of direct impact reduction. The Department is concerned this analysis is not consistent with the best available information regarding 10ft spaced COLL in Humboldt Bay from Rumrill and Poulton (2004) and the additional analysis provided in Rumrill (2015). In addition, impacts from aquaculture to wetland habitats are well documented and have been shown to alter habitat and habitat values (see the discussion and citations included in our September 23, 2015, letter). The Department recommends that the FREIR include additional discussions to clarify and further justify the position regarding the conclusion that the majority of the impacts to eelgrass will not be significant. The Department also recommends the FREIR include a discussion of possible additional avoidance, minimization and mitigation measures that could be implemented for impacts to eelgrass habitats.

Response to Comment No. 9-8

See Topical Response 2 for a discussion of the Rumrill and Poulton (2004) and Rumrill (2015) citations. The other literature referenced in the December 21, 2015, and September 23, 2015, letter is addressed in the responses below (*see* responses 9-33 through 9-38). The most relevant quote from the Rumrill (2015) document, is: “It is appropriate to state that addition of oyster aquaculture in Humboldt Bay (and perhaps other estuaries) can be neutral in direct effects to spatial cover and density of eelgrass when the oyster cultch-on-longline mariculture operations are conducted at line spacings of 5 ft or 10 ft. Implementation of best management practices that include reduced density of oysters (i.e., oyster culture at 5 ft and 10 ft spacing between the longlines) can allow the eelgrass communities to coexist in a healthy manner beneath the oyster longlines.” This supports the R-DEIR determination that 10 ft spacing will have a neutral or beneficial impact to eelgrass.

In addition, the project recognized potential impacts from the expansion of using 10-ft spaced double-hung longlines, and includes in-kind mitigation to compensate for the reduction in density that is anticipated to occur due to the proposed expansion. Monitoring impacts associated 10-ft spacing is not deferred mitigation. The justification of a less than significant impact is based on the foregoing analysis as opposed to monitoring. Based on the best science available, 10-ft spaced longlines are not anticipated to have a significant adverse impact on eelgrass. As an extra layer of precaution, and to comply with mitigation requirements imposed by the CEMP and U.S. Army Corps of Engineers, Mitigation Measure BIO-1 also includes a monitoring plan and adaptive management plan to confirm the R-DEIR’s assumptions concerning the project’s impacts to eelgrass, including impacts associated with 10-foot spacing, and the amount of ecological lift provided by Mitigation Measure BIO-1. Any significant impacts beyond those analyzed in the R-DEIR would require additional mitigation or revisions to the project using the adaptive management plan described in the R-DEIR.

Comment No. 9-9

Herring

The Project described in the RDEIR will likely lessen the impact to Pacific herring compared to previous versions of the Project. However, the RDEIR still proposes significant expansion of aquaculture into important herring spawning areas with potentially large impacts to the survival of

herring eggs as well as a reduction in eelgrass available for spawning (see the Eelgrass and Mitigation sections below as well as our September 23, 2015, and December 31, 2015, letters). The RDEIR indicates there will be no significant impacts on the survivability of herring eggs or eelgrass habitat. This is not well supported by the analyses and the Department believes that the Project may result in significant impacts to herring. The Department recommends the FREIR include a discussion regarding the development of possible additional avoidance, minimization and mitigation measures to lessen the impacts to Pacific herring to a level of less than significant.

Response to Comment No. 9-9

See Topical Response 3 concerning the Project's impacts to herring.

Comment No. 9-10

The Department agrees with the conclusion in the RDEIR that removal or disturbance of aquaculture gear with herring eggs attached will cause significant impacts to the herring population. To reduce impacts to herring, the RDEIR includes the mitigation measure BIO-2 that proposes monitoring of herring spawns and postponing activities in areas where spawn has occurred on aquaculture gear. The Department concurs with this mitigation measure. The Department believes that in order for this measure to be effective an appropriate herring spawn monitoring plan needs to be developed and implemented. The Department recommends that the FREIR include a comprehensive discussion of the development of a herring spawn monitoring program. The Department would be willing to assist in the Development of an appropriate monitoring program.

Response to Comment No. 9-10

See Topical Response 3. While a herring spawn monitoring plan is not required to mitigate impacts associated with herring and/or herring spawn, the plan has been proposed to accommodate the Department's request. The draft herring spawn monitoring plan is included as FEIR Appendix A.

Comment No. 9-11

Black Brant. As highlighted in the Department's previous comment letters on this Project, the Department continues to recommend the FREIR include a quantitative analysis of both the loss of food (eelgrass) and the increase in disturbance, and the cumulative impacts to black brant when both a loss of food and an increase in disturbance occur simultaneously. The RDEIR does not adequately address or quantify the impacts from the increase in disturbance (e.g. increase in boat trips, workers and boat hours) to black brant and other waterfowl from Project activities. These additional disturbances may result in significant impacts to black brant and the habitats that they utilize. In order to adequately address the potential impacts to black Brant the Department recommends that the FREIR incorporate a comprehensive evaluation to include the following:

- Describe the geographic extent, temporal frequency, and nature of current anthropogenic activity in the Project area.
- Disclose the geographic extent, temporal frequency, and nature of activity that would occur under the Project.
- Determine the species' potential sensitivity to disturbance (location, distance, frequency, nature, etc.) based upon the best available evidence, including how the species will likely

respond to the various activities proposed in the Project and in combination with on-going and reasonably predicted future activities from non-project sources.

- Determine whether or not the Project is likely to have a significant adverse impact on the species resulting from disturbance.

Response to Comment No. 9-11

The calculations associated with eelgrass density reduction are provided in Impact BIO-3, and the calculations associated with potential increase in eelgrass density are provided in Mitigation Measure BIO-1. Overall, impacts to eelgrass are expected to be neutral. In terms of the potential to reduce eelgrass biomass for brant foraging, there is no indication that eelgrass is a limiting resource for brant in Humboldt Bay, or that the project would significantly reduce potential foraging habitat due to a reduction in eelgrass density within specific locations of the bay. Impact BIO-25 and Topical Response 4 describe project-specific modeling that estimates the percent reduction in eelgrass biomass available to brant resulting from the presence of infrastructure. More detail on the modelling is presented in Appendix F of the R-DEIR.

Impact BIO-26 discusses potential impacts to brant associated with human disturbance. As noted in the R-DEIR, the other existing sources of human disturbance that can affect brant in Humboldt Bay include (1) recreational clamming, (2) aircraft, (3) hunting, (4) small boats, (5) people, and (6) large boats. However, as noted by Henry (1980), brant tend to avoid areas subject to these disturbances. Many of these uses are located a significant distance from the project site. For example, the Humboldt Bay Management Plan provides that most clam digging sites are located in South Bay (Harbor District 2007). The same is true for boating, which notes that “Boating in Humboldt Bay is somewhat limited because of the shallow water and tidal conditions . . .” noting that North Bay in particular does not have many recreational boating opportunities (*Id.*) See Topical Response 6 for a discussion of overlap between the Project site and hunting uses. These uses may result in brant utilizing more of the project site than would be expected without such uses; however, there is no reason to expect that these uses would increase as compared to existing conditions or alter brant use of the project area in the future.

Impact BIO-26 also describes estimation of the percent increase in disturbance from all activities associated with the increased activity from the project based on several conservative assumptions that result in an overestimate of increase in disturbance. One of these assumptions is that 100% of Coast’s activities result in disturbance to brant which, by definition, assumes the maximum level of sensitivity. The combined effect of impacts to food availability (Impact BIO-25) and impacts associated with disturbances caused by Project activities (Impact BIO-26) is included on R-DEIR pg. 6.5-102, which concludes that “This reduction of 0.5% due to increased disturbance, when combined with a <3% reduction in eelgrass availability due to proposed project culture infrastructure, is well below the 10% threshold derived from Stillman et al. 2015.” Therefore, impacts associated with brant are properly considered less than significant.

Comment No. 9-12

The Department also recommends the FREIR include a comprehensive discussion of additional avoidance and mitigation measures to reduce impacts from disturbance to a level of less than significant.

Response to Comment No. 9-12

As further discussed in Topical Response 4, the Project is anticipated to result in less than significant impacts to brant upon incorporation of Mitigation Measures BIO-1 and BIO-4. Therefore, no additional mitigation measures are required. 14 CCR §15126.4(a)(3).

Comment No. 9-13

Recreational Hunting

The RDEIR concludes that recreational hunting will be impacted by Project activities. To reduce impacts to less than significant, the RDEIR proposes Conservation Measure REC-1 which includes the avoidance of an identified area in the EBMA from midnight until sunset, from November 15th to December 15th during brant hunting days. The Department supports the effort to minimize impacts to the brant hunting community and has the following comments regarding the Conservation Measure (REC-1) identified in the DEIR:

- Expand the Hunting Avoidance Area to accurately reflect the areas hunted by boaters and scullers for brant in North Humboldt Bay.
- Implement hunting avoidance areas, days, and times for other boat-based waterfowl hunting activities that occur in North Humboldt Bay.

Response to Comment No. 9-13

To clarify, the R-DEIR concludes that hunting impacts are considered less than significant without any mitigation. Conservation Measure REC-1 was included to respond to public comments received but is not relied upon in the R-DEIR to reduce impacts to less than significant levels. While the Harbor District and Coast have attempted to determine the areas used by brant hunters, including outreach to the California Waterfowl Association, CDFW, US FWS, and others, they have not been able to identify areas hunters use as primary hunting areas. No comments received describe the areas used by hunters other than general comments that hunters use all of North Bay. The best known documentation of primary hunting areas are those described in the Humboldt Bay Management Plan.

As further described in Topical Response 6, while the project would result in some overlap of hunting areas identified by the Harbor District in its Humboldt Bay Management Plan, and would increase Coast's cultivation footprint within North Bay, over 90% of identified hunting areas and North Bay would remain free from any cultivation activity. Coast's cultivation activity is also not anticipated to exclude hunters from planted plots. Because the project is anticipated to result in less than significant impacts without mitigation, no additional mitigation is necessary. Further restrictions on Coast's operations to accommodate all waterfowl hunting seasons are not feasible, given that it would prohibit Coast from conducting its operations for approximately three to four months (October – January), including the months where shellfish demands are traditionally the highest, which would represent a severe competitive disadvantage to Coast in comparison to the rest of the shellfish industry and would make the project economically infeasible.

Comment No. 9-14

The RDEIR includes Conservation Measure REC-2 that describes by December 1 of each year, CSF will submit to the HBHD a map describing the locations of each longline bed within its operational footprint. The Department supports this measure.

Response to Comment No. 9-14

The comment supports Conservation Measure REC-2 included in the R-DEIR. No further response is required.

Comment No. 9-15

In order to adequately address the potential impacts to recreational hunting the Department recommends that the FREIR incorporate a comprehensive evaluation to include the following:

- Provide the geographic extent of the area currently available to hunters in the Project area and North Humboldt Bay.
- Describe hindrances to hunting from existing and proposed expanded operational activities.
- Disclose the nature and extent of hindrances to hunting that the Project would pose, and the loss of hunting opportunity that would result from the Project and the project in combination with non-project anthropogenic impediments.
- Based on the best available evidence, determine what the threshold of significance is regarding loss of hunting opportunity.
- Determine whether or not the Project is likely to have a significant adverse impact on hunting.

Response to Comment No. 9-15

See Topical Response 6, Topical Response 7 (regarding navigational hazards) and Response to Comment 9-13. Topical Response 6 provides a quantification, based on the best information available, regarding overlap with Humboldt Bay hunting grounds. Based on comments received on the R-DEIR and discussions with CDFW, it appears that the entire project area and North Humboldt Bay is currently available for hunting, other than restrictions concerning shooting firearms within city jurisdictions. The Humboldt Bay Management Plan identifies the Eel River Wildlife Area, the Humboldt Bay National Wildlife Refuge, Mad River Slough Wildlife Area, and the Fay Slough Wildlife Area as designated waterfowl hunting areas (Harbor District 2007). The Management Plan further states that “Hunting . . . is allowed at several locations, including the State managed area at Fay Slough Wildlife Area. Portions of the US FWS Jacoby Creek and Eureka Slough units are open during the State waterfowl season . . .” (*Id.*) Overlap with these areas is further described in Topical Response 6.

Based on the best evidence available, the project is not anticipated to result in hindrances to hunters (*see* Topical Response 6); therefore, no loss of hunting opportunities is anticipated. In response to this comment, the threshold of significance regarding hunting impacts has been clarified in the FEIR. *See* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 9-16

In addition, the RDEIR has not addressed the Department's recommendations, per previous comment letters dated September 23, 2015, and December 31, 2015, and recommends the FREIR adequately discuss and analyze these issues:

Response to Comment No. 9-16

See Response to Comment 9-17.

Comment No. 9-17

- Decreases in the number of waterfowl available for harvest resulting from displacement, loss of food resources, and disturbance; and
- Increases in hazards to boaters (including skulkers) and hunting dogs from aquaculture gear.

Response to Comment No. 9-17

See Topical Responses 6 and 7 regarding impacts associated with hunting and recreational hazards.

Comment No. 9-18

The Department also recommends that the FREIR include a discussion of possible additional mitigation measures that may be implemented to further to reduce impacts to recreational users to a level of less than significant. The Department would be willing to assist in the development of these additional avoidance, minimization and/or mitigation measures.

Response to Comment No. 9-18

See Topical Response 7 regarding impacts associated with recreational hazards. Given that impacts associated with recreational hazards are considered less than significant upon the adoption of Mitigation Measures HAZ-1 through HAZ-5, no further mitigation is necessary.

Comment No. 9-19

Shorebirds. Given the expansive size and infrastructure proposed in currently undisturbed intertidal wetland habitats, multiple significant impacts to shorebirds may occur. These impacts include alteration of food sources, loss of foraging habitat, and disturbance (Connolly and Colwell 2005; Forrest et al. 2009; Kelly et al. 1996; and Quintino et al. 2012). Specifically, some bird species avoid aquaculture areas located on mudflats, thereby substantially reducing the habitat available for feeding and resting (Connolly and Colwell 2005; Kelly et al. 1996). Also, the alteration of bird foraging habitats by aquaculture structures and activities favors some species over others (Connolly and Colwell 2005; Kelly et al. 1996; and Quintino et al. 2012). In addition, the Southern Pacific Shorebird Plan provides goals and recommendations for shorebird conservation that include restricting human activities that disturb large flocks of shorebirds on tidal flats, specifically including oyster culture; and prohibiting the further alteration of tidal flats for oyster culture in Humboldt Bay (Hickey et al. 2003).

Response to Comment No. 9-19

See Topical Response 8 for discussion of the project's impacts to shorebirds, including discussion of the Connolly and Colwell (2005) and Kelly et al. (1996) studies. There are additional studies that indicate that shorebirds may habituate to human disturbance. In Humboldt Bay, predators had a greater influence on dunlin behavior at roosts than human activity, and some of the roost sites most frequently used by dunlin around Humboldt Bay were frequented by humans, suggesting habituation to human activity (Fox-Fernandez 2006). In addition, the study noted that roost sites for dunlin were not limited in Humboldt Bay; therefore, they could likely move to other areas when disturbed. Goss-Custard and Verboven (1993) found that oystercatchers adapted to disturbance by habituating to the presence of people, moving to less disturbed mussel beds, or by altering their feeding schedule, and that there was no evidence that rising levels of human disturbance over a 15-year period had significantly affected feeding or resulted in decreased numbers of overwintering shorebirds. Another study established that oystercatchers could be disturbed up to 0.2–0.5 times/hour when feeding conditions were poor and up to 1.0–1.5 times/hour in good feeding conditions before fitness was reduced (Goss-Custard et al. 2006). Although this study did not evaluate other shorebird species, this critical threshold of disturbance was much higher than the boat disturbance that would be produced by the project, and other shorebird species may have a similar threshold. According to West et al. (2002), numerous small disturbances to shorebirds can be more damaging than fewer, larger disturbances because they can essentially constitute habitat loss/exclusion. The infrequency of boat disturbance associated with the project is unlikely to constitute habitat loss or exclusion.

While the Southern Pacific Shorebird Conservation Plan notes that oyster cultivation can have negative effects on feeding opportunities for certain bird species and recommended prohibiting new shellfish culture, it should be noted that, at the time of the Plan's adoption, Coast cultivated approximately 185 acres more in Humboldt Bay as compared to its existing footprint. Similarly, the primary cultivation methods utilized at the time were primarily on-bottom culture methods as opposed to the off-bottom methods utilized by the proposed Project, which can have greater impacts associated with reducing food availability, sedimentation, and erosion. The Southern Pacific Shorebird Conservation Plan also recommends to "Determine the effect of...different oyster culture techniques on availability of shorebird invertebrate prey at coastal sites..." While the Kelly study discussed above was cited in the Plan, the Plan did not have the benefit of any studies associated with oyster longline culture, such as the Connolly and Colwell (2005) study.

Comment No. 9-20

The Conservation Measure BIO-12 (Coast will not intentionally approach or harass migratory birds that are actively feeding or resting within the Project area) proposed in the RDEIR will not reduce impacts to shorebirds below the threshold of significance because it is unlikely "intentional" disturbance of shorebirds will occur. Rather, impacts will occur from the placement of aquaculture gear and the disturbance from ongoing daily culture operations. The Department recommends the FREIR include a comprehensive discussion regarding additional avoidance, minimization and mitigation measures to be developed to address impacts to shorebirds.

Response to Comment No. 9-20

To clarify, the R-DEIR concludes that impacts to shorebirds are considered less than significant without any mitigation. The R-DEIR discusses a variety of Project impacts associated with shorebirds, and concludes that no mitigation is required. *See* Impacts BIO-28 through BIO-33 and Topical Response 8. The comment is correct that it is unlikely that intentional disturbance of shorebirds will occur; Conservation Measure BIO-12 was included to enforce that assumption, but is not relied upon in the R-DEIR to reduce impacts to less than significant levels.

Comment No. 9-21

Mitigation. The Department believes the mitigation proposed in the RDEIR will not to reduce the impacts to Public Trust resources to a level of less than significant. The proposed mitigation measures and related conservation measures are not proportional to the impacts of the Project (CEQA Guidelines §15126.4). Four mitigation measures are identified in the RDEIR: (1) conversion of 100 acres of existing longline operations from single-hung 2.5ft spacing to double-hung 10ft spacing (BIO-1); (2) delay of aquaculture activities in areas where herring spawn is observed (BIO-2); (3) maintenance of a 100m buffer above mean higher high water around Sand Island (BIO-3); and (4) eelgrass recovered via BIO-1 being available for black brant consumption (BIO-4). The Department believes that the conversion of 100 acres of existing longline operations to 10ft spacing (BIO-1) constitutes a minimization measure for reducing impacts from existing operations. Further, this measure does not meet the Fish and Game Commission's no net loss policy with regards to wetlands (as discussed in the Department's comment letter dated December 31, 2015).

Response to Comment No. 9-21

Because Coast has already fully mitigated for eelgrass impacts associated with its existing footprint (*see* Topical Response 1), any further mitigation and ecological lift provided by reconfiguration of 100 acres of its existing footprint represents additional mitigation that mitigates for impacts associated with Coast's expanded footprint. Therefore, Coast's proposed revisions to its existing footprint represent mitigation as opposed to impact minimization.

Regarding compliance with the Fish and Game Commission's no net loss policy, the R-DEIR incorporates the no net loss standard regarding eelgrass impacts, incorporating the threshold established by the CEMP (NMFS 2014) that uses a no net loss policy of ecological function. *See* Impact BIO-3. Similarly, the Commission's no net loss policy recommends that projects avoid losses of wetland acreage or habitat value. As described in R-DEIR § 6.5 and Topical Response 2, the project complies with this standard. As further described in the R-DEIR, the project is not anticipated to result in a loss of areal extent of eelgrass habitat, although Phase I would result in a loss of eelgrass density. While Phase II may result in certain areas with reduced eelgrass density, the net change in eelgrass is anticipated to be neutral or beneficial. The Commission's no net loss policy appears to be designed to account for traditional projects that fully eliminate wetland acreage and functionality. The project is somewhat unique, in that it would leave the existing habitat intact but would add structure to that habitat. While there are a variety of tradeoffs associated with the proposed action further discussed in R-DEIR § 6.5, the project does not significantly change fish and wildlife access or the way in which species use the habitat.

While there are uncertainties associated with the overall effects to eelgrass, the R-DEIR analysis is based on the best available science, and includes in-kind mitigation, robust monitoring, and an adaptive management plan if the observed losses are greater than those anticipated in the R-DEIR. This approach is consistent with the approach recommended by Fish and Game Code § 703.3: “It is the policy of the state that the department and commission use ecosystem-based management informed by credible science in all resource management decisions to the extent feasible . . . Resource management decisions of the department and commission should also incorporate adaptive management to the extent possible.”

Comment No. 9-22

Additionally, the RDEIR indicates that Phase II of the Project (412 acres of single hung COLL spaced 10ft apart), will have a neutral effect on eelgrass and does not include any compensatory mitigation for this portion of the Project. However, the study by Rumrill and Poulton (2004) found an average of 16% loss of density and 11% loss of spatial cover in experimental plots spaced at 10ft (and as cited in Rumrill 2015).

Response to Comment No. 9-22

See Topical Response 2 regarding discussion of the Rumrill and Poulton (2004) data. While there are limitations in using the Rumrill and Poulton (2004) data, the following conclusions can still be made: (1) the treatment plots discussed in the Rumrill and Poulton (2004) study were still in recovery from the mechanical dredge harvest activities by the end of the experiment; (2) the 10-ft treatment plot exceeded the eelgrass density of both the control plot and reference sites, despite a disparity in tidal elevation; and (3) Dr. Rumrill (2015) indicated that a neutral impact to eelgrass density is attainable at a 5-ft and 10-ft longline spacing.

Comment No. 9-23

Further, Rumrill and Poulton (2004) reported losses in some 10ft spaced plots up to 64% in density and 58% in spatial cover. As such, the Department believes the conclusion that Phase II would have neutral effects on eelgrass habitat is not well supported. Additionally, the expansion of 412 acres of aquaculture gear and related activities will cause the habitat values of the eelgrass bed and underlying mudflat to be degraded (see discussion in the Department’s comment letters dated September 23, 2015, and December 31, 2015). As discussed in the Department’s December 31, 2015, letter, the impacts to wetland resources from the proposed Project constitute a loss of “habitat and habitat values” throughout the Project area and the Department recommends the FREIR include a comprehensive discussion on compensatory mitigation for all 622 acres of expansion.

Response to Comment No. 9-23

See Topical Response 2 for a response to comments associated with the Rumrill and Poulton (2004) data. Further, the Harbor District is not aware of any state or federal regulation that requires mitigation for loss of mudflats. For example, state and federal agencies do not require mitigation for dredging projects that disturb mudflats (that do not include eelgrass areas). As noted in the R-DEIR, shellfish culture provides a number of ecological benefits as compared to mudflat habitat alone. *See* Impact BIO-2; R-DEIR, at 6.5-36, 6.5-82 (benthic fish prey have been observed to be

more numerous in aquaculture plots as compared to unstructured mudflats); R-DEIR, at 6.5-72, 6.5-83 (fish populations similar between mudflats and aquaculture plots). Additional discussion regarding utilization of mudflats and oyster longlines is included in FEIR Section 4, *Revisions to the R-DEIR*. Because shellfish culture plots provide similar or greater ecological benefits as compared to unstructured mudflats, no mitigation is required. However, Coast has proposed mitigation in response to requests from the Regional Water Quality Control Board to mitigate for any potential impact on to mudflats and benthic habitat pursuant to RWQCB regulations. The proposed RWQCB benthic habitat mitigation plan is attached as Appendix D of this FEIR.

Comment No. 9-24

The Department finds Mitigation Measure BIO-4 to be unclear and have no measureable outcomes or standards for success (CEQA Guidelines §15126.4). The Department recommends including mitigation measures in the FREIR that meet CEQA guidelines; particularly those that avoid, minimize and mitigate impacts to Public Trust resources, and meet the Fish and Game Commission's policy for no net loss of wetlands. If assistance is needed, the Department recommends creating a multi-agency Technical Advisory Panel to help with the process of identifying appropriate avoidance, minimization and mitigation measures.

Response to Comment No. 9-24

The R-DEIR concludes that the mitigation proposed under Mitigation Measure BIO-1 fully mitigates for the project's impact to eelgrass. As an extra layer of precaution, and to comply with mitigation requirements imposed by the CEMP and U.S. Army Corps of Engineers, Mitigation Measure BIO-1 also includes a monitoring plan and adaptive management plan to confirm the R-DEIR's assumptions concerning the project's impacts to eelgrass and the amount of ecological lift provided by Mitigation Measure BIO-1. Because eelgrass availability can affect black brant due to its importance as a food source, Mitigation Measure BIO-4 clarifies that any additional mitigation imposed by the eelgrass monitoring plan and adaptive management plan described under Mitigation Measure BIO-1 must also address potential limitations or reductions in eelgrass as a food supply for brant. The adaptive management plan provides the framework for evaluation of eelgrass impacts and potential imposition of additional mitigation.

Comment No. 9-25

Cumulative Impacts. The RDEIR provides limited discussion regarding potential cumulative impacts from the HBHD pre-permitting project which proposes additional substantial acreage be placed into oyster cultivation in North Humboldt Bay. Notwithstanding the proposed significant cumulative increases in farmed acreage in North Humboldt Bay for the two projects, the RDEIR indicates the cumulative impacts from the two projects to be less than significant. As discussed above, the Department believes many of the impacts from the proposed Project alone are likely to cause significant impacts to the Public Trust resources of North Humboldt Bay. As such, the Department believes that cumulative impacts from both Projects may also be significant. The Department recommends the FRIER include a comprehensive discussion regarding the basis and justification for the less than significant conclusion regarding cumulative impacts.

Response to Comment No. 9-25

The comments related to the impacts of the proposed project are addressed in other responses to Comment No. 9. In terms of cumulative impacts, the R-DEIR includes a robust discussion of cumulative impacts in Section 7.0 of the R-DEIR, including an analysis of the Project's impacts in addition to other proposed projects, such as the Harbor District's Pre-Permitting Project.

Comment No. 9-26

Alternatives. The Department has reviewed the range of alternatives included in the RDEIR and believes that a number of alternatives that would avoid or substantially lessen the significant impacts of the Project were not included in the DREIR (with the exception of Alternative 4: no project alternative) (CEQA Guidelines §15126.6(c)). For example, the RDEIR does not include an alternative that consolidates potential new operations into areas with current operations (by filling in the spaces between existing adjacent plots). Another example would be to avoid areas of eelgrass by utilizing portions of the lease that are in deeper water. The Department recommends the HBHD consider additional alternatives that will create a Preferred Alternative to be included in the FREIR that will provide resource protection and adequate mitigation for impacts while allowing the project to move forward. The Department also recommends creating a multi-agency Technical Advisory Committee to assist in the development of additional alternatives.

Response to Comment No. 9-26

In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA, consolidates the proposed footprint near existing planted areas, and further reduces Coast's proposed footprint within eelgrass as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

It is worth noting that the proposed project described in the R-DEIR includes consolidation of existing growing areas in several locations (e.g., Areas 2, 4 and 5). Different regions in Humboldt Bay provide different microclimate and water conditions that can affect growth rates and harvest conditions for oysters. Water conditions in Humboldt Bay are such that one growing area may be closed for harvest while others may be open. Therefore, Coast proposes using areas throughout their owned and leased areas for culture as a risk minimization measure.

Coast considered numerous potential configurations of culture activities in developing the alternatives to minimize environmental impacts while achieving the project purpose. Use of deeper portions of the lease would involve placement of gear in existing drainage channels and possibly in navigable channels. Coast currently uses small drainage channels within beds, however, avoids planting oysters in deeper channels to maintain these areas for access, egress and general navigation. With the exception of the larger navigation channels, these areas would not significantly increase the area available for culture and would create potentially significant impacts to navigation and may affect channel formation and drainage patterns. Channels are important for sediment transport and have higher current velocities than tidal flats; therefore structures associated with oyster culture would have a far greater potential to have significant effects that could affect sediment transport, tidal flats and channel processes.

Comment No. 9-27

Monitoring Plan. The Department has reviewed the 2016 Eelgrass Monitoring Framework (Appendix H) and has questions and concerns regarding the ability of the sampling design to adequately detect change given the size and scale of the Project. However, the Department understands that a Technical Review Team (TRT) will be providing substantial feedback on this plan. Unfortunately, due to the timing of the report relative to writing this letter, the Department is unable to consider those comments here. The Department looks forward to providing comments on the Eelgrass Monitoring Plan at a future date, once feedback from the TRT is incorporated.

Response to Comment No. 9-27

A summary of the proposed eelgrass monitoring plan is included as Appendix C of this FEIR. Note that the draft monitoring plan has undergone peer review and may be subject to further revision based on those comments.

Comment No. 9-28

The Department appreciates the opportunity to review and comment on the RDEIR. Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. For further information regarding hunting and waterfowl issues please contact Melanie Weaver, Senior Environmental Scientist, California Department of Fish and Wildlife, 1812 9th Street, Sacramento, CA 95811, phone (916) 445-3717, email Melanie.Weaver@wildlife.ca.gov; for other topics please contact Rebecca Garwood, Environmental Scientist, California Department of Fish and Wildlife, 619 2nd Street, Eureka, California, 95501, phone (707) 445-6456, and email Rebecca.Garwood@wildlife.ca.gov.

Response to Comment No. 9-28

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 9-29

The California Department of Fish and Wildlife (Department) has reviewed the October 2015 Draft Environmental Impact Report (DEIR; State Clearinghouse # 2015082051) for the proposed Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project). The DEIR was developed by the Humboldt Bay Harbor, Recreation and Conservation District (HBHD) which is the Lead Agency under the California Environmental Quality Act (CEQA). The Project proposes to continue Coast Seafoods Company's (CSF) existing operations on 294.5 acres, discontinue operations on 5.5 acres, and expand farming operations into an additional 622 acres of intertidal habitats. The additional area consists primarily of wetland habitats, including dense eelgrass (492 acres), patchy eelgrass (<85% cover; 108 acres), areas of unvegetated mudflat habitat (15.5 acres) and other habitats such as subtidal channels (6.5 acres). This Project would bring the operational footprint of CSF to a total of 916.5 acres.

Response to Comment No. 9-29

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 9-30

As a trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection and management of fish, wildlife, and habitats necessary for biologically sustainable populations of those species (Fish and Game Code §1802). In this capacity, the Department administers the California Endangered Species Act, the Native Plant Protection Act, and other provisions of the California Fish and Game Code that afford protection to the State's fish and wildlife resources. The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act (MLPA) in coastal marine waters of California and is recognized as a "Trustee Agency" under the CEQA (Pub. Resources Code, § 21000 et seq.; hereafter CEQA; Cal. Code Regs., § 15000 et seq.; hereafter CEQA Guidelines). As a Trustee Agency, the Department is responsible for providing biological expertise to review and comment upon environmental documents and impacts arising from the Project activities (CEQA Guidelines, § 15386; Fish and G. Code, § 1802).

Response to Comment No. 9-30

This comment describes the jurisdiction and regulatory authority of the California Department of Fish and Wildlife. The comment is hereby noted and no further response is necessary.

Comment No. 9-31

Project Impacts. The Department remains concerned the Project will result in significant impacts to Public Trust resources, including eelgrass and mudflat habitats, and species such as Pacific herring, shorebirds, salmonids, and waterfowl such as black brant and widgeon. While the DEIR includes discussion of many of the topics outlined in the Department's previous comments, it concludes that most Project activities result in impacts that are "less than significant" under CEQA. After careful review, the Department finds that these conclusions are not well supported by the analyses provided in the DEIR and is concerned the mitigation proposed in the DEIR is insufficient given the size, scale and potential impacts of the Project. The Department's previous comments and recommendations to date remain applicable to the current Project as described in the DEIR. In addition, pursuant to our jurisdiction, the Department offers the following comments and recommendations regarding the Project.

Response to Comment No. 9-31

The issues raised in this comment are specifically addressed in responses to Comments 9-4 through 9-27 above.

Comment No. 9-32

2007 CEQA Findings. The findings and mitigation requirements from the 2007 CEQA process is not addressed in the DEIR. The January 2007 Mitigated Negative Declaration adopted by the HBHD states that CSF's cultured acres be reduced from 500 to 300 acres as a "primary mitigation measure for the potential adverse impacts to biological resources" (page 3-12) for impacts from the 300 acre footprint (HBHD 2007). This reduction in acreage was used to reduce impacts to a level of less than significant. Of the 200 acres identified for mitigation in 2007, CSF is proposing to culture 150 of those acres as part of the proposed expansion Project thus negating the mitigation identified for the existing 300 acre footprint. Mitigation for continuing impacts from the majority of the existing 300 acre footprint has not been accounted for in the DEIR, and no mitigation has been included to address the wetland habitat lost or impacted due to existing operations. This does not meet the State's no-net loss for wetlands policy, as the proposed Project does not provide mitigation for all impacted acreage. The Department recommends that the FEIR include a comprehensive discussion of compensatory mitigation for impacts from existing operations.

Response to Comment No. 9-32

See response to Comment 9-5.

Comment No. 9-33

Project Impacts to Eelgrass and Mudflat Habitats. The impacts from aquaculture to eelgrass and mudflat habitats are well documented in the literature and include impacts from shading, trampling, sedimentation and erosion, anchoring, and boat scarring, as well as biodeposition from pseudofaeces and feces, among others (see citations herein and Department comments and citations dated February 27, 2015 and September 23, 2015). Specifically, a variety of studies have also shown eelgrass plants are impacted by off bottom culture practices (Everett et al. 1995; Rumrill and Poulton 2004; Rumrill 2015; Tallis et al. 2009; Wisheart et al. 2007). Everett et al. (1995) showed a 75% reduction in eelgrass cover under rack culture after 9 months, and significant losses in eelgrass density and percent cover over the course of the study for both rack and stake culture. Tallis et al. 2009 also showed large reductions in eelgrass density, growth rates, biomass and production in areas with longline culture as compared to reference areas. Rumrill showed a reduction in eelgrass density of 53 to 94% as compared to reference plots for longline areas spaced at 5 feet in Humboldt Bay (Rumrill and Poulton 2004; Rumrill 2015). Despite the numerous scientific studies demonstrating the potential for impacts, the DEIR concludes that impacts to eelgrass will be "less than significant" under CEQA. The Department is concerned that the evaluation does not sufficiently address the potential impacts to eelgrass and mudflat habitats, or provides a scientific justification for a finding of less than significant impact under CEQA.

Response to Comment No. 9-33

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. The impacts related to shading, trampling, sedimentation and erosion, anchoring, boat scarring, and biodeposition are discussed in detail in R-DEIR § 6.5.4. Additional information related to cited literature raised by the comment is discussed below (*see* responses to Comments 9-34, 9-35, and 9-37) related to the December 31, 2015, and September 23,

2015, comments. In terms of eelgrass habitat, the information presented in both the R-DEIR and Appendix D provides a detailed analysis of the potential impacts to eelgrass from the proposed project, including a discussion of the literature referenced in the comment. The R-DEIR concludes that the project would result in significant adverse impacts associated with eelgrass, recommends in-kind mitigation to mitigate for those impacts, robust monitoring to validate the R-DEIR impact assumptions, and an adaptive management plan in the event that the assumptions are not correct.

As further discussed in the R-DEIR, the studies cited in the comment have certain limitations regarding their applicability to the proposed Project:

- Everett et al. (1995): This study was related to rack-and-bag and stake culture, neither of which is proposed by Coast as a culture method in eelgrass habitat. Stake culture, which has similarities to cultch-on-longline culture methods, is lower to the ground and the structures are planted in a denser array, which would be expected to have a larger effect on current circulation and therefore a higher level of sediment scouring and deposition. As discussed in Impact BIO-7, the more porous a structure is, the less influence it will have on currents. Similarly, objects located closer to the sediment surface will result in a larger influence on sediment dynamics. Further, the stake culture lines studied by Everett et al. (1995) were spaced 3 ft apart, which is more similar to the tighter (2.5 ft) spacing that showed higher impacts to eelgrass density in the Rumrill and Poulton (2004) study from longline culture in Humboldt Bay. In addition, the stake culture lines studied by Everett et al. (1995) were oriented perpendicular to the tidal currents as compared to the culture methods proposed by Coast which will be oriented parallel to the currents as much as possible. Observations in Humboldt Bay by Coast have shown the structures oriented perpendicular to the tidal currents tend to have a larger effect on sediment dynamics.
- Tallis et al. (2009): The spacing associated with the Tallis et al. (2009) study was also the closer 2.5-ft and 3-ft spacing typically used in Willapa Bay, Washington, as identified by Morris (pers. comm., 2015) and cited in Appendix D of the R-DEIR. As further described in Topical Response 2, the results of this study were comparable to the calculated suppression of eelgrass for the existing culture operations in Humboldt Bay (Tallis et al. 2009 reported a range of $-35 \pm 20\%$ as compared to the R-DEIR calculated range of -7% to 49.5%). In fact, based on the Tallis study results, the R-DEIR calculated impact scenarios are likely over-estimating impacts in the medium and maximum footprint scenarios. The Tallis et al. (2009) study was used to validate the use of calculated impacts for the existing culture to then evaluate potential impacts associated with the proposed expansion at 10-ft double-hung longlines. While Tallis et al. (2009) did not directly address double-hung longlines, longlines are a culture method commonly used in Willapa Bay. *See* response to Comment 6-4 for additional discussion of double-hung longlines. In general, double-hung longlines are considered very similar to single-hung longlines in terms of potential impacts to eelgrass. Further, one of the lead researchers in this study (Dr. Brett Dumbauld) was consulted during development of the project impact scenarios described in the R-DEIR.
- Rumrill and Poulton (2004): This study reported that the 10-ft spacing in the meso-scale treatment plots resulted in eelgrass densities that reached levels that exceeded the adjacent control plot and either exceeded or were the same as the reference sites, despite the difference in elevation, which can have a significant effect on eelgrass growth. The samples collected at the commercial scale plots showed suppression compared to the control plots,

but the commercial scale plots were still in recovery at the time of sampling from the previous mechanical dredge harvest activities. Based on a review of aerial photography, it appears that recovery has continued to occur within this same area beyond the levels reported at the end of the Rumrill and Poulton (2004) data collection, even after the plots were planted with 2.5-ft spaced longlines used in Coast's existing culture plots.

The R-DEIR incorporates data from these studies, as well as the other studies cited in the R-DEIR, to inform the eelgrass impact analysis discussed in R-DEIR § 6.5. Therefore, no additional revision is required.

Comment No. 9-34

The impact analysis should consider non-lethal impacts to eelgrass. Eelgrass utilizes the water column and benthic habitats throughout its life cycle and a reduction in turions (buds) can indicate poor health of the plant (Ochieng et al. 2010). Trampling can cause breakage of rhizomes (Alexandre et al. 2005; Eckrich & Holmquist 2000; Milazzo et al. 2002; Skilleter et al. 2006; Travaille et al. 2015). This in conjunction with shading impacts can reduce the below ground biomass available to the plant and is likely to reduce the fitness of individual plants, leaving them more vulnerable to stressors such as prolonged turbidity events, disease, warm water events, and desiccation (Bergmann et al. 2010; Bjork et al. 2008; Bjork et al. 2009; Campbell et al. 2006; Carr et al. 2011; Ehlers et al. 2008; Johnson et al. 2003; Orth et al. 2006; Waycott et al. 2009). As discussed in the Department's September 23, 2015 letter, intact healthy native ecosystems are more resilient and facilitate natural processes and assemblages.

Response to Comment No. 9-34

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. The comment correctly notes that there can be non-lethal impacts to eelgrass as a result of continuous disturbance beyond the ability to recover from this disturbance. However, there is no evidence that the proposed project will significantly contribute to a change of state in the eelgrass community. Interactions with eelgrass and the surrounding habitat are very complex. Upon review of the cited studies, it appears that none of the studies cited directly relate to the interaction between shellfish aquaculture and eelgrass habitat. Most of these studies are related to global climate change and other stressors, and the only studies that mention shellfish aquaculture (Orth et al. 2006, Bjork et al. 2008) are primarily associated with impacts from finfish aquaculture. While the papers cited above provide an understanding of the myriad of stressors facing eelgrass due to human-induced development, some of which exist in Humboldt Bay independent of the project, the studies cited in R-DEIR § 6.5 appear to be more germane to the specific impacts to eelgrass associated with the proposed project activity.

The R-DEIR includes an analysis of shading impacts associated with the project, including a discussion of relevant studies. The comment cites a laboratory study in New Hampshire and Maine that simulated continuous shading of eelgrass 11%, 34%, 58% and 100% of nominal solar radiation levels (Ochieng et al. 2010). No significant difference was noted by the authors for leaf length, leaf width, or survival between the treatments at 34%, 58%, or 100% illumination levels. A "reduction in nodes" was noted at the 11% and 34% illumination levels. There may be some confusion as the comment refers to "nodes" as turions (buds), while in the article it clearly relates to rhizome nodes. Regardless, the study does not appear to be relevant to the proposed project, as the project would

not result in the extreme levels of light attenuation in this laboratory experiment required to establish an impact to eelgrass from shading.

The more relevant discussion of light impacts occurs within the R-DEIR and Appendix D based on work by Thom et al. (2003) and observations of incidental light decrease by Rumrill and Poulton (2004). The potential impact from shading was incorporated into the impact scenarios, with the recognition that longline gear is very “porous” and may even result in some benefits to eelgrass at higher tidal elevations by releasing the plants from potential desiccation events during low tides.

The comment also references trampling effects, citing several articles (Alexandre et al. 2005, Eckrich and Holmquist 2000, Milazzo et al. 2002, Skilleter et al. 2006, Travaille et al. 2015). One of these (Milazzo et al. 2002) was a review article that cited the Eckrich and Holmquist (2000) study, but provided no new or original data. Three of these (Alexandre et al. 2005, Eckrich and Holmquist 2000, Travaille et al. 2015) documented trampling of seagrasses in Portugal, Costa Rica, and New Zealand, respectively, from sometimes daily use of areas by tourists or other users (e.g., recreational clam harvesters), where “light” trampling was 20 times per month (Eckrich and Holmquist 2000). The levels of trampling documented in these studies greatly exceeds the anticipated frequency of visits to the intertidal shellfish aquaculture areas proposed for the project and are, therefore, not appropriate points of comparison for the expected effects of the project. In response to this comment, additional detail regarding these studies has been added to the FEIR. *See* FEIR Section 4, *Revisions to the R-DEIR*.

A discussion of potential trampling effects was provided in the R-DEIR and Appendix D, including a comparison of the proposed project effects to the Eckrich and Holmquist (2000) study under Impact BIO-4. The relevant points from that discussion included an understanding of the frequency of visits, potential amount of habitat impacted, and recovery of those areas prior to subsequent visits to the culture plots.

The comment also discusses other potential “non-lethal” effects related to shading, including turbidity events, disease, warm weather events, and desiccation. A number of citations are listed after these potential effects (Bergmann et al. 2010, Bjork et al. 1999, Bjork et al. 2008, Campbell et al. 2006, Carr et al. 2011, Ehlers et al. 2008, Johnson et al. 2003, Orth et al. 2006, Waycott et al. 2009). Three of the nine citations relate to potential effects of global climate change on seagrasses in various locations or settings around the world (Bjork et al. 2008, Carr et al. 2011, Orth et al. 2006). These studies are from Tanzania, Virginia, and the entire globe, respectively. The timescale of global climate change far exceeds the 10-year permit discussed in the proposed project. If anything, the presence of shellfish aquaculture contributes to improved water quality conditions and nutrient sequestration that may reduce ocean acidification, as noted by US FWS (2016), but doesn’t have any bearing on global climate change *per se*. Three of the studies referenced above address the potential effects from high temperature events in Europe (Bergmann et al. 2010, Ehlers et al. 2008) and Tanzania (Bjork et al. 1999). These studies describe conditions that are not likely to occur in Humboldt Bay in a timeframe that is relevant to the project. Johnson et al. (2003) is a survey of fish distributions in eelgrass and kelp habitats in Alaska that mentions some of the same potential stressors listed in the comment, but does not have relevance to the proposed project. Finally, Waycott et al. (2009) is a general discussion of seagrass losses around the world with no direct relevance to the situation in Humboldt Bay where eelgrass is currently at the greatest documented distribution throughout the bay.

In terms of the potential resiliency of eelgrass beds to shellfish aquaculture, the R-DEIR discusses several studies that have looked at these interactions. For example, Dumbauld and McCoy (2015), looked at changes in eelgrass beds at a landscape scale in Willapa Bay and reported that, “eelgrass ... appears to be resilient over both short and longer temporal periods and resistant to oyster aquaculture as a disturbance in this ecosystem” and “our research in Willapa Bay suggests that oyster aquaculture ... is generally within the scope of existing ‘natural’ disturbances to the system (e.g. winter storms), and eelgrass is inherently adapted to this scale of disturbance.” Another landscape scale study concluded that “despite the intensive shellfish culturing that has characterized the recent history at the scale of whole sub-basins (Samish Bay) and whole waterbodies (Willapa Bay), submerged aquatic vegetation continues to show good or consistent health in some of these same geographies (Gaeckle et al. 2011, 2015 *as cited in* US FWS 2016).” The general consensus is that shellfish aquaculture occurs at a level of intensity and frequency that allows eelgrass to adapt to the cyclical disturbance of aquaculture operations. Whether this represents a changed state or not, many researchers agree that there is a dynamic equilibrium between these two conditions based on over a century of interactions and the persistence (and even expansion) of eelgrass within these estuaries.

While there are changes to eelgrass from shellfish aquaculture, and those changes can result in a different type of habitat (i.e., one that includes both shellfish aquaculture and eelgrass), the proposed project would not result in significant disturbances to eelgrass that would impair eelgrass recovery, growth, or function.

Comment No. 9-35

The DEIR states that impacts to eelgrass will only occur directly underneath the longlines, with a 47% decrease in turions within a 0.5 ft. wide area directly underneath cultch lines, and a 70% decrease in turions within a 0.9 ft. wide area directly underneath basket lines. However, it is well established that losses in eelgrass density from aquaculture gear occur throughout the cultured plots, not just within the area directly below oyster lines (Everett et al. 1995; Rumrill and Poulton 2004; Tallis et al. 2009; Wischart et al. 2007). By restricting the analysis to a narrow area directly underneath the lines, the DEIR is likely underestimating the extent of eelgrass impacts throughout the Project area. Given impacts to eelgrass extend beyond the narrow area directly beneath the longline gear, the Department recommends this be reflected in the eelgrass impacts analysis in the FEIR.

Response to Comment No. 9-35

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. The analysis described in the comment above is based on information presented in the original DEIR. The R-DEIR provided a much more robust analysis of potential impacts to eelgrass from the proposed activities, including up to a 100% reduction under the longlines. This analysis was developed in consultation with eelgrass experts (Dr. Rumrill and Dr. Dumbauld), and only focusses on potential loss of eelgrass rather than potential benefits to eelgrass that can readily be observed under certain conditions in Humboldt Bay. *See* Topical Response 2 regarding additional discussion of the “width of effect” in relation to the Project’s impact to eelgrass.

Comment No. 9-36

The Department is concerned that the average decrease in eelgrass density from longlines used in the DEIR analysis (i.e. 47% under cultch lines) is much lower than reported in the scientific literature (Everett et al. 1995; Rumrill and Poulton 2004; Rumrill 2015; Tallis et al. 2009; Wischart et al. 2007). The basis for selecting this value (i.e. 47% under cultch lines), is not well described in the DEIR, and does not appear to be representative of available data (see citations above). Use of this value may further underrepresent the extent of impacts to eelgrass from the proposed Project.

Response to Comment No. 9-36

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. The literature cited in the comment above was discussed in the response to Comment 9-33.

Comment No. 9-37

Finally, while the eelgrass impact analysis discusses several sources of potential impacts raised in the Department's previous comment letters, such as trampling, shading, sedimentation, anchoring and boat use, the conclusions are not well supported. Other potential impacts previously raised by the Department, such as erosion caused by aquaculture gear, placement of bushel tubs on eelgrass and mudflats, and mechanical abrasion from culturing activities have not been addressed in the DEIR. The DEIR also does not provide an estimate of the cumulative impacts of the Project on wetland habitat or habitat values including the plants, benthos, water column and the species utilizing those areas over the life of the proposed Project (as described in: Dubois et al. 2007; Dumbauld et al. 2009; Fahrig 2003; Ferriss et al. 2015; Filgueira et al. 2015; Forrest et al. 2009; Forrest & Creese 2006; Gallardi 2014; Nugues et al. 1996; Simenstad and Fresh 1995; Skilleter et al. 2006; Wischart et al. 2007).

Response to Comment No. 9-37

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. All of the potential impacts noted above are discussed in the R-DEIR. Below is a discussion of the literature cited in the comment which does not appear to support that there would be cumulative impacts from the proposed project in Humboldt Bay:

- Dubois et al. 2007: This study relates to rack-and-bag culture methods in France in an area dominated by tube building polychaetes that are the main "ecosystem engineers" in this particular location. While the article has limited applicability to the proposed project because it is a different culture method that what is proposed for the vast majority of the project, a discussion of this study was incorporated into the R-DEIR under Impact BIO-12. According to Dubois et al. (2007), the presence of shellfish in high densities (>125 individuals per m²) can increase the organic matter content in the sediment and result in opportunistic species of crustaceans and annelids that feed directly on the detritus, or predators (e.g., carnivorous polychaetes and crabs) that are attracted to the increase in detritus feeders. In comparison, the proposed oyster densities are approximately 50 individuals per m² for cultch-on-longline single-hung, 60 individuals per m² for basket-on-

longline, 100 individuals per m² for cultch-on-longline double-hung, and 120 individuals per m² for rack-and-bag culture. Note that rack-and-bag culture represents approximately 1% of the proposed culture methods. Overall, densities are significantly lower compared to the threshold established by Dubois et al. (2007) where cultivation induced changes to the organic content of the sediment. In addition to oyster density, circulation dynamics in the system, among other factors, also limit the potential for changes in sediment quality, as discussed under Impact BIO-7.

It should be noted that the more relevant literature regarding potential impacts to benthic resources, as discussed in Impact BIO-12, supports the conclusion that the proposed project is likely to have neutral to beneficial effects to invertebrate communities in the bay (e.g., Rumrill and Poulton 2004, Dumbauld et al. 2009, Ferraro and Cole 2007, 2011, 2012). The R-DEIR notes that the project represents a change to the system through adding gear and shellfish; however, the literature indicates that these changes provide an advantage to smaller organisms and organisms that use these areas as rearing habitat during certain life history stages.

- Dumbauld et al. 2009: This review article discusses the broad range of both negative and positive impacts associated with shellfish culture activities. Based on this comment, additional discussion of Dumbauld (2009) is appropriate. These changes have been incorporated into the Final EIR. See FEIR Section 4, *Revisions to the R-DEIR*. For example, the authors note that, “The extent of disturbance depends on the aquaculture practice and the distribution of eelgrass reflects a balance of space competition, pulse disturbance, and recovery, and is therefore at dynamic equilibrium on aquaculture bed.” The article also discusses the relevant literature related to habitat associations between eelgrass and shellfish aquaculture, including Hosack et al. (2006), which was also cited within the R-DEIR. The article indicates that, in Willapa Bay, Washington, juvenile Chinook salmon and English sole were found in association with all studied habitats (e.g., eelgrass, oyster aquaculture, and mudflats) without an apparent preference, while tubenouts and smelt were clearly associated with eelgrass. The information presented in Hosack et al. (2006) emphasized the importance of a habitat mosaic in order to support a variety of species, which is something that is maintained with the proposed project.
- Fahrig 2003: This article is related to habitat fragmentation in the terrestrial environment. The citations and examples are related to forest fragmentation, which is very different than changes within the marine environment. More relevant articles that discuss the concepts of fragmentation in marine systems includes Heck and Crowder (1991), Boström et al. (2006), and Dumbauld and McCoy (2015). Boström et al. (2006) provides the most in-depth discussion of fragmentation, and was discussed in the R-DEIR under Impact BIO-5. This study indicated that edge habitat is extremely productive, and the best way to support a variety of species includes a mosaic of open mudflats, patchy eelgrass, continuous eelgrass, and other structured habitats. The FEIR has been revised to include additional discussion of the Boström et al. (2006) article. See FEIR Section 4, *Revisions to the R-DEIR*. The project is not predicted to reduce eelgrass areal extent, and is therefore not anticipated to result in habitat fragmentation. Further, the project maintains corridors for species to use the habitat in a similar manner as existing conditions. There is no evidence or data to suggest that oyster longlines limit the movement between suitable habitats. Therefore, the R-DEIR’s conclusion that habitat fragmentation is less than significant is well supported.

- Ferriss et al. 2015: This article is related to geoduck aquaculture in central Puget Sound, Washington, and was a trophic model using EcoPath with EcoSim. The results were not intended to be predictive, and do not support that the project would result in cumulative impacts. Confluence has had numerous conversations with the authors about this study, and they have indicated the following: “This is only a model and thus represents ‘model reality.’ We don’t focus on exact quantities of increase or decrease. Instead, we focus on general patterns and relative increase/decrease to identify sensitives. For example, small crabs are sensitive to changes in geoduck aquaculture in the model because their response is strongly positive.” Therefore, this study does not appear to be relevant to the proposed project.
- Filgueira et al. 2015: This is a review article that looks at the carrying capacity of bivalves in the environment. The article discusses topics that are covered in detail within the R-DEIR, including depletion of phytoplankton (Appendix E and Impact BIO-9), benthic-pelagic coupling and biodeposition in the benthic habitat (Impact BIO-11). The Filgueira et al. (2015) article provides a general review of the literature, which includes many of the same articles discussed in the R-DEIR. This article provided cautions for how new shellfish aquaculture operations should be evaluated, but does not conclude that impacts are unavoidable with proper management. The R-DEIR includes a carrying capacity model based on specific data from Humboldt Bay, which has been peer reviewed by the NOAA Coastal Aquaculture Planning and Environmental Sustainability Program (CAPES), which generally determined that the model accurately evaluated the project’s carrying capacity impacts. CAPES had some suggestions for further refinement of the model, which have been largely incorporated into the final model and analysis.
- Forrest et al. 2009: This review article does not mention cumulative effects and, in fact, highlights the potential beneficial effects of bivalve aquaculture to the environment. This article was referenced throughout the R-DEIR because it is very relevant to off-bottom culture methods. The following examples include information from this article that was incorporated into the R-DEIR analysis:
 - IMPACT BIO-2: Forrest et al. (2009), a review of over 200 papers associated with off-bottom shellfish aquaculture, indicated that effects to fish are often neutral or positive.
 - IMPACT BIO-7: Potential changes to hydrodynamics, sediment transport patterns, and seabed elevations in culture areas are dependent on the spatial extent of the disturbance compared to the spatial distribution in which these processes are acting. Studies have shown that the degree of the effects of culture on hydrodynamics and sediment transport is dependent on the porosity of the structures and, therefore, the physical dimensions and spacing of the structures (e.g., height and density) (Forrest et al. 2009).
 - Section 7.2.1.3: According to Forrest et al. (2009), “the acceptability of aquaculture operations or new developments should recognize the full range of effects, since adverse impacts may be compensated to some extent by the nominally ‘positive’ effects of cultivation.”
- Forrest and Creese 2006: This was a study related to rack-and-bag culture operations in Mahurangi Harbour in northern New Zealand. The information from this article was also incorporated into the R-DEIR. Under the cumulative impacts discussion (R-DEIR §

7.2.1.4), it was noted that, “Based on a study by Forrest and Creese (2006), the mean sedimentation rate increased almost three times that of an adjacent control area under rack-and-bag structures on mudflats. However, the authors reported that even this increased sedimentation rate did not change the overall farm elevation from a normal shore profile.”

- Gallardi 2014: This review article does not mention cumulative effects and, in fact, highlights the potential beneficial effects of bivalve aquaculture to the environment.
- Nugues et al. 1996: This is a study related to rack-and-bag culture methods in the River Exe estuary, Devon, England. The authors indicated that changes to the benthic community and sediment nutrients were primarily related to changes in circulation directly beneath or adjacent to the cultivation area. The changes were characterized as “minor.” More relevant studies related to potential changes in sediment chemistry and benthic species composition were reported in the R-DEIR, including:
 - Mallet et al. (2006) from South St-Simon Bay, New Brunswick, including a discussion of effects from rack-and-bag and floating bag culture. The analysis compared the biomass from this study to the proposed project biomass, tidal water exchange between South St-Simon Bay and Humboldt Bay, and potential sediment movement between the various culture methods.
 - Peterson and Heck (1999) from St. Joseph Bay, Florida, discussing the potential to create new habitat for colonization of seagrasses by increasing the sediment nutrient levels. Other literature cited on the West Coast (e.g., Tennant 2006, Wagner et al. 2012, Ruesink and Rowell 2012, Wheat and Ruesink 2013) indicates that eelgrass is not nutrient limited; therefore, this potential benefit is not likely to be significant. Sandoval-Gil et al. (2016), from San Quintín Bay, Mexico, indicated that nitrogen can be a limiting nutrient in some bays, and in areas with oysters, eelgrass can uptake nitrogen from the biodeposits. This leads to increases in above ground growth, and perhaps a shift in growth towards above ground vs. below ground resources compared to areas without shellfish aquaculture. Overall, changes to sediment chemistry from shellfish aquaculture and the response by eelgrass is highly complex, but there is no literature to indicate that the densities and culture methods proposed by Coast would result in significant impacts from the release of biodeposits in Humboldt Bay.
- Simenstad and Fresh 1995: This is a study comparing shellfish aquaculture habitats with other habitats (e.g., eelgrass) in Washington State. Many of the observations from this article were reported in the R-DEIR, primarily associated with prey resources under Impact BIO-12. On page 6.5-67 of the R-DEIR, it was noted, “Earlier work by Hosack (2003) reported that important fish prey organisms, such as harpacticoid copepods, exhibited higher densities in both dense eelgrass and oyster habitats than sand or mudflats. Similarly, Simenstad and Fresh (1995) noted that in Washington, the diversity of epibenthic harpacticoid copepods was higher on active ground oyster culture plots with 3-year old oysters present compared to an inactive plot where oysters and eelgrass were present.” The Simenstad and Fresh (1995) study provides an indication that epifaunal invertebrate densities are similar between eelgrass beds and areas with oyster culture.

- Skilleter et al. 2006: This study documents the effects of commercial and recreational harvest of worms for fishing bait in Australia. The practices documented are quite disruptive, but have no relevance to the proposed project.
- Wisehart et al. 2007: This article was reviewed in detail in Appendix D of the R-DEIR. While the study primarily looked at effects from dredge harvest operations in Willapa Bay, there were also some observations related to eelgrass recovery, effects from oyster longlines, and differences in sand vs. muddy substrates. The relevant observations from Wisehart et al. (2007) were compared to the calculated impacts to eelgrass density in the R-DEIR analysis.

Overall, the literature cited above has either been incorporated into the R-DEIR or has no particular relevance to the proposed project.

Comment No. 9-38

The California Fish and Game Commission’s wetland policy “stresses the need to compensate for the loss of wetland habitat on an acre-for-acre basis” and states that, “for every acre of wetland lost, no less than an acre of wetland must be created from non-wetland habitat” (Fish and Game Commission as amended 2005). The Project activities will potentially affect aspects of all 622 acres proposed for expansion (see citations herein and Department comments and citations dated February 27, 2015 and September 23, 2015). These impacts will constitute a loss of “habitat and habitat values” throughout the Project area and the Department recommends the FEIR include a comprehensive discussion on compensatory mitigation for all 622 acres of expansion plus any acreage from the existing 300 acres (see Section: “2007 CEQA Findings” above).

Response to Comment No. 9-38

See response to Comment 9-23 regarding mitigation of impacts to mudflats and *see* Topical Response 1 regarding mitigation of Coast’s existing footprint. In terms of the CDFW wetland policy, it is notable that this policy is based on changes to the areal extent of wetlands. As discussed in R-DEIR Appendix D, the project is not anticipated to result in reductions in the areal extent of eelgrass. Regardless, consistent with the comment and CDFW’s request that the project incorporate the “no net loss” standard (*see* Comment 9-5), the R-DEIR incorporates a “no net loss” of eelgrass ecological function threshold and incorporates in-kind mitigation for anticipated losses in eelgrass density. The R-DEIR relies on the CEMP (2014) to characterize eelgrass impacts, mitigation needs, and eelgrass bed definitions. Using this guidance, the project provides in-kind mitigation for the proposed reduction in eelgrass density, which was converted into an acre-equivalent to calculate the amount of acreage necessary for mitigation. *See* Topical Response 2 for additional details regarding eelgrass impacts and proposed mitigation. Based on the analysis presented in R-DEIR § 6.5 and Topical Response 2, there is no scientific support for the presumption that the Project will result in a complete loss of habitat function within all 622 acres of the proposed expansion area. Indeed, not all of the expansion area is occupied by eelgrass. As noted in Topical Response 2, there is ample evidence to support that shellfish longline aquaculture can coexist with eelgrass and that eelgrass can maintain its habitat values. Therefore, based on the best science available, the mitigation proposed in Mitigation Measure BIO-1 adequately mitigates for anticipated eelgrass impacts.

Comment No. 9-39

Proposed Mitigation. As outlined above, the Department finds the impact assessment for eelgrass potentially underestimates impacts to eelgrass and mudflat habitats. As such, it is not possible to comprehensively evaluate the proposed mitigation because the impacts are not fully described or quantified in the DEIR. That said, the Department offers the following comments on the seed buoys as mitigation.

Seed Buoys. The DEIR identifies the use of seed buoys to mitigate for impacts to eelgrass habitat. The use of seed buoys or transplanting of plants into bay waters would only be appropriate to hasten the colonization of eelgrass into areas otherwise modified for eelgrass recruitment. For example, if an area was altered to be more favorable for eelgrass growth through debris removal or inundation of areas currently cut off from bay waters, the use of seed buoys may be appropriate to help eelgrass colonize areas more quickly. The use of seed buoys as described in the DEIR is unlikely to provide much, if any, measureable or attributable increase in eelgrass in the treated areas. The Department recommends that other in-kind options for mitigation of eelgrass habitat be included in the FEIR after a more thorough eelgrass impact analysis has been completed.

Response to Comment No. 9-39

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. The proposed mitigation using seed buoys or BuDS is no longer part of the proposed Project. *See* Mitigation Measure BIO-1 for additional information regarding the Project's proposed in-kind mitigation for eelgrass impacts.

Comment No. 9-40

Herring. Numerous comments have been provided to the Lead Agency and CSF regarding potentially significant impacts to Pacific herring caused by placing aquaculture infrastructure within core herring spawning areas, including: loss of native eelgrass habitat, increased desiccation of eggs deposited on aquaculture gear, differential survival of eggs deposited on artificial substrates (aquaculture gear), and changes in fish community structure within core herring spawning areas that may increase predation of eggs and early larval herring.

Response to Comment No. 9-40

See Topical Response 3 for discussion of the Project's impacts to herring and herring spawn.

Comment No. 9-41

The Department is concerned that, although the DEIR determines impacts to Pacific herring will be less than significant under CEQA, no substantive information is provided to support this determination. Herring have been documented spawning in eelgrass beds in the vicinity of the East Bay Management Unit, through Department surveys and annual fishing logs from commercial herring fishermen. While there is eelgrass available outside of this area, herring do not use it the majority of the time (CDFW data). The reasons for herring spawning site fidelity are not known; however, it is assumed that long term use of a site reflects selection of highly suitable environmental

criteria. Given the lack of substantive information provided regarding possible long term impacts to herring in the core spawning area of Humboldt Bay, and the importance of this species as food for a variety of species from marine mammals to salmonids to birds (Bayer 1980; Hunt et al. 1999; Lassuy 1989; Lok et al. 2012; Moffitt 1933; Moffitt 1939; Willson and Womble 2006), the Department recommends that the Project avoid this area.

Response to Comment No. 9-41

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. The R-DEIR includes an expanded discussion of herring impacts and notes the importance of the EBMA for herring spawning activities. *See* Impact BIO-21. However, as further discussed in Topical Response 3 and response to Comment 6-16, the project is not anticipated to result in a significant effect to herring spawn. Further, in response to this comment, an additional alternative has been added to the FEIR, which would not include any expansion of Coast's planted footprint within the EBMA other than its existing operations. *See* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 9-42

Artificial Substrate. The Department is concerned that spawning on non-natural substrates may lead to significantly reduced survival of herring eggs. Palsson (1984) found that "larval production was at least 7 times less in the most effective artificial substratum compared to the larval production rates from natural substrata". However, the DEIR characterizes these results as "egg survival rates were somewhat lower on artificial substrates than on adjacent natural substrata". The DEIR also notes that Hourston et al. (1984) found no differences in egg viability between one type of artificial substrate and numerous natural substrates, but failed to specify that this work was conducted under laboratory conditions which have implications for how the results can be interpreted. Few field studies have been conducted on survival of herring eggs on artificial substrates. However, the studies that have been performed (as summarized in Palsson 1984) show mixed results ranging from significantly decreased survival compared to natural substrates to similar survival as natural substrates. In conclusion, the best available information suggests that herring eggs spawned on artificial substrate may have significantly decreased survival compared to natural substrates, and there is little basis for determining this risk does not apply to the proposed Project.

Response to Comment No. 9-42

See Topical Response 3 for an analysis of the Palsson study and the survivability of herring eggs on artificial substrates.

Comment No. 9-43

Desiccation. The DEIR references an 'exposure elevation analysis of aquaculture gear' citing Wagschal, pers. comm., 2015. However, no supporting information was provided. As such, it is not possible for the Department to determine the validity of the results. Based on this analysis, air exposure of eggs deposited on aquaculture gear was estimated to increase by approximately 11%. However, without defining the tidal regimes under which the analysis was conducted, and without providing information on exposure times of herring eggs deposited on eelgrass at the same locations

as the aquaculture gear, the results of the exposure analysis are not useful. Further, the DEIR states that “increased mortality due to desiccation is likely to be offset by reduced predation pressure from invertebrates and fish during high tide”. The Department acknowledges that mortality from invertebrates and fish can be an important source of mortality for herring eggs. However, with no information on desiccation mortality or invertebrate and fish predation of herring eggs in Humboldt Bay, the assertion cannot be verified. Further, this statement does not take into consideration increased avian predation, which can be significant (e.g. Rooper and Haldorson, 2000), particularly by opportunistic species such as gulls. As such, the Department is concerned the DEIR does not include sufficient information to reasonably conclude increased desiccation of herring eggs on oyster gear will not result in increased mortality.

Response to Comment No. 9-43

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. Overall, as indicated in the comments above, the factors related to predation or egg loss is very complex. The updated analysis presented in the R-DEIR (Impact BIO-21) goes into much greater detail on the potential impacts to herring eggs in relation to project activities. Included in this analysis was an estimation of gear exposure based on an updated analysis presented in Table 6.5.12 of the R-DEIR. From that analysis, it was discussed that longline gear is elevated up to 20 inches above the bay bottom, and therefore herring eggs on gear would have greater periods of exposure during low tides. Based on an exposure elevation analysis of aquaculture gear (see Table 6.5.12), spawn on gear potentially represents an increase of exposure to air ranging from 10% to 20% depending on the culture method and tidal elevation. Jones (1972) estimated that herring eggs deposited at higher elevations have up to 3% higher mortality based solely on desiccation potential. Desiccation stress is not likely to increase linearly because it depends on the position of the eggs in relation to other conditions, such as presence of macroalgae, shading from oysters or other structures, and temperature conditions during exposure (e.g., fog layer, sunny, raining). In addition, mortality due to desiccation is thought to be dwarfed by egg loss from eggs not adhering to substrate and predation pressure. Additional discussion of these interactions is included in Topical Response 3.

Comment No. 9-44

Black Brant. *Branta bernicla nigricans*, are a species of waterfowl that are important for hunting and are also considered a species of special concern in California (see citations herein and Department comments and citations dated February 27, 2015 and September 23, 2015). The reliance of brant on eelgrass for food makes them highly vulnerable to fluctuations in the quality of this habitat (Ganter 2000; Moore et al. 2004; Shuford and Gardali 2008). In addition, brant are some of the most sensitive waterfowl to disturbance and have among the largest escape distances (ED), defined as: “the shortest distance at which birds flush when a person or another disturbing stimulus approaches”, with brant ED at a maximum of 1000m (Laursen et al 2005; Pacific Flyway Council 2002). In addition, Stillman et al. (2015) found that small decreases in eelgrass abundance and small increases in disturbance can have population-level consequences, and it was also found that any reduction in eelgrass within Humboldt Bay could adversely affect the successful migration of birds through the site.

Response to Comment No. 9-44

The R-DEIR agrees with the comment that brant are considered a species of special concern and that significant reductions in eelgrass can adversely affect brant populations through eliminating critical food resources. *See* R-DEIR § 6.5.1.8, Impact BIO-25. Impact BIO-25 and R-DEIR Appendix F uses the Stillman et al. (2015) model to evaluate the Project's impacts to brant. *See* Topical Response 4 for additional discussion of the R-DEIR use of the Stillman et al. (2015) model. While Laursen et al. (2005) found a maximum ED of 1000 m for brant, this ED was measured in response to a person walking towards a flock, and it is unknown whether the small boats used by the project would elicit the same response. Laursen et al. (2005) suggested that the *mean* ED (not the maximum) plus one or two standard deviations be used to establish a buffer zone. Using that formula, the buffer zone would be 384 m for brant. However, Mathers et al. (2000) and Borgman (2011) indicated that a 250 m buffer zone would likely be adequate to reduce impacts of human activity. As noted in response to Comment 9-6, it is also highly unlikely that the low frequency of project-related boat disturbance would significantly impact brant, especially relative to existing conditions. For example, a disturbance rate of greater than 2 times/hour resulted in energetic costs to snow geese (Belanger and Bedard 1990), which is far greater than the disturbance rate expected by the project. Another study on wintering brant on the UK coast recorded a mean of 0.83 disturbance events per hour, which on average, would require an extra 2.9 min/hour of salt marsh feeding to make up for the energy expenditure (Riddington et al. 1996). The low frequency of project-related disturbance may only require, at most, a mere few minutes of extra feeding per month to make up for potential additional energy expenditures associated with disturbances.

Comment No. 9-45

The DEIR does not adequately address impacts to black brant from Project activities (Sections 6.5 of the DEIR & the Avian Resources Technical Report). The Department requested in our September 23, 2015 letter, that cumulative impacts from both a loss of food (eelgrass) and an increase in disturbance resulting from the Project be quantified and evaluated. The DEIR does not adequately address or quantify the impacts from the increase in disturbance to brant and other waterfowl from Project activities. While the analysis from Stillman et al. (2015) indicates increases in disturbance as little as 10% can increase the stopover duration for brant, the DEIR does not find the estimated 24% increase in boat trips, the 34% increase in the number of crew, and the 26% increase in the number of boat hours per week, from the proposed Project will result in a significant impact.

The Department recommends the FEIR include a quantitative analysis of both the loss of eelgrass and the increase in disturbance, and the quantitative impacts to brant when both a loss of food and an increase in disturbance occur cumulatively and simultaneously. This quantitative analysis should also include cumulative impacts (loss of eelgrass and increase in disturbance) from the HBHD's proposed pre-permitting project. To ensure estimates cover the range of disturbance likely to occur from the pre-permitting project, disturbance estimates should be based on visitation estimates from the rack and bag culture (HBHD DEIR 2015; p. 24).

Response to Comment No. 9-45

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. *See* Topical Response 4 and response to Comment 9-11 for

discussion of the R-DEIR quantitative analysis of brant impacts associated with eelgrass reductions and disturbance. The 10% threshold discussed in the Stillman et al. (2015) analysis is related to a 10% increase in Bay-wide disturbances and is not associated with a 10% increase in individual project activity. *See* Impact BIO-26 and R-DEIR Appendix F for additional analysis and discussion of the Stillman et al. (2015) model. Cumulative impacts to brant, including an analysis of impacts associated with the Harbor District's Pre-Permitting Project, are provided in R-DEIR § 7.2.3.8.

Comment No. 9-46

In addition, the mitigation measures proposed in the DEIR for impacts to black brant (Impact BIO-25) included in BIO-3 (Coast will maintain a maximum longline height of 1- ft above the surface or lower for cultch-on-longline and 40-inches above the surface or lower for basket on-longline culture) are not likely to reduce impacts below the threshold of significance since black brant stop feeding once the gear is exposed. The Department recommends that additional mitigation measures be included in the FEIR to reduce impacts to brant to a level of less than significant from loss of food, increases in disturbance, and gear displacement.

Response to Comment No. 9-46

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. The R-DEIR evaluated cultch-on-longline heights at 1-ft for single-hung cultch-on-longlines, 16 in for double-hung cultch-on-longlines, and 40 in for basket-on-longlines, and determined that, at these heights, the Project would not result in a significant loss of foraging opportunities for brant and that no mitigation is required. *See* Impact BIO-25. While the R-DEIR did not conduct a sensitivity analysis to determine what specific height would result in a significant impact to brant foraging opportunities, the R-DEIR assumes that heights above those proposed may result in significant impacts to brant because increased heights would result in longlines being exposed for longer periods of time, thereby resulting in greater periods of brant avoidance of aquaculture plots.

Comment No. 9-47

Waterfowl Hunting. The Department agrees with the conclusion in the DEIR that recreational hunting may be impacted by Project activities. To reduce impacts to less than significant, the DEIR proposes Conservation Measure REC-1 which includes the avoidance of an identified area in the East Bay Management Area from midnight until sunset, from November 15th to December 15th on Wednesdays, Saturdays and Sundays. The Department supports the effort to minimize impacts to the brant hunting community and has the following comments regarding the Conservation Measure (REC-1) identified in the DEIR:

- Expand the measure to incorporate all days brant hunting is open in north Humboldt Bay, including Wednesdays, Saturdays, Sundays, state holidays, and the opening and closing days. Also, the brant hunting season is sometimes longer than 30 days; for example, the 2015 season was extended to 37 days. Thus, the entire season should be included in the conservation measure.
- Modify the area of exclusion to accurately reflect the areas hunted by boaters for brant in north Humboldt Bay.

- Include exclusion areas, days, and times for other boat-based waterfowl hunting activities that occur in north Humboldt Bay.

The DEIR includes Conservation Measure REC-2 that describes by December 1 of each year, CSF will submit to the HBHD a map describing the locations of each longline bed within its operational footprint. This measure is not likely to reduce impacts below the threshold of significance. Additional mitigation measures should be included in the FEIR to reduce impacts to recreational users to a level of less than significant.

Response to Comment No. 9-47

See responses to Comments 9-15 and 9-18. Regarding Conservation Measure REC-1, it is intended to include the entire brant hunting season. It provides that “Coast shall avoid operations in the mapped area of the EBMA from midnight until sunset on days designated by CDFW as brant hunting days, including season opening and closing days . . .” While the measure clarifies that “typical brant hunting is limited to Wednesdays, Saturdays, and Sundays between November 15 and December 15,” the additional language is intended to clarify the typical brant hunting season and it is not intended to limit the applicability of the measure to only November 15 through December 15.

Comment No. 9-48

As described in our September 23, 2015 letter, the Department also recommends the FEIR should discuss and analyze the potential:

- Decreases in the number of waterfowl available for harvest resulting from displacement;
- The loss of hunting opportunities for scull boaters due to physical obstruction of traditional hunting areas from aquaculture gear; and

Response to Comment No. 9-48

For a discussion of the project’s impact to hunting opportunities, *see* Topical Response 6 and response to Comment 9-15. For impacts associated with physical obstructions to boats, *see* Topical Response 7.

Comment No. 9-49

- The increases in hazards to boaters (including skidders) and hunting dogs from aquaculture gear.

Response to Comment No. 9-49

See Topical Response 7 regarding impacts associated with navigational hazards.

Comment No. 9-50

Shorebirds. The DEIR includes discussion of birds covered under the Federal and State’s Endangered Species Acts and the State of California’s list of species of special concern. However,

the DEIR does not address impacts to the species listed as shorebirds of concern or listed on the US Fish and Wildlife Service's Birds of Conservation Concern (US Fish and Wildlife Service 2008; U.S. Shorebird Conservation Plan Partnership 2015). A multitude of the species included on these lists occur in north Humboldt Bay and are likely to be impacted from Project activities (see citations herein and Department comments and citations dated July 11, 2014, February 27, 2015 and September 23, 2015). Human disturbance and habitat destruction, specifically from oyster and shellfish farming, have been noted to have impacts to shorebird populations (Connolly and Colwell 2005; Hickey et al. 2003; Kelly et al. 1996; Pierce and Kerr 2004). Further, shellfish farming has been identified as a conservation issue for shorebirds in Humboldt Bay, and the further alteration of mudflats for oyster culture has been identified as a priority shorebird conservation goal for Humboldt Bay (Hickey et al. 2003). The FEIR should address the local and population level impacts to these species from Project activities and include mitigation measures to reduce impacts to a level of less than significant.

Response to Comment No. 9-50

This comment was provided prior to the release of the R-DEIR (December 31, 2015), and has been addressed in the R-DEIR revisions. In response to this comment, an expanded discussion of migratory shorebirds in Humboldt Bay, including those identified by US FWS, is included in R-DEIR pgs. 6.5-38 and 6.5-39 and Impacts BIO-31 through BIO-33. *See* response to Comment 9-19 for additional discussion of shorebird impacts.

Comment No. 9-51

Alternatives. The Department recommends the HBHD consider additional alternatives that will create a Preferred Alternative to be included in the FEIR that will provide resource protection and adequate mitigation for impacts. The Department recommends creating a multiagency Technical Advisory Panel to assist with this process.

Response to Comment No. 9-51

The comment requests an additional consideration of alternatives that will reduce significant impacts and provide mitigation; however, the comment does not suggest any specific alternatives that should be considered. The R-DEIR includes a reasonable range of alternatives that reduce the significant environmental impacts associated with the project while attaining most of the basic project objectives, in compliance with CEQA Guidelines § 15126.6. However, in response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA and further reduces Coast's proposed footprint within eelgrass as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 9-52

Conclusion. The Department appreciates the opportunity to review and comment on the DEIR. As always, Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. For further information regarding hunting and waterfowl issues

please contact Melanie Weaver, Senior Environmental Scientist, California Department of Fish and Wildlife, 1812 9th Street, Sacramento, CA 95811, phone (916) 445-3717, email Melanie.Weaver@wildlife.ca.gov; for other topics please contact Rebecca Garwood, Environmental Scientist, California Department of Fish and Wildlife, 619 2nd Street, Eureka, California, 95501, phone (707) 445-6456, and email Rebecca.Garwood@wildlife.ca.gov.

Response to Comment No. 9-52

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 10

L. Kasey Sirkin, Lead Biologist
Army Corps of Engineers
l.k.sirkin@usace.army.mil
(707)443-0855"

Comment No. 10-1

Thank you for the opportunity to review the Humboldt Bay Harbor, Recreation, and Conservation District's (District) re-circulated Draft Environmental Impact report (DEIR) for the proposed Coast Seafood Company (Coast) Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project). According to the recirculated DEIR, Coast is proposing to extend authorization for its existing 296 acres of aquaculture operations in addition to obtaining authorization to expand shellfish aquaculture operations into 622 acres of intertidal acres within Humboldt Bay. The Corps took the opportunity to review the document and identify issues that may need to be addressed in the upcoming National Environmental Policy Act (NEPA) process, during which we will be reviewing the forthcoming NEPA document to initiate an Endangered Species Act (ESA) Section 7 consultation with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (US FWS).

Response to Comment No. 10-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 10-2

According to the information provided, the Project is located within the jurisdiction of the Corps, San Francisco District and, given the location of the proposed shellfish aquaculture operations below mean high water (MHW) in Humboldt Bay (delineated as other waters of the US), requires a new Corps permit. The Corps has permitting authority over activities affecting waters of the United

States, pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. Section 403) and Section 404 of the Clean Water Act (33 U.S.C. Section 1344).

All proposed discharges of dredged or fill material occurring below the plane of ordinary high water in non-tidal waters of the United States; or below the high tide line in tidal waters of the United States; and within the lateral extent of wetlands adjacent to these waters, typically require Department of the Army authorization and the issuance of a permit under Section 404. Waters of the United States generally include the territorial seas; all traditional navigable waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters subject to the ebb and flow of the tide; wetlands adjacent to traditional navigable waters; non-navigable tributaries of traditional navigable waters that are relatively permanent, where the tributaries typically flow year-round or have continuous flow at least seasonally; and wetlands directly abutting such tributaries. Where a case-specific analysis determines the existence of a "significant nexus" effect with a traditional navigable water, waters of the United States may also include non-navigable tributaries that are not relatively permanent; wetlands adjacent to non-navigable tributaries that are not relatively permanent; wetlands adjacent to but not directly abutting a relatively permanent non-navigable tributary; and certain ephemeral streams in the arid West.

All proposed structures and work, including excavation, dredging, and discharges of dredged or fill material, occurring below the plane of mean high water in tidal waters of the United States; in former diked baylands currently below mean high water; outside the limits of mean high water but affecting the navigable capacity of tidal waters; or below the plane of ordinary high water in non-tidal waters designated as navigable waters of the United States, typically require Department of the Army authorization and the issuance of a permit under Section 10. Navigable waters of the United States generally include all waters subject to the ebb and flow of the tide; and/or all waters presently used, or have been used in the past, or may be susceptible for future use to transport interstate or foreign commerce.

Response to Comment No. 10-2

This comment describes the general jurisdiction and regulatory authority of the U.S. Army Corps of Engineers. The comment is hereby noted and no further response is necessary.

Comment No. 10-3

As part of the upcoming NEPA process, the Corps is required to analyze the Project for potential adverse impacts to aquatic resources within our jurisdiction. Therefore, we are providing the following comments as a guide to what additional information we will need for the NEPA review of the project. We have identified several fundamental issues that will require further explanation or information to allow the Corps to complete an analysis under NEPA as part of our permit process.

Response to Comment No. 10-3

This comment concerns the Corps' environmental review under the National Environmental Policy Act (NEPA), which is distinct from CEQA review. Coast and the Harbor District have discussed

NEPA requirements with the Corps and will continue to address any potential issues through the Corps permitting process and NEPA review.

Comment No. 10-4

Project Description. According to page 1-8, section 1.5 “the project consists of renewing regulatory approvals for approximately 300 acres of Coast’s existing shellfish culture, including intertidal cultch-and-basket-on-longline culture, intertidal nurseries, subtidal FLUPSY rafts, subtidal wet storage floats and subtidal clam rafts. In addition, the Project proposes a two phase, 622-acre expansion of intertidal..”. This project description is again stated on page 4-21, section 4.5.4.1 (continuation of existing culture) as “Coast is proposing to continue its existing operation as part of the Project”. However, the remaining areas of the document do not provide any information regarding the renewal of regulatory approvals for existing operations. While we recognize that under the California Environmental Quality Act (CEQA) for which this document was prepared, ongoing operations are considered to be part of the baseline of environmental conditions and therefore not part of the analysis, given the request for renewed regulatory approvals, these operations will require analysis as part of the NEPA process. Please ensure that your permit application package contains a comprehensive project description that encompasses the full project footprint. Additions to the project description for the permit application should include: a complete description of all existing aquaculture operations for which renewal is being requested; a description and analysis of all adverse effects from all proposed aquaculture operations; a description of all avoidance and minimization measures that have been and will continue to be implemented to decrease the level of adverse effects to an insignificant level; and a narrative of all ongoing and proposed mitigation measures that will ensure that the overall project (including effects from ongoing and expansion activities) will meet the ‘no net loss of eelgrass’ objective established by the DEIR.

Eelgrass Effects Analysis. According to the information provided in Section 6.0, and discussed above, the eelgrass effects analysis provided is limited solely to the potential effects from the proposed expansion portion of the Project and does not include an eelgrass effects analysis on current operations. However, according to the project description section of the document, the Project includes a request for renewal of regulatory approval for existing operations. In light of the expanded project description required under NEPA, please ensure that the permit application contains a full eelgrass effects analysis for the entire project footprint, including the current operations as well as proposed expansion activities.

Response to Comment No. 10-4

While the comment requests that the R-DEIR analyze impacts associated with Coast’s existing operations, it acknowledges that, under CEQA, Coast’s existing operations are considered part of the environmental baseline and not appropriate to consider in the EIR. Coast has submitted a biological assessment to the Corps that includes an analysis of impacts associated with Coast’s existing operations and has provided a separate answer to the Corps concerning this question to assist with the Corps’ analysis of Coast’s application for a Corps permit.

The R-DEIR includes a description of the cumulative effects from the proposed project, which includes impacts associated with Coast’s existing operations, in Section 7.0 of the R-DEIR. The R-DEIR also includes some of the information requested in the above comment, to the extent it is

appropriate to include under CEQA, including a complete description of Coast's existing operations (R-DEIR § 4.2) and other regulatory agency approvals (R-DEIR § 4.6).

It is also notable that a recent publication by the Corps related to Nationwide Permit 48 included the following language in relation to shellfish farming activities (81 FR 35202):

We are proposing this modification because of the recognition in numerous studies and reports that have shown that vigorous populations of shellfish and submerged aquatic vegetation can coexist in coastal waters (e.g., Dumbauld and McCoy 2015; Tallis et al. 2009). In addition, both submerged aquatic vegetation beds and oyster beds provide habitat for a wide variety of fish and invertebrate species (Hosack et al. 2006). The presence of submerged aquatic vegetation should not prevent the use of NWP 48 to authorize commercial shellfish aquaculture activities because available evidence indicates that both shellfish and submerged aquatic vegetation sustain vibrant populations in the same waterbody.

While this does not fully address the concept of no-net-loss, the Project proposes mitigation to account for potential reductions in eelgrass density despite the potential benefits to ecological functions recognized by the Corps.

Comment No. 10-5

According to the information provided, existing aquaculture longlines within the current project footprint are spaced at 2.5-ft. According to the information in Rumrill and Poulton (2004), as referenced by the DEIR, aquaculture operations at this spacing have an adverse effect on eelgrass and will result in a loss of eelgrass habitat. Therefore, the expanded eelgrass effects analysis must include analysis of these impacts, including an estimate of total loss of spatial extent, density, and percent cover of eelgrass within the entire project footprint, as well as describing any temporal losses associated with the Project. In addition, the expanded analysis should describe associated mitigation measures that will assure that the project meets the no-net loss goal as established by the Project and the National Marine Fisheries Service's (NMFS) California Eelgrass Mitigation Policy (CEMP), as well as a comprehensive discussion and analysis of all avoidance, minimization, and mitigation measures that have been included in the project design.

Response to Comment No. 10-5

See Topical Response 1 regarding analysis of impacts related to Coast's existing operations and associated mitigation. The R-DEIR incorporates the no net loss standard described in the CEMP and in-kind mitigation to compensate for anticipated eelgrass impacts. *See* R-DEIR § 6.5 and Topical Response 2.

Comment No. 10-6

Following review of the information provided in Section 6.0 (Environmental Analysis and Effects of Alternatives), Subsection 6.5 (Biological Resources), and referenced peer reviewed literature, the Corps cannot agree with the determination that aquaculture longline operations set apart at 10-ft spacing will have a neutral/beneficial effect on eelgrass habitat. As displayed in Figures 5 and 6 of Rumrill and Poulton (2004) percent cover and density of eelgrass were significantly decreased in

experimental plots where aquaculture longlines were spaced 10-ft apart, as compared to adjacent control plots. Additionally, as presented in Figure 7 of Rumrill and Poulton (2004), the number of eelgrass shoots/m² in experimental plots where aquaculture longlines were spaced 10-ft apart was significantly lower than in control plots where no long lines had been placed. According to information provided by Coast, suppression of eelgrass occurs directly beneath the longlines and adverse effects from shading to adjacent eelgrass habitat is not significant. Given that the Project proposes to install longlines in a similar manner as those in its existing operations, the Corps has determined that suppression of eelgrass habitat would continue under the proposed Project since the persistent adverse effect would be from the existence of the longlines and not from indirect shading. Therefore, the Corps ascertains that the suppression of eelgrass will continue to occur and that the project will have an adverse effect on eelgrass habitat. Consequently, the Corps cannot agree with the determination that there would be neutral or beneficial effects from longlines spaced at 10-ft intervals.

Response to Comment No. 10-6

See Topical Response 2 regarding impacts associated with 10-ft spaced longlines and the Rumrill and Poulton (2004) study. That study, as well as other studies cited, were based upon empirical observations that included impacts associated with the physical occupation of the longlines themselves, as well as shading and other operational impacts like trampling. In terms of the physical occupation of aquaculture gear, there is little proposed gear that interacts with the bottom substrate. The amount of gear in the substrate was calculated using standard equations for area. Using the equation for the area of a circle ($A=\pi r^2$), and the total number of PVC support posts and marker stakes, the acreage associated with the amount of PVC in North Bay for the proposed Project was calculated in Table 3.2 below. The amount of PVC support posts and marker stakes that would be added from the proposed project to the substrate is approximately 0.08 acres after the conversion from 2.5-ft spaced lines to 10-ft double-hung longlines, spread throughout a 622-acre project area. While the impact to eelgrass associated with physical occupation of the proposed longlines is considered less than significant under CEQA, Coast has proposed mitigation in response to requests from the Regional Water Quality Control Board to mitigate for any potential impact pursuant to RWQCB regulations. The proposed RWQCB benthic habitat mitigation plan is attached as Appendix D of this FEIR.

Table 3.2 Calculated Fill Area for PVC Support Posts and Marker Stakes in the Proposed Culture Areas

Culture Method	Cultch-on-Longline		Basket-on-Longline		Rack-and-Bag		Marker Stakes		TOTAL		
	# of PVC	Fill Area (Acre)	# of PVC	Fill Area (Acre)	# of PVC	Fill Area (Acre)	# of Markers	Fill Area (Acre)	# of PVC	# of Markers	Fill Area (Acre)
Conversion (100 acres)	-247,803	-0.02	N/A	N/A	N/A	N/A	N/A	N/A	-247,803	N/A	-0.02
Phase 1 Expansion (210 acres)	515,911	0.04	26,000	0.01	71,280	0.002	49	0.00002	613,191	49	0.05
Phase 2 Expansion (412 acres)	709,457	0.05	N/A	N/A	N/A	N/A	95	0.0001	709,457	95	0.05

Culture Method	Cultch-on-Longline		Basket-on-Longline		Rack-and-Bag		Marker Stakes		TOTAL		
	# of PVC	Fill Area (Acre)	# of PVC	Fill Area (Acre)	# of PVC	Fill Area (Acre)	# of Markers	Fill Area (Acre)	# of PVC	# of Markers	Fill Area (Acre)
Total Expansion (Phase 1 + Phase 2)	977,565	0.07	26,000	0.01	71,280	0.002	144	0.0001	1,074,845	144	0.08

Comment No. 10-7

The Corps recommends that Coast reassess its determination that the Project will have a neutral/beneficial effect on eelgrass habitat. In order to provide a comprehensive review of the Project during the NEPA process, the Corps requests that a new eelgrass effects analysis be submitted that evaluates the full suite of adverse effects from the Project, including adverse effects from current operations for which continuing regulatory approval is being sought. Subsequent to the re-analysis of adverse effects to eelgrass effects the Corps recommends Coast provide a mitigation plan that includes a full suite of mitigation measures that will fully offset losses to eelgrass and achieve the no net loss objective established by the Project and mandated by the CEMP.

Response to Comment No. 10-7

The R-DEIR acknowledges that Phase I of the project will have a significant adverse impact to eelgrass, and proposes in-kind mitigation to compensate for the anticipated loss in eelgrass density. For additional discussion regarding the R-DEIR conclusion that 10-ft spaced longlines will result in a neutral or beneficial impact on eelgrass impact, *see* Topical Response 2. Discussion of the R-DEIR evaluation of Coast’s existing operations is provided in Topical Response 1. As noted in Topical Response 2, the Project is designed to meet the no net loss objective discussed in the CEMP.

Comment No. 10-8

Mitigation. As described in the recirculated DEIR, Coast proposes to increase the line spacing from 2.5-ft to 10-ft within 100 acres of existing operations to provide mitigation for potential and ongoing project impacts. Although the increased spacing would constitute a minimization measure for impacts to eelgrass habitat, it does not provide compensatory mitigation given the ongoing impacts from the 10-ft spacing. Therefore, as currently described, no mitigation is currently proposed to address the impacts of the Project. Given the large scale of the Project, the Corps believes the adverse effects to eelgrass habitat from current and ongoing operations requires large scale mitigation to ensure that the project achieves the no net loss policy established by state and federal mandates. When submitting the forthcoming NEPA document, please provide a comprehensive mitigation plan that provides a full suite of mitigation activities that would offset the entirety of the Projects adverse effects to eelgrass habitat, including a full suite of alternatives that may also provide for the full mitigation of all project adverse effects if needed.

Response to Comment No. 10-8

Because Coast has already fully mitigated for impacts associated with its existing footprint (*see* Topical Response 1), any further mitigation and ecological lift provided by reconfiguration of 100

acres of its existing footprint represents additional mitigation that mitigates for impacts associated with Coast's expanded footprint. Therefore, Coast's proposed revisions to its existing footprint represent mitigation as opposed to impact minimization. This is consistent with the proposed mitigation procedure described in the CEMP, which recommends a delineation of the existing natural baseline for calculating impacts and a comparison of pre- and post- project eelgrass surveys to determine the success (i.e. ecological lift) provided by the proposed mitigation. Because the reconfiguration promotes eelgrass growth as compared to the environmental baseline, it is appropriately considered to be in-kind mitigation under CEQA.

Comment No. 10-9

Conservation Measures. After reviewing the information provided in Section 1.9 'Summary of Environmental impacts, mitigation measures, and levels of significance after mitigation (Table 1.1)', it appears that many of the proposed conservation and mitigation measures do not address the potential impacts that they are intended to be addressing. Specifically, the Corps recommends that Coast address the discrepancies in the conservation measures that will be included in the permit application that are intended to address the following impacts:

Response to Comment No. 10-9

See responses to Comments 10-10 through 10-14, below.

Comment No. 10-10

Impact Bio 2: As described, this impact is related to the amount of aquaculture gear to be installed and the potential for associated changes to unstructured habitat from addition of aquaculture gear. However, the conservation measure (Conservation Bio 1) discusses shell deposition and post storm inspections which does not address adverse impacts from the installation and presence of aquaculture gear from the proposed expansion.

Response to Comment No. 10-10

Conservation measures can address multiple impacts and may address some impacts more than others. It should also be noted that, unlike mitigation measures, conservation measures are not necessarily intended to reduce an identified significant impact to a less-than-significant level. As noted in the R-DEIR, "Conservation Measures are intended to ensure that the Project maintains a high standard that is environmentally responsible. Conservation Measures may also be applied to improve or provide a beneficial impact even where no significant impact has been identified ... Because the Conservation Measures have been made a part of the Project, they do not constitute mitigation measures by definition, although they have a mitigating effect." R-DEIR at 1-10. For example, Conservation Measure BIO-1 most directly addresses Impact BIO-11, regarding the potential to change sediment quality underneath shellfish aquaculture gear due to biodeposits. However, Conservation Measure BIO-1 also addresses Impact BIO -2, in that intentional deposition of shell could also alter otherwise unstructured and unchanged habitat through adding material to mudflats and other seafloor areas. Conservation Measure BIO-3 also addresses this concern through picking up loose gear and debris to avoid accumulation on the seafloor.

Comment No. 10-11

Impact Bio 3: As described, this impact is related to the decrease in density of eelgrass under the longlines. However, the Corps does not consider mitigation Bio-1 to be a mitigation measure, but instead considers this a minimization measure, and therefore as currently proposed there are no mitigation measures proposed for this impact. Please provide mitigation measures that would provide for the full offset of impacts to eelgrass habitat.

Response to Comment No. 10-11

See Topical Response 1 and response to Comment 10-8.

Comment No. 10-12

Impact Bio 4: According to the table, this impact is related to the trampling of eelgrass from aquaculture and harvesting activities. However, conservation measure-4 only addresses rack and bag culture, which is a very small percentage of the overall expansion project (<1%). Additionally, there are no conservation or mitigation measures listed for impacts from cultch or basket long lines, which are the primary proposed aquaculture techniques and encompass the majority of the proposed project expansion and therefore, require conservation measures to decrease the potential for adverse impacts from the proposed project. Please provide additional conservation and mitigation measures that will assist in the avoidance and minimization of these impacts.

Impact Bio-5: This impact is related to the potential for habitat fragmentation from the placement of aquaculture gear within eelgrass. However, the associated conservation measures listed (Conservation Bio Measures 5, 6, 7 and 8) do not address placement of aquaculture gear and as it is described, is focused on boat handling. Therefore, the proposed conservation measures do not provide any significant minimization measures for the impact listed. Please provide additional conservation and mitigation measures that directly address this impact.

Response to Comment No. 10-12

As further described in Section 4 of the R-DEIR, rack-and-bag cultivation requires more frequent maintenance than cultch-on-longline and basket-on-longline cultivation methods and, therefore, has greater potential for impacts associated with trampling. While this conservation measure reduces impacts associated with trampling, it is not required to reduce impacts associated with trampling to less-than-significant levels. As described in Impact BIO-4, trampling associated with planting, maintenance, and harvest of longlines is expected to be infrequent and would have a small impact area, where eelgrass would be expected to recover within a one-month timeframe. Therefore, no additional conservation measures or mitigation measures are required.

Impact BIO-5 is associated with habitat fragmentation and discusses potential impacts associated with the placement of aquaculture gear and operation of boats in eelgrass beds. For example, the R-DEIR discusses large vessel operations in France where dropping Brittany-type anchors in seagrass beds resulted in temporary fragmentation. As further described in that section, Conservation Measures BIO-5 through -8 are intended to address this potential impact through restricting anchorage in eelgrass and avoiding propeller scarring in eelgrass beds. Therefore, the proposed

conservation measures appropriately address the impacts associated with boats discussed in that section. No additional conservation or mitigation measures are required.

Comment No. 10-13

Impact Bio-6: Please provide additional data regarding double hung, 10-ft spacing that supports the determination that conservation bio measure -2 would adequately address this impact and provide significant minimization for this impact.

Response to Comment No. 10-13

See the response to Comment 6-4. Impacts associated with double-hung, 10-ft spaced longlines are discussed extensively under Impact BIO-3 of the R-DEIR, based on the best available science and communications with eelgrass experts (e.g., Dr. Steve Rumrill and Dr. Brett Dumbauld). The limitations of the existing data, and validation of how this data was used, are presented in Appendix D of the R-DEIR. The way in which eelgrass density loss was analyzed is consistent with other peer reviewed scientific studies related to longline aquaculture, including Tallis et al. (2009) and Wisheart et al. (2007). NMFS (2016a) issued a PBO for shellfish activities in Washington State that supports the R-DEIR analysis, and found that the only appropriate cultivation technique in fallow areas containing eelgrass is longline or flip bag/basket culture with 10-ft spacing. Growers in Washington State are permitted to use that culture method in over 2, 700 acres of tidelands with eelgrass without further mitigation. The data and calculations regarding Coast's proposed mitigation are evaluated in DEIR § 6.5.7 and Topical Response 2.

Comment No. 10-14

Impact Bio -7: similar to the comments provided above for impact bio-5 , the associated conservation measure is not related to the described impact and does not provide minimization measures to decrease the potential impacts from the placement of line or rack and bag on sediment distribution. Please provide additional conservation and minimization measures that will directly minimize the described impact.

Response to Comment No. 10-14

The identified conservation measures address the impact discussed in Impact BIO-7. Impact BIO-7 is related to changes in sediment distribution and circulation. As discussed in that section, two mechanisms of that effect are harvesting oysters using suction dredging and transfer of sediment through propeller scarring. The conservation measures are included directly address two of the potential effects identified in that section by limiting propeller scarring and prohibiting dredging, hydraulic harvesting and “bed cleaning” or other activities using hydraulic harvesters. No mitigation measures are identified because this impact is considered less than significant without the need for mitigation or further conservation measures.

Comment No. 10-15

Adaptive Management and Monitoring Plan

According to Section 4.5.5 'Project Implementation – Phase II', implementation of Phase II is dependent on the verification of Coasts determination that the Phase I operations will have no net loss of eelgrass, as verified via a monitoring plan. According to the information provided, if the impacts associated with 10-ft, single hung longlines are found to exceed the threshold of significance, Phase II will not be implemented until those impacts are balanced with appropriate mitigation, as mandated by the decision tree and adaptive management plan.

However, the recirculated DEIR does not contain the referenced mitigation or adaptive management plan. When submitting a permit application to the Corps for this project, please provide an adaptive management plan, including potential changes to Phase II longline spacing, location of longlines, or any other adaptive management activities that would ensure that the project would avoid, minimize and mitigate for all potential adverse effects to meet the no net loss objective. Additionally, please provide the referenced monitoring plan so that the Corps may evaluate the potential for the monitoring plan to provide the necessary data that would allow for Phase II operations to be implemented in the described manner or altered to achieve the no net loss objective mandated by federal statutes.

Response to Comment No. 10-15

Coast's adaptive management plan is described in R-DEIR § 6.5.7. While the best science available supports Coast's impact analysis and proposed mitigation, the adaptive management plan provides a safeguard in the event that the monitoring plan reveals that the impacts are greater than expected or that the proposed mitigation fails to compensate for anticipated reductions in eelgrass density. The adaptive management plan commits Coast to a decision tree to evaluate what action(s) must be taken if the assumptions in the R-DEIR are incorrect. Given the variability in the number of possible outcomes, it is impossible and imprudent to commit to a particular course of corrective action at this time, as optimal corrections will be dependent on monitoring results and identification of potential issues. The adaptive management plan includes significance thresholds regarding what would be considered a significant deviation from the EIR's assumptions and a range of corrective actions that could be taken by Coast and the appropriate regulatory agencies in the event that the project results in greater than expected losses of eelgrass. This level of specificity, without committing to one specific change or adaptive measure, is appropriate under CEQA. A summary of the proposed eelgrass monitoring plan is included as Appendix C of the FEIR. Note that the draft monitoring plan has undergone peer review and may be subject to further revision based on those comments.

Comment No. 10-16

Should you have any questions regarding this matter, please call L. Kasey Sirkin of our Regulatory Division at (707)443-0855 or l.k.sirkin@usace.army.mil. Please address all correspondence to the Regulatory Division and refer to the File Number at the head of this letter.

Response to Comment No. 10-16

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment

will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 11

Cy R. Oggins, Chief
Division of Environmental Planning & Mgmt.
California State Lands Commission
100 Howe Avenue, Suite 100-South
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Comment No. 11-1

The California State Lands Commission (CSLC) staff has reviewed the Recirculated Draft EIR for the Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project), which is being prepared by the Humboldt Bay Harbor, Recreation and Conservation District (District). The District is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC is a trustee agency for projects that could directly or indirectly affect sovereign lands and their accompanying Public Trust resources or uses.

CSLC Jurisdiction and Public Trust Lands

The CSLC staff has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c), 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. These lands are held for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

Response to Comment No. 11-1

This comment describes the general jurisdiction and regulatory authority of the California State Lands Commission. The comment is hereby noted and no further response is necessary.

Comment No. 11-2

It appears a portion of the proposed Project will involve lands that have been legislatively granted to the District, pursuant to Chapter 1283, Statutes of 1970, and as amended. The CSLC's authorization is not required for the Project, because day-to-day administration of these lands has been granted to the District. However, all activities involving lands granted to the District must be consistent with the Public Trust and the provisions of the applicable granting statutes. Please contact Reid Boggiano, Public Land Management Specialist (see contact information below) for more information.

Response to Comment No. 11-2

This comment describes the jurisdiction and regulatory authority of the California State Lands Commission and Harbor District over the project tidelands. The comment is hereby noted and no further response is necessary.

Comment No. 11-3

The Project Description. The Coast Seafoods Company (Coast) proposes to expand the Project area boundaries within Humboldt Bay to meet its objectives and needs (pages 4-20 of the Recirculated Draft EIR) as follows:

- Expand Coast's shellfish farm to increase future oyster production, meet increasing customer demand for raw and shucked oysters, and regain access to markets and customers lost after production decreases associated with the 2006 transition to sustainable, off-bottom culture practices on a reduced footprint;
- Conduct comprehensive eelgrass monitoring and develop sustainable oyster cultivation practices that can be adapted to documented site conditions;
- Use a varied and diverse culture plot design to evaluate and determine the best method(s) to sustainably grow oysters in eelgrass, including different spacing regimes and an adaptive management plan that is responsive to the results of eelgrass monitoring;
- Create additional job opportunities and sustainable economic development for Humboldt Bay and local jurisdictions;
- Enhance a source of local sustainable seafood and reduce Humboldt County's and California's reliance on imported seafood; and
- Provide comprehensive planning of Coast's owned and leased areas in Humboldt Bay to allow for adaptive operational and management needs, maintain undeveloped areas of the Bay, maximize optimal growing conditions, and limit the farm's spatial footprint.

Based on the Project Description, CSLC staff understands that the Project would include the following components:

- Extend regulatory approvals for Coast's approximate 300 acres of existing shellfish culture;
- Increase shellfish culture within an already permitted floating upwelling system by adding eight culture bins;
- Authorize culture of Pacific arid Kumamoto oysters within the Project's 'existing clam rafts;
- Relocate approximately five acres of existing cultch-on-longline culture; and
- Permit an additional 622 acres of intertidal culture in two phases.

The Recirculated Draft EIR identifies Alternative 1 (10-Foot Spacing Alternative) as the Environmentally Superior Alternative, because it would achieve some Project objectives with no significant impacts to eelgrass and without any significant and unavoidable impacts to other resources (page 1-9 of the Recirculated Draft EIR).

Response to Comment No. 11-3

The comment provides an accurate summary of the project description provided in R-DEIR § 4. No further response is necessary.

Comment No. 11-4

Environmental Review. The CSLC staff requests that the District consider the following comments on the Project's Recirculated Draft EIR.

Biological Resources

1. Revised Project: The CSLC staff received correspondence from a number of interested stakeholders in February 2016 expressing concerns about the expansion proposed in the original Draft EIR, and requesting input from the CSLC regarding adverse impacts to Public Trust resources and values, particularly black brant and eelgrass habitat. These concerns were also articulated in comment letters from other relevant trustee and regulatory agencies including the California Department of Fish and Wildlife, California Coastal Commission, and NOAA Fisheries. The CSLC staff attended an agency meeting regarding the revised project proposal on May 5, 2016, at which eelgrass habitat avoidance, herring monitoring, in-kind mitigation, and adaptive management were discussed. In preparing a revised Project and recirculating the Draft EIR, the District explains its belief that the revised Project proposal addresses the concerns raised at the agency meeting and during public comment on the original Draft EIR, including the incorporation of a "no net loss" standard for eelgrass impacts, increased monitoring, and phased implementation. However, after further examination of the revised Project footprint, maps, and characterization of impacts, CSLC staff remains concerned that unacceptably high adverse impacts will still occur to locally and regionally important Public Trust resources and values, notably brant, shorebirds, and eelgrass.

Response to Comment No. 11-4

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. The specific issues described in the comment are addressed in responses to Comments 11-5 through 11-7. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 11-5

The CSLC staff is concerned that the revised proposed Project not only does not reduce the previously identified impacts, but in fact may increase those impacts by increasing the overall Project footprint by 100 acres. By increasing the spacing between clutch-on-long line lines to 10 feet, and basket-on-long line lines alternating between 9 feet and 16 feet, the Project will cover a greater total area of Humboldt Bay, including eelgrass beds. While the revised Project may reduce the level of

significant impacts to eelgrass habitat in the existing aquaculture area, it does not reduce or mitigate the impacts resulting from the proposed expansion areas. For example, Table 2 of Exhibit 1 in Appendix D shows that while the increased spacing corresponds to an increase of eelgrass shoot density, there is still a significant impact compared with control plots (eelgrass shoot density was 40-54% less under 10-foot spacing conditions than the control). The CSLC staff recommends additional mitigation measures for impacts to eelgrass that adequately account for the loss of continuous eelgrass beds.

Response to Comment No. 11-5

See Topical Response 1 regarding analysis of impact related to Coast's existing operations and Topical Response 2 regarding the Project's impacts to eelgrass, including use of the Rumrill and Poulton (2004) data cited in the comment, and proposed in-kind mitigation. Although the revised project proposes to culture at 10-ft spacing as compared to 5-ft spacing proposed in the original DEIR, that does not mean that more area would be used for culture operations. The project would still be restricted to 622 acres, similar to the project proposed in the original DEIR, and the revised project reduced overlap with continuous eelgrass beds. Between both an increase in spacing and greater avoidance of eelgrass beds, the revised project has significantly reduced the potential impacts.

To clarify, the 100 acres referenced in the comment refers to 100 acres of Coast's existing culture (spaced at 2.5 ft apart) that will be converted to 10-ft double-hung longlines to provide in-kind mitigation for the proposed project; therefore, there is no expansion of the proposed cultivated acreage as compared to the original project described in the DEIR. Changes to the project from the original DEIR and R-DEIR, and associated impacts, are described in R-DEIR Appendix D.

Comment No. 11-6

Furthermore, by expanding the "envelope" of aquaculture operations, the revised Project will increase, rather than decrease, adverse impacts on black brant, a Species of Special Concern. Eelgrass is the most important food source that supports black brants on their annual migration along the Pacific Flyway. Black brants regularly avoid areas of human disturbance and artificial structures (as noted under Cumulative Impacts 7.2.1.2). The in-kind mitigation spacing increases the overall area of Humboldt Bay eelgrass habitat exposed to aquaculture activities and structures, and therefore the impact to black brant foraging behavior is likely to be significant. Mitigation Measure BIO-4 implies that there will be additional mitigation for eelgrass habitat if there are significant observed impacts during monitoring. The CSLC staff recommends that mitigation be required at the onset of the Project to compensate for significant impacts to black brant feeding resources that will result from Project implementation.

Response to Comment No. 11-6

As noted above in response to Comment 11-5, the revised project described in the R-DEIR does not expand the spatial footprint of the project as compared to the project described in the DEIR. For discussion of brant impacts associated with the avoidance of structure, *see* Topical Response 4. The R-DEIR concludes that the mitigation proposed under Mitigation Measure BIO-1 fully mitigates for the project's impact to eelgrass, and therefore provides sufficient food resources for

brant. As an extra layer of precaution, and to comply with mitigation requirements imposed by the CEMP and U.S. Army Corps of Engineers, Mitigation Measure BIO-1 also includes a monitoring plan and adaptive management plan to confirm the R-DEIR's assumptions concerning the project's impacts to eelgrass and the amount of ecological lift provided by Mitigation Measure BIO-1. Because eelgrass availability can affect black brant due to its importance as a food source, Mitigation Measure BIO-4 clarifies that any additional mitigation imposed by the eelgrass monitoring plan and adaptive management plan described under Mitigation Measure BIO-1 must also address potential limitations or reductions in eelgrass as a food supply for brant. Given that the mitigation proposed under Mitigation Measure BIO-1 is anticipated to fully mitigate for eelgrass impacts concurrently with implementation of the project, no further up-front mitigation is required.

Comment No. 11-7

The proposed configuration in the revised Project also appears to increase, rather than decrease, impacts on shorebirds due to the expanded footprint of existing operations and expansion of the Project onto additional areas of shallow water habitat and mudflats, on which these species depend for loafing and foraging. The CSLC staff advises that the District consider avoiding intact eelgrass beds to the extent feasible and provide legitimate offsetting mitigation for unavoidable impacts in order to meet the no net loss standard.

Response to Comment No. 11-7

See response to Comment 11-5 regarding the comment's assertion that the project would result in a greater spatial footprint as compared to the project discussed in the DEIR. The R-DEIR includes an analysis of impacts to shorebirds. *See* R-DEIR § 6.5 and Topical Response 8 for further discussion of impacts to shorebirds. *See* Topical Response 2 for discussion of mitigation of eelgrass impacts and Topical Response 5 for additional discussion of the eelgrass avoidance alternative.

Comment No. 11-8

Climate Change. 2. Storm Events: Storm events are likely to increase in intensity and frequency due to climate change. Storm events can contribute significantly to greater total water levels, particularly in combination with rising sea levels and when they co-occur with extreme high tide (EHT) events, such as King Tides. For example, in 2003, storm surge co-occurred with an EHT event and overtopped the earthen dike at Mad River Slough (located adjacent to the Project area on the north side), flooding nearly 600 acres of adjacent agricultural lands (Humboldt Bay Shoreline Inventory, Mapping and Sea-Level Rise [SLR] Vulnerability Assessment, 2013, p.7). Since the revised and expanded Project area in Figure 1.1 on page 1-3 of the Recirculated Draft EIR overlaps with the predicted high wave exposure seen in Figure 6.5.5 on page 6.5-8 of the Recirculated Draft EIR, the CSLC staff requests the District include additional analysis of how storm events combined with turbidity rates (page 6.5-62 of Recirculated Draft EIR) will interact with aquaculture nutrients and effluents, and identify possible significant impacts to water quality from such events.

Response to Comment No. 11-8

Changes to Humboldt Bay from climate change are outside of the timeframe being discussed in the proposed project. Regional mean sea level (MSL) rise is projected to be 2.28 mm/year (Burgette et

al. 2009). This suggests that MSL elevation may increase by approximately 1 inch (2.54 cm) over the 10-year term of the proposed permit for expansion. Coast's aquaculture practices can be relocated within its leased and owned footprint to respond to future MSL. This amount of increase is not considered significant.

In terms of storm surges combined with turbidity, these are conditions to which Humboldt Bay is adapted. Intertidal habitat is a dynamic environment, and includes daily exposure to wind, tidal currents, and waves. Both eelgrass habitat and oyster longlines can potentially dampen waves and reduce turbidity (as discussed in Impact BIO-7). Placing longlines in eelgrass habitat does not significantly change the dynamics of this system. In terms of overall water quality, it is well accepted in the literature that shellfish can improve water quality conditions and result in nutrient sequestration, which makes a system more resilient to nutrient loading from upland sources (e.g., agriculture, stormwater runoff). *See* Impact WQ-1.

Comment No. 11-9

The CSLC staff also recommends further discussion of the Project's preparedness and resiliency to the impacts of storm events, EHTs, and sea-level rise on fixed and floating features of the Project and its maintenance equipment. Conservation Measure BIO-3, and Mitigation Measures Haz-1 and Haz-4 indicate that equipment will be inspected post-storm, as well as clean-up operations performed. However, there is no description of how the fixed and floating features are resilient or adaptable to storm and EHT activity, nor sea-level rise. This information should be included in the Project Description.

Response to Comment No. 11-9

The longlines and baskets used by Coast on its existing footprint, which would also be used on its proposed expanded footprint, are highly resilient to storm activity. Over the past 10 years, Coast has improved its practices to ensure that baskets and other gear are properly maintained and are not lost. Coast installs stops on longlines with SEAPA baskets that prevent baskets from sliding off any broken line. Coast typically replaces approximately 10 baskets per month, which represents a small percentage of the over 500 baskets that they manage each day. It is extremely rare for longline stakes and other gear to become dislodged. Coast has routine procedures in place to patrol areas of North Bay that collect floating debris, regardless of whether it is from Coast's operations or another source. Coast also regularly monitors its cultivated areas and surrounding areas for loose or escaped aquaculture gear. Additionally, Mitigation Measures HAZ-1 through HAZ-5 have been proposed in the R-DEIR to reduce the risk of marine debris. Regarding Coast's existing floating rafts, those structures are part of the environmental baseline and not part of the R-DEIR analysis. *See* Topical Response 1. Regardless, anchors are used for the existing floating culture, including the FLUPSY, clam rafts, and wet storage floats. The FLUPSY has two anchors. The clam rafts have a total of 33 anchors. The wet storage floats include two anchors. The anchors have been successful in mooring the floating structures in place despite storm conditions and Coast has not experienced issues with moorage failure during the term of its existing permits.

Comment No. 11-10

Sea-Level Rise: Rising sea levels, including State-owned lands and resources, will impact the Project area. As noted on page 7 of the 2013 Humboldt Bay Shoreline Inventory, Mapping and SLR Vulnerability Assessment, Humboldt Bay is experiencing the largest annual relative sea-level rise of any location on the California coast due to the combination of rising seas and land subsidence. The District, as the trustee and manager of legislatively granted Public Trust lands in the Bay, is subject to the requirements of Assembly Bill 691 (Muratsuchi), Chapter 592, Statutes of 2013. This law requires the State's trustees to assess the impacts of sea-level rise and propose how it will be addressed on granted Public Trust lands. The assessment should include existing and future development on tidal/submerged lands underlying the State's ports, harbors, and marinas. Assessments are due to the Commission no later than July 1, 2019. Thus, the District should consider discussing sea-level rise and its potential effects on the environmental conditions and setting of the Project area within the Project Description or other appropriate section. The CSLC staff also recommends the Recirculated Draft EIR describe any "resilient" designs that have been incorporated into the Project components to ensure structural designs are sufficient to ensure function, safety, and protection of the environment over the expected life of the structure (see previous comment).

Please also note that the State of California released the final "Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy" (Safeguarding Plan) on July 31, 2014, to provide policy guidance for State decision-makers as part of continuing efforts to prepare for climate risks. The Safeguarding Plan sets forth "actions needed" to safeguard ocean and coastal ecosystems and resources as part of its policy recommendations.

Response to Comment No. 11-10

As noted in response to Comment 11-8, sea level rise is not a significant factor in the timeframe of the proposed project. In the event of sea level rise that impacts project operations, longlines could be located to other locations at higher elevations within Coast's owned and leased footprint. In terms of ensuring structural integrity of the culture gear, Conservation Measure BIO-3 includes monthly and post-storm inspections of aquaculture plots to ensure that gear is properly maintained. No other measures related to sea level rise are considered necessary.

Comment No. 11-11

Submerged Resources: Based on the discussion on page 6.4-1 of the Recirculated Draft EIR, please clarify if the CSLC maintained shipwrecks database was searched. The CSLC staff requests that the District contact Assistant Chief Counsel Pam Griggs (see contact information below) to obtain shipwrecks data from the database and CSLC records for the Project site. The database includes known and potential vessels located on the State's tide and submerged lands; however, the locations of many shipwrecks is unknown. Please note that any submerged archaeological site or submerged historic resource that has remained in State waters for more than 50 years is presumed to be significant.

Response to Comment No. 11-11

As requested by the commenter, Assistant Chief Counsel Pam Griggs was contacted to obtain shipwreck information for the project area from the CSLC database. Her November 10, 2016 email response is quoted below.

I checked the California State Lands Commission (CSLC) Shipwreck Database for the area shown in the map you sent in northern Humboldt Bay. The search resulted in no hits for the project area; however, there are many wrecks listed for Humboldt Bay with little or no locational information. As you noted, the shallow depth makes it unlikely that wrecks are present.

Information in the database was taken from books, old newspapers, and other contemporary accounts that do not contain precise locations. Except as verified by actual surveys, the database reflects information from many sources and is not based on actual fieldwork unless stated otherwise. Not all shipwrecks are listed in the database and listed locations may be inaccurate. Ships were often salvaged or re-floated.

The information in the Shipwreck Database is not intended to be, nor shall it be construed as, a waiver or limitation of any State interest in the subject or any other property.

As noted above, there are no known shipwrecks in the project area and although there are wrecks listed in Humboldt Bay with no locational information, the shallow depth of the project area makes it unlikely that wrecks are present. The Harbor District acknowledges that any submerged archaeological site or submerged historic resource that has remained in State waters for more than 50 years is presumed to be significant.

Comment No. 11-12

Title to Resources: The Recirculated Draft EIR should mention that the title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in California's tide and submerged lands is vested in the State and under the CSLC's jurisdiction (Pub. Resources Code, § 6313). The CSLC staff requests that the District consult with Assistant Chief Counsel Pam Griggs if cultural resources are discovered on tide and submerged lands during construction. Additionally, the CSLC staff requests that the following statement be added to Mitigation Measure CR-2 (starting on pages 1-11 and 6.4-6 of the Recirculated Draft EIR):

"The final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the CSLC must be approved by the Commission."

Response to Comment No. 11-12

The comment requests several changes to the R-DEIR text associated with discovery of abandoned shipwrecks, archaeological sites, and historic or cultural resources. These changes have been incorporated into the Final EIR. See FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 11-13

Recreation. 6. Notifications: The CSLC staff requests that maps (showing public access routes on the Project site) be posted at local kayak and boat launching sites or other known sites (see Figure 6.11.1 on page 6.11-3 of the Recirculated Draft EIR) for all public recreation. Page 6.11-4 of the Recirculated Draft EIR should include discussion for the signs to be clear and highly visible to help inform all sectors of the public, and to inform wildlife refuge managers and local jurisdictions.

Response to Comment No. 11-13

The comment requests clarification of Conservation Measure REC-2. These changes have been incorporated into the Final EIR. See FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 11-14

Thank you for the opportunity to comment on the Recirculated Draft EIR for the Project. As a trustee agency, we request that you consider our comments prior to certifying the Final EIR. Please send copies of future Project-related documents, including electronic copies of the Final EIR, Mitigation Monitoring Program, Notice of Determination, CEQA Findings and, if applicable, Statement of Overriding Considerations when they become available, and refer questions concerning environmental review to Afifa Awan, Environmental Scientist, at (916) 574-1891 or via e-mail at Afifa.Awan@slc.ca.gov. For questions concerning archaeological or historic resources under CSLC jurisdiction, please contact Pam Griggs, Assistant Chief Counsel, at (916) 574-1854 or via e-mail at Pamela.Griggs@slc.ca.gov. For questions concerning CSLC jurisdiction, please contact Reid Boggiano, Public Land Management Specialist, at (916) 574-0450 or via e-mail at Reid.Boggiano@slc.ca.gov.

Response to Comment No. 11-14

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 12

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Comment No. 12-1

Thank you for this opportunity to comment on the recirculated draft Environmental Impact Report (DEIR) for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project. Staff of the California Coastal Commission (Commission) have previously provided both written and verbal input to both Coast Seafoods Company (Coast) and the Humboldt Bay Harbor, Recreation and Conservation District (Harbor District) on this proposal to approximately triple the size of Coast's shellfish aquaculture operations in Humboldt Bay (from the roughly 300 acres used currently to the approximately 922 acres proposed). This input was provided during several meetings over the past eighteen months in Eureka, Santa Rosa, and San Francisco and through letters in response to the project's draft Initial Study and previous draft Environmental Impact Report. Those comments submitted on the previous draft Environmental Impact Report that remain relevant to the redesigned project are included below.

We appreciate Coast's and the Harbor District's efforts to provide these multiple venues and opportunities for Commission staff and our state and federal resource agency partners to comment on the project during its development. As requested by representatives of the shellfish aquaculture industry during the California Shellfish Initiative process, we have directed substantial time and resources towards engaging in these opportunities by coordinating review responsibilities and identifying, early on, potential sources of regulatory challenges presented by the project.

Response to Comment No. 12-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 12-2

Throughout these previous comments, Commission staff have consistently expressed significant concerns with continued or expanded shellfish aquaculture activities within eelgrass (*Zostera marina*) habitat in Humboldt Bay, a state and federally recognized habitat of particular ecological importance and sensitivity. These same concerns have been similarly conveyed over the past eighteen months through comments provided to Coast and the Harbor District by the Commission's partner agencies, the California Department of Fish and Wildlife, the National Marine Fisheries Service, the U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Service. Continued and expanded use of eelgrass habitat for shellfish aquaculture operations was identified as a very challenging aspect of the proposed project during its initial development and Commission staff specifically requested that Coast and the Harbor District's EIR carefully consider project modifications and alternatives that avoided and minimized placement of aquaculture material in eelgrass habitat. Despite efforts to redesign the project since the release of the initial draft Environmental Impact Report in October of 2015, the project is still proposed to be located predominantly in some of the most robust eelgrass habitat in Humboldt Bay. As discussed in the specific comments below, we believe that the EIR should provide a more thorough consideration of alternatives or substantive and detailed explanation for why such siting is necessary and a more scientifically robust assessment of the adverse environmental impacts it is likely to result in.

Response to Comment No. 12-2

See Topical Response 2 for analysis regarding the Project's impacts to eelgrass. Additional discussion regarding Project alternatives and siting is included in responses to Comments 12-5 through 12-8 and 12-11. Additionally, in response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA and further reduces Coast's proposed footprint within eelgrass as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 12-3

Commission staff received a coastal development permit (CDP) application from Coast in late October of 2015, seeking authorization for approximately 922 acres of shellfish cultivation. The application was deemed incomplete at that time and a notice and request for additional information and materials was provided to Coast by Commission staff on November 27, 2015. On July 11, 2016, Commission staff received from Coast a second submittal of application materials but several of the items requested by Commission staff in November remain outstanding. On August 9, 2016, Commission staff provided to Coast a letter describing these materials and notifying Coast of the application's incomplete status. The most significant outstanding information is an analysis of the environmental impacts associated with the continuation of Coast's 300-acre operation. We intend to work closely with Coast in the coming weeks to achieve the application filing needed to bring the new permit application before the Commission before the current one expires in December of 2016. We will therefore be reviewing the proposed project in parallel with the Harbor District and hope to be able to make use of the project EIR as a key source of information during the Commission's process of evaluating the project's conformity with the resource protection and use policies of the Coastal Act. We will also continue to be available to continue coordinating this review process with the Harbor District and the Commission's other state and federal resource agency partners.

Response to Comment No. 12-3

CEQA does not require the analysis of Coast's existing operations because they are considered part of the existing environmental baseline. *See* Topical Response 1 regarding analysis of impacts related to Coast's existing operations and associated mitigation. Coast has separately responded to the California Coastal Commission regarding its review of Coast's existing operations pursuant to the California Coastal Act.

Comment No. 12-4

As such, the following comments are directed at supplementing, clarifying, and enhancing the EIR's discussion of the proposed project's potential environmental impacts. Due to the sensitivity of eelgrass habitat and its significant ecological and economic importance, as well as the scale of project activities proposed to occur within it, the DEIR's analysis of potential project impacts to eelgrass is the primary focus of these comments:

Response to Comment No. 12-4

See Topical Response 1 and responses to Comments 12-5 through 12-15 for additional analysis of the Project's impacts to eelgrass.

Comment No. 12-5

Eelgrass. 1. As noted above, one of Commission staff's earliest comments on the proposed project and the Harbor District's analysis of it was that it should carefully and thoroughly consider modifications and alternatives to siting shellfish cultivation operations within eelgrass habitat – particularly areas with high density continuous eelgrass beds. Although the DEIR includes a discussion of an “eelgrass avoidance” project alternative in Section 5.2.1, this alternative was rejected from further analysis after only a cursory discussion of why avoidance or minimization of operations within eelgrass habitat would be infeasible. This discussion suggests that there are insufficient sites outside of eelgrass habitat within the footprint of Coast's current leased and owned parcels to support the scale of operations that Coast has proposed. In support of this point, the DEIR provides Figure 5.1 which shows the outline of Coast's owned and leased parcels, mapped areas of patchy and continuous eelgrass beds, and approximate elevations. However, in contrast with the accompanying discussion, Figure 5.1 appears to show significant areas within the footprint of Coast's ownership and leases that do not support continuous eelgrass beds – for example, the periphery and northern portion of the footprint area. Because the figure does not show the existing and proposed footprint of operations, the size of these areas compared to the proposed project footprint cannot readily be determined.

Response to Comment No. 12-5

See Topical Response 5 for additional discussion of the eelgrass avoidance alternative and a revised figure that shows Coast's existing and proposed footprint in relation to eelgrass beds and tidal elevations. There is only 6.4 acres available at a tidal elevation that is at or below +1.5 ft MLLW that does not contain eelgrass. While an additional 50.4 acres are available below +2 ft MLLW, the additional areas are not feasible for cultivation and both options would result in a projected economic loss of millions of dollars over the permit term.

Comment No. 12-6

Further, the summary of the results of the higher elevation cultivation feasibility study included in this section does not accurately convey the full range of the study's findings. Rather than demonstrate that cultivation is infeasible at higher elevations, the study includes the following conclusion: “The study's results indicate that there was no significant difference in oyster growth, biofouling, or quality between the higher- and lower-elevation study plots.” This conclusion contradicts the DEIR's statement that “planting at tidal elevations at or above +1.5 ft MLLW would be expected to reduce the quality, desirability and salability of Coast's product” and suggests that viable commercial cultivation can indeed occur at higher elevations in Humboldt Bay and should be considered further among the suite of opportunities for avoiding and minimizing the proposed project's adverse impacts to eelgrass.

Response to Comment No. 12-6

See Topical Response 5 and response to Comment 8-7 for additional discussion of the elevation study. Even if Coast planted all available acreage below +2 MLLW that does not contain eelgrass, the project would result in a projected loss of millions of dollars, and is therefore economically infeasible.

Comment No. 12-7

Finally, the analysis of this alternative also does not provide sufficient explanation for why only Coast's proposed full-scale buildout was considered rather than an expansion that could be sited outside of eelgrass habitat or in areas with no more than patchy eelgrass beds. In many cases where environmental constraints – such as sensitive habitats – are present within a project area, the location of those constraints is used to guide the scale, location, and configuration of the proposed project. However, in the case of this project, it appears that the project has been designed without consideration of these constraints. In fact, the majority of the project would be located directly within areas of known sensitive habitats.

Response to Comment No. 12-7

The R-DEIR considered a reasonable range of alternatives, including an existing footprint alternative and reduced density alternative that proposed a smaller footprint and would have reduced the project's impacts to eelgrass. *See* R-DEIR Section 5 and Topical Response 5 for additional information regarding the alternatives selected for further analysis and rejection of the eelgrass avoidance alternative as infeasible. In response to this comment, the Harbor District has included the EBMA Avoidance Alternative, discussed in response to Comment 12-2, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 12-8

We therefore encourage the Harbor District to revisit this “eelgrass avoidance” alternative and consider (1) the amount of expanded operations that could be sited outside of areas of continuous eelgrass beds within the current footprint of Coast's ownership and leases – including reduced spacing operations in areas at higher elevations and areas with shell debris and other remnants of Coast's historic operations that limit eelgrass; (2) a combination of the reduced footprint alternative and an alternative that avoids eelgrass habitat; (3) a more substantial discussion of how the size and scale of a feasible project was determined; and (4) a discussion of alternative lease configurations that would allow greater areas with no more than patchy eelgrass beds to be included. In addition, Figure 5.1 should also be clarified to depict the configuration of existing and proposed cultivation beds and the elevation of areas with patchy and continuous eelgrass beds (if this cannot be clearly shown on a single figure, please consider including in this section one figure showing eelgrass coverage and another showing elevation).

Response to Comment No. 12-8

The requests discussed in the comment are considered below:

1. Avoidance of continuous eelgrass beds and locating the proposed expansion in areas with shell debris. As compared to the initial project description described in the R-DEIR, the revised project reduces by 82 acres the area planted in continuous eelgrass. However, as further discussed in Topical Response 5, there is significant overlap in Coast’s leased and owned property between the elevation considered viable for planting shellfish and eelgrass beds. As shown in R-DEIR Figure 5.3, a significant amount of Coast’s property contains continuous eelgrass beds. Table 6.5.10 of the R-DEIR specifies that 3,017 acres of Coast’s property is located in either subtidal areas or areas with continuous eelgrass. Most of the areas that do not contain eelgrass are at elevations unsuitable for shellfish cultivation. However, in response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which reduces the overall proposed expansion footprint. The alternative significantly reduces the amount of overall proposed cultivation in continuous eelgrass, from approximately 409.7 acres proposed for the preferred alternative to approximately 127 acres proposed for the EBMA Avoidance Alternative. For a detailed description of this alternative and its impacts, see FEIR Section 4, *Revisions to the R-DEIR*.

Further, it is unclear that this alternative mitigates or reduces project impacts. The focus on high density or continuous eelgrass beds creates an implicit suggestion that low density or patchy eelgrass beds and other habitats in Humboldt Bay are less valuable to the ecosystem. However, some organisms benefit from low density eelgrass. The role of eelgrass density in affecting ecosystem function is complex, with some species benefitting from lower shoot densities while others benefit from higher shoot densities (Duffy 2006). For example, Orth et al. (1984) suggest that seagrass beds with bare areas interspersed provide more favorable foraging areas for fish and invertebrates because they provide access to preferred foraging habitat (bare areas) while also providing close proximity to protective vegetated habitat. Therefore, it is inappropriate to view eelgrass as a resource whose contributions to ecosystem function are maximized at maximum density and area.

The function of the Humboldt Bay’s intertidal ecosystem relies on the mosaic of continuous eelgrass, patchy eelgrass, and mudflat habitats. As the R-DEIR illustrates, eelgrass is abundant and appears to be thriving in Humboldt Bay. There is no evidence that the current level of eelgrass is a limiting factor for the survival of species that depend upon it. Furthermore, different species benefit from different habitats. Focusing exclusively on the conservation of one type of habitat can come at the expense of species that prefer other habitats, such as patchy eelgrass beds. Efforts at marine conservation and marine spatial planning should maintain habitat heterogeneity, and should not over emphasize surrogates for ecological function that may have limited conservation utility. See Foley *et al.* (2010); Andelman and Fagan (2000).

Regarding locating the proposed expansion within areas with historic shell deposition, it will not result in avoidance of eelgrass. Figure 3.2 is an overlay of the shell deposition areas and eelgrass coverage, based on eelgrass mapping conducted by NOAA in 2009. As shown in Table 3.3, there are approximately 46.3 acres of continuous eelgrass and approximately 76.4 acres of patchy eelgrass within historic shell deposition areas.

Table 3.3 Habitat Type Within Historic Shell Deposition Areas

Habitat	Acres
Continuous Eelgrass	46.3

Habitat	Acres
Patchy Eelgrass	76.4
Macroalgae	0.7
Shellfish Culture	1.0
Subtidal or Mudflat	1.7

Therefore, this alternative does not substantially lessen significant adverse impacts.

2. Combination of Reduced Footprint Alternative and Eelgrass Avoidance Alternative. Regarding avoidance of eelgrass, *see* Topical Response 5. The EBMA Avoidance Alternative, discussed above, addresses this request. While the acreage proposed by the EBMA Avoidance Alternative (256 acres) is greater than the Reduced Footprint Alternative (210 acres), the net overall acreage increase, including the longlines to be removed as mitigation under the EBMA Avoidance Alternative, would be 18.7 acres less than the Reduced Footprint Alternative, and would reduce the overlap with continuous eelgrass beds by 38.6 acres.

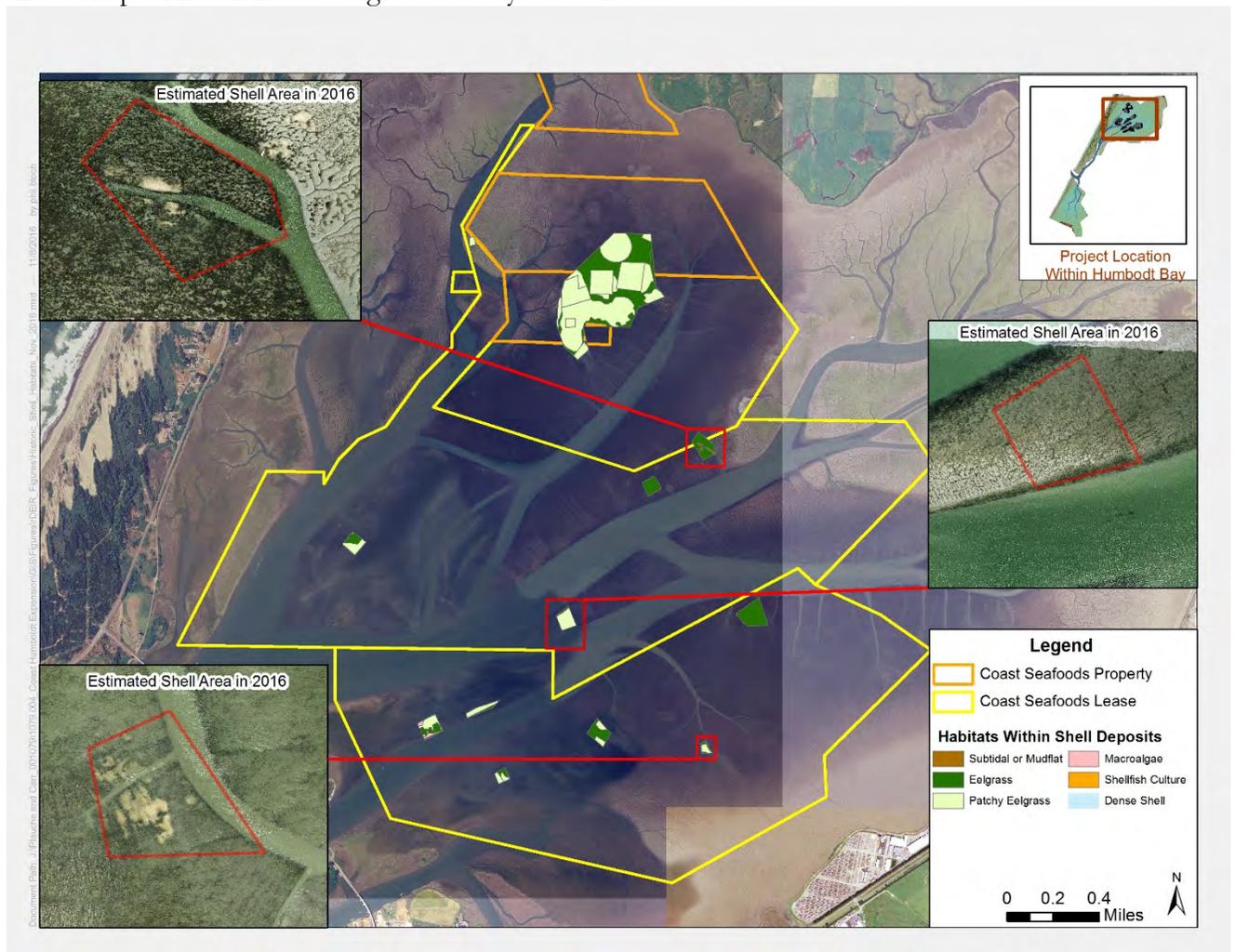


Figure 3.2 Habitat composition within historic shell deposition sites.

3. Size and Scope of the Project. As discussed in the project objectives, the goal of the project is to expand Coast's farmed footprint into previously cultivated areas to meet the increasing demand for its shellfish products. The scale of the project was determined by Coast to meet this demand and generate sufficient revenue to finance many of the other aspects of the project, including but not limited to the eelgrass monitoring plan. Coast used a number of factors to select potential growing areas. To efficiently use its existing owned and leased footprint and avoid additional regulatory processes, Coast only proposes cultivation on land that it has historically owned and leased. Within its owned and leased footprint, Coast first explored areas that were not located in eelgrass. As described in further detail in Section 5.2.1 of the R-DEIR, 70% of Coast's leased and owned footprint (3,013 acres) is located either in eelgrass habitat or tidal and subtidal areas that are not suited for oyster culture. Much of the remaining area is located at elevations unsuitable for oyster cultivation, which is most successful between a -1 and +1.5 MLLW tidal elevation (*see* R-DEIR Figure 5.1 and Topical Response 5). Limiting expansion to areas without eelgrass in Coast's existing leased and owned footprint was determined to be economically infeasible (*see* Topical Response 5 for further discussion). Additional details regarding this analysis are included in Section 5.2.1 of the R-DEIR.

Coast also chose areas within its existing and leased footprint where it had previously cultivated (*see* R-DEIR Figure 4.3). This served two purposes: (1) based on Coast's previous cultivation history, Coast knew from experience which areas were conducive to shellfish production and (2) the project focused on areas that had been altered by shellfish cultivation in the past, thereby reducing the potential effects of the changes on the local ecosystem in cultivation areas. Other key criteria were sediment type and water quality. Because oysters require high quality water to grow, the selected areas avoided areas of North Bay that were known to have water quality concerns, such as areas with high runoff from tributaries, known areas with high dioxin levels, etc. Pursuant to CA DPH regulations, Coast was also required to avoid areas that could be considered "prohibited" due to upland pollution sources, such as non-functioning septic fields or wastewater treatment plants.

In response to public comment, Coast has also revised the project to reduce its footprint in the EBMA. As compared to Coast's initially proposed amendment submitted to the Commission in October 2015, Coast has revised the proposal to include 18 acres less of proposed planted area within the EBMA and 74 acres less of planted area within documented herring spawning areas.

Finally, as with any farm, Coast chose its areas based on its 60 years' experience cultivating shellfish in Humboldt Bay to select the most highly productive areas, where Coast can maximize its production yield while limiting its footprint. The size and shape of the areas are determined based on property boundaries, areas located at acceptable tidal elevations, and within the boundaries of previously planted areas.

4. Alternative Lease Configurations. *See* Comment 8-6 for a discussion of this issue.

In response to the comment, Topical Response 5 includes a figure that depicts the proposed project as compared to tidal elevations and eelgrass beds.

Comment No. 12-9

2.As discussed on page 5-3 of the DEIR, the results of the elevation study described in Appendix C are being used to establish which areas Coast can feasibly use for its operations. The conduct of this study was a requirement of the Commission’s 2006 authorization of Coast’s current operation and it was to “evaluate the feasibility of cultivating oysters at depths typically unsuitable for eelgrass (*Zostera marina*) growth (i.e., 1.5 feet above mean lower low water (MLLW)) in Humboldt Bay.” In the design of the study, feasibility was divided into four parameters: oyster growth, accumulation of biofouling organisms, quality of harvested oysters, and survivorship of planted oysters. Due to failures in study design and data collection, this final parameter – survivorship, was substituted for measures of oyster productivity at the completion of the study.

As summarized in the DEIR, “the study results indicate that oysters grown above an elevation of +1.5 ft MLLW are less viable than those grown in the ranges that overlap with eelgrass habitat.” However, the data supporting this conclusion is more ambiguous than the DEIR suggests. Specifically, the study results demonstrate that there are no statistically significant differences in growth rates, accumulation of biofouling organisms, and quality of harvested oysters, between the oyster cultivation beds within eelgrass elevations and those at higher elevations. The only differences between the two elevations shown in the study are in the productivity parameter that was added near the completion of the study after the evaluation of survivorship was abandoned due to a failure to accurately collect initial oyster settlement samples.

However, the study was not designed to account for a potential source of bias in the measurement of this parameter. Because productivity is defined in the study as the total number of oysters on each cluster at harvest and the combined weight of these oysters (which is directly related to their number since clusters with more individual oysters will result in a higher combined weight), clusters that have a greater number of oysters at initial planting are likely to also have more oysters at harvest and thus appear to be more productive. For this one-sided measure of productivity to be valid, each cluster at the higher and lower elevation beds must have close to the same number of oysters at initial planting. Unfortunately, the DEIR provides no evidence or quantitative support for this. For example, there is no evidence provided that the planted clusters were derived from the same population of clusters developed at the same time with the same techniques and that they were randomly selected for planting at the higher or lower elevation areas.

Therefore, the source of potential bias presented by clusters within the higher elevation plots having lower numbers of oysters at initial planting than clusters in the lower elevation plots remains unaddressed. Unless this issue is addressed, the DEIR should not rely on the results of measurements of the productivity parameter as definitive evidence of the infeasibility of cultivating oysters at depths typically unsuitable for eelgrass growth.

Response to Comment No. 12-9

See response to Comment 8-7.

Comment No. 12-10

It's additionally unclear why the DEIR concludes that cultivating in areas higher than 1.5 feet MLLW is infeasible when individual growers and the Harbor District are pursuing projects specifically focused on cultivating oysters at those higher elevations.

Response to Comment No. 12-10

Specific leases for intertidal areas have not been issued for the Harbor District's Pre-Permitting Project and, at this time, it is unclear at what tidal elevation cultivation will occur pursuant to those leases. The Harbor District's Mariculture Pre-Permitting Project Draft EIR does not specify at what tidal elevation cultivation will occur. However, the Harbor District assumed that the Pre-Permitting Project would overlap with approximately 149.3 acres of patchy eelgrass and 7.3 acres of continuous eelgrass.² Therefore, the Harbor District assumes that the majority of shellfish cultivation will occur at elevations consistent with eelgrass growth (*i.e.* lower than +1.5 MLLW). Further, it is important to note that the intertidal culture sites in the Pre-Permitting Project DEIR represent overall potential cultivation areas; individual leases will be issued within the designated areas and lower elevation sites may be strongly preferred over high elevation sites within the overall cultivation area given the significantly stronger empirical evidence supporting successful cultivation below +1.5 MLLW.

Comment No. 12-11

As noted in the previous comment, Commission staff therefore requests that the Harbor District carry out a more thorough and comprehensive consideration and evaluation of this alternative in the EIR. We also further request that unless it can be invalidated, the discussion of the results of the elevation study be clear and transparent about the potential source of bias noted above and the limitations in making definitive conclusions based on the study's results regarding productivity.

Response to Comment No. 12-11

See Topical Response 5 and response to Comment 8-7.

Comment No. 12-12

3. One of the fundamental underpinnings of the DEIR's analysis of several environmental impacts (eelgrass as well as a variety of fish and bird species that rely on it) appears to be the assumption discussed on page 6.5-47 that impacts to eelgrass would be limited to only a reduction in density within a narrow "width of effect" below each longline and basket structure. However, this assumption that the effects of placing longlines or hanging baskets throughout an eelgrass bed result in impacts only below those structures and not throughout the occupied bed is one that appears not to have been empirically tested and scientifically established through research. In fact, many of the studies focused on evaluating the type and magnitude of impacts to eelgrass from aquaculture, including the initial work carried out by Rumrill and Poulton (2004) that is relied on so heavily in the

²These calculations are based on the revised project description of the Pre-Permitting Project, further described in Section 8 of the R-DEIR. The project originally described in the Pre-Permitting Project DEIR assumed overlap with 306 acres of patchy eelgrass and 48 acres of continuous eelgrass.

DEIR, appear to have been designed around the assumption that impacts would occur throughout the occupied bed, both directly below the aquaculture structures and at increasing distances. The Rumrill and Poulton study was based on samples taken at random locations throughout experimental and control beds of eelgrass and was not setup to determine the size or existence of a limited “width of effect” within the experimental plots. Therefore, unless direct scientific support for the proposed several inch “width of effect” used for longlines and hanging baskets can be provided, please revise the impacts analysis for eelgrass to assume that measured effects (i.e. reductions in eelgrass percent coverage and/or density) would occur throughout the eelgrass bed in which aquaculture structures would be sited.

Response to Comment No. 12-12

See Topical Response 2 for additional discussion regarding “width of effect” analysis and eelgrass impacts.

Comment No. 12-13

4. Based on a cursory review of aerial photography of Humboldt Bay and limited ground-truthing, it appears that the legacy of Coast’s historic bottom culture operations continues to adversely affect eelgrass habitat within their footprint by reducing density and coverage. As an additional source of in-kind mitigation for eelgrass impacts, please also consider possible eelgrass habitat enhancement and restoration activities that could be carried out in these historic bottom culture areas to increase the amount of eelgrass they support.

Response to Comment No. 12-13

Removing the legacy shell deposition can be considered for additional mitigation if monitoring shows impacts beyond what are estimated in the R-DEIR. As the comment notes, these areas may have depressed eelgrass densities, although most historic shell deposition areas within Coast’s owned and leased areas have some amount of eelgrass coverage based on NOAA (2009) eelgrass mapping. The R-DEIR impact analysis included a standardized density to calculate impacts regardless of shell presence, which likely resulted in over-estimating impacts in these areas. Further, modifying shell deposition sites, while good for eelgrass, may not be beneficial for species that have been using these locations, such as Dungeness crab. Although these locations may represent good potential sites for eelgrass mitigation, the tradeoffs should be well understood prior to incorporating additional mitigation (if needed).

Comment No. 12-14

5. Please expand the discussion of cumulative impacts to include impacts to eelgrass habitat from existing operations.

Response to Comment No. 12-14

R-DEIR § 7.0, Cumulative Impacts, included a discussion of eelgrass impacts associated with existing culture operations. *See* R-DEIR § 7.2.1.3.

Comment No. 12-15

6.Regarding the proposed eelgrass monitoring program, given the variability in eelgrass growth patterns and the cumulative effect of project impacts to eelgrass from factors that may accrue over time such as mechanical disturbance, shading, and tramping, Commission staff requests that the post-installation monitoring period be increased from the proposed two years to a minimum of five years.

Response to Comment No. 12-15

The monitoring plan has been increased to a full three years of observations prior to installation of Phase II, including further discussions with resource agencies if impacts beyond the stated thresholds are exceeded (*see* Mitigation Measure BIO-1). This would allow for a full cycle of planting and harvest to be conducted in order to understand the full range of potential impacts to eelgrass. While the comment raises concerns about the cumulative effect of project impacts to eelgrass, disturbances to individual eelgrass beds are infrequent and would allow for quick recovery of the beds. Therefore, it is unlikely that Project activities will result in cumulative effects to eelgrass. *See* Impacts BIO-3 and BIO-4 for additional discussion.

Comment No. 12-16

Black Brandt

1.The discussion of potential impacts to black brandt included in the DEIR relies insignificant part on a model developed to assess the results of changes in disturbance patterns and the availability of forage and forage opportunities. Because brandt consume eelgrass, the modeled effects to brandt are closely tied to the accuracy of the DEIR's assessment of the project's impacts to eelgrass habitat within Humboldt Bay. In the previous section of this letter focused on eelgrass, Commission staff identified a variety of clarifications and revisions to the DEIR's eelgrass analysis that we believe would result in a more accurate and scientifically robust acknowledgement of the type and magnitude of impacts to eelgrass that the project is likely to cause. As the eelgrass analysis is revised and estimated impacts are modified, please also revise accordingly the sections of the report (such as the discussion of black brandt, Dungeness crab, and salmonids) that also rely on an estimate of eelgrass impacts.

Response to Comment No. 12-16

As described in Topical Response 2, it does not appear that any modification of the R-DEIR is required, as it appears that the anticipated impacts associated with eelgrass described in R-DEIR § 6.5 and Topical Response 2 are accurate and based on the best available science. Therefore, revision of other sections of the R-DEIR analysis do not appear to be required. Additional analysis regarding impacts to brandt are provided in Topical Response 4.

Comment No. 12-17

2.Please expand the discussion of cumulative impacts to include an estimate of the combined total disturbance to black brandt from the proposed project, Coast's existing operations, and future projects in Humboldt Bay including the Harbor District's pre-permitting project.

Response to Comment No. 12-17

A cumulative impact analysis of the Project's impacts to brant, as well as other projects (including the Harbor District's Pre-Permitting project) is included in R-DEIR § 7.2.3.8. Additional discussion of impacts associated with brant is provided in Topical Response 4.

Comment No. 12-18

Pacific Herring. 1. In its authorization of Coast's existing operation in 2006, the Commission included several permit requirements to ensure that adverse impacts to Pacific Herring are avoided and minimized. These measures included limitations in the amount of culture activities occurring within the East Bay Management Area, an area that has historically been shown to support high levels of herring use, and surveys and annual reporting of observed herring spawn on or around aquaculture gear and cultured shellfish. In the nearly ten years since this permit was issued, Coast has reported no observations of herring spawn on or around aquaculture gear in Humboldt Bay. Although the absence of such observations by Coast is not definitive evidence that herring would not spawn on aquaculture gear in the future, it appears to be a strong indication that use of aquaculture beds by herring is unlikely. Please revise the discussion of potential impacts to herring spawning to include this information about herring use of existing aquaculture areas in the East Bay Management Area.

Response to Comment No. 12-18

The discussion of herring impacts in the R-DEIR was robust and included a compilation of all known data available. *See* Topical Response 3 for additional discussion of the Project's impacts to herring. Herring abundance reached a low level of biomass immediately prior to the 10-year period of the prior Coastal Development Permit. Although limited herring monitoring has occurred in recent years, biomass monitoring has not been reinitiated by CDFW. Herring spawning occurs during the winter months and eggs hatch after two to three weeks, limiting the potential for incidental observations of herring spawn on aquaculture gear. The Project maintains and expands upon the condition included in Coast's previous CDP to monitor for herring spawn and report results to CDFW (*see* Mitigation Measure BIO-2). It is notable that Mitigation Measure BIO-2 expands upon a similar measure used in Washington State that was found to adequately protect Pacific herring spawn deposition within 5,815 acres of shellfish aquaculture that overlaps with herring spawning locations. Both NMFS (2016a) and US FWS (2016) concluded that there would be potential losses of herring eggs due to shellfish aquaculture operations, but that the magnitude of this loss would not rise to a level of significance in any one water body or estuary.

Comment No. 12-19

2. Please expand the discussion of cumulative impacts to include an estimate of the combined total impact to Pacific herring from potential loss of spawning areas from existing operations, the proposed project, and future projects in Humboldt Bay including the Harbor District's pre-permitting project.

Response to Comment No. 12-19

R-DEIR § 7.2.3.5 includes an analysis of the cumulative impacts to Pacific herring. While the R-DEIR analyzes cumulative impacts in a qualitative manner as opposed to a quantitative analysis, such an approach is appropriate. The analysis of cumulative impacts discussed in an EIR is not required to be as detailed as the analysis of project impacts. 14 CCR § 15130. Further, there is a lack of quantitative data regarding herring populations in Humboldt Bay, because CDFW has not conducted herring surveys since 2005. Therefore, any quantitative assessment would be purely speculative. However, for a number of reasons, the R-DEIR analysis sufficiently supports that the Project will not result in cumulative impacts to herring. These reasons include: (1) herring are an r-selected species that overwhelm predators with egg deposition; therefore, minor decreases in egg survivability are unlikely to affect the overall herring population, (2) given the frequency of Coast's activity on any particular bed, it is unlikely to overlap with spawning activity, which lasts two-three weeks; and (3) if there is overlap, Coast will cease activities during that period (Mitigation Measure BIO-2). There appears to be limited discrimination between substrates during spawning events, and so deposition is expected to be proportional to the available substrates. Therefore, herring accessing spawning beds are expected to spawn primarily on natural substrates (eelgrass) as well as oyster gear. Herring are not expected to avoid areas where longline gear is present, and the presence of gear will not reduce the total amount of spawn deposited in Humboldt Bay. Finally, while a portion of the Harbor District's Pre-Permitting Project is proposed to be located within the EBMA, the proposed footprint is almost entirely outside of areas where herring spawn have been documented. Compare R-DEIR Figures 6.5.24 and 7.1. Therefore, other existing culture and the Pre-Permitting Project are not anticipated to impact herring populations or spawning activity. In response to this comment, the Harbor District has included the EBMA Avoidance Alternative, discussed in response to Comment 12-2, which would further reduce overlap between the project and herring spawning grounds. See FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 12-20

Conservation Measures. 1. Many of the proposed conservation measures included in the DEIR are the same as or similar to measures that are in place on Coast's current operation. Prior to continued use or reliance on these measures as an impact avoidance strategy, please consider evaluating their effectiveness and compliance status. If such conservation measures are to be retained and relied on, Commission staff also suggests that the EIR include clear and specific steps that would be taken to ensure, and if necessary, compel, compliance. Without this type of assessment of what is working for current operations and a clear and proactive discussion of oversight and contingency steps, it may not be appropriate to rely on such measures for impact avoidance.

Response to Comment No. 12-20

Below is a summary of the conservation measures incorporated into the R-DEIR that were previously implemented by Coast during its previous permit term, and an evaluation of their effectiveness:

1. *The applicant will not engage in any dredging, hydraulic harvesting, "bed cleaning," or any other activities with a hydraulic harvester within Humboldt Bay (MND Biological Mitigation Measure 3, R-DEIR Conservation Measure BIO-8).* Coast has complied with this condition and has not engaged in such activities

during the permit term, and does not propose any such activities as part of the project. As further described in R-DEIR § 6.5.1.4 and Topical Response 2, the cessation and continued abatement of dredging, bed cleaning, and hydraulic harvesting activities historically utilized by Coast has been very successful in permitting the regrowth and recovery of eelgrass beds that were subject to such activities, and such beds have experienced significant recovery over the current permit term.

2. *Where feasible, the applicant will avoid long line harvester vessel contact with the bay bottom. To avoid potential impacts to eelgrass from shading, the applicant will not anchor long line harvesters in such a way as to shade the same area of eelgrass for a period exceeding twelve (12) hours (MND Biological Mitigation Measure 6, R-DEIR Conservation Measure BIO-5).* Coast has complied with this condition. It is difficult to measure the impacts associated with this condition as compared to impacts associated with the longlines themselves and other harvesting activities. However, as described in Topical Response 1, Coast previously fully mitigated for impacts associated with its existing footprint and impacts associated with longline harvesters operated in compliance with this measure are considered based on the empirical studies of eelgrass impacts referenced in R-DEIR § 6.5.
3. *No take or harassment (as defined in the Marine Mammal Protection Act) of any marine mammal will be allowed (MND Biological Mitigation Measure 7, revised as R-DEIR Conservation Measure BIO-11).* Coast has complied with this condition. It appears to have been effective, given that there have been no reports or allegations that Coast's actions during the permit term have resulted in the take or intentional harassment of marine mammals.
4. *All oyster culture activities, for the bed identified in the MND Attachment A as "Sand Island NK" will remain at least 100 meters away from the MHHW line of Sand Island (MND Biological Mitigation Measure 8, revised as R-DEIR Mitigation Measure BIO-3).* As shown in R-DEIR Figure 6.5.28, Coast has complied with this condition by maintaining the appropriate buffer. As noted by Comment 9-6, Sand Island continues to provide significant habitat for nesting colonies of Caspian terns and double crested cormorants, marine mammals, and black brant, which provides evidence that the buffer has been effective at limiting disturbances from Coast's operations.
5. *The applicant will not intentionally deposit shells or any other material on the sea floor. Natural deposition of shells and other materials will be minimized to the maximum extent feasible (MND Biological Mitigation Measure 10, R-DEIR Conservation Measure BIO-1).* Coast does not intentionally deposit oyster shell within its cultivation areas. Oyster shell, cultch, or seed is occasionally unintentionally deposited within cultivation areas. The shell deposition sites shown in Figure 3.2, in response to Comment 12-8, are associated with Coast's historic cultivation activities, where it intentionally laid shell as part of its shellfish farming activities. While shell deposition is unintentional, it is worth noting that oyster shell provides some ecological benefits. For example, the U.S. Army Corps of Engineers has deposited oyster shells onto mudflats as mitigation to increase crab populations in Grays Harbor, Washington, which has proven to be successful mitigation strategy (Visser 2006). As further described in R-DEIR § 6.5.1.4, eelgrass has recovered substantially in areas historically planted by Coast where it used shell.
6. *During the months of December, January, and February, the applicant will visually survey those beds to be worked on each day prior to harvesting and/or planting, to determine whether herring has spawned on eelgrass, culture materials, or substrate. If herring spawning is observed, the applicant will (a) postpone for two weeks harvesting and planting activities on those beds where spawning has occurred, and (b) notify the California*

Department of Fish and Game's Eureka Marine Region office within 24 hours of observation of herring spawning (MND Biological Mitigation Measure 11, revised as R-DEIR Mitigation Measure BIO-2). A similar condition was previously imposed by the Coastal Commission as Special Condition 3. See response to Comment 12-18 for discussion of this condition.

7. *The applicant will not discharge feed, pesticides, or chemicals (including antibiotics and hormones) into marine waters (MND Biological Mitigation Measure 9, R-DEIR Conservation Measure HAZ-1). Coast has complied with this measure. Coast does not use any feed, pesticides, chemicals, antibiotics, or hormones as part of its existing operations and does not propose to do so as part of the proposed project.*
8. *The applicant shall develop and implement an equipment maintenance program for all vessels that are used in its mariculture activities, and shall consider the likelihood of release of fuels, lubricants, paints, solvents, or other potentially toxic materials that may be associated with these vessels as a result of accident, upset, or other unplanned activities (MND Hazardous Materials Mitigation Measure 1, R-DEIR Conservation Measure HAZ-2). Coast has complied with this condition. Given that its shellfish farm relies upon high water quality for its product, Coast is extremely careful in maintenance of its vessels and operations to ensure that there are no accidental releases of fuels, lubricants, or other toxic materials.*
9. *Coast Seafoods shall remove culturing debris remaining from mariculture uses, as well as other discarded materials which occur within the areas used for mariculture, from the areas Coast Seafoods uses in Arcata Bay (Harbor District Mitigation Measure 1, revised as R-DEIR Mitigation Measures HAZ-1 through HAZ-5). Coast currently performs weekly cruises around the perimeter of North Bay and Entrance Bay at high tide to pick up debris, including both aquaculture materials and any other marine debris. Most debris picked up by Coast during these cruises consist of non-aquaculture materials, including cans, water bottles, plastic bags, coffee cups, timber, and tires. Coast also performs low-tide inspections on its beds and mudflats at each low tide. Low-tide inspections generally involve the removal of aquaculture debris in close proximity to the oyster beds, including cultch bags, clam bags, baskets, pipe, rope, wire ties, and other miscellaneous items. Coast maintains documentation of the debris collected. Coast will continue these efforts in addition to the cleanup efforts described in Mitigation Measures HAZ-1 and HAZ-4. These efforts have been successful in collecting Coast's aquaculture debris, as well as a significant amount of other debris in Humboldt Bay unrelated to Coast's activities.*
10. *Boat Transit. During maintenance and harvesting of oysters, boat transit areas shall be limited to areas devoid of eelgrass as much as practicable. To the extent practicable, the applicant's personnel shall use the same areas to moor their boats in order to minimize the amount of propeller scarring in eelgrass habitat (Coastal Commission Condition 8, revised as R-DEIR Conservation Measures BIO-6 and BIO-7). Coast complies with this condition.*
11. *Plot Abandonment. Within 30 days of harvest on any plot that is being abandoned, or taken out of production for one year or more, the applicant shall remove all oyster culture apparatus from that plot, including but not limited to stakes, racks, and pallets (Coastal Commission Condition 9, R-DEIR Mitigation Measure HAZ-2). Coast complies with this condition. For additional discussion of this condition, see response to Comment 17-84.*

As noted at R-DEIR pg. 1-10, conservation measures are treated similarly to mitigation measures and will be included in the Mitigation and Monitoring Plan for the R-DEIR. Therefore, the Harbor District may enforce the conservation measures in the same manner as mitigation measures and take corrective action for any violation or non-compliance with such measures. The appropriate corrective actions would be at the discretion of the Harbor District as lead agency.

Comment Letter No.'s 13 and 14

(Note: Comment letters 15 and 71 are include below with the Responses to Agencies. For responses to Comment Letters 13 & 14 see under Responses to Non-Governmental Organizations starting on pg. 3-127.)

Comment Letter No. 15

Barry Brenard, Tribal Chairperson
Bear River Band of Rohnerville Rancheria
266 Keisner Rd
Loleta, CA 95551

Comment No. 15-1

Bear River is strongly opposed to your District renewing the permit and approving an expansion of oyster production by Coast Seafoods Company.

Response to Comment No. 15-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 15-2

Permitting a considerably larger footprint to install more oysters on long lines in Arcata Bay would significantly impact eelgrass habitats, sensitive species, herring fisheries, Pacific black brant, and all waterfowl hunting, sculling, kayaking, recreational boating, fishing, as well as sailing.

Response to Comment No. 15-2

See Topical Responses 2, 3, 4, 6, and 7 for further discussion of impacts to eelgrass, herring, brant, hunting, and recreational uses.

Comment No. 15-3

The impact of an increased oyster farming footprint on the bay has not been adequately mitigated by the R-DEIR and is therefore inappropriate. Impacts to recreational boating has failed to address safety.

Adverse impacts can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia. In addition, the oyster culture gear blocks my use of the bay and disrupts my enjoyment of the natural resources in the bay.

Response to Comment No. 15-3

See Topical Response 7 for additional discussion regarding impacts to recreational uses and navigational safety.

Comment No. 15-4

Because of the numerous problems generated by increased amount of oyster production gear in Arcata Bay, I am opposed to renewing the permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Permit Requests in Arcata Bay, Humboldt County, California.

Response to Comment No. 15-4

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 71

James Ray, Marine Environmental Scientist
Aquaculture and Bay Management Project
California Department of Fish and Wildlife
619 2nd Street
Eureka, CA 95501

Comment No. 71-1

The California Department of Fish and Wildlife's Marine Environmental Review & Water Quality Project has provided comments to the Humboldt Bay Harbor, Recreation, and Conservation District regarding Coast Seafoods Company Recirculated Draft Environmental Impact Report (RDEIR). However, for the purpose of accuracy, I want to take this opportunity to clarify some of the Pacific herring information described in the RDEIR where I have been cited as providing a personal communication. In addition, I also wanted to clarify information on the herring fishery.

Response to Comment No. 71-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment

will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 71-2

1)Page 6.5-28 (line 35) of the RDEIR states:

“Although eelgrass is the principal substrate used for spawning in Humboldt Bay, the densest beds did not have spawn deposition during the most recent surveys (Mello 2007, Ray, pers. comm., 2015).”

The most recent spawning surveys were conducted during 2014-15 and 2015-16. I'm not sure what areas of North Bay you are defining as the 'densest beds', but given the most recent spawning survey data (2015-16) indicates spawning occurred throughout all the main eelgrass beds of North Bay, this statement appears inaccurate as currently written. Please amend this statement in the Final Draft Environmental Impact Report (FDEIR) to reflect the data.

Response to Comment No. 71-2

The R-DEIR statement is based upon two observations: (1) the pattern of spawning appeared to mostly be along the channel margins (as shown in the surveys referenced in the comment) and less in the densest beds near the center of East Bay and (2) spawning does not occur to any great extent in South Bay, which contains more eelgrass and denser beds. A review of the spatial data and density data (where available) indicates that the majority of eggs are deposited adjacent to channels and not within the interior of the eelgrass beds. The assessment from January 4, 2005 shown in Figure 3.3 provides a good example of this pattern. The more recent spatial and density data also supports this conclusion. Finally, the all previous herring spawn reports conclude that herring are not limited by the amount of available spawning substrate in Humboldt Bay. In response to this comment, the cited language has been revised in the FEIR. *See* FEIR Section 4, *Revisions to the R-DEIR*.

Humboldt Bay Pacific Herring Spawn
Assessment Surveys

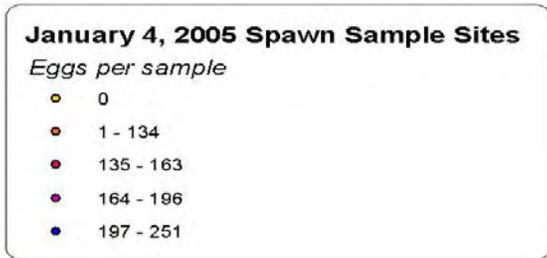
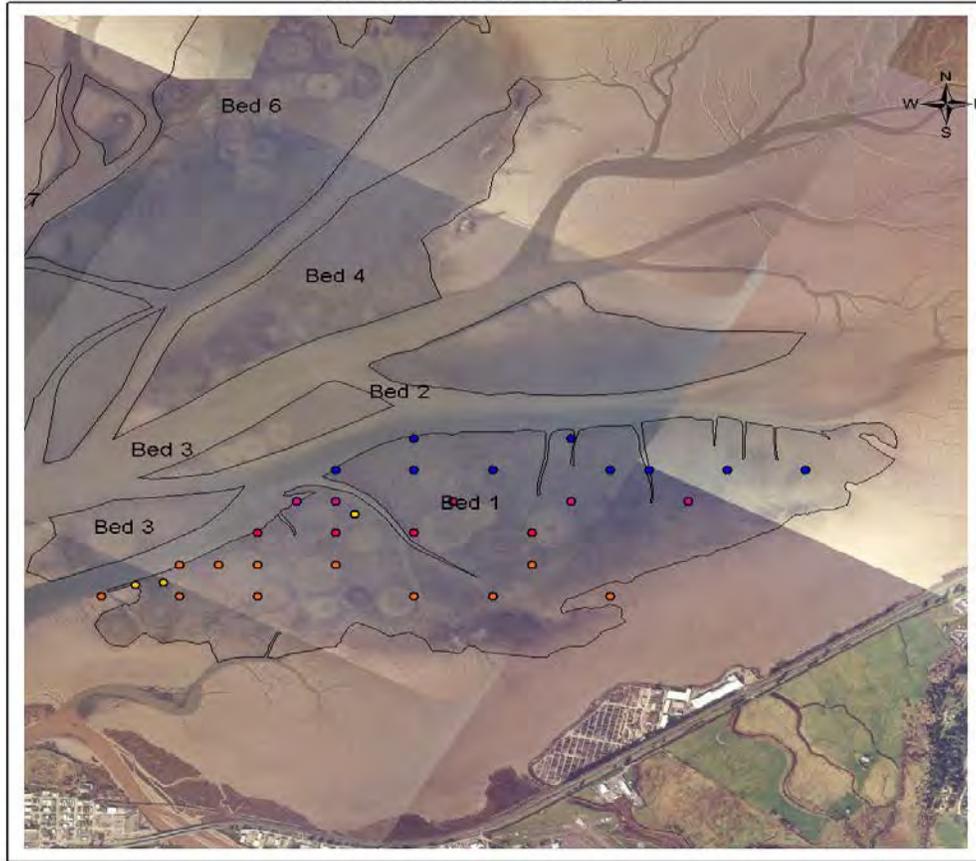


Figure 3.3 January 2005 Herring Spawn Survey.

Comment No. 71-3

2) Page 6.5-85 (line 1) of the RDEIR states:

“After poor returns in 2005, the fishery was effectively closed due to insufficient biomass.”

The closure of a fishery is a management decision requiring approval by the California Fish and Game Commission. The fishery was not closed after 2005 and is still currently open with a 60 ton quota. There was no fishing pressure during the 2005-06 and 2006-07 seasons because of low

returns of fish. These low returns coincided with the loss of the Humboldt Bay ice plant in 2008 and decreasing market conditions. Although the fishery is open, the lack of necessary commercial fishery infrastructure and low market prices are driving the continued absence of fishing pressure on Humboldt Bay herring. With no commercial fishery, no biomass assessments have been conducted since 2006-07. If in the future, infrastructure and market prices were sufficient to generate interest in a fishery in Humboldt Bay, the California Department of Fish and Wildlife would determine if the herring population could support a fishery. Such an assessment would be conducted as per the guidance provided in the herring Fishery Management Plan, which is currently under development. Please amend the statement about the Humboldt Bay herring fishery in the FDEIR to reflect the information I've provided here.

Response to Comment No. 71-3

As correctly noted in the comment, while the commercial fishery is officially open (licenses exist, etc.), there has been no effort associated with the fishery due to low available biomass. It appears that fishing vessels are maintaining their licenses (three licenses existed in 2015 for Humboldt Bay); however, there is no reported fishing effort that has occurred since 2005. The R-DEIR statement referenced in the comment has been clarified in the FEIR. *See FEIR Section 4, Revisions to the R-DEIR.*

Comment No. 71-4

3)Page 6.5-85 (line 3) of the RDEIR states:

“More recent surveys have indicated that spawner biomass is increasing again with renewed monitoring of the population starting in 2015 (Ray, pers. comm., 2016).”

This statement does not reflect the data or comments I have provided. As you know, the data I provided for the 2014-15 and 2015-16 seasons is spatial data showing spawning locations of Pacific herring. This data cannot be used to describe biomass. No spawning biomass surveys have been conducted since 2006-07 season. As such, no meaningful statements can be made about herring biomass beyond 2006-07. Please remove this statement from the FDEIR.

Response to Comment No. 71-4

In response to this comment, the R-DEIR statement referenced in the comment has been clarified in the FEIR. *See FEIR Section 4, Revisions to the R-DEIR.*

Comment No. 71-5

4)Page 6.5-89 (line 2) of the RDEIR states:

“New trend data suggests that Pacific herring are again increasing in numbers (Ray, pers. comm., 2016),”

As in point number three above, this statement is inaccurate and does not reflect the data or comments I have provided. The data you have received from me is spatial data for the seasons 2014-15 and 2015-16. As such, it is inappropriate for this data be used to describe abundance. Please remove this statement from the FDEIR.

Response to Comment No. 71-5

In response to this comment, the R-DEIR statement referenced in the comment has been clarified in the FEIR. *See* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 71-6

Thanks in advance for your attention to these details and for ensuring the information in the FDEIR is as accurate as possible. In addition, for the purpose of information sharing, I think it would be useful if email contact information were provided for all of the people who are cited as providing personal communications in the FDEIR and associated materials.

Response to Comment No. 71-6

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Responses to Non-Governmental Organization Comments

Comment Letter No. 13

Jim Clark, Conservation Committee Co-Chair
Redwood Region Audubon Society
P.O. Box 1054
Eureka, CA 95502

Comment No. 13-1

Redwood Region Audubon Society (RRAS) has reviewed the Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project, SCH #2015082051. We are opposed to the proposed expansion of shellfish culture in Humboldt Bay. Our comments are as follows:

Response to Comment No. 13-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 13-2

1. The first bullet item under 5.1.2 Scope of Alternatives Analysis states one objective is “To expand Coast’s shellfish farm to increase future oyster production, meet Coast and Pacific Seafood’s increasing customer demand for raw and shucked oysters, and regain access to markets and customers lost after production decreases associated with the 2006 transition to sustainable, off-bottom culture practices on a reduced footprint.” According to 5.2.1, the Eelgrass Avoidance Alternative was screened out because it would fail to meet the project objectives. Neither the project objectives nor production under the Eelgrass Avoidance Alternatives are quantified in the R-DEIR. Therefore, rejection of this alternative as “infeasible” is not valid.

Response to Comment No. 13-2

The project objectives are identified in R-DEIR § 4.5.1. For additional discussion of the feasibility of the Eelgrass Avoidance Alternative and its potential to attain the project objectives, *see* Topical Response 5.

Comment No. 13-3

2. The East Bay Avoidance Alternative was screened out based on Phase II mitigation of impacts. We believe the Phase II impact evaluations are flawed and the proposed mitigation, consisting monitoring, is not appropriate (Ward & Black comments, Sept. 8, 2016)

Response to Comment No. 13-3

Mitigation Measure BIO-1 mitigates for anticipated impacts to eelgrass loss through a conversion of 100 acres of Coast's existing footprint to 10-ft spaced longlines. Based on the best available science, the R-DEIR concludes that the ecological lift provided through eelgrass regrowth created through longline reconfiguration will fully mitigate for the project's impacts to eelgrass. Pursuant to the CEMP and Army Corps of Engineers regulations, proposed eelgrass mitigation must include monitoring to confirm the anticipated results. The project includes monitoring of both project eelgrass impacts and the proposed mitigation to confirm the R-DEIR's assumptions. Therefore, it is the reconfiguration of longlines, rather than the monitoring itself, which provides mitigation for eelgrass impacts. However, in response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA and further reduces Coast's proposed footprint within eelgrass as compared to the proposed project. For a detailed description of this alternative and its impacts, see FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 13-4

3. Conservation BIO-12 states: "Coast will not intentionally approach or harass migratory birds that are actively feeding or resting within the project area." This fails to take into account the temporal aspects of migratory birds that are prevented from feeding or resting when cultural activities are taking place in the project area. This item needs to be addressed in more detail.

Response to Comment No. 13-4

Impacts associated with temporal disturbances to brant and other migratory shorebirds due to culture activity are discussed in R-DEIR Impacts BIO-26, BIO-31, BIO-32, and BIO-33. See Topical Responses 4 and 8 for additional discussion of the impacts associated with project-related disturbances to brant and shorebirds.

Comment No. 13-5

4. Section 4.5.3, first sentence of last paragraph states: The Project will also contribute significantly to the local economy. Coast's lessors, including the Harbor District and City of Eureka, will benefit from increased lease payments tied to production. Because the District is the lessor and potential beneficiary of Coast's expansion of operations, it must distance itself from influencing the outcome of the approval process.

Response to Comment No. 13-5

Consideration of economic benefits is permitted, and often required, under CEQA. In the event that the project results in significant and unavoidable environmental impacts, the Harbor District, as the lead agency, must determine if there are overriding considerations, including economic and other public benefits, that outweigh the significant and unavoidable environmental impacts. 14 CCR § 15093. While the project is not anticipated to result in unmitigated significant environmental impacts, an economic analysis was provided in Appendix J of the R-DEIR to assist with this analysis if necessary.

Comment No. 13-6

5. Section III, 3.3.3 of the Humboldt Bay Management Plan (HMP) executive Summary States: “An ecosystem-based management approach requires a balancing of priorities and policies outlined in this Humboldt Bay Management Plan. It should be noted that the 104 policies specified in the Plan have not been prioritized. Instead, no one policy is considered to be more important than another policy, rather they are equals.” The R-DEIR does not appear to give equal weight to each of the Harbor, Recreation, and Conservation aspects. It is important that this project be considered in light of all 104 priorities and policies, according to Section III, 3.3.3.

Response to Comment No. 13-6

The comment requests consideration of “all 104 priorities and policies” contained in the HBMP. The HBMP does not require the Harbor District to conduct an analysis of how the project agrees or disagrees with each HBMP policy, and the Harbor District is not aware of any project where such an analysis was conducted prior to project approval. The HBMP is generally supportive of aquaculture, while noting that there are potential conflicts with other resources, even when there are conflicts with other uses and resources like eelgrass. *See* HBMP, at 145. The project site is in a location designated for mariculture uses under the HBMP. *Id.* at 158. Many HBMP policies concern issues that are unrelated to aquaculture, such as harbor uses, dredging, and shoreline armoring. However, the HBMP specifically supports many of the same objectives as the project:

- **HFA-4: Assist in developing agency approval strategies and funding for commercial fishing and aquacultural marketing and outreach activities.** While Coast’s project is privately funded, the project supports these efforts by expanding aquaculture opportunities in Humboldt Bay.
- **HFA-5: Identify additional aquaculture opportunities in Humboldt Bay.** The project is consistent with this goal, which notes that aquaculture uses are “compatible with other management goals in the portions of Humboldt Bay designated in this Plan as having a priority for mariculture use,” including the project site.
- **HFA-6: Designate a Preferred Aquaculture Use Area in Arcata Bay.** The project site is within the area designated under the HBMP as a preferred area for aquaculture uses in Arcata Bay.
- **HFA-8: Identify and implement the requirements for Bay management with respect to Essential Fish Habitat.** Coast has submitted an Essential Fish Habitat analysis to NOAA Fisheries in compliance with Section 7 consultation requirements under the Magnuson-Stevens Fisheries Conservation Management Act.
- **HFA-9: Develop agreement with the Wiyot Tribe to facilitate cultural resource management.** Coast and the Harbor District have engaged in consultation with the Wiyot Tribe regarding the project’s potential impacts to cultural resources and have incorporated mitigation measures concerning cultural resources that were produced based on discussions between the Harbor District and Wiyot Tribe in accordance with this objective. *See* response to Comment 2-4 for additional details.
- **HFA-10: Institute procedures to ensure compliance regarding cultural resources and related matters.** *See* above.

- **ROP-3: Identification of designated recreational use areas.** The intent of this objective is to ensure access to recreational opportunities that do not adversely affect commerce. The project is located on Coast's leased and owned footprint that it has managed for decades and does not propose any expansion to key recreational areas beyond its existing leased and owned footprint. *See* Topical Response 7.
- **RFA-3: Water-oriented recreation facilities; access for fishing and shellfish harvesting.** This objective prioritizes additional recreational facilities and access improvements, provided that they do not preempt other priority uses. As noted above, aquaculture is a designated priority use under the HBMP.
- **RFA-11: Signage for boating safety.** The project includes navigational markers and maps to identify farmed locations to alert boaters and other recreational users of gear locations, incorporated as Conservation Measure REC-2.
- **CEP-1: Impacts to streams, wetlands, estuaries, and coastal waters may be authorized for specific purposes or project types.** This goal prioritizes aquaculture and other designated uses, even though such projects can directly affect estuaries or coastal waters.
- **CEP-5: Water quality protection is required.** As further discussed in Impact WQ-1, shellfish have a positive impact on water quality by filtering pollutants and contaminants from the water column.
- **CEP-6: Mitigation program requirements are identified.** As recommended by this goal, the proposed project incorporates in-kind, on-site mitigation to mitigate for identified impacts to eelgrass.
- **CEP-9: Mitigation must be implemented before or at the same time as the impact being mitigated.** The reconfiguration of longlines within Coast's existing footprint would occur concurrently with the expansion of Coast's farmed footprint.

Comment No. 13-7

6. HMP Section III, 3.3.3 also indicates an ecosystem based management plan. The R-DEIR should address this more holistic ecosystem approach that takes into account the decline of eelgrass in the migratory bird Western Flyway.

Response to Comment No. 13-7

The project is not anticipated to have impacts beyond the area analyzed in the R-DEIR or Humboldt Bay. While the R-DEIR recognizes that Humboldt Bay is an important staging ground for black brant and other migratory birds, the analysis concludes that the project will not have a significant impact on the foraging, energetic demands, or migration of migratory birds. *See* Impacts BIO-25, BIO-26, BIO-27, BIO-31, BIO-32, and Topical Responses 4 and 8. Because the project would not have an adverse impact on bird migration, it will not have a significant impact on the Pacific Flyway. Other cooperative management frameworks, such as the Pacific Flyway Council, are better suited to address this concern as compared to the project-specific analysis required under CEQA.

Comment No. 13-8

In considering the aforementioned items and numerous adverse impacts to avian species, particularly Pacific black brant, American widgeon, as well as other important and sensitive fish and wildlife, it is the opinion of Redwood Region Audubon Society that a modified version of the phase I expansion, such as Audubon California's marine spatial planning approach, is more appropriate than the version proposed in the DEIR. Eelgrass avoidance, leaving the east portion of Arcata Bay free of cultural activities, and concentrating cultural activities to areas already impacted in the west portion of the bay meets the objectives of bird conservation, eelgrass protection and recreational access while providing reasonable expansion of shellfish culture.

Response to Comment No. 13-8

In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA, concentrates expansion areas in the western portion of the bay, and further reduces Coast's proposed footprint within eelgrass as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 13-9

We believe that phase II should be abandoned since findings of no significant impact are speculative, poorly evaluated, and unmitigated. Monitoring does not qualify as mitigation. If and when the equivalent of a phase II expansion is proposed, it should be as a separate project.

Response to Comment No. 13-9

Phase II of the project is not anticipated to result in significant impacts to eelgrass, given that the R-DEIR analysis, using the best science available, anticipates that the proposed longline spacing will result in neutral or beneficial impacts to eelgrass. *See* Topical Response 5 for additional discussion of impacts to eelgrass. The proposed monitoring is not proposed as mitigation, given that the monitoring will be completed before Phase II is implemented, and therefore will be used to confirm the impact assumptions provided in the R-DEIR prior to longline installation. *See* response to Comment 13-3 for additional analysis.

Comment No. 13-10

Redwood Region Audubon Society would support efforts at off-bottom culture where all shellfish harvest would be done from boats so there would be no "boots on the ground" damaging the eelgrass in the culture areas, and establishment of an eelgrass preserve in the eastern portion of the Arcata Bay.

Response to Comment No. 13-10

Hand-harvesting has been found to result in less impacts to eelgrass as compared to some forms of mechanical harvesting, such as dredge harvesting, which is not proposed as part of the project (Tallis 2009). Further, Coast's longline harvester (which does not employ dredge harvesting) does not

currently work for harvesting Pacific oysters because there is a significant amount of fallout of oysters on the longlines, which then requires hand harvesting. Therefore, there is currently no feasible way to harvest longlines purely from boats. As noted above, the Harbor District has included an additional alternative in the FEIR that proposes no new development in the EBMA. Establishment of an eelgrass preserve is beyond the scope of this EIR and not required for mitigation of project impacts.

Comment Letter No. 14

Sandy Haux, President
Board of Directors, Explore North Coast
P.O. Box 4712
Arcata, CA 95518

Comment No. 14-1

Thank you for the opportunity to comment on the R-DEIR for the Coast Seafoods Company Aquaculture Permit Renewal and Expansion Project. The Board of Directors for Explore North Coast, a local sea kayaking club, is concerned with the proposed expansion of oyster production.

Response to Comment No. 14-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 14-2

The R-DEIR fails to address public safety impacts to recreational boating. We are concerned that the proposed increase of oyster operations, an expansion of 622 acres, could present hazards to small craft navigation. Adverse impacts could include boat damage and physical harm to boaters should extrication from the oyster gear become necessary. In addition, we are concerned that the proposed oyster culture gear may impede our use of the bay.

Response to Comment No. 14-2

For additional discussion of the project's impacts to recreational uses, *see* Topical Response 7.

Comment No. 14-3

We believe the R-DEIR would allow oyster production to expand too quickly. While we support Phase I of the project (an expansion of approximately 220 acres), we believe Phase I should be monitored for at least five years after it has been fully implemented and before Phase II is permitted. Thereafter, should Coast Seafoods Company wish to further expand operations, a new DEIR should be produced that incorporates the findings of the monitoring effort.

Response to Comment No. 14-3

The comment supports Phase I of the project but does not support Phase II, at least until monitoring associated with Phase I has been completed. This opinion will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project. The monitoring plan has been increased to a full three years of observations prior to installation of Phase II, including further discussions with resource agencies if impacts beyond the stated thresholds are exceeded (*see* Mitigation Measure BIO-1). This would allow for a full cycle of planting and harvest to be conducted in order to understand the full range of potential impacts to eelgrass. Further, in response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which further reduces Coast's proposed footprint within eelgrass as compared to the proposed project, and would result in a net increase of 191.3 acres of cultivation (after removal of certain existing longlines as mitigation). For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment Letter No. 15

(Note: See under Responses to Agencies pg. 3-121 for comments and responses to Comment Letter No. 15)

Comment Letter No. 16

Jennifer Kalt, Director
Humboldt Baykeeper
1385 Eighth Street, Suite 228
Arcata, CA 95521

Comment No. 16-1

On behalf of the members, board, and staff of Humboldt Baykeeper, we respectfully submit these comments on the Recirculated Draft Environmental Impact Report (DEIR) for the Coast Seafoods Permit Renewal and Expansion Project, released in July 2016. These comments are in addition to our detailed comments submitted on Feb. 26, Sept. 15, and Dec. 31, 2015 on the Draft Initial Study, Final Initial Study, and the first DEIR, respectively. We incorporate these comments by reference.

Alternative 2, the Reduced Footprint Alternative. Humboldt Baykeeper supports Alternative 2, the Reduced Footprint Alternative, for several reasons:

Response to Comment No. 16-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 16-2

1. We believe that the Preferred Alternative, which would triple Coast Seafoods' footprint, is simply too large an expansion for areas of Humboldt Bay that support dense eelgrass beds.

Response to Comment No. 16-2

The commenter believes that the comment is too large; however, the purpose of the EIR is to evaluate the environmental impacts associated with the proposed project. A claim that a project or development is "too large," independent of environmental concerns, is outside the scope of an EIR analysis. *See Bowman v. City of Berkeley*, 122 Cal.App.4th 572 (2004). Regardless, the R-DEIR includes several alternatives that evaluate a reduced scale or farm footprint, including a new alternative, the EBMA Avoidance Alternative, which proposes a net increase of 191.3 acres of cultivation (after removal of certain existing longlines as mitigation) as compared to the 622 acres of expansion proposed by the project. For an analysis of the project's impacts on eelgrass, *see* Topical Response 5.

Comment No. 16-3

2. Alternative 2 would reduce the project to that proposed in Phase 1, allowing expansion of 210 acres – a 70% increase of Coast Seafoods' current footprint, along with increased spacing on 100 acres of existing cultivation to increase the growth of eelgrass under the lines. Adoption of Alternative 2 would also include implementation of an eelgrass monitoring plan. Analysis of the resulting data would inform the development of further expansion proposals, if appropriate.

3. Alternative 2 would have fewer impacts to eelgrass, Pacific herring spawning habitat, and brant by reducing the size of the expansion, including in the East Bay Management Area, consistent with the conditions of the 2006 Coastal Development Permit.

Response to Comment No. 16-3

The comment supports adoption of Alternative 2, the Reduced Footprint Alternative. This opinion will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 16-4

Dioxins. The description of dioxin sources in Section 3.4.6 Hazards and Hazardous Materials (page 6.5-64) is inaccurate and omits the primary source of dioxins, which are a component of pentachlorophenol, the wood preservative used at dozens of lumber mills around Humboldt Bay. Impact Bio-10 inaccurately describes pentachlorophenol as a type of dioxin. Please correct these inaccuracies so that misinformation is not perpetuated.

Response to Comment No. 16-4

In response to the comment, that section of the FEIR has been updated to correctly describe dioxins as a component of pentachlorophenol rather than a type of dioxin in the FEIR. *See* FEIR Section 4, *Revisions to the R-DEIR*. As stated in the comment, the greatest source of dioxins in

Humboldt Bay were from fungicides used as wood preservation treatments in the Humboldt County mills until the 1980s (Zalewski 2011).

Comment No. 16-5

The DEIR references an outdated 2006 document that states that development of a plan to address dioxin contamination was determined to be low priority (page 6.9- 2). The DEIR should reflect that the Regional Water Quality Control Board elevated the Humboldt Bay Dioxin and PCB TMDL Action Plan to medium priority in the 2014 Triennial Review.¹

Response to Comment No. 16-5

In response to this comment, the R-DEIR text has been revised to update the description of the Humboldt Bay Dioxin and PCB TMDL Action Plan. *See* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 16-6

We continue to recommend, as we have in previous comments, that limited composite sampling for dioxins and furans should be conducted in areas proposed for expansion, since disturbance of bay sediments can re-suspend such contaminants into the water column, potentially mobilizing them and depositing them elsewhere in the bay. The assertion that there is no evidence that dioxins could be present is specious, since sampling has not been conducted.

Response to Comment No. 16-6

The comment appropriately raises concerns regarding dioxins in Humboldt Bay, which is a general concern shared by the Harbor District and Coast. However, the reasoning in the R-DEIR supports the conclusion that additional sampling for dioxins is not necessary to avoid or reduce any significant environmental impact associated with the proposed project. As discussed in Impact BIO-7, there are no signs of significant amounts of sediment accumulation or scouring around the existing culture gear, which would be expected if the gear was disturbing sediment. The project proposes off-bottom cultivation methods that minimize sediment disturbance associated with planting, maintenance, and harvesting activity. Minor shifts of sediment around the gear are at levels that are insignificant compared to the amount of material moved by common wind and wave conditions and storm events. These natural factors would have a much greater influence on the disturbance and transport of sediments that contain dioxins associated with historic mill activities. Perturbations associated with shellfish culture are not the controlling factor for sediment distribution in the bay.

Further, shellfish growing areas are tested and monitored by CA DPH to ensure public health safety. Testing of tissue in 2003 confirmed that dioxin concentrations in shellfish next to the Mad River Slough were at or below levels found in background conditions found in food resources throughout the U.S. (PSI 2007). Because shellfish aquaculture operations in the Mad River Slough area were transitioned to longline culture between 1997 to 2006, the sampling in 2003 would have captured conditions that would be consistent with the proposed project. The Endangered Species Act (ESA) consultation by NMFS (2016b) for maintenance dredging in Humboldt Bay, which includes extensive ground-disturbing activities (i.e., dredging of over 3 million cubic yards of bay sediment)

also did not identify dioxins as a potential hazard to fish and wildlife. These sediments are tested and approved for disposal at the Humboldt Open Ocean Placement Site.

Comment No. 16-7

Water Chemistry Monitoring. Eelgrass is thought to play a critical role in buffering the effects of ocean acidification. Because of the need for more scientific information on this effect, we suggest adding water chemistry monitoring to the eelgrass monitoring plan, such as pH, total inorganic carbon, total alkalinity, and partial pressure carbon dioxide (pCO₂). This would help gather site-specific data to better assess the role that eelgrass maybe playing in buffer the effects of ocean acidification on Humboldt Bay.

Response to Comment No. 16-7

The purpose of the monitoring plan is to analyze and confirm project-related impacts to eelgrass as compared to the impacts that were anticipated in the R-DEIR. The requested monitoring parameters are beyond the scope of what would be appropriate to request of a project applicant under CEQA. Further, organizations such as the Wiyot Tribe and CeNCOOS offer a much more robust set of data than Coast would be able to collect. Coast has participated, and will continue to participate, in water quality monitoring in coordination with these organizations. It should also be noted that shellfish, as a filter feeder, has been recognized by numerous organizations as potentially providing long-term benefits to water quality and nutrient sequestration that may aid in limiting the effects of ocean acidification (Feely et al. 2012, US FWS 2016). It is also understood from the existing literature that eelgrass is at, or near, carrying capacity in Humboldt Bay (Gilkerson 2008, Schlosser and Eicher 2012), and so the ability to provide buffering from ocean acidification is not likely to be limited in the bay. Based on the above, and the fact that the project will result in a no net loss of eelgrass function, there does not appear to be a need to gather additional site-specific data to better understand this role in Humboldt Bay, at least not through the proposed project.

Comment No. 16-8

We believe that the shellfish industry can be compatible with the conservation and recreation functions of the District. Whether shellfish can be sustainably produced in a larger area of Humboldt Bay will depend in large part on whether—and where—they can be grown with minimal impacts to eelgrass and other species that depend on a healthy bay ecosystem.

Response to Comment No. 16-8

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. Regarding project siting considerations, *see* Section 5 of the R-DEIR.

Comment Letter No. 17

Andrea A. Treece, Staff Attorney, Oceans Program Earth Justice
50 California Street, Suite 500
San Francisco, CA 94111

Comment No. 17-1

Thank you for considering the following comments on the Recirculated Draft Environmental Impact Report (“RDEIR”) for Coast Seafoods Company’s (“Coast”) proposed Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project in Humboldt Bay, California (“Project”), submitted on behalf of Audubon California, Earthjustice, and Oceana. For the reasons explained below, the RDEIR is wholly inadequate to support approval of the Project.

Response to Comment No. 17-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 17-2

While the Project presented in the RDEIR reflects some modifications to the proposal in the Draft Environmental Impact Report (“DEIR”), both the Project and its impacts remain enormous. The Project encompasses 622 acres of eelgrass and other sensitive tideland habitats, in addition to Coast’s existing 300-acre footprint of operations, much of which also occupies eelgrass habitat. The RDEIR reports that, of the 6,201 acres of subtidal land leased for shellfish aquaculture in California, only 12 percent – approximately 744 acres – are actively farmed. Coast’s proposed expansion would thus nearly double the footprint of shellfish aquaculture in the state and would do so in some of the state’s most sensitive, critical estuarine habitat.

Response to Comment No. 17-2

The includes a short project description and states that the project will generally occur in eelgrass. This comment contains other opinions that are not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 17-3

Approximately 594 acres of the proposed expansion would be installed in eelgrass habitat, meaning that the proposed expansion alone (apart from impacts from ongoing operations) would affect about 15 percent of all eelgrass habitat in the North Bay of Humboldt Bay.¹ The majority of the expansion – 409 acres – would take place in continuous eelgrass habitat. This is in addition to ongoing adverse impacts caused by the portion of the Project located within the existing 300-acre footprint. The Project would also cause significant impacts to mudflat habitat used for foraging and resting by shorebirds and cause disturbance near key gritting sites for brant, among other impacts. Overall, the Project would cause significant adverse effects on numerous seabirds, shorebirds, commercially and ecologically important fish species, marine mammals, and other wildlife through

habitat loss, disturbance, increased predation, and depletion of food sources. In addition, the Project would harm other uses of the North Bay, such as birdwatching, hunting, and navigation.

Response to Comment No. 17-3

See Topical Response 1 for additional discussion regarding impacts associated with existing operations. *See* Topical Response 2 for additional discussion regarding eelgrass impacts. *See* Topical Responses 4 and 8 for additional discussion of impacts to brant and shorebirds. Impacts associated with other species are discussed extensively in R-DEIR § 6.5. Impacts to hunting and recreation are further discussed in Topical Responses 6 and 7.

Comment No. 17-4

None of the project modifications, conservation measures, or mitigation measures set forth in the RDEIR, alone or together, come close to rendering the impacts of this Project less than significant. The revised Project does little to avoid eelgrass habitat or core spawning locations in the East Bay Management Area (“EBMA”). While it decreases overlap with continuous eelgrass habitat by 17 percent compared to the prior proposal, it increases overlap with patchy eelgrass by 58 percent. Contrary to the RDEIR’s assertion, the use of 10-ft. longline spacing instead of 5-ft. spacing for the expansion area would still result in significant decreases in eelgrass density and function. The conversion of 100 acres of existing culture to 10-ft. spacing, which Coast offers as mitigation for Phase 1 of the Project, would not come remotely close to mitigating the damage to a less than significant level. And Coast offers no mitigation for adverse effects caused by renewing operations in the existing footprint or for Phase 1 of the expansion.

Response to Comment No. 17-4

See Topical Response 2 for additional analysis regarding the impacts associated with 10-ft longline spacing and proposed mitigation. *See* Topical Response 1 for discussion regarding impacts associated with Coast’s existing footprint. In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast’s operations within the EBMA and further reduces Coast’s proposed footprint within eelgrass as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 17-5

As detailed below, the RDEIR’s analyses and findings rely on numerous factual inaccuracies, invalid applications of relevant studies, flawed modeling assumptions, and unfounded speculation to support its conclusions of less than significant impacts to biological resources, recreation, and navigation. One especially significant example is the RDEIR’s fundamentally flawed analysis of impacts to eelgrass habitat. The RDEIR asserts that the Project’s use of 10-ft. spacing for longline gear for part of the existing footprint and the expansion area will render the overall Project impacts less than significant. However, the best available information indicates that the proposed Project would result in a loss of eelgrass density on the order of 89-92 percent in the existing footprint (2.5-ft longline spacing) and of 45-67 percent in the expansion areas (10-ft. longline spacing). The RDEIR’s invalid eelgrass analysis further undermines the basis for many of the RDEIR’s findings of

—less than significant impact for species dependent on eelgrass, including Pacific herring, brant, Dungeness crab, and others. In addition, the RDEIR fails entirely to consider a reasonable range of alternatives to the Project and cumulative impacts of the Project. All in all, the RDEIR dismally fails to satisfy the requirements of the California Environmental Quality Act (“CEQA”).

Response to Comment No. 17-5

See Topical Response 2 for additional analysis regarding impacts to eelgrass associated with 10-ft spaced longlines and overall impacts to eelgrass. The comment references Rumrill and Poulton (2004) to state that the project would result in a reduction in eelgrass density ranging from 45-67% under 10-ft spaced longline culture. However, based on an in-depth analysis of Dr. Rumrill’s data, including discussions with Dr. Rumrill himself, the Rumrill and Poulton (2004) data does not support the impact projections referenced in the comment. The analysis in the R-DEIR was based on multiple conversations with Dr. Rumrill related to his work, and there was a substantial effort to ensure that the analysis properly applied Dr. Rumrill’s research. During this exchange, several important points were developed that relate to the Rumrill and Poulton (2004) study:

- The control plots and treatment plots were not at the same starting point. This is also true for the meso-scale study that was sampled between 2001 and 2003 and the larger plots sampled in 2003. The numbers referenced in the comment were from the single sample plots, not the long-term study. The treatment plots had been dredge harvested prior to the study and the control plot was left untouched. *See* Figure 3.4 for an overview of this timing for the meso-scale study.
- Because the data referred to in the comment was part of a single year of sampling at the end of the experiment, this resulted in limited data compared to the meso-scale study that showed full recovery of eelgrass within the 10-ft spaced treatment plots, even beyond the control plot. This recovery was also discussed by Rumrill (2015) that included the data referenced in the comment above.
- Based on the timing of dredge harvesting activities, the treatment plot was still in recovery. 2016 aerial photography of fallow culture areas that were previously dredged, shown in Figure 3.5 below, shows significant recovery except for locations that were previously approved as shell deposition sites.

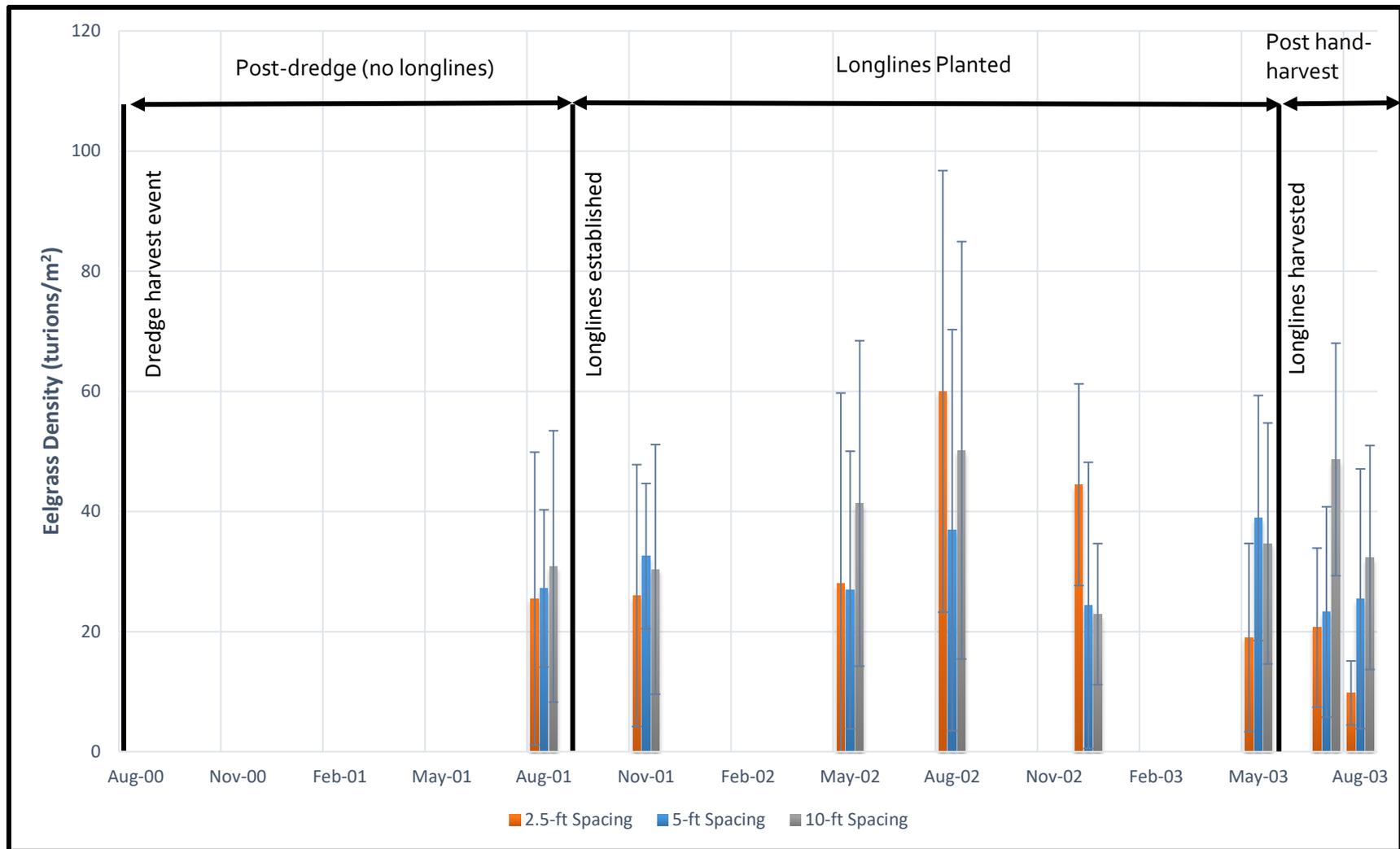


Figure 3.4 Mean Eelgrass Density and Standard Deviation at 2.5-ft, 5-ft, and 10-ft Oyster Longline Spacing in Humboldt Bay, California between August 2001 and August 2003 in Recovery Plots.

Source: Rumrill and Poulton (2004), Dale, pers. comm., 2016



Figure 3.5 Eelgrass recovery in historic dredge harvesting sites.

Source: Confluence (2016)

The comment overlooks several critical details and conclusions from the Rumrill and Poulton (2004) work, including that: (1) eelgrass can persist within shellfish aquaculture locations (even at a 2.5-ft spacing), and (2) the beds that were studied in Rumrill and Poulton (2004) were still in recovery, but recovery was relatively uninhibited within the 10-ft spaced longlines. The analysis in the R-DEIR was based on a combination of existing literature, modeling, and consultation with Dr. Rumrill and Dr. Dumbauld. It is notable that Dr. Rumrill stated in the 2015 response document that: “It is appropriate to state that the addition of oyster aquaculture in Humboldt Bay (and perhaps other estuaries) can be neutral in direct effects to spatial cover and density of eelgrass when the oyster cultch-on-longline mariculture operations are conducted at line spacings of 5 ft or 10 ft.”

Because the project described in the R-DEIR is expected to result in no net loss of eelgrass function, it concluded that there would be a less than significant impact to the species listed in the comment. See response to Comment 17-6 and R-DEIR § 7 regarding the R-DEIR alternatives analysis and discussion of cumulative impacts.

Comment No. 17-6

In order to provide a valid CEQA analysis to support project approval, including renewal of authorization for existing operations and the proposed expansion, Coast must substantially revise its proposal and the DEIR analyzing it. A properly revised DEIR must identify and analyze alternatives that avoid any significant impact to eelgrass habitat and fish and wildlife species dependent on it, as well as an alternative that both avoids eelgrass in any expansion areas and removes oyster farming operations from the EBMA, which is critical for Pacific herring spawning, black brant, other waterfowl, and shorebirds. We also recommend that aquaculture activities be discontinued in the EBMA and that Coast provide a 1000-ft. buffer for brant gritting areas and avoid areas with high densities of long-billed curlew territories. The public must then be given an opportunity to comment on the significant new information that this new revised DEIR would contain. We encourage Coast to work collaboratively with the relevant agencies and key stakeholders in a marine spatial planning framework to evaluate a revised project configuration that would meet project objectives while satisfying federal and state policy and law.

Response to Comment No. 17-6

“The range of alternatives required in an EIR is governed by a ‘rule of reason’ that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.” CEQA Guidelines § 15126.6(f). The EIR must only examine in detail the alternatives that could feasibly attain most of the basic objectives of the project. *Id.* The Eelgrass Avoidance Alternative was analyzed in Section 5.2.1 of the R-DEIR; however, this alternative was rejected as infeasible, noting “Restricting Coast’s expansion to areas within its owned and leased areas that are without existing eelgrass, combined with the difficulty in producing market-quality oysters at higher tidal elevations, would severely limit Coast’s ability to increase its production of shellfish in Humboldt Bay.” Additional analysis of the Eelgrass Avoidance Alternative is discussed in Topical Response 5, which provides additional support for the conclusion that avoidance of all eelgrass is not economically or logistically feasible. As noted above, an additional alternative has been added to the FEIR which would eliminate any new cultivation within the EBMA and further reduce Coast’s proposed cultivation in eelgrass as compared to the proposed project. Removal of Coast’s existing plots within the EBMA is not required under CEQA, as impacts associated with Coast’s existing plots are considered part of the environmental baseline. *See* Topical Response 1. *See* response to Comment 9-6 for analysis regarding appropriate buffers from brant grit sites. Inclusion of a new alternative and new information does not warrant recirculation under CEQA, given that the new information is provided in responses to comments, which would properly be found in a FEIR, and does not concern substantial adverse environmental effects not already addressed in the R-DEIR (14 CCR §15088.5).

Comment No. 17-7

Project Description. The Project description presented in the RDEIR is confusing, with various phases, adaptive management junctures, and mitigation schemes. The Project consists of renewing regulatory approvals for 294.5 acres of Coast’s existing shellfish culture, including intertidal cultch- and basket-on-longline culture, intertidal nurseries, subtidal Floating Upweller System (“FLUPSY”) rafts, subtidal wet storage floats, and subtidal clam rafts. The Project proposes a two-phase, 622-acre expansion of intertidal shellfish aquaculture in the North Bay, the addition of eight bins to the

existing FLUPSY and use of the existing clam rafts to culture Pacific and Kumamoto oysters. In Phase 1 of the expansion, Coast is proposing to culture 150 acres of 10-ft. spaced, double-hung cultch-on-longline, six acres of 10-ft. spaced, single-hung cultch-on-longline, and four acres of rack-and-bag. Coast is also proposing 50 acres of basket-on-longline with alternating spacing of two rows of baskets separated by nine feet, followed by a 16-ft. space. Of these, 20 acres of baskets will be placed above 1.3-ft. mean lower low water (“MLLW”) and 30 acres will be placed below 1.3-ft. MLLW. As mitigation for potential eelgrass impacts in Phase 1, Coast is proposing to convert 100 acres of its existing footprint from 2.5-ft. spaced, single-hung cultch-on-longline to 10-ft. spaced, double-hung cultch-on-longline. In Phase 1I, Coast is proposing an additional 412 acres of single-hung cultch-on-longline planted at 10-ft. spacing. In total, the Project would result in 922 acres of intertidal oyster culture.

Response to Comment No. 17-7

The comment summarizes the project description. No further response is necessary.

Comment No. 17-8

Legal Background: California Environmental Quality Act. CEQA is intended to provide for the protection and enhancement of the state’s environment and to “ensure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions.”³ CEQA accomplishes these goals in part by ensuring that proposed projects are authorized only after their environmental impacts are thoroughly analyzed in an EIR, the public has full opportunity to inform that analysis, and necessary mitigation measures have been adopted.

A. Analysis of Significant Impacts

CEQA requires that an “EIR must demonstrate that the significant environmental impacts of the proposed project were adequately investigated and discussed and it must permit the significant effects to be considered in the full environmental context.”⁴ CEQA defines “significant effect on the environment” as “a substantial, or potentially substantial, adverse change in the environment.”⁵ In addition, an EIR “must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published...or...at the time the environmental analysis is commenced, from both a local and regional perspective.”⁶

Response to Comment No. 17-8

The comment states the general regulatory and legal requirements applicable to CEQA, and is not a direct comment on environmental issues or the content or adequacy of the EIR. No further response is required.

Comment No. 17-9

Notably, CEQA requires analysis of effects on “ecosystems,” the boundaries of which are not defined by state lines.⁷ Therefore, the EIR must analyze environmental effects occurring both within California and outside of it. Indeed, as CEQA is to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language,

the Project's impacts must be analyzed in terms not only of their effects around Humboldt Bay, but throughout the Pacific Flyway and California Current Large Marine Ecosystem.⁸ This is particularly important for this project given that many of the species it affects are highly migratory and commercially important.

Response to Comment No. 17-9

The project is not anticipated to have impacts beyond the area analyzed in the R-DEIR or Humboldt Bay. While the R-DEIR recognizes that Humboldt Bay is an important staging ground for black brant and other migratory birds, the analysis concludes that the project will not have a significant impact on the foraging, energetic demands, or migration of migratory birds. *See* Topical Responses 4 and 8. Because the project would not have an adverse impact on bird migration, it will not have a significant impact on the Pacific Flyway.

Comment No. 17-10

The EIR's conclusions regarding the project impacts must be based on a full analysis of relevant factors and the best available information. A conclusion regarding the significance of an environmental impact that is not based on an analysis of the relevant facts fails to fulfill CEQA's informational goal. Furthermore, CEQA requires an agency to "use its best efforts to find out and disclose all that it reasonably can."

Response to Comment No. 17-10

The comment states the general regulatory and legal requirements applicable to CEQA, and is not a direct comment on environmental issues or the content or adequacy of the EIR. No further response is required.

Comment No. 17-11

B. Analysis of Cumulative Impacts

CEQA requires that an EIR address cumulative impacts "when the project's incremental effect is cumulatively considerable."¹¹ The EIR must therefore identify all existing and likely future projects that contribute to the same impacts as the proposed project. Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."

The cumulative impact analysis must address the severity of the impacts and their likelihood of occurring. An adequate discussion of significant cumulative impacts must include, among other things, a "summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available..."¹³ In other words, in deciding whether to approve a project, decision makers need to know what the expected impacts will be on the ground as a result of all of the projects identified as contributing to cumulative impacts.

Response to Comment No. 17-11

The comment states the general regulatory and legal requirements applicable to CEQA, and is not a direct comment on environmental issues or the content or adequacy of the EIR. No further response is required.

Comment No. 17-12

C. Analysis of Alternatives. The analysis of alternatives to the proposed project lies at the “core of an EIR.”¹⁴ In this analysis, the EIR must consider a reasonable range of alternatives that would avoid or substantially lessen the Project’s adverse impacts while feasibly attaining most of the Project’s basic objectives.¹⁵ Identifying alternatives to the project is central to meeting CEQA’s requirement to avoid or substantially lessen significant environmental damage. Alternatives identified should “offer substantial environmental advantages over the project proposal.”¹⁶

The project proponent may not exclude environmentally preferable alternatives simply because they do not meet all project objectives. The EIR’s discussion of alternatives must focus on alternatives to the project that are “capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.”¹⁷

A “reasonable range” of alternatives includes alternative locations for a project as well as alternatives to the project.¹⁸ In addition, the EIR must analyze a “no project” alternative.¹⁹ If the EIR refuses to consider a reasonable range of alternatives or fails to support its analysis with substantial evidence, the purposes of CEQA are subverted, and the EIR is legally inadequate.²⁰ If a feasible alternative exists that will meet the project’s objectives while reducing or avoiding its significant environmental impacts, the project may not be approved.²¹

Response to Comment No. 17-12

The comment states the general regulatory and legal requirements applicable to CEQA, and is not a direct comment on environmental issues or the content or adequacy of the EIR. No further response is required.

Comment No. 17-13

D. Mitigation Measures. CEQA’s core substantive component requires that any public agency, including the Harbor District, “shall mitigate or avoid the significant effects ... of projects that it carries out or approves whenever it is feasible to do so.”²² CEQA requires agencies to adopt environmentally superior alternatives or feasible mitigation measures to substantially decrease or avoid otherwise significant adverse environmental impacts of the proposed project.²³ To enable that decision-making process, the EIR must set forth mitigation measures that can be adopted at the findings stage of the planning process. Those measures should be capable of: (a) “[a]voiding the impact altogether by not taking a certain action or parts of an action”; (b) “[m]inimizing impacts by limiting the degree or magnitude of the action and its implementation”; (c) “[r]ectifying the impact by repairing, rehabilitating, or restoring the impacted environment”; or (d) “[r]educing or eliminating

the impact over time by preservation and maintenance operations during the life of the action.”²⁴ The EIR must also include evidence of each mitigation measure’s efficacy.²⁵

In addition, agencies may review a project proponent’s prior shortcomings in analyzing the adequacy of proposed mitigation measures. The Supreme Court has stated that, “[b]ecause an EIR cannot be meaningfully considered in a vacuum devoid of reality, a project proponent's prior environmental record is properly a subject of close consideration in determining the sufficiency of the proponent's promises in an EIR.”²⁶

In addition to CEQA’s mitigation requirements, the California Endangered Species Act (“CESA”) requires full mitigation of impacts to state-listed species.²⁷ In particular, any permit issued to authorize incidental take of such species by the project must provide mitigation for all impacts on the species resulting from the project, meaning that mitigation must address habitat loss as well as direct take.

Response to Comment No. 17-13

The comment states the general regulatory and legal requirements applicable to CEQA and CESA, and is not a direct comment on environmental issues or the content or adequacy of the EIR. No further response is required.

Comment No. 17-14

The Proposed Project Will Have Significant, Adverse Effects on Eelgrass.

The RDEIR’s analysis of the Project’s effects on eelgrass is fundamentally flawed, and the conclusions based on that analysis are wrong. The RDEIR’s “less than significant impact” determination rests on a profound misinterpretation of relevant scientific studies and a mistaken theory that aquaculture gear; disturbed, broken-up eelgrass habitat; and “mitigation” provided by increased spacing on longlines in some of the Project area somehow provide habitat value equivalent to 622 acres of unmodified dense and patchy eelgrass habitat and mudflat. Contrary to the RDEIR’s statements, the Project would have significant adverse effects on eelgrass and the numerous species that depend on it. The Harbor District must not approve such a significant adverse impact to Humboldt Bay and the many fish and wildlife species that depend on it.

Response to Comment No. 17-14

See Topical Response 2 for additional discussion regarding the project’s impacts to eelgrass and proposed mitigation. The R-DEIR acknowledges that the project, if not mitigated, may result in significant impacts to eelgrass, and proposes in-kind mitigation to mitigate for such impacts. While aquaculture gear provides a number of positive impacts to the surrounding habitat, as further detailed in R-DEIR § 6.5 and Topical Response 2, the R-DEIR does not take credit for such beneficial effects or otherwise count such effects as mitigation, thereby resulting in a very conservative impact analysis.

Comment No. 17-15

A. Eelgrass Habitat Is Uniquely Important and Sensitive and Thus Is Subject to Special Protections, and Eelgrass is Declining. Humboldt Bay contains approximately 5,646 acres of eelgrass, which represents between 45- 53 percent of the state's total eelgrass. Though eelgrass is the dominant macrophyte of the shallow subtidal and lower intertidal zones in the bay, it is one of the rarest habitats in California. Just five bays — Humboldt, San Francisco, San Diego, Mission, and Tomales — support more than 80 percent of the known eelgrass in the state.

Eelgrass has declined in California,²⁸ making any continuing or additional loss in Humboldt Bay more important from a cumulative impacts standpoint.²⁹ In a comment letter on the 2015 DEIR, these losses are described in detail by eelgrass experts Jeff Black (Humboldt State University) and David Ward.³⁰ The letter expresses opposition to any activities that would further harm eelgrass in the bay, and enumerates extensive losses to eelgrass in recent years in San Juan Islands, WA; San Francisco Bay, CA; Morro Bay, CA; Mission Bay, CA; and San Ignacio Lagoon and San Quintin Bay, Baja California. Drivers for these losses include high sea and air temperatures and eelgrass wasting disease. The authors note “[e]elgrass populations along the Pacific coast are currently under stress and it would be imprudent to add additional stresses to this threatened and cherished biotype.” The authors further point out in their September 2016 comment letter to the Harbor District on the RDEIR the unique nature of the intertidal eelgrass in the bay. They note that the north bay hosts “...the largest remaining bed of intertidal eelgrass along the Pacific coast between Mexico and Washington...recent eelgrass losses reported above have been greatest for intertidal populations, the eelgrass population that will be potentially most affected by the expansion. San Quintin Bay has lost 45 percent of its intertidal eelgrass (1,046 hectares in 2000 to 433 hectares in 2014), including nearly all of its dense cover of intertidal eelgrass (604 hectares in 2000 to 5 hectares in 2014) over the last decade.³¹ Only sparse eelgrass remains. Similarly, Morro Bay has lost virtually all of its intertidal eelgrass beds. Humboldt Bay managers should guard against similar losses in Humboldt Bay.”³²

Notably, between 2009 and 2015, eelgrass declined considerably in Humboldt Bay, mostly at higher elevations. The RDEIR acknowledges that a Pacific Watershed Associates survey that compared eelgrass conditions between 2015 and 2009 found that “there was approximately 20 percent less eelgrass in 2015 than in 2009 (based on a comparison of areas classified as eelgrass in both years).”³³ The 2015 report notes that “large areas of the elevated and unchanneled intertidal mudflats within the study area previously characterized as providing patchy eelgrass habitat, are not capable of supporting eelgrass under current conditions.”³⁴ The microhabitat features include ponds and depressions that provide de facto lower elevation habitat associated with reduced thermal stress and desiccation. This decline is significant and may signal a continuing trend toward further eelgrass loss. Yet the RDEIR fails to include the decline in patchy eelgrass, the current climatic conditions driving these changes, and the high vulnerability of eelgrass at high elevations in the Bay in its evaluation of impacts. A properly revised DEIR must address this significant new information.

Response to Comment No. 17-15

A robust discussion related to environmental stressors to eelgrass in Humboldt Bay was presented in R-DEIR § 6.5.1.2. As noted in the comment, world-wide declines in eelgrass are primarily associated with the occurrence of eelgrass wasting disease or water quality conditions. These

environmental factors may affect eelgrass independent of the project. In fact, as noted in Impact WQ-1, shellfish aquaculture can improve water quality through filtration, thereby providing an indirect benefit to eelgrass. While shellfish aquaculture affects eelgrass, certain types of shellfish aquaculture and eelgrass are not mutually exclusive. Notably, one of the most robust eelgrass areas on the West Coast is within Willapa Bay, which has at least a 30% overlap with shellfish aquaculture and has had shellfish culture operations for over a century. The R-DEIR acknowledges the importance of eelgrass as a resource, which is reflected in its incorporation of the no net loss of eelgrass function standard provided in the CEMP. In compliance with this standard, the R-DEIR proposes in-kind mitigation that is anticipated to fully mitigate for any loss in eelgrass density. Further, the robust monitoring proposed as part of the project will provide additional information regarding eelgrass conditions and trends in Humboldt Bay, which can further inform future planning efforts. Additional discussion of impacts to eelgrass is provided in Topical Response 2.

Comment No. 17-16

Eelgrass is highly productive and is considered to be a foundation or habitat-forming plant species. Eelgrass contributes to ecosystem functions at multiple levels: as a primary and secondary producer, habitat structuring element, substrate for epiphytes and epifauna, a sediment stabilizer, and nutrient cycling facilitator. Eelgrass provides important foraging areas and shelter to young fish and invertebrates, food for migratory waterfowl and sea turtles, and spawning surfaces for invertebrates and fish, such as Pacific herring. Indeed, eelgrass is an essential refuge, foraging, and spawning habitat for many marine species, including such economically valuable species as Pacific salmon, Pacific herring, and Dungeness crab.³⁵ Dungeness crab adults are found in subtidal or intertidal areas on sand, mud, or associated with eelgrass beds. Bare habitats are infrequently used by juveniles, most likely due to a lack of refuge from predation and decreased food abundance. Vegetated, intertidal estuaries appear to be important nursery habitats for young crabs.³⁶ Eelgrass also is a source of organic carbon in estuarine and nearshore marine food webs, thus contributing to productivity beyond the eelgrass beds themselves. In addition, eelgrass has the capacity to sequester carbon in the underlying sediments and may help offset carbon emissions.³⁷

Many species that depend on eelgrass are highly migratory. If these species are adversely affected by the loss of habitat in Humboldt Bay, the effects will be seen throughout the California coast and beyond. The uneven distribution of eelgrass resources increases the risk to this habitat and contributes to its dynamic nature. Moreover, the narrow depth range within which eelgrass can occur further places this habitat at risk in the face of global climate change and projected sea-level rise.

Response to Comment No. 17-16

The importance of eelgrass habitat is well recognized within the R-DEIR. *See* R-DEIR § 6.5. However, the current understanding of shellfish aquaculture is that it also can provide nursery habitat for the same species noted above (Ambrose and Anderson 1990, Doty et al. 1990, Dumbauld et al. 1993, Eggleston and Armstrong 1995, Simenstad and Fresh 1995, Magnusson and Hilborn 2003, Hudson 2016, NMFS 2016a). Several studies related to habitat connectivity also indicate that a diversity of habitats, including mudflats, and access to channels are important ecological characteristics within an estuary, especially for highly migratory species (Holt et al. 1983, Orth et al. 1984, Boström et al. 2006, Hosack et al. 2006, Sheaves 2009). The best available science,

as discussed in the R-DEIR, supports the conclusion that shellfish aquaculture neither impedes movement between habitats nor significantly degrades the type of habitat that can be used by species within estuaries. One of the more relevant statements made recently by NMFS (2016a) was that, “there are no ESA-listed salmon stocks in any of the watersheds that feed Willapa Bay and Grays Harbor, suggesting that aquaculture, which has been in place in these areas for over 100 years, is not a limiting factor there.”

In addition, studies conducted in Humboldt Bay have identified (1) that there is a similar species composition between eelgrass and oyster longline culture, and (2) oyster longlines are used primarily by smaller organisms as nursery habitat (Pinnix et al. 2005). This is contrasted with the literature cited in the comment, which provides only general information related to marine ecology:

- Plummer et al. 2013: This is a food web model using EwE software of Puget Sound, Washington, that looked at how the marine community responded to changes in cover of eelgrass in order to assess ecosystem services of eelgrass habitat. Shellfish aquaculture was not included in the model. No empirical data was collected for this study, and the authors cautioned that, “It is important to stress that the mediation functions we used to relate change in eelgrass to change in species biomass were purely hypothetical, in terms of their signs, shapes, and strengths. We use these results to demonstrate the potential effects of habitat extent on both food web structure and ecosystem services.” It is notable that the model showed increases in many invertebrates, fish, and birds with increasing eelgrass area, but also decreases in some fish (e.g., piscivorous flatfish, Pacific hake), forage fish (e.g., non-herring forage fish), and bird species (e.g., gulls and diving birds). As the authors indicated, these results demonstrate potential complexities in predator-prey dynamics that are not necessarily expected. Finally, the model showed that ecosystem services are linked to eelgrass *area* not eelgrass *density*. This is an important point because the project is not expected to result in reductions to eelgrass area.
- University of Washington 2015: This is an on-line resource with general information about species ecology and biology. There is no information related to potential interactions with shellfish aquaculture or data that would support the claim that Dungeness crab would be significantly affected by the proposed project.
- Simenstad and Wissmar 1985: This study looked at the origin and fate of organic carbon in marine food webs of Hood Canal, Washington, in Puget Sound. Shellfish aquaculture was not part of this study. The authors concluded that primary production was the dominant carbon source of dissolved organic carbon with the following percentages from each source: (1) 5-70% from phytoplankton, (2) 1.5% from eelgrass, (3) 2.1% from epiphytes, (4) 25% from salt marsh vascular plants, and (5) 2-40% from macroalgae. This document does not appear to support a claim that eelgrass sequesters carbon in the sediment to offset carbon emissions. While eelgrass does sequester carbon, this study did not look at carbon sequestration or the ability of eelgrass to offset carbon emissions.

Comment No. 17-17

B. Eelgrass Is Protected by State and Federal Law and Policy. The importance of protecting eelgrass is further reflected in state and federal regulations. California regulations prohibit cutting or

disturbing eelgrass.³⁸ Aquaculture leases produced by the California Department of Fish and Wildlife (“DFW”) reflect this regulation by including explicit language in lease agreements that eelgrass “may not be cut or disturbed.”³⁹ DFW further requires a 10-foot buffer between the eelgrass and the aquaculture gear.⁴⁰ In San Francisco Bay, the Subtidal Goals Project recommends protecting existing, established eelgrass beds by establishing eelgrass reserves.⁴¹ The Harbor District’s own Humboldt Bay Management Plan also requires that project proponents first avoid impacts altogether, then proceed to minimize those impacts.⁴²

Response to Comment No. 17-17

14 CCR § 30.10 pertains to crab fishing in San Francisco Bay and adjacent waters, and is therefore inapplicable to the project. The comment also requests the inclusion of eelgrass buffers recommended by CDFW. The CDFW buffer is a recommended buffer for leases managed by the California Fish and Game Commission; it is not a regulatory restriction and the Harbor District is not required to implement the recommended buffer. Further, CDFW’s recommendation makes no distinction between different types of shellfish cultivation techniques, which can have significantly different impacts on eelgrass and other aquatic resources.

While Coast has included Conservation Measure BIO-4, which requires rack-and-bag culture plots to incorporate a 25-ft buffer from existing eelgrass beds, appropriately spaced longline culture has significantly different impacts to eelgrass. *See* Topical Response 2. This distinction is recognized in the CEMP, which acknowledges that appropriately spaced shellfish longlines may not require mitigation for eelgrass losses (NMFS 2014). Further, both the U.S. Army Corps of Engineers and NMFS have concluded that longlines spaced 10-ft apart may be placed in fallow aquaculture areas in Washington State without further mitigation or buffer requirements (Corps 2015; NMFS 2016a). Given the extensive analysis in the R-DEIR regarding the impacts of the specific proposed cultivation methods on eelgrass and recognition from other regulatory agencies that appropriately-spaced shellfish longlines do not have an adverse impact to eelgrass, incorporation of CDFW’s general eelgrass buffer is unwarranted. As further described in R-DEIR § 5, Coast investigated all avoidance options but, given the pervasive extent of eelgrass on its leased and owned tidelands, complete avoidance of eelgrass beds is not feasible. *See* Topical Response 5 for additional support and discussion regarding the economic and logistical infeasibility of the Eelgrass Avoidance Alternative. The HBMP supports the expansion of aquaculture uses, even though it acknowledges that it may have some direct impacts to the estuary (Harbor District 2007). *See* response to Comment 13-6 for additional discussion regarding the project’s consistency with the HBMP.

Comment No. 17-18

The National Marine Fisheries Service (“NMFS”) developed a specific policy to protect eelgrass habitat in California. The California Eelgrass Mitigation Policy and Implementing Guidelines (“CEMP”) notes that “eelgrass warrants a strong protection strategy because of the important biological, physical, and economic values it provides, as well as its importance to managed species under the Magnuson-Stevens Fishery Conservation and Management Act (“MSA”). Vegetated shallows that support eelgrass are also considered special aquatic sites under the 404(b)(1) guidelines of the Clean Water Act (40 C.F.R. § 230.43).”

Federal fisheries management regulations protect eelgrass habitat due to its vital role in supporting commercially targeted fish populations. The Fishery Management Plan for the Pacific Coast Groundfish Fishery and regulations implementing essential fish habitat (“EFH”) designations for this fishery include Humboldt Bay as a Habitat Area of Particular Concern (“HAPC”) for Estuaries and for Sea Grass.⁴³ A HAPC is an area within designated EFH that is “rare, particularly susceptible to human-induced degradation, especially ecologically important, and/or located in an environmentally stressed area. HAPC designations are used to provide additional focus for conservation efforts.”⁴⁴ In designating sea grass habitat as an HAPC, fishery managers noted that it has great ecological importance and is sensitive to human-induced environmental degradation.

Response to Comment No. 17-18

The R-DEIR acknowledges that eelgrass is an important ecological resource. The comment also describes several of the federal regulations and policies associated with eelgrass, for which no further response is required.

Comment No. 17-19

The Pacific Fishery Management Council (“Council”) reviewed the DEIR and stated its opposition to the proposed project due to its adverse impacts to EFH for groundfish, salmonids, and coastal pelagic species. The Council specifically supported the Eelgrass Avoidance Alternative, and No Net Loss of Eelgrass. In a draft letter for consideration at the Council’s September meeting, the Council’s Habitat Committee reiterated its concerns by enclosing its December 2015 letter on the DEIR and noting its continued concern with regard to the Project described in the RDEIR. The Committee expressed particular concern regarding the Project’s expected impacts on the eelgrass HAPC, which is designated as Essential Fish Habitat in the groundfish, salmon and coastal pelagic species Fisheries Management Plans.⁴⁵

Response to Comment No. 17-19

While the Pacific Fisheries Management Council expressed concerns regarding the proposed project, it has not “stated its opposition” to the project; in fact, language to that effect that was recommended to the Council by the Council’s Habitat Committee was stricken from the Council’s letters. *See* response to Comment 6 for responses to the Council’s concerns.

Comment No. 17-20

C. The RDEIR Fails to Meet the “No Net Loss” Standard for Determining Significance of Impact to Eelgrass Habitat and Function

The RDEIR states that it “incorporates ... a ‘no net loss’ threshold of significance for eelgrass impacts” as required under CEQA and the Coastal Act and noted in DEIR comment letters from permitting agencies.⁴⁶ The No Net Loss policy is the primary directive of NMFS’ CEMP. According to the CEMP, “It is NMFS’ policy to recommend no net loss of eelgrass habitat function in California. For all of California, compensatory mitigation should be recommended for the loss of existing eelgrass habitat function, but only after avoidance and minimization of effects to eelgrass have been pursued to the maximum extent practicable.”⁴⁷ NMFS formulated the CEMP specifically because eelgrass is uniquely ecologically important, productive, and sensitive, and its function cannot

be replaced with manmade structures or other habitat types. The CEMP further notes that “while improvements in eelgrass management have occurred overall, the importance of eelgrass both ecologically and economically, coupled with ongoing human pressure and potentially increasing degradation and losses associated with climate change, highlight the need to protect, maintain, and, where feasible, enhance eelgrass habitat.”

However, the Project fails to meet the No Net Loss standard. As explained below, actual impacts to eelgrass habitat far exceed those estimated in the RDEIR. Even the RDEIR’s own misguided estimate that the Project would result in significantly reduced eelgrass density in 22 to 17.1 acres of the North Bay represents a significant net loss of eelgrass. Moreover, the Project does not propose any mitigation for impacts from renewed operations within the existing 300-acre footprint of operations or for the proposed Phase 2 expansion of 412 acres of 10-ft. longline double-hung longline, and proposes inadequate mitigation for the proposed Phase 1 expansion (150 acres of 10-ft. spaced double-hung longline and 50 acres of 10-ft. spaced basket-on-longline). Overall, the Project would result in a significant net loss of eelgrass habitat for Humboldt Bay and the entire state.

Response to Comment No. 17-20

As noted in the comment, the R-DEIR incorporates the CEMP standard regarding impacts to eelgrass. It is notable that the CEMP requires a no-net-loss of ecological function, not necessarily mitigation on a turion-by-turion basis for eelgrass. Concerning impacts associated with Coast’s existing operations, it is inappropriate to consider impacts associated with existing background conditions under CEQA. *See* Topical Response 1. Regarding the project’s impacts to eelgrass and the adequacy of proposed mitigation, *see* Topical Response 2.

Comment No. 17-21

The RDEIR’s Eelgrass Analysis Is Fundamentally Flawed and Conclusions Based on It Are Invalid
The RDEIR’s analysis of impacts to eelgrass habitat suffers from several fundamental flaws that ultimately render its no significant impact conclusions entirely invalid. First, the RDEIR’s eelgrass analysis continues to rely on an invalid assumption that eelgrass loss only occurs in a narrow zone under and immediately adjacent to longlines. The RDEIR thus vastly underestimates the extent of eelgrass loss throughout the Project site. Second, the RDEIR misinterprets and misapplies relevant study results presented by Rumrill & Poulton (2004)⁴⁸ and Rumrill (2015)⁴⁹ to suggest that installing oyster longlines at 10-ft. spacing in previously unused areas will not cause a significant decrease in eelgrass. Third, the RDEIR does not adequately account for impacts to eelgrass habitat caused by trampling and numerous sublethal effects. Finally, the RDEIR attempts to discount significant impacts to eelgrass habitat and species dependent on it by asserting that aquaculture gear and fragmented eelgrass habitat (which the RDEIR calls a “habitat mosaic”) will provide habitat for a different suite of species.

Response to Comment No. 17-21

See Topical Response 2 for additional discussion of the project’s impact to eelgrass, including use of a “width of effect” in the R-DEIR eelgrass analysis, impacts associated with 10-ft longline spacing, and use of the Rumrill and Poulton (2004) study and subsequent communications from Dr. Rumrill.

Eelgrass impacts associated with trampling are discussed in Impact BIO-4. *See* responses to Comments 9-33, 9-34, and 17-26 for additional analysis concerning these impacts. While the R-DEIR acknowledges that there are certain beneficial impacts from shellfish aquaculture gear on the surrounding habitat, the analysis of eelgrass impacts is primarily based on empirical observations of impact and no mitigation credit is provided for such beneficial uses.

Comment No. 17-22

A. RDEIR Vastly Underestimates Impacts to Eelgrass that Occur Throughout Cultured Plots
The RDEIR's Revised Eelgrass Impact Analysis for its proposed expansion (Phase 1 and Phase 2) continues to rely on the flawed assumption that eelgrass loss only occurs in a narrow zone under and immediately adjacent to longlines. In comments on the DEIR, our organizations, as well as the Department of Fish and Wildlife, California Coastal Commission, and Pacific Fishery Management Council, explained that this assumption and the analytical approach based on it were invalid. Nonetheless, the RDEIR continued to use a slightly modified version of that invalid analysis. As with the DEIR, the RDEIR's flawed assumptions lead to invalid conclusions.

Coast presents five "impact scenarios" that estimate impacts by "accounting for the mechanisms of effect that may extend beyond the footprint of individual culture lines, including stranding, physical abrasion, trampling, and shading by incorporating two-tiered impact zones, with the central tier assumed to result in complete exclusion of eelgrass and a slightly wider zone where eelgrass density is predicted to decrease by a lower amount."⁵⁰ As we have explained in our prior comments, this "width of effect" approach is not based on the best available information.

Coast bases its width of effect analysis largely on Rumrill & Poulton (2004). However, the samples in the Rumrill & Poulton (2004) were randomly selected along survey transect lines in the entire plots, not just under the longlines. In other words, the study measured changes in eelgrass density both under the longlines and between them. In April 2015, the study's lead author, Dr. Steven Rumrill, provided clarification regarding the methods and results of the 2004 study, particularly for the changes the study found in eelgrass density and percent cover within plots in a recently dredged area and in a separate area that had not been recently dredged. In a memorandum to NMFS (Rumrill (2015)), Dr. Rumrill clarified that the changes that the study found in eelgrass turion density and spatial cover represent conditions throughout the entire plot, not just under the longlines.

Coast's erroneous assumption that aquaculture operations primarily cause decreases in eelgrass density within a very narrow zone directly under and adjacent to the longlines, and do not cause decreases between the longlines, renders invalid Coast's analysis of losses in eelgrass density in the proposed expansion area.

Response to Comment No. 17-22

See Topical Response 2 regarding the propriety of using a "width of effect" analysis to estimate eelgrass impacts. As described in Topical Response 2, the R-DEIR analysis was based on several sources, including Rumrill and Poulton (2004), Tallis et al. (2009), Wisheart et al. (2007), Thom et al. (2003), discussions with Dr. Rumrill and Dr. Dumbauld, personal observations of Coast's existing aquaculture and its impacts to eelgrass, and comparisons of aerial photography. Together, this information was combined to create a model of impacts to eelgrass density based on the proposed

project action. The model was verified using the existing culture area and comparing it to existing literature (e.g., Wisheart et al. 2007, Tallis et al. 2009). Aerial photography was used to look at changes in conditions associated with culture plots, recovery of eelgrass from previous dredge harvesting activities, and overall distribution of eelgrass in Humboldt Bay. As described in Topical Response 2, the width of effect was used to model impacts, based on the assumption (supported by the above-cited literature) that impacts are typically associated with the presence of structure. The supporting literature used to verify the model provided empirical data that inherently included operations as well as the effect of gear. Therefore, the model is well supported even though it uses a simplified assumption to calculate potential impacts (i.e., width of effect).

A more recent comparison of aerial photography between 2009 and 2016 provides further validation that the assumptions used in the R-DEIR are supported by evaluating the ground conditions in existing culture areas. In many instances the eelgrass conditions within culture beds appear to be indistinguishable from adjacent uncultured areas, even at the 2.5-ft spaced longlines. Observations where eelgrass is less abundant within culture areas appear to be associated with either historic dredge harvests or elevation limiting the potential for eelgrass. An example of this aerial photography is included as Figures 2.3 and 2.4 in Topical Response 2.

In summary, the R-DEIR analysis did not depend on the width of effect to show that the only effects would be associated with a small area under the lines, but rather used this to calculate impacts that could be compared to existing literature reported at a plot scale. These results were then verified by evaluating effects associated with the existing culture. The analysis used the best available science, including consultation with eelgrass experts, to understand the potential impacts.

Comment No. 17-23

B. RDEIR Relies on Misinterpretations of Relevant Studies to Find No Significant Impact to Eelgrass Density and Function

Coast relies on this flawed analytical approach to reach its conclusion that “the best available science indicates that effects to eelgrass at a 10-ft. single longline spacing do not result in an overall loss to eelgrass habitat, and eelgrass habitat associated with shellfish aquaculture can potentially have higher or equivalent densities compared to control or reference plots (Rumrill and Poulton 2004).”⁵¹

Response to Comment No. 17-23

See Topical Response 2 for additional discussion of use of the Rumrill and Poulton (2004) study and eelgrass impacts associated with 10-ft longlines.

Comment No. 17-24

This conclusion is based on a fundamental misinterpretation of Rumrill and Poulton (2004). As Dr. Rumrill clarified in 2015⁵², the study compared eelgrass spatial cover and density between control plots and plots that had recently been dredged and then had longlines installed at various spacings. That portion of the study thus looked at how well eelgrass recovered from severe disturbance under different longline spacing regimes. It did not test what the effect of those spacing regimes would be on undisturbed eelgrass areas, like the ones at issue for this Project. For previously dredged areas,

the study found that, compared to control areas, areas where longlines were installed with 10-ft spacing had 11 percent lower eelgrass spatial cover and 16 percent lower eelgrass density.

Dr. Rumrill also provided clarification on the component of this study that sampled eelgrass spatial cover and density in large-scale areas in the bay that had not been dredged – like the areas at issue for this Project – before having longlines installed. That sampling revealed that in areas where longlines were installed with 10-ft. spacing, eelgrass spatial cover was reduced by 45-58 percent and density was reduced by 45-67 percent compared with control areas. Importantly, the study author considers this latter set of values to constitute the best estimate of the impact of oyster longline spacing on eelgrass habitat: “[t]he level of loss for eelgrass beneath the large-scale oyster-on-cultch longlines can be estimated from the transect data collected in areas EB 1-1 and EB 6-2 by comparison of the average spatial cover and density values against the eelgrass metrics measured in the adjacent control plots.”⁵³

Response to Comment No. 17-24

The data collected at the end of the Rumrill and Poulton (2004) study was also from dredged areas; therefore, the comment that these areas represented “large-scale areas in the bay that had not been dredged” is not correct. The intention of the transition from bottom culture to longline culture from 1997 to 2006 was to reduce impacts to eelgrass. The goal of the Rumrill and Poulton (2004) study was to show that eelgrass recovery in these areas, and which line spacing resulted in the greatest recovery. Therefore, by design, all areas with longlines included in the study (as well as all proposed project areas) were previously dredge harvested.

The conclusions in the R-DEIR are not based on a fundamental misinterpretation of the Rumrill and Poulton (2004) study, but in fact were conducted in consultation with Dr. Rumrill and were verified using other existing literature. *See* responses to Comments 17-5, 17-22, and Topical Response 2 for additional detail regarding use of the Rumrill and Poulton study and subsequent communications with Dr. Rumrill.

Comment No. 17-25

Based on its misapplication of Rumrill & Poulton (2004), Coast calculates that impacts to eelgrass from Phase 1 would be a loss of 2.2 to 17.1 acres, depending on the corresponding “impact scenario.”⁵⁴ For Phase 2, consisting of 412 acres of single-hung, 10-ft spaced longlines, Coast cites Rumrill and Poulton (2004): “eelgrass at this [10-ft.] line spacing was equal to (or exceeded both the control and reference sites by the end of the study period, even with elevation differences between reference sites.” Coast then concludes there is unlikely to be any net loss of eelgrass in Phase 2.⁵⁵ Even the RDEIR’s incorrect analysis fails to support its “no significant impact” conclusion, as losing multiple acres of scarce and important eelgrass habitat is quite significant. Had the RDEIR used the study correctly, however, it would have shown that the Project’s actual impact is even more significant and, in fact, unacceptable.

Response to Comment No. 17-25

See Topical Response 2 and responses to Comments 17-22 through 17-24 above for discussion of the Rumrill and Poulton (2004) study. As noted in R-DEIR § 6.5.6, the project’s impacts to eelgrass

were considered significant prior to mitigation. The R-DEIR concludes that the project's impacts to eelgrass are considered less than significant after mitigation, consistent with the CEMP's no net loss of eelgrass function standard. See R-DEIR § 6.5.8.

Comment No. 17-26

C. RDEIR Fails to Adequately Account for Trampling Impacts and Sublethal Impacts. The RDEIR underestimates likely impacts to eelgrass from trampling. The RDEIR analyzes potential effects of trampling in its Maximum Impact Scenario, which would result in a loss of 17.1 acres of eelgrass spatial cover in the 210-acre Phase 1 expansion area.⁵⁶ However, the impacts of trampling are likely to be both greater, and different, than the modeled scenario Coast presents, hence the finding of No Significant Impact from trampling (Impact BIO-4) is invalid.

The RDEIR indicates “culch on longline requires approximately one day per month for each 10-acre area to monitor and repair lines, and 2 days per acre every 18 to 36 months to plant and harvest.”⁵⁷ The RDEIR then makes the following speculative statements that lack any supporting information: “it assumed that” each footprint results in a trampling area 0.05m² with a stride length of 0.3 m” and “for proposed aquaculture activities it is likely that recovery would occur within this one month period...”⁵⁸ The RDEIR cites a 2004 study from Willapa Bay, WA, where non-native eelgrass “recovered [from trampling] within a 1-month period.”⁵⁹ The RDEIR does not describe the nature of this trampling nor how it is similar or different from the proposed activities in Humboldt Bay. Figures 1a, 1b, and 1c provided by DFW, were taken June of 2016 and clearly show skiffs hauled onto eelgrass adjacent to farmed areas, and workers knee deep in mud within the farmed areas. The trampling impact analysis, Impact BIO-4, provided in the RDEIR does not acknowledge or discuss the depths to which these Coast workers sink into the mud, or how these observable activities compare with their modeled impact area from trampling.

Response to Comment No. 17-26

The impacts associated with trampling have been incorporated into the analysis in two meaningful ways: (1) comparison of the model with existing literature, which includes empirical data on all aspects of operations, including trampling, and (2) comparison of eelgrass recovery from multiple sources compared to proposed operations, as discussed in Impact BIO-4.

Eelgrass recovery happens through two different mechanisms: rhizomal extension and seedling dispersal. *Zostera marina* has a very quick recovery time in most West Coast estuaries because of the higher seedling production observed. This was shown in studies by Ruesink et al. (2012), Thom et al. (2012), and Yang et al. (2013). Yang et al. (2013) observed that higher levels of sediment organic matter were associated with larger shoot size and increased seedling recruitment, and the presence of oysters can increase local sediment organic matter. For impacts that result in leaving rhizomes in place, recovery times are typically on the order of one to two months. As further described in R-DEIR Table 4.2, disturbance events associated with maintenance (the most frequent cultivation activity) only occur approximately once every one to four months; therefore, recovery would typically occur prior to the next disturbance event.

The work by Major et al. (2004) was recommended by Dr. Dumbauld as a good comparison to potential impact and recovery from trampling activities associated with the proposed project. The

work was performed in Willapa Bay, which is a larger coastal estuary on the West Coast, but comparable to Humboldt Bay in terms of two key issues: (1) it is a coastal embayment with large amounts of shellfish aquaculture present in the estuary, and (2) there is significant overlap between eelgrass and shellfish aquaculture operations. The study looked at the recovery rate from the creation of footprints along eight transects and sampling occurred in June, July, and August to test for seasonal differences. While the species of eelgrass is different (*Zostera japonica* vs. *Z. marina*), it is still a useful comparison because it's the same genus (as compared to other literature discussed under Impact BIO-4 that evaluated impacts to turtle grass in Puerto Rico) and considers recovery from a single event rather than the much higher rates of impact in other literature that considers recreational activities on a much more frequent (*i.e.* daily) basis in one area (e.g., Alexandre et al. 2005, Travaille et al. 2015). In addition, the results in the Major et al. (2004) study are similar to more anecdotal observations made for Humboldt Bay by Dr. Susan Schlosser and Whelan Gilkerson (Gilkerson, pers. comm., 2015). Therefore, this study was considered to be the best available science related to the potential impacts associated with West Coast estuaries and to the species of eelgrass found in Humboldt Bay.

Looking at the aerial photography of current operation areas, many existing culture areas appear to have eelgrass cover conditions that are comparable to adjacent fallow areas. *See* Figures 2.3 and 2.4 in Topical Response 2. In instances where existing longline culture appears to have lower eelgrass cover than adjacent areas, historic dredge culture, elevation, or wind and wave exposure appear to be the dominant controlling factors affecting eelgrass cover. A good illustration of the potential recovery within dredge harvested areas is provided in Figure 3.4 above. The lack of a signature from dredge harvesting operations in the East Bay growing areas that were fallowed shows the potential for eelgrass to recover from even major ground-disturbing events associated with shellfish aquaculture operations that were significantly more impactful than those proposed. The potential recovery from more minor events that leave most of the eelgrass rhizomes in place is significantly faster.

See response to Comment 17-38 for additional discussion regarding the pictures cited in the comment. Coast's operations will be similar to those evaluated in the Rumrill and Poulton (2004) and Rumrill (2015) work, other than that longlines will be spaced at 10-ft spacing as opposed to 2.5 ft. spacing. Because this data was based on empirical observations, they necessarily included any impacts associated with Coast's planting, maintenance, and harvesting of the longlines.

Comment No. 17-27

The impact analysis also fails to consider non-lethal impacts to eelgrass. The impacts from aquaculture to eelgrass and mudflat habitats are well documented in the literature and include impacts from shading, trampling, sedimentation and erosion, anchoring, and boat scarring, as well as biodeposition from pseudofaeces and feces, among others.⁶⁰ A study evaluating oyster stake culture in Willapa Bay, WA, found that eelgrass in aquaculture areas had smaller plants (32 percent smaller) and lower production (70 percent lower production) than in uncultivated areas,⁶¹ and these authors note that "most research to date has shown that eelgrass is less dense within aquaculture than at similar tidal elevations outside aquaculture areas." In Coos Bay, OR, oyster stake culture in an intertidal eelgrass meadow reduced eelgrass cover by 75 percent relative to nearby control areas.⁶² In a subset of beds in Willapa Bay, eelgrass densities were approximately 60 percent lower in both long-line and dredged oyster beds relative to uncultivated areas.⁶³

Response to Comment No. 17-27

See responses to Comments 9-34 and 9-37.

Comment No. 17-28

D. RDEIR Incorrectly Dismisses Significance of Eelgrass Impacts by Asserting that the Project Will Foster a Different Habitat and Species Assemblage

In addition to the invalid finding of no significant impact from IMPACT BIO-3 above, Coast provides inadequate justification for its findings of less than significant impact from IMPACT BIO-2, changes to unstructured habitat from the addition of shellfish aquaculture gear. The RDEIR asserts that “both structured and unstructured habitats are important resources that create a mosaic of habitats and provide edges or transitional zones between two habitat types.” The RDEIR uses this rationale to conclude that IMPACT BIO-2 “changes to unstructured habitat and the addition of shellfish aquaculture gear are considered less than significant under CEQA.” The RDEIR’s suggestion that replacing intact eelgrass habitat with a “mosaic of habitats” that provides equivalent habitat value was also presented repeatedly in the 2015 DEIR and is spurious. Research has found that intact natural habitats function differently and are more resilient than altered, degraded, or fragmented habitats.^{64, 65, 66} In addition, estuarine and nearshore artificial habitats have been shown to be “poor surrogates” for natural habitats, as they support different assemblages of fish and invertebrates, facilitate establishment of non-native species, and do not function or provide the equivalent ecological services provided by natural habitat.^{67, 68} Similarly, the addition of aquaculture gear in eelgrass habitat will alter the vertical and horizontal structure of the habitat. This modification of structure will likely attract a different composition of fish and invertebrate species, while displacing others due to changes in habitat suitability or food availability.^{69, 70, 71} The types of impacts referenced above could directly change the habitat and species composition at the altered site but is likely to also have impacts that extend into the adjacent “intact” habitat.^{72, 73}

Response to Comment No. 17-28

See response to Comment 17-16 and Impact BIO-5 regarding impacts associated with habitat fragmentation. To clarify, Impact BIO-2 discusses the addition of structure to mudflat habitat and does not discuss “replacing intact eelgrass habitat.” As described in Impact BIO-2, a number of studies have determined that shellfish aquaculture gear can provide positive effects to the surrounding habitat and certain species, as well as provide transitional zones and habitat diversity that can also be beneficial. The literature cited in this comment does not appear to contradict, and in many cases supports, the conclusions in the R-DEIR.

- **Harrison and Bruna 1999**: This review paper is based on effects within terrestrial environments (e.g., forests, rocks, tropical islands). While similar concepts exist within marine systems, as discussed above, the two systems cannot be directly compared. It is important to understand that the proposed project is not anticipated to change the areal extent of eelgrass, but rather eelgrass density. Further, there would be no inhibitions to migration through various habitats, and oyster longlines support similar species composition

and prey resources compared to eelgrass habitat. This review is less germane to the project as compared to the studies discussed in the R-DEIR.

- Wilcove et al. 1986: Similar to the above comment, this paper is related to habitat fragmentation within terrestrial habitats (i.e., temperate forests). This paper is less germane to the project as compared to the studies discussed in the R-DEIR.
- Wilcox and Murphy 1985: Similar to the above comments, this paper is related to habitat fragmentation within terrestrial habitats and is not as relevant as the studies discussed in the R-DEIR.
- Glasby et al. 2007: This study looked at nonindigenous species (NIS) that colonize artificial structures (e.g., pontoons, pilings, and seawalls) as compared to natural rocky reefs. The study reported that rocky reefs and seawalls had similar numbers of native species as compared to NIS. The authors indicated that location (i.e., nearshore and close to the seabed) may have contributed to the larger recruitment of natives, which is a condition more closely aligned with the proposed project. While the authors also caution that location alone does not hinder NIS recruitment, the potential for NIS to colonize is based on the availability of a source population. For example, the authors noted that horizontal reefs had the greatest number of natives compared to vertical pilings. In addition, more native species were found associated with rotating or moving panels compared to fixed panels, which is analogous to more dynamic environments such as intertidal habitats compared to subtidal. Overall, the Glasby et al. (2007) work would indicate that native species could colonize shellfish gear better than NIS because the project is located in nearshore habitat, close to the seabed, and in an energetic environment (i.e., intertidal habitat).

It is important to note that shellfish growers and regulating agencies recognize the impacts from historic introductions of NIS, which has resulted in numerous precautions taken for current aquaculture operations to avoid future introductions, as discussed under Impact BIO-14. As described in that section, it is unlikely that the project would result in further introduction or spread of NIS.

Studies that have compared eelgrass to oyster culture areas are discussed in Impact BIO-12 in terms of potential impacts to prey resources, specifically discussing the species that colonize oyster locations. The consensus, in both the literature and among federal agencies (e.g., NMFS 2016a and USFWS 2016), is that culture areas provide similar prey resources as those found in other intertidal habitats, including important salmonid prey items. Therefore, there appears to be little effect to ecological services provided in terms of prey resources from the addition of oysters and culture gear to Humboldt Bay.

- Moschella et al. 2005: This study compared the epibiotic communities associated with seawalls and hard-armored shoreline protection to rocky shores in Italy, Spain, UK, and Denmark. Similar to the Glasby et al. (2007) study, the authors found that the community assemblages were qualitatively similar, but the study went on to indicate that the diversity and abundance were different between the two habitats. This comparison is not comparable to changes associated with shellfish aquaculture in intertidal habitats of Humboldt Bay. As discussed in the Moschella et al. (2005) article, hard-armored structures can increase the

energy and relative wave and sediment disturbance, reduce the areal extent of nearshore habitats, and reduce the structural complexity for colonization. None of these effects are associated with oysters and longline gear. The study indicated that structures that had been weathered over many years had more complexity and interstitial spaces and were “virtually indistinguishable from adjacent rocky shores.” It is notable that oysters have numerous interstitial spaces that can be used by invertebrates. The only mention of shellfish in the article is to unpublished data associated with recreational harvesting, which is typically at a much higher frequency and intensity in one location compared to commercial operations and is not comparable to the proposed project.

**Tillamook Bay/Willapa Bay/Grays Harbor
Benthic Macrofauna**

	2.2-6.5	2.3-6.5	3.2	5.0	
1	Oyster	Zm ¹	Zj	Sa	
	4.9-48	5-48	4.7-44	7-50	20-45
	11-12	53	57		
2	Up	Zm ²	Mud	Shell	
	1.5-4.7	2.2	2.0	2.0	
	3.6-36	1.4-32	5.1	3.9	3.8
	5.6	3.7	1.6		
3	Sand	Nc*	Nc	Subtidal	
	1.2	1	1.2-1.7	1	
	1.5	1.6	1.4	1.1	1.2-1.7
	1.4	1.1	1.4-2	1	1

Key

S	Habitat
A	B

Fig. 6. An ecological periodic table for benthic macrofaunal usage of twelve habitat types in Tillamook Bay, Oregon, and Willapa Bay and Grays Harbor, Washington, USA. Symbols and explanation as per Fig. 5 except: Zm¹ = intertidal eelgrass, *Zostera marina* in Willapa Bay and Grays Harbor; Zm² = intertidal eelgrass, *Zostera marina* in Tillamook Bay; Sa = intertidal Atlantic cordgrass, *Spartina alterniflora*, which is only present in Willapa Bay; Mud = intertidal mud in Grays Harbor; Shell = intertidal shell hash in Grays Harbor; Nc* = intertidal burrowing ghost shrimp, *Neotrypaea californiensis* in Tillamook Bay; and Nc = intertidal burrowing ghost shrimp, *Neotrypaea californiensis* in Willapa Bay and Grays Harbor. Habitats with indistinguishable benthic macrofaunal Bray-Curtis similarity are similarly shaded.

Figure 3.6 Combined Ecological Periodic Table for Willapa Bay, Grays Harbor, and Tillamook Bay.

The more applicable comparison is the literature addressed in Impact BIO-12, as noted above. The Moschella et al. (2005) study compared composition, abundance, and total species richness between the two different habitats. As noted in Impact BIO-12, Ferraro and Cole (2011, 2012) looked at these same measures in Willapa Bay, Grays Harbor, and Tillamook Bay in eelgrass, oyster, and mudflat habitat, and reported that the oyster habitat had the highest value for mean species richness, abundance, and biomass compared to the other habitat types for the three estuaries analyzed (Figure 3.6).

While the R-DEIR acknowledges that there are disturbances associated with proposed operations, which result in cyclical changes to the epibenthic and benthic communities, the frequency of these disturbances is considered similar to the dynamic environment in which the project is proposed and less than significant. Based on the literature most relevant to the project, these areas have high species abundance, diversity, and similar species composition

compared to the surrounding environment (Rumrill and Poulton 2004, Hosack et al. 2006, Ferraro and Cole 2007, 2011, 2012).

- Erbland and Ozbay 2008: This study looked at the macrofaunal communities associated with oyster reef and oyster aquaculture cages (i.e., modified rack-and-bag). The study showed that oyster cages supported additional populations of ecologically and economically important fish and macroinvertebrate species compared to created oyster reefs. As the authors indicate in their abstract, “this study demonstrates that off-bottom oyster aquaculture operations in the mid-Atlantic United States are a beneficial addition to host estuaries and associated natural communities.” The study reported that species abundance was higher in the oyster cages compared to oyster reefs, although the biomass was higher on the oyster reefs due to the presence of one species of mud crab (*Panopeus herbstii*). Species richness was higher in the oyster cages overall, but was not significantly different between the two treatments.

Species diversity was not significantly different between habitats. The authors compared their results to a similar study by Kilpatrick (2002) that looked at species diversity in oyster cages, seagrass, and mudflat and reported similar species diversity between oyster cages and seagrass habitat, which were both higher than in mudflat habitat. It is possible that the comment refers to the species that were only found associated with oyster cages compared to oyster reefs, including gag grouper, grey snapper, sheepshead, tautog, blue crabs, mud crabs, and naked gobies. While this represents additional species that were not reported from oyster reefs, the authors indicated that this is likely a benefit to the system because this habitat supported more economically important species that could support recreational fisheries. In addition, the authors noted that the oyster reef was considered relatively small, and “increased size would produce disproportionately greater abundance and biomass of macrofauna.”

Finally, as noted in the Erbland and Ozbay (2008) study: “Breitberg et al. (2000) suggest that the habitat value of an individual oyster reef is amplified when these habitats occur in networks of reef patches and are interspersed with other favorable habitats such as sea grass beds. Oyster aquaculture farms should fit nicely into this matrix of habitats, serving as refuge and forage areas for transient species moving through an estuary and further amplifying the benefits of surrounding habitats.” This conclusion supports the conclusions in the R-DEIR that oyster longlines can also enhance the benefits of eelgrass habitat within Humboldt Bay for mobile species.

- Pinnix et al. 2005: Similar to the above article, Pinnix et al. (2005) reported that fish communities in oyster longline culture and eelgrass were statistically similar, although there was some seasonal variability in the overall species composition. For example, the authors indicated that, “Fish diversity in eelgrass habitats increased from March to April, decreased in May, peaked in August while fish diversity in mud flat and oyster culture habitats remained fairly constant.” Figure 3.7 provided below, which is Figure 11 from Pinnix et al. (2005), shows the data for fyke net sampling and that the two diversity indices did not significantly vary between eelgrass and oyster culture. Similar to the study discussed above, an interim report (Pinnix et al. 2004) showed that either eelgrass or oyster longlines alone had lower species richness (fewer species), but eelgrass with oyster longlines had the greatest

number of species (Table 3.4). The diversity indexes showed a similar pattern, with oyster longlines in eelgrass having more diversity than either habitat alone, especially in February when eelgrass dies back and provides less structure. Similar to the Erbland and Ozbay (2008) study, the abundance of species was significantly higher in oyster culture compared to eelgrass or mudflat habitat, indicating that the presence of oyster culture may enhance commercially-important species. Overall, the number and diversity of species were similar between oyster longlines and eelgrass, and the two habitats together may represent a higher diversity of habitats for fish to use.

Table 3.4 Species Richness (Number of Species) by Habitat Type from Shrimp Trawl Catches Conducted in North Bay between August 2003 and July 2004.

Habitat Type	Number of Fish Species
No Oyster Longlines, No Eelgrass	34
Oyster Longlines, No Eelgrass	26
No Oyster Longlines, Eelgrass	35
Oyster Longlines, Eelgrass	40
<i>Source: Pinnix et al. 2004</i>	

- Tallman and Forrester 2007: This study compared the relative fish density, growth, and mortality on three oyster grow-out sites (using oyster cages on the bottom), six natural rocky reefs, and one artificial reef built for fish habitat in Narragansett Bay, Rhode Island. The results reported higher abundance of cunner (*Tautogalabrus adspersus*) on natural rocky reefs, higher abundance of scup (*Stenotomus chrysops*) and tautog (*Tautoga onitis*) on oyster grow-out sites, and similar density of black sea bass (*Centropristis striata*) in all habitats. All species are considered economically important, and while all were found in each habitat studied, the oyster culture areas provided good quality habitat for fishes typically associated with hard-bottom habitats.

Tallman and Forrester (2007) also noted that scup on oyster cages showed lower disappearance compared to natural rocky reefs (by roughly 25%), indicating some combination of lower mortality and/or emigration for oyster cages. This result was offset by reduced growth rates on oyster cages (by roughly 40%). This information coupled with the three-fold increase in density on oyster cages, led the authors to conclude that production per-unit-area was higher on oyster cages, which may then lead to higher support for recreational fisheries. As above, the cyclical disturbance of harvest can influence the presence of fish, but the authors considered that a minor effect given the presence of other cages in the area that fish could use for habitat while a few cages are being harvested. In summary, the authors noted that oyster cages could be used in conjunction with other habitat restoration programs in order to enhance valuable habitat for finfish.

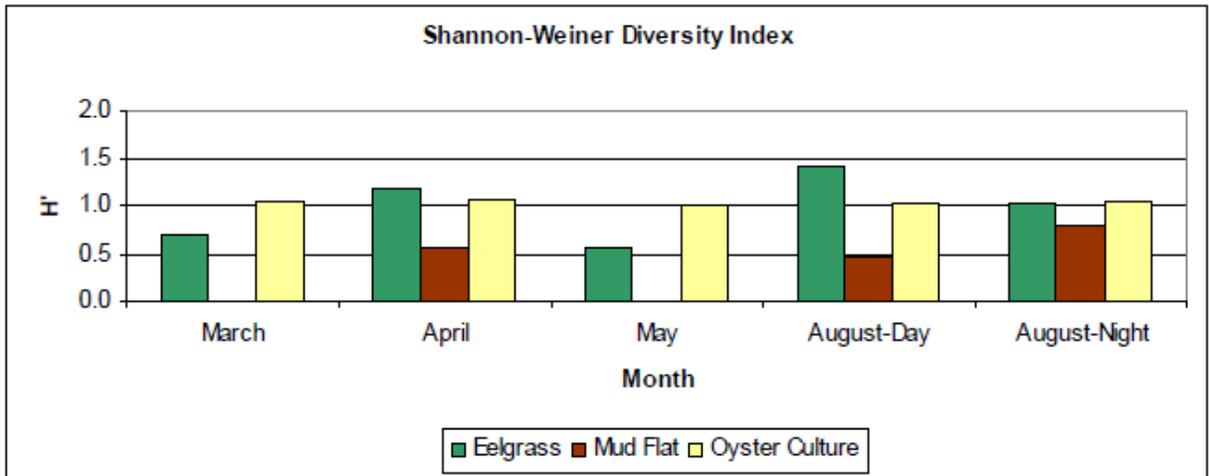
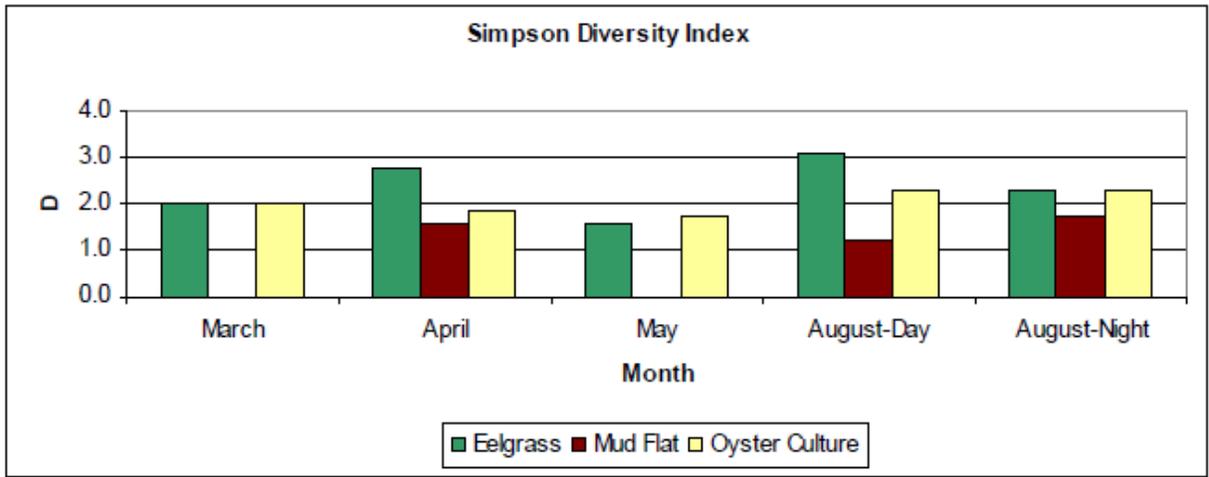
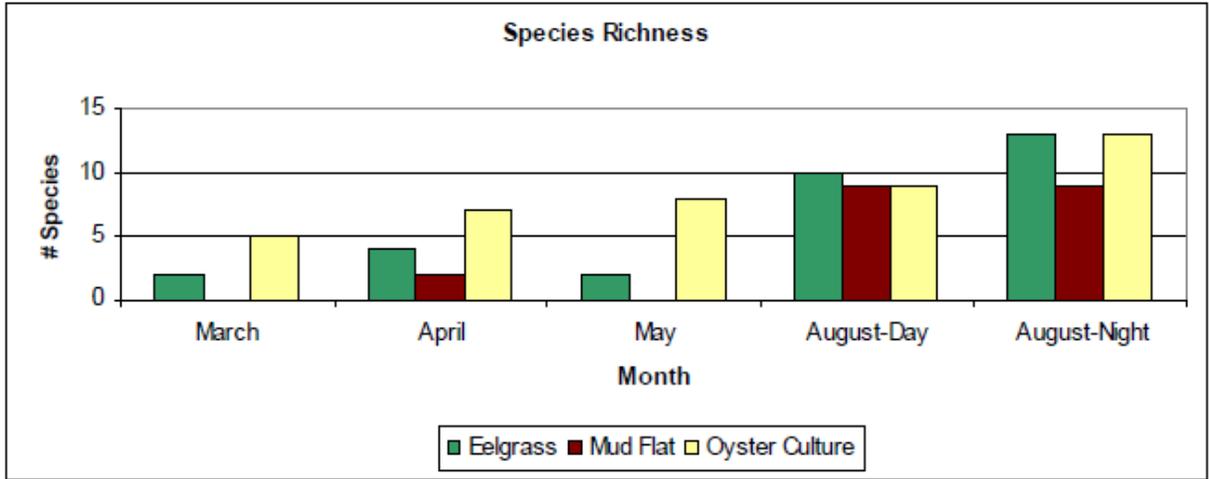


Figure 3.7 Monthly Species Richness, Simpson Diversity Index (D), and Shannon-Weiner Diversity Index (H') by Habitat Type for Fish Species Captured in Fyke Nets.

Source: Pinnix et al. (2005)

- Forrest and Creese 2006: This study measured silt/clay content of sediment trap samples and invertebrate densities and species richness under rack-and-bag culture in Mahurangi Harbour in northern New Zealand. The authors indicated that “seabed elevation was typically no more than 50 mm greater than between racks, and did not result in an overall farm vs. non-farm difference that deviated appreciably from a shore-normal profile.” The primary authors in a review paper (Forrest et al. 2009) emphasized this point by saying: “Irrespective of the magnitude of the effect, without exception it is apparent that direct benthic effects associated with oyster cultivation are highly localized to farmed areas.” In terms of effects to benthic infauna under the racks, the authors indicated that species richness and densities were significantly greater beneath and between the racks. The final conclusions of the study were that there was no trend in species richness, but there was a pattern in species composition. The presence of the farm increased densities of capitellid polychaetes (mainly *Heteromastus filiformis*) beneath the racks due to the increased organic material used by the deposit-feeding polychaetes. As the same primary author in this study summarized in a review paper (Forrest et al. 2009): “in many case studies the response of the infaunal assemblage has been less pronounced, for example evident as a change in species composition and dominance without an appreciable effect on richness (Forrest and Creese, 2006). As discussed in Impact BIO-12, rack-and-bag cultivation is anticipated to have more significant effects concerning sediment and benthic impacts as compared to off-bottom longline culture methods.

The relevant studies related to sediment accumulation/scouring, sediment quality, and potential changes to benthic invertebrates were discussed in the R-DEIR in Impacts BIO-7, BIO-11, and BIO-12, respectively. As in the main conclusions by the primary author, it was determined that presence of off-bottom culture can increase sediment and the nutrient content of sediment within the culture plots, but the porosity of oyster longlines and orientation to tidal currents makes the most difference in whether this impact would be significant. The proposed 10-ft spacing is significantly less dense than shellfish operations where significant impacts have been observed, and the project is anticipated to result in few changes to the seabed. Based on the flushing potential of Humboldt Bay, density of culture proposed, and porosity of the gear, the R-DEIR determined that potential changes to the benthic community would result in a less than significant impact, and nutrients would not accumulate in the sediments. In fact, nutrient cycling in the sediment is considered one of the main benefits of shellfish aquaculture to water quality, as discussed in Kellogg et al. (2013) and presented in Figure 6.5.17 of the R-DEIR, as long as density of culture and flushing within the estuary do not result in an accumulation of nutrients beyond what the system can handle. There is no evidence that culture at existing densities have resulted in impacts to sediment quality (*see* Tennant (2006) and other studies discussed in Impact BIO-11). Therefore, the project, which proposes longline culture at greater spacing than Coast’s existing footprint, is not anticipated to result in significant impacts.

- Tanner 2005: This study looked at the abundance of invertebrates in fragmented seagrass meadows (*Zostera macronota* and *Z. muelleri*) in South Australia at the boundary between seagrass and sand, and at 0.25, 0.5, 1, and 2 m from the edge in each direction. Similar to the discussion of Forrest and Creese (2006) above, the authors noted that eelgrass bed edges showed the greatest abundance of crustaceans (e.g., tanaids and gammaridean) which declined toward the interior of the seagrass patch, while polychaetes and bivalves did not

show a preference. Further, the authors found no consistent differences between seagrasses and mudflats, which the authors indicated was likely due to similar below-ground biomass even though above-ground biomass was drastically different.

Comment No. 17-29

In addition, the RDEIR improperly dismisses the significance of impacts to eelgrass habitat by suggesting that the introduction of manmade structures and edge habitat will attract a diverse assemblage of new species even if it harms species that currently depend on existing eelgrass habitat. However, under CEQA, the RDEIR must consider impacts to specific sensitive species and habitats; it is not sufficient to suggest that some other assemblage of species and habitats will take their place, thus providing a supposedly equivalent environmental value. Causing a shift in the habitat and species assemblage in the North Bay is a significant impact on the environment that must be addressed.

Response to Comment No. 17-29

See response to Comment 17-28. While the R-DEIR cites a number of studies that support that shellfish aquaculture provides beneficial impacts to certain species, it independently evaluates impacts to sensitive species, including those that depend on eelgrass habitat. The R-DEIR correctly notes that not all changes in habitat are not inherently adverse, and evaluates both positive and negative impacts associated with such changes. It is inappropriate to discount or ignore positive impacts associated with shellfish aquaculture on the surrounding environment.

Comment No. 17-30

Proposed “Conservation Measures” and Mitigation Measures Do Not Adequately Prevent, Reduce, or Mitigate Adverse Impacts to Eelgrass Habitat. As means to arrive at a “no significant impact” conclusion, the RDEIR proposes Conservation Measures BIO-1 through 9⁷⁴, Mitigation Measure BIO-1⁷⁵, and an Adaptive Management and Monitoring Plan.⁷⁶ None of these measures, alone or together, suffice to render the Project’s impacts on eelgrass less than significant.

Response to Comment No. 17-30

To clarify, the R-DEIR does not rely upon the Conservation Measures, adaptive management plan, or eelgrass monitoring plan, to support its determination that there will be a less than significant impact associated with eelgrass. The R-DEIR concludes that there will be a less than significant impact to eelgrass upon incorporation of the mitigation measures described in R-DEIR § 6.5.7. *See* Mitigation Measure BIO-1 for additional information regarding the quantification of proposed mitigation as compared to anticipated reductions in eelgrass density.

Comment No. 17-31

It is worth noting at the outset that Coast has done little to avoid eelgrass in its proposed siting, despite applicable legal requirements and multiple requests by trustee, advisory, and permitting agencies to pursue an Eelgrass Avoidance Alternative. As explained further below, Coast’s refusal to analyze such an alternative on the basis that it would reduce the size and profitability of operations is

inconsistent with CEQA requirements. The conservation and mitigation measures that Coast offers instead of avoiding eelgrass are not nearly adequate to meet CEQA requirements.

Response to Comment No. 17-31

The FEIR provides additional analysis of the Eelgrass Avoidance Alternative. As further described in Topical Response 5, the Eelgrass Avoidance Alternative is both economically and logistically infeasible.

Comment No. 17-32

The primary eelgrass mitigation proposed in the RDEIR is Mitigation Measure BIO-1, which involves converting 100 acres of Coast's existing culture footprint from 2.5-ft. spaced, single-hung culch-on-longline to double-hung culch-on-longline. The RDEIR assert that this measures, when implemented along with the other Conservation Measures, will mitigate impacts to eelgrass associated with Phase 1 (totaling 210 acres of new oyster culture primarily in eelgrass) to a less than significant level. That assertion is wrong on multiple counts.

As described above, 10-ft. spacing has very substantial effects on eelgrass spatial cover and density, even without accounting for potential non-lethal effects to this rare habitat type. The RDEIR's assertion that Phase 1 of the project "is calculated to result in a net neutral or potentially beneficial overall impact to eelgrass density (Table 6.5.14)"⁷⁷ is wrong. Mitigation Measure BIO-1 may lead to some recovery from and mitigation for impacts stemming from continued culture operations, but it is not nearly sufficient to offset losses in spatial cover and density of 45 percent or more – the likely level of impacts suggested by Rumrill & Poulton (2004) – across nearly 200 acres of eelgrass habitat. Moreover, the RDEIR's assertions that "eelgrass recovery in areas where eelgrass suppression is removed by increasing line spacing is likely to be rapid and exceed the recovery rates implied in the CEMP" and "this infilling process is expected to be rapid"⁷⁸ are not supported by science.

Response to Comment No. 17-32

See Topical Response 2 regarding potential impacts to eelgrass associated with 10-ft spacing and use of the Rumrill and Poulton (2004) data, and response to Comment 17-22 for additional analysis of impacts associated with reductions in eelgrass density. Because Coast has already fully mitigated for impacts associated with its existing footprint (*see* Topical Response 1), any further mitigation and ecological lift provided by reconfiguration of 100 acres of its existing footprint represents additional mitigation that mitigates for impacts associated with Coast's expanded footprint. Therefore, Coast's proposed revisions to its existing footprint represent mitigation as opposed to impact minimization.

In terms of the results of the 10-ft spacing, the meso-scale study from Rumrill and Poulton (2004) indicated that eelgrass density values in the treatment plot with 10-ft spacing were "within the range of plant density values observed for the eelgrass reference sites located throughout Arcata Bay [North Bay]." While the commercial-scale results collected at the end of the experiment still showed a depression from the previous dredge harvesting culture methods, there was only one data collection event and eelgrass recovery was in progress. By comparing the potential recovery at a 10-ft spacing from Rumrill and Poulton (2004) with other literature on longline culture methods and eelgrass recovery timing (Major et al. 2004, Tallis et al. 2009, Ruesink et al. 2012, Yang et al. 2013), it

can be understood that the cyclical nature of shellfish aquaculture operations can result in short-term impacts but also recovery within the same culture cycle. *See* response to Comment 17-26 for additional discussion of eelgrass recovery times.

Comment No. 17-33

Coast then proceeds to develop a misinterpretation of the CEMP, culminating in the statement "...eelgrass recovery in areas where eelgrass suppression is removed by increasing line spacing is likely to be rapid and exceed the recovery rates implied in the CEMP."⁷⁹ The RDEIR's predicted rapid rates of recovery for eelgrass in so-called mitigation areas are wholly unsupported by the CEMP. In contrast to the RDEIR assumptions, the CEMP notes low rates of success in eelgrass restoration efforts in the region, noting that for northern California, "[f]or mitigation activities that occur concurrent to the action resulting in damage to the existing eelgrass habitat, a starting ratio of 4.82 to 1 (transplant area to vegetated cover impact area) should be recommended based on a 75 percent failure rate over the past 25 years (four transplant actions). That is, for each square meter of eelgrass habitat adversely impacted, 4.82 square meters of new habitat with suitable conditions to support eelgrass should be planted with a comparable bottom coverage and eelgrass density as impacted habitat."⁸⁰

The CEMP further notes that "[d]egradation of existing eelgrass habitat that results in a permanent reduction of eelgrass turion density greater than 25 percent, and that is a statistically significant difference from pre-impact density, should be mitigated based on an equivalent area basis. Mitigation for reduction of turion density without change in eelgrass habitat area should be on a one-for-one basis either by augmenting eelgrass density at the impact site or by establishing new eelgrass habitat comparable to the change in density at the impact site. For example, a 25 percent reduction in density of 100-square meters (100 turions/square meter) of eelgrass habitat to 75 turions/square meter should be mitigated by the establishing 25 square meters of new eelgrass habitat with a density at or above the 100 turions/square meter pre-impact density."

Response to Comment No. 17-33

The R-DEIR correctly interpreted the CEMP as it relates to the project. The 4.82 to 1 mitigation ratio recommended in the CEMP is based on total removal of areal extent of eelgrass and transplantation success for creating new eelgrass beds. This is dramatically different from the proposed action, which includes a reduction of eelgrass density but no areal loss of eelgrass beds. For such projects, the CEMP recommends the other mitigation ratio referenced in the comment, a 1 to 1 ratio. The reason for the difference in ratios and different expected success rates is associated with the presence of healthy rhizomes within the remaining eelgrass bed. As noted in response to Comment 17-26, leaving healthy rhizomes in place results in rhizomal expansion and seedling dispersal. The higher mitigation ratio is based on the likelihood of success of transplantation, which involves collecting eelgrass plants at a different location and adding them to the sediment of a mitigation site. Transplantation does not commonly involve eelgrass that already exists and is shown to survive in that location.

The proposed project is providing mitigation for eelgrass density reduction at a 1 to 1 mitigation ratio based on an area-equivalent calculation. In addition, the eelgrass monitoring plan complies with the CEMP recommendations for eelgrass surveys, and will confirm that the actual impacts of

the proposed project and proposed in-kind mitigation meet the CEMP's no net loss of eelgrass function standard. Therefore, the R-DEIR analysis and proposed mitigation is fully consistent with the criteria set forth in the CEMP.

Comment No. 17-34

In addition, the RDEIR offers no scientific support for its statement that “initial impacts associated with longline placement may result in some initial loss of eelgrass function through trampling, but recovery for these activities is expected within 1 month, and other potential impacts will occur over a 2-year period.”⁸¹

Response to Comment No. 17-34

See response to Comment 17-26.

Comment No. 17-35

The RDEIR does not propose any mitigation for Phase 2, comprised of installing 412 acres of single-hung longline at 10-ft. spacing. Rather, Coast incorrectly asserts that “[c]ultch-on-longline spaced at 10-ft. intervals has been shown to result in no net loss of eelgrass (see discussion in Sections 6.5.4 and 6.5.7). This impact assumption will be verified via monitoring of Phase 1 culture (6 acres of 10-ft., single hung cultch will be planted in Phase 1) prior to implementation of Phase 2.”⁸² As discussed above, Coast’s assertion that spacing gear at 10-ft. intervals does not result in any net loss of eelgrass is wrong. Its suggestion that vague, deferred mitigation and monitoring can justify a “no significant effect” finding is also wrong.

Response to Comment No. 17-35

See Topical Response 2 regarding potential impacts to eelgrass associated with 10-ft spacing. Monitoring impacts associated 10-ft spacing is not deferred mitigation. The justification of a less than significant impact is based on the foregoing analysis as opposed to monitoring. Based on the best science available, 10-ft spaced longlines are not anticipated to have a significant adverse impact on eelgrass. As an extra layer of precaution, and to comply with mitigation requirements imposed by the CEMP and U.S. Army Corps of Engineers, Mitigation Measure BIO-1 also includes a monitoring plan and adaptive management plan to confirm the R-DEIR’s assumptions concerning the project’s impacts to eelgrass, including impacts associated with 10-ft spacing, and the amount of ecological lift provided by Mitigation Measure BIO-1. As noted in the comment, impacts associated with 10-ft spacing would be verified before implementation of Phase II. Any significant impacts beyond those analyzed in the R-DEIR would require additional mitigation or revisions to the project using the adaptive management plan described in the R-DEIR.

Comment No. 17-36

Coast suggests that implementation of “adaptive management” and associated “intensive ecological monitoring” will “achieve and maintain no-net-loss of ecological function of eelgrass.”⁸³ Neither the “2016 eelgrass monitoring framework” provided in Appendix H of the RDEIR nor the “decision

tree-adaptive management”⁸⁴ provide sufficient specificity to guarantee that specific mitigation measures would be implemented or that they would be effective in actually mitigating the harm to eelgrass. As such, they are not sufficient to meet CEQA requirements.⁸⁵

Response to Comment No. 17-36

While the best available science supports Coast’s impact analysis and proposed mitigation, the adaptive management plan provides a safeguard in the event that the monitoring plan reveals that the impacts are greater than expected or that the proposed mitigation fails to compensate for anticipated reductions in eelgrass density. The adaptive management plan commits Coast to a decision tree to evaluate what action(s) must be taken if the assumptions in the R-DEIR are incorrect; however, given the variability in the number of possible outcomes, it is impossible and imprudent to commit to a particular course of corrective action at this time, as optimal corrections will be dependent on monitoring results and identification of potential issues. The adaptive management plan includes significance thresholds regarding what would be considered a significant deviation from the EIR’s assumptions and a range of corrective actions that could be taken by Coast and the appropriate regulatory agencies in the event that the project results in greater than expected losses of eelgrass. This level of specificity, without committing to one specific change or adaptive measure, is permissible under CEQA. *Center for Biological Diversity v. Department of Fish & Wildlife*, 234 Cal.App.4th 212, 240-241 (2015). Additional detail regarding the proposed eelgrass monitoring plan is included in Appendix C of the FEIR. Note that the draft monitoring plan has undergone peer review and may be subject to further revision based on those comments.

Comment No. 17-37

The RDEIR proposes several other measures but fails to provide compelling evidence that they would be effective: Conservation Measures BIO-2, 10-ft. longline spacing for new shellfish culture plots, and alternating 9- and 16-ft. spacing for basket-on-longline as a means to reduce impacts to eelgrass. Yet, as described above, installing new gear in this configuration still would have substantial impacts on eelgrass habitat and species that depend on it.

Response to Comment No. 17-37

See Topical Response 2 for additional discussion of eelgrass impacts associated with the proposed longline spacing and response to Comment 10-6 regarding impacts associated with installation of longlines.

Comment No. 17-38

Conservation Measures BIO 5-7, pertaining to field practices of skiffs, larger work boats, and the longline harvester, would help to minimize impacts if implemented. These conservation measures would require changes in at least some aspects of current practice, as illustrated by the fact that Coast’s vessels and workers have been documented to haul up on eelgrass beds, as shown in Figures 1a and 1b.

Response to Comment No. 17-38

Conservation Measure BIO-5 provides that the longline harvester will not be anchored so as to shade the same area of eelgrass for more than 12 hours. Conservation Measure BIO-6 provides that larger work boats will be anchored outside of eelgrass beds and smaller skiffs will be used to access longlines where eelgrass is present. Conservation Measure BIO-7 provides that Coast will operate its boats in a manner to minimize sediment mobilization and avoid propeller scarring in eelgrass areas. None of these measures prohibit Coast from occasionally hauling out its skiffs within eelgrass beds or prohibit Coast's workers from working within eelgrass beds. In fact, such impacts are considered in the R-DEIR in Impact BIO-4 and BIO-5.

Comment No. 17-39

Finally, the RDEIR fails to adequately evaluate the impact of double-hung versus single-hung longlines for the 250 acres in which this novel approach is proposed, in terms of potential increased worker visits, oyster growing efficiency, and impact to carrying capacity and other biological elements. This concern was also raised by the Habitat Committee of the Council in its September 2016 draft letter pertaining to the RDEIR for Council consideration at its September meeting.

Response to Comment No. 17-39

See response to Comment 6-4 regarding impacts associated with double-hung longlines.

Comment No. 17-40

The RDEIR Fails to Analyze Future Impacts Caused by Continuation of Existing Operations

The RDEIR unlawfully fails to analyze the future impacts of continuing existing operations to special status species, riparian habitats and sensitive natural communities, wildlife corridors, nursery sites, and federally protected wetlands. The proposed Project includes Coast's request for a renewal of its regulatory approvals for 294.5 acres of existing shellfish culture, including intertidal cultch- and basket-on-longline culture, intertidal nurseries, subtidal FLUPSY rafts, subtidal wet storage floats and subtidal clam rafts. Existing operations are thus part of the Project impacts that must be analyzed. Indeed, Coast does not deny that, if approved, the continuation of these operations will have impacts on eelgrass, birds, fish species, and other components of the environment. An analysis of continued impacts from existing operations is essential to completing an accurate assessment of the cumulative impacts of continued operations, hundreds of acres of proposed expanded operations, and the Harbor District's proposed aquaculture project.

Response to Comment No. 17-40

See Topical Response 1 regarding analysis of impacts related to Coast's existing operations and associated mitigation. The R-DEIR includes a cumulative impacts analysis that evaluates the project's impacts in addition to Coast's existing operations. *See* R-DEIR § 7.

Comment No. 17-41

This analysis is particularly essential in light of the fact that existing operations have likely significantly reduced eelgrass structure and function in nearly 300 acres relative to areas not in cultivation. In 2006, the Coastal Commission found that Coast's operations were having and would continue to have significant adverse effects on eelgrass. In its 2006 Finding, the Commission notes:

[T]here is strong empirical evidence that oyster culture causes adverse impacts to eelgrass beds. At the long-line oyster culture beds operated by Coast, simple observation reveals a greater cover of eelgrass between the culture beds than within them. Quantitative studies conducted in Arcata Bay and elsewhere support this observation ... 70 percent or more of the substrate in undisturbed reference areas is covered by eelgrass, whereas only 20 percent or less of the substrate is covered by eelgrass in oyster aquaculture areas. The results of the experimental studies indicate that this difference is caused by the aquaculture activities. This is equivalent to about a 71 percent decrease in the area covered by eelgrass with areas of active aquaculture.⁸⁶

Rumrill (2015) also supports the conclusion that existing operations with 2.5 ft. spacing significantly degrade eelgrass density and function. Compared with controls, in both experimental and sampled plots in North Bay, eelgrass spatial cover is reduced 92-93 percent and eelgrass density in the North Bay is reduced by 83 percent to 94 percent.⁸⁷ The RDEIR contains no analysis to indicate otherwise.

Response to Comment No. 17-41

See Topical Response 1 regarding analysis of impacts related to Coast's existing operations and associated mitigation.

Comment No. 17-42

The Proposed Project Would Have Significant Adverse Impacts on Pacific Herring. The RDEIR fails to acknowledge significant adverse impacts to Pacific herring. Contrary to the RDEIR's "no significant impact" finding, the Project would cause severe harm to herring by excluding them from half of their core spawning habitat in the North Bay, decreasing egg and larvae survival, degrading eelgrass habitat necessary for spawning, and depleting the planktonic food supply (discussed below). These effects are significant not only for herring, but for the multiple predators that depend on them.

Herring are critically important as prey for salmon and other fish species, cetaceans, pinnipeds, shorebirds, and seabirds. As a result, DFW's statewide herring commercial fishery program requires that management measures "safeguard herring as an important forage species for all living resources of marine and estuarine ecosystems that utilize herring as a food source."⁸² Recent analyses of predator diets in the California Current System (British Columbia through Baja California) highlight the importance of herring to predators. For 32 predators evaluated in this region, Pacific herring ranks as the fourth most significant prey species out of a total of 27 prey species.⁸⁸ Humboldt Bay is the third most important herring spawning site in California, after San Francisco and Tomales Bays.

As the RDEIR notes, the 622-acre expansion area overlaps with approximately 310 out of 1,274 acres that DFW has delineated as essential herring spawning area. Moreover, the Project's existing

300-acre footprint already overlaps with this essential spawning area. The proposed project would thus overlap with and adversely affect roughly half of essential core herring spawning habitat in Humboldt Bay. As discussed below, herring appear to avoid spawning in the existing aquaculture areas. Preventing them from spawning in another 300+ acres of core habitat is clearly a very significant impact.

Response to Comment No. 17-42

See Topical Response 3 for additional analysis of herring impacts. In response to this comment, the Harbor District has included the EBMA Avoidance Alternative, which would eliminate any expanded cultivation areas within the EBMA and locate proposed expansion plots in areas where herring have not been detected in recent surveys.

Comment No. 17-43

RDEIR Figure 6.5.24 includes information provided by DFW on the locations of herring spawning events in Humboldt Bay in 2015 and 2016. Herring appear to not have spawned within aquaculture plots. This observation is consistent with the Coastal Commission's 2015 comment on the DEIR that:

In its authorization of Coast's existing operation in 2006, the Commission included several permit requirements to ensure that adverse impacts to Pacific Herring are avoided and minimized. These measures included limitations in the amount of culture activities occurring within the East Bay Management Area, an area that has historically been shown to support high levels of herring use, and surveys and annual reporting of observed herring spawn on or around aquaculture gear and cultured shellfish. In the nearly 10 years since this permit was issued, Coast has reported no observations of herring spawn on or around aquaculture gear in Humboldt Bay. Although the absence of such observations by Coast is not definitive evidence that herring would not spawn on aquaculture gear in the future, it appears to be a strong indication that use of aquaculture beds by herring is unlikely. Please revise the discussion of potential impacts to herring spawning to include this information about herring use of existing aquaculture areas in the East Bay Management Area.⁸⁹

The RDEIR fails to respond to this request from the Coastal Commission. The RDEIR notes "there is no evidence to indicate Pacific herring are spawning on gear"⁹⁰ but fails to discuss the crucial implication of that finding. Namely, herring avoid spawning on aquaculture gear even when it is located within an otherwise preferred spawning area. If herring will not spawn on aquaculture apparatus, the Project would exclude Pacific herring from half of its most essential spawning grounds in Humboldt Bay. Reducing available spawning grounds could lead to significant decreases in spawning, which could significantly affect the overall herring population. This is clearly a significant impact.

Response to Comment No. 17-43

See response to Comment 12-18 and Topical Response 3. In response to this comment, the Harbor District has included the EBMA Avoidance Alternative, which would avoid additional cultivation in primary herring spawning areas.

Comment No. 17-44

The lack of evidence indicating that herring are spawning on aquaculture gear in the existing operation footprint is consistent with other scientific evidence. While herring will to some extent spawn on hard natural and artificial substrates, such as unsilted gravel and pilings, artificial surfaces do not provide the same quality spawning habitat as eelgrass.^{91,92} Indeed, a study in Puget Sound found that “[t]he local disappearance of some eelgrass meadows has led to the cessation of herring spawning activity in particular areas.”⁹³

Response to Comment No. 17-44

See Topical Response 3 regarding the suitability of aquaculture gear as a substrate for herring spawn. Eelgrass is recognized as a substrate that herring use for egg deposition in many coastal areas. As Shelton et al. (2014) note, when eelgrass disappeared due to unknown causes herring spawn was no longer detected at those locations. It is unclear what the relationship between the eelgrass and herring spawn was in these instances as the same mechanism may have caused both the loss of eelgrass and the lack of herring spawning. While this comment implies that the lack of herring spawning was in response to the loss of eelgrass, this is not supported by the studies cited in Shelton et al. (2014). Shelton et al. (2014) also note: “Overall, we found no evidence indicating that eelgrass is limiting for embryonic Puget Sound herring.” Gaeckle et al. (2011¹) was also unrelated to shellfish aquaculture operations. The lack of herring spawning was based on a limitation of spawning substrate, not on effects from shellfish aquaculture. It is notable that Pacific herring in Humboldt Bay are not limited by spawning substrate, as reports from CDFW indicate that they use approximately 10% of the available habitat (Mello and Ramsay 2004).

Comment No. 17-45

In West Coast estuaries, herring spawn preferentially in certain locations with certain areas representing persistent spawning sites.⁹⁴ Within spawning habitat, numerous factors, such as environmental variables and fish abundance, influence the locations where spawning occurs in a given year, and this spatial diversity of spawning locations promotes population resiliency and may enable the population to spawn in years with varying environmental conditions: “[t]he locations that support large and repetitive spawnings deserve the most attention and consideration from possible environmental impacts.”⁹⁵

Response to Comment No. 17-45

As discussed in Impact BIO-21 and further in Topical Response 3, there is no correlation between herring spawning biomass and shellfish aquaculture operations in Humboldt Bay. In fact, herring saw a significant decline after Coast significantly reduced its operations in the bay (from 500 acres to 300 acres). The pattern of herring biomass has more to do with fishing pressure, predation pressure, and spawning habitat. As described in Topical Response 3, herring are not limited by spawning habitat in Humboldt Bay. Federal agencies in Washington State have determined that, upon

¹ Note that this was the 2009 monitoring results (Gaeckle et al. 2011), mis-cited as Gaeckle et al. 2009.

imposition of a conservation measure similar to that proposed by Coast, the potential loss of herring eggs from shellfish aquaculture operations results in a minor impact.

The citations provided in the comment do not support a conclusion that herring would be significantly impacted by the presence of shellfish aquaculture:

- Haegele and Schweigert 1985²: This document is a general summary of the distribution and characteristics of Pacific herring spawning behavior. This document is not related to potential effects from shellfish aquaculture operations. The only mention of Humboldt Bay indicated that, due to the low spawner biomass (300 tons), egg deposition was generally less than ¼ layer, which is a very light egg density. This information indicates that if shellfish aquaculture operations were to disturb or displace egg deposition locations, it would not impact significant amounts of eggs given the substantial spatial distribution of eggs, and would therefore result in a less than significant impact to overall herring spawn populations.
- Hay [and McCarter] 2013: This document is a general review of spawning locations and behavior in British Columbia. It does not appear to concern shellfish aquaculture; rather it discusses finfish activities, based on the location (subtidal) and relation to water quality impacts similar to those of oil exploration, but the document does not go into more than a general statement of potential increase of mariculture activities. The study indicates that impacts associated with projects should be evaluated to make sure that they fall below a level that would potentially impact herring populations. This concern has been addressed through the analysis provided in the R-DEIR.

Comment No. 17-46

The proposed Project's likely significant adverse impacts on herring are all the more serious in light of the reduced abundance of Pacific herring stocks on the West Coast,⁹³ including in Humboldt Bay. From 1974 to 2007, herring biomass estimates for Humboldt Bay averaged just under 400 tons.⁹⁴

Response to Comment No. 17-46

The R-DEIR agrees with the comment that there was a significant decline in the herring population after 2002, although recent surveys performed in 2015 have shown that the spawning biomass may be increasing. *See* Topical Response 3 for additional discussion of herring impacts.

Comment No. 17-47

The RDEIR attempts to downplay the seriousness of these impacts by noting that “[t]here were successful detections of herring egg deposition in historical culture areas and areas directly adjacent to actively farmed oyster plots. While this does not provide information on spawning potential in culture areas, it does indicate these culture operations are not impeding spawning behavior.”⁹⁶ This statement is inaccurate; the fact that no herring spawning has been detected in aquaculture areas since 2007 indicates that culture operations do impede spawning within farmed areas. Moreover, evidence indicates that routine maintenance operations associated with the Project are likely to

² Note that it was mis-cited as Haegele and Schweigert 2011.

disturb holding and spawning herring. The Washington Department of Fish and Wildlife notes that “[c]onservation of herring spawning habitat, and *minimizing disturbance in the prespawning holding areas* is key to the preservation of the herring stocks inside Puget Sound.”⁹⁷ Pacific herring genetics and life history are similar along the West Coast, therefore, the same conservation needs apply in Humboldt Bay.

Response to Comment No. 17-47

There have been no methodical surveys performed in shellfish aquaculture areas to detect herring spawn on aquaculture gear; therefore, there has been no confirmation of their presence or absence. Coast has not reported incidental observations of herring spawn on their gear, although there are photographs of herring eggs on rack-and-bag gear in the Mad River area that is not associated with Coast operations. The lack of evidence on spawning gear has more to do with the depressed spawner biomass and lack of methodical surveys within shellfish aquaculture areas than a definitive lack of spawning on gear. As noted in BIO-21, the project will not result in significant disturbances of herring prespawning holding areas in East Bay Channel and Arcata Channel, given that the only impacts associated with these areas would be the temporary and infrequent passage of work vessels.

The Washington Department of Fish and Wildlife document cited in the comment does not concern shellfish aquaculture, but rather highlights the importance of conserving herring spawning grounds. As further described in Topical Response 3, Mitigation Measure BIO-2 expands upon a similar measure used in Washington State that was found to adequately protect Pacific herring spawn deposition within 5,815 acres of shellfish aquaculture that overlaps with herring spawning locations. Both NMFS (2016a) and US FWS (2016) concluded that there would be potential losses of herring eggs due to shellfish aquaculture operations, but that the magnitude of this loss would not rise to a level of significance in any one water body or estuary. Therefore, the proposed project is consistent with standard conservation measures taken in Washington State to protect herring resources. To further reduce overlap with herring spawn habitat, the Harbor District has included the EBMA Avoidance Alternative, which would eliminate previously proposed expansion plots within primary herring spawn ground in the EBMA.

Comment No. 17-48

If herring were to begin to spawn on aquaculture gear, the RDEIR acknowledges that their eggs could be exposed to air more frequently and thus be at greater risk for desiccation.⁹⁸ The RDEIR attempts to dismiss this effect by asserting that “[i]ncreased mortality due to desiccation is likely to be offset by reduced predation pressure from invertebrates and fish during high tides.”⁹⁹ It provides no data to support that assertion. In reality, there is uncertainty about the survivorship of herring eggs deposited on aquaculture gear relative to natural vegetated substrates, as shown by Palsson (1984).¹⁰⁰ This study evaluated egg survivorship on several types of artificial substrate (including: polypropylene and hemp rope, polyethylene netting, tubing and turf mats, and plastic sheeting) deployed within natural eelgrass habitat. Overall, total survival and larval production was significantly lower for the artificial substrates compared to natural eelgrass spawning substrate. Moreover, since herring do not appear to be spawning on aquaculture gear and from 2007-2015 Coast never once contacted DFW to report a spawning event, Mitigation Measure BIO-2 (herring egg monitoring and consultation with CDFW¹⁰¹) is unlikely to be applicable, let alone effective.

Response to Comment No. 17-48

See Topical Response 3 for additional analysis regarding the Pallson (1984) study, dessication and predation effects on herring spawn, and the effectiveness of proposed mitigation measures.

Comment No. 17-49

As explained above, the RDEIR offers little support for its conclusion that the Project would have a less than significant impact on eelgrass habitat, which is crucial for spawning Pacific herring. Because impacts to eelgrass and herring spawning are actually quite serious, we oppose the re-permitting or expansion of oyster farming operations in the East Bay Management Area, the most important herring spawning area in Humboldt Bay and the third most important in the state of California. Given the very high sensitivity and importance of eelgrass beds in the East Bay Management Area for eelgrass, Pacific herring, and the estuarine ecosystem, we recommend that existing aquaculture operations be removed from the East Bay Management Area entirely.

Response to Comment No. 17-49

As further described in Topical Responses 2 and 3, impacts to eelgrass and herring are considered less than significant after mitigation. As noted above, an additional alternative has been added to the FEIR which would eliminate any new cultivation within the EBMA and further reduce Coast's proposed cultivation in eelgrass as compared to the proposed project. Removal of Coast's existing plots within the EBMA is not required under CEQA, as impacts associated with Coast's existing plots are considered part of the environmental baseline. *See* Topical Response 1.

Comment No. 17-50

Finally, the RDEIR also fails to respond to the Coastal Commission's request to provide a full cumulative impacts analysis "to include an estimate of the combined total impact to Pacific herring from potential loss of spawning areas from both existing operations, the proposed project, and future projects in Humboldt Bay including the Harbor District's pre-permitting project."¹⁰²

Response to Comment No. 17-50

See response to Comment 12-19.

Comment No. 17-51

The Proposed Project Would Have Significant, Unavoidable Impacts on Pacific Brant, Other Waterfowl, and Shorebirds. Humboldt Bay Provides Important Habitat for Brant.

According to the U.S. Fish and Wildlife Service's (FWS) 2015 comment on the DEIR: "[b]lack brant are a species of concern in California which are dependent on this ecosystem for survival. Humboldt Bay is the second largest estuary in California, and supports the largest stands of eelgrass between brant wintering grounds in Baja, Mexico and Willapa Bay, Washington. The assertion that there is more than sufficient eelgrass available is an unproven paradigm that unfortunately has been played out with irreversible results for other ecosystems and species in the past."¹⁰³ Researchers have noted

“the need to conserve large eelgrass habitats along the Pacific Coast, and we suggest this may be exceptionally important for isolated staging areas, such as Humboldt Bay and San Quintin Bay. Since large, alternative feeding locations are not nearby, these remote bays may serve as critical sites for birds to better accumulate nutrient for migration and successful reproduction.”¹⁰⁴

Humboldt Bay is the most important spring staging area for brant in California and one of the most important in the entire Pacific Flyway. Notably, these eelgrass beds host up to 60 percent of the total brant population each year.¹⁰⁵ An estimated 80,000 birds use Humboldt Bay each year. In recent years, brant are increasingly found in the relatively quiet eastern section of the North Bay due to disturbance in the South Bay. FWS has initiated bay-wide surveys providing data confirming this trend, and in the first year of this survey (2015-2016), brant used the North Bay with equal or greater frequency than South Bay from December through February (three months) and use the north bay at lower frequency in March and April (two months).¹⁰⁶ Tests of significance were not provided.

We used eBird¹⁰⁷ to gain an increased understanding of recent brant use of the North Bay. We found eBird data show detections throughout the perimeter of the North Bay in 2010-2014 (Figure 2, with the highest numbers of birds reported in the north end of the bay).¹⁰⁸

Response to Comment No. 17-51

The R-DEIR agrees with this comment that Humboldt Bay is a critical staging area for brant, that brant have used North Bay with greater frequency in recent years, and that eelgrass is a critical food resource for brant. *See* R-DEIR pgs. 6.5-32 through 6.5-35. *See* response to Comment 7-6 for additional analysis concerning the abundance of eelgrass and its availability for brant foraging.

Comment No. 17-52

A. The Project Would Have Significant Impacts on Black Brant. The RDEIR acknowledges that brant avoid feeding, walking in, or flying through longline plots at low tides, when they are actively foraging¹⁰⁹ and then incorrectly asserts that impacts to brant would be less than significant because “[b]ay-wide eelgrass available for brant should be reduced by less than 3 percent following the implementation of both phases of the revised plan.”¹¹⁰ As described above, the calculated 3 percent reduction in eelgrass available to brant is based on modeling results that are invalid due to a dramatic underestimate of the loss of eelgrass associated with longline aquaculture. This fundamental error renders invalid the conclusion of no significant impact for IMPACT BIO-25, potential impacts to black brant foraging from the expansion of oyster aquaculture in Humboldt Bay. Mitigation Measure BIO-1, the conversion of 100 acres of existing longline culture to 10-ft. spacing, and Mitigation Measure BIO-4, providing mitigation should monitoring show impacts to eelgrass, are above the Project’s Adaptive Management threshold and will not mitigate this significant, unavoidable impact. Mitigation Measure BIO-4 actually defers mitigation and hence does not qualify as mitigation under CEQA.

Response to Comment No. 17-52

See Topical Responses 2 and 4 for additional analysis regarding eelgrass and brant, respectively. Mitigation Measure BIO-1 is implemented concurrently with the project and is not deferred mitigation. *See* responses 9-24 and 11-6 for additional analysis of Mitigation Measure BIO-4 and the

project's adaptive management plan. Mitigation Measure BIO-1 provides sufficient in-kind mitigation to mitigate for the project's anticipated eelgrass impacts, consistent with the CEMP's no net loss of eelgrass function standard. As an extra layer of precaution, and to comply with the CEMP and Army Corps of Engineers requirements, the project incorporates a monitoring plan to confirm the accuracy of the R-DEIR's impact analysis. In the event that the eelgrass monitoring shows that the R-DEIR underestimated eelgrass impacts, the adaptive management plan provides the standards and framework that Coast and regulatory agencies will use to implement corrective actions. Mitigation Measure BIO-4 confirms that any such corrective actions must similarly address any loss of eelgrass for brant foraging beyond that anticipated in the R-DEIR. Given that the best available science supports that Mitigation Measure BIO-1 fully mitigates impacts associated with eelgrass, which will be implemented concurrently with project implementation, the project does not defer mitigation.

Comment No. 17-53

The existing project includes 57 boat trips totaling 218 hours, per week. The RDEIR fails to evaluate the disturbance to brant from the impacts associated with proposed continued operations on 294.5 acres of oyster culture. The expanded project would add 18 more boat trips totaling 74 additional hours per week. This would bring the total presence of vessels per week to 75 trips and 292 hours.¹¹¹ The RDEIR fails to explain why this existing and increased vessel presence in the North Bay would not significantly impact this highly sensitive species. The RDEIR relies heavily on the model developed by Stillman et al.¹¹² to evaluate whether the Project would reach a 10 percent threshold for disturbance used as a benchmark for significant impacts and concludes this threshold would not be reached. This conclusion is invalid due to Coast's failure to evaluate disturbance resulting from continued operations on 294.5 acres and the erroneous eelgrass analysis. Furthermore, even if the 10 percent threshold increase in disturbance would not be reached, Stillman, in comments on the DEIR, provided clarification that Coast had not correctly interpreted the key results (italics the author's): "*my interpretation of this figure is that any reduction in eelgrass abundance is predicted to increase stopover duration and reduce rates of mass gain. Doing this, my interpretation of this figure is that any increase in the time lost due to disturbance is predicted to increase stopover duration and reduce rates of mass gain.*"¹¹³

Response to Comment No. 17-53

See Topical Response 1 regarding evaluation of Coast's existing footprint under CEQA. The cumulative impacts to brant associated with the proposed project and Coast's existing operations were considered in the R-DEIR, and were found to be less than significant. *See* R-DEIR § 7.2.3.8. *See* response to Comment 9-11 and Topical Response 4 for additional analysis of the analysis of impacts to brant.

In Stillman's response to the October 2015 DEIR, he provides an interpretation of figures presented in Stillman et al. (2015). These figures show the effects of reduced eelgrass abundance and increased disturbance on stopover duration and rates of mass gain for brant in Humboldt Bay. In relation to changes in eelgrass abundance he states that "my interpretation of this figure is that any reduction in eelgrass abundance is predicted to increase stopover duration and reduce rates of mass gain." In relation to disturbance he states that "my interpretation of this figure is that any increase in the time lost due to disturbance is predicted to increase stopover duration and reduce rates of mass gain." First, Stillman et al. are careful not to make these assertions in their published manuscript, instead

stating that “the model predicted that the number of birds supported by the bay and their rates of mass gain were sensitive to 10-30% reduction in the biomass of eelgrass,” and that “The bay was therefore predicted to potentially be able to support many more birds than currently [60,000], consistent with the prediction that 60,000 birds depleted less than 2% of the eelgrass biomass.” Both of these statements seem to contradict the more restrictive statements provided in response to the DEIR, and appear to support that the existing ecosystem can tolerate some additional increases in the brant population or decreases in eelgrass abundance or availability.

Stillman’s comment that any reduction in eelgrass availability would increase stopover duration and reduce rates of mass gain seems to assume that the system is at constant carrying capacity, regardless of fluctuations in brant or eelgrass biomass. This implies that, with an annual hunting harvest of between 212 and 5,046 brant from the California North Zone (primarily Humboldt Bay) from 1990 through 2012, any reduction in eelgrass would still impact brant. Further, the estimate that a brant population of 60,000 birds consumes less than 2% of the available biomass in the entire bay, does not appear to be consistent with the assertion that any reduction in eelgrass would result in a brant population response.

In addition, the interpretation represented in Stillman’s comments does not consider uncertainty in model predictions of brant response to environmental changes. While the model predicts the general relationship that Stillman describes above, specifically that significant reductions in eelgrass abundance and/or significant increases in disturbance may result in decreases in mass gain and increases in stopover duration, when uncertainty in the model predictions is considered, there will be some amount of reduction in eelgrass biomass and increase in disturbance that will not be significantly different than existing conditions as defined in the model. The error bars presented in Figures 6 and 7 (Stillman et al. 2015) show that a 10% change in either eelgrass abundance or disturbance is measurably different than existing conditions. Thus, the amount of reduction in eelgrass abundance and/or increase in disturbance that would result in a significant reduction in mass gain and increase in stopover duration is somewhere between existing conditions and a 10% change.

A 10% change in environmental conditions was used as a basis for the less than significant determination because the model predicts this amount of environmental change to have a statistically significant (as opposed to significant under CEQA) effect, and no other information was provided in the manuscript to support an inference that any value less than 10% that would result in an effect on brant. It is important to note that the error bars presented in Figures 6 and 7 (Stillman et al. 2015) represent one standard deviation, which represents an approximately 68% confidence interval. Based on the information presented in the manuscript, it is not possible to determine the width of more commonly used confidence intervals such as 90% or 95% (i.e., no standard errors are presented), but they would be wider and could possibly indicate that a 10% change in environmental conditions does not result in a statistically significant (as opposed to “significant” under CEQA) decrease in the rate of mass gain or increase in stopover duration relative to existing conditions.

As further noted in BIO-25, the Stillman et al. (2015) model uses a conservative estimate of the total eelgrass biomass available in Humboldt Bay. Eelgrass biomass at the beginning of their model simulation is calculated only for the three youngest shoots of the turion occurring within “dense eelgrass beds” (based on NOAA Coastal Services mapping 2009), and thus does not include biomass for older shoots or eelgrass occurring throughout the Bay in “patchy” eelgrass patches (defined as

>10% to <85% cover). Brant preferentially feed on the three youngest shoots because they are the most energetically dense (Moore 2002), and tend to choose areas of higher biomass and nutritional quality (Moore and Black 2006b); however, they also forage in areas of lower biomass and nutritional quality due to tide-height restrictions to high-quality foraging areas (Moore and Black 2006b) and brant consume the older leaves, although in smaller proportions (Moore 2002). Underestimating total biomass in this way results in an underestimate of overall available eelgrass biomass.

When uncertainty in model parameters are not explicitly incorporated into a model structure, precision in model predictions are overestimated. Stillman et al. (2015) evaluated model sensitivity to a $\pm 10\%$ change in values for eight key model parameters, demonstrating statistically significant changes in daily mass gain and stopover duration for all eight parameters, as shown in Figure 3 of the paper. However, model predictions presented in Figures 5-7 of Stillman et al. (2015) are based on model simulations in which many parameters are held constant. If model parameters are close to the true values of Humboldt Bay eelgrass and brant populations, predictions should be accurate, but ignoring uncertainty in the model parameters makes the standard errors of those predictions smaller than they should be (*i.e.*, overestimating precision). However, the model overestimated daily mass gain and stopover duration when compared to observations in Humboldt Bay (Table 2 of the paper), suggesting that actual brant behavior in Humboldt Bay may reflect gaining mass quicker and/or leaving earlier at a lower target mass as compared to model predictions. If so, delayed migration due to reduced eelgrass may not be as significant of an effect as the model predicts.

Finally, while Stillman's comments reflect that any reductions in eelgrass or eelgrass availability may have some impact on brant, there is no evidence in the Stillman et al. (2015) model or supporting analysis to support that any reduction will have a *significant* effect on brant, as that term is used in CEQA. While incorporation of the Stillman et al. (2015) model is particularly useful given that it measured the effects of eelgrass reductions and/or disturbance in Humboldt Bay, there are some limitations to its use, particularly in interpreting the model as it pertains to minor (less than 10%) changes in eelgrass availability or disturbances. Therefore, Stillman's comments and model may be reasonably interpreted to be consistent with the conclusions of the R-DEIR, that the project will have an impact on brant, but that such impact will be less than significant.

Comment No. 17-54

FWS further notes in its comments on the 2015 DEIR: “[o]ur primary concerns involve what we consider a significant underestimation of the ‘disturbance’ impact that would result from the proposed expansion, as well as the lack of consideration for the impact reduced brant grazing would have on the eelgrass beds themselves, and potential cumulative impacts to brant from this and other proposed aquaculture projects combined with ever increasing incidental disturbance to brant from both recreation and commerce. Recent surveys indicate brant distribution on Humboldt Bay has shifted significantly, with spring of 2015 monitoring showing greater use of North Bay (192,400 bird use days) compared to South Bay (147,930 bird use days). While the exact reason has not been documented, hypotheses include increased disturbance on South Bay and improved eelgrass beds in North Bay, or likely a combination thereof.”¹¹⁴

Response to Comment No. 17-54

See Topical Response 4 and responses to Comments 7-3 through 7-6 for additional discussion of project-related impacts associated with brant disturbance.

Comment No. 17-55

Brant are known to change their seasonal use patterns due to disturbance. In Washington, oyster farming activities were correlated with reductions in eelgrass abundance and, in turn, significant decreases in brant use-days.¹¹⁵ Aquaculture activities, including oyster operations, have specifically been noted to negatively affect brant populations.^{116,117} Additionally, persistent human disturbance, such as occurs during aquaculture operations, could reduce the amount of time black brant use Humboldt Bay and prevent populations from returning to historical levels.¹¹⁸ Reducing winter food availability would decrease the ability of adults to breed and has the potential to decrease the brant population. The dependence of brant on eelgrass and other intertidal habitats leaves them vulnerable to the human activities that increasingly impact shallow bays and estuaries along North America's coast, including the large-scale expansion of mariculture.¹¹⁹

Response to Comment No. 17-55

The paper cited in the comment, Wilson and Atkinson (1995), demonstrates that reduction in eelgrass correlates with a reduction in brant use days, however the relationship between oyster aquaculture and brant use days is confounded by the correlation between oyster aquaculture and eelgrass abundance. Because of this confounding effect, the authors can't conclusively link increased aquaculture (resulting in reduced eelgrass) to decreased brant use days. The decline in eelgrass abundance at Willapa Bay, where aquaculture is practiced, was lower (22% decline) than at Dungeness (31% decline) where it is not practiced, and the decline in brant use days responded accordingly, with a greater decrease in brant-use-days observed at Dungeness as compared to Willapa Bay. It is also notable that while off-bottom longline culture is used in Willapa Bay, there are a number of other shellfish cultivation techniques used, including dredge harvesting, that can have a much more significant impact to eelgrass as compared to the cultivation techniques proposed by the project. As further discussed in Topical Response 2, the project is not anticipated to result in a reduction in eelgrass density or areal extent upon implementation of mitigation. Further, the Wilson and Atkinson (1995) study is less germane to the population dynamics of brant in Humboldt Bay as compared to the project-specific modeling, because the latter used eelgrass data specific to Humboldt Bay and compared the results to the best available science on brant in Humboldt Bay (Stillman et al. 2015). The results of Project-specific modeling indicate that the reduction in eelgrass abundance resulting from the project is expected have a less than significant impact on brant.

Schmidt (1999) speculates that aquaculture may be partly responsible for a reduction in winter-time use of Humboldt Bay by brant, but his data, results, and analysis did not consider the effects of aquaculture on brant. Also, the study was conducted before oyster culturing in Humboldt Bay was changed to off-bottom, which substantially reduced impacts to eelgrass. Shuford and Gardali (2008) mention aquaculture as one of many factors that may disturb brant and affect eelgrass abundance, but they do not specify to what degree those effects will impact brant populations. Ward et al. (2005) write generally about the effects of human activities on brant populations without presenting original specific results that quantify the effects of human activities on brant. The authors describe

population-level responses to large-scale shifts in eelgrass distribution and abundance (*e.g.*, decreases in abundance throughout Baja California, and increases in abundance in large portions of Alaska), which are not as germane to project impacts as the project-specific modeling presented in the R-DEIR. The R-DEIR acknowledges that increases in disturbance and decreases in food availability due to project implementation may affect brant, however these effects were determined to be less than significant as defined by CEQA.

Moore and Black (2006b) studied the effects of food availability and quality on the spatial distribution of foraging brant in South Humboldt Bay. No disturbance of any kind was investigated in this study, thus no conclusions regarding the effects of human disturbance on brant can be drawn from their results.

Comment No. 17-56

Regarding the impacts of reduced brant grazing on eelgrass beds, FWS notes in its 2015 letter on the DEIR: “[w]hile numerous other agencies and experts have voiced concerns regarding the impact of aquaculture on eelgrass, there is an additional potential impact on eelgrass as a result of reduced brant grazing. Enhanced production by monocots after moderate grazing has been demonstrated in both terrestrial and marine ecosystems (McNaughton 1983, Moran and Bjorndal 2005, Valentine and Duffy 2006). Ferson (2007) conducted an experiment in Humboldt Bay to mimic the relationship between brant grazing and eelgrass productivity. The results showed that moderate grazing increased the below-ground biomass (rhizomes) and above-ground shoot biomass. There was even an increase (though not statistically significant likely due to sample size) in flowers, for a plant that primarily reproduces asexually. These results exemplify an important symbiosis between graminoid and grazer that exists in other ecosystems as well. Therefore, a significant reduction in brant grazing time is likely to impact the long-term health of eelgrass beds.”

Response to Comment No. 17-56

See response to Comment 7-4.

Comment No. 17-57

B. Other Waterfowl. Humboldt Bay is very important for many species of waterfowl on the Pacific Flyway, including wigeon, greater and lesser scaup, pintail, canvasback, ruddy duck, surf scoter, and western grebe. Humboldt Bay has been designated by the National Audubon Society and BirdLife International as an Important Bird Area of national and global significance due to its importance to waterfowl and shorebirds. Humboldt Bay tidelands provide critical foraging habitat for waterbirds, especially during winter and migration periods. The RDEIR acknowledges that “boat traffic and the presence of personnel associated with visits to shellfish culture sites could disturb waterfowl and cause birds to flush from foraging areas and reduce temporal and/or spatial access to food.”¹²⁰ Yet the RDEIR asserts that IMPACT BIO-31, energetic costs to waterfowl from the Project, are less than significant, based on the same unfounded modeling results used for black brant, while failing to account for the impacts of disturbance caused by the existing project. The RDEIR asserts that “waterfowl in the Bay are already somewhat habituated to the current level of human disturbance from boat traffic and other activities... their winter habitat use of the Bay is not particularly influenced by disturbance.”¹²¹ These statements are unsubstantiated.

Response to Comment No. 17-57

The R-DEIR acknowledges the importance of Humboldt Bay as a migration stopover and wintering area to waterfowl. The R-DEIR included a quantitative assessment of impacts to brant associated with the proposed project. It was assumed that other waterfowl species that occur in Humboldt Bay are less sensitive to disturbance and reduced access to eelgrass than brant, because of their lower metabolic rates and energetic costs, and more varied diets (*see* Baldwin and Lovvorn (1994), Nienhuis and Groenendijk (1986), and Devault et al. (2003), discussed in R-DEIR § 6.5.1.9). Increased disturbances were substantially overestimated in the R-DEIR based on two very conservative assumptions: all boat traffic in Humboldt Bay is attributable to Coast, and all of Coast's boat activity will disturb brant. Based on these assumptions, the increase in disturbance due to the project represents less than one percent increase over existing conditions. As noted in the R-DEIR, the project is anticipated to result in only 18 additional boat trips in North Bay per week. When this is compared to two studies in Humboldt Bay that assessed the effects of disturbance on brant (Schmidt 1999, Stillman et al. 2015), the increased disturbance is not expected to have a significant adverse impact on brant relative to existing conditions. Based on this analysis of the effects of disturbance on brant, a relatively sensitive waterfowl species, the R-DEIR concludes that the less than one percent increase in disturbance over existing conditions would also result in a less than significant adverse impact on other waterfowl species under CEQA. *See* Topical Response 1 regarding the evaluation of impacts associated with Coast's existing operations.

Comment No. 17-58

The RDEIR further asserts that IMPACT BIO-32 — potential impacts to waterfowl from the expansion of oyster aquaculture in Humboldt Bay — is less than significant, even though the RDEIR acknowledges that “waterfowl avoid moving among shellfish beds at low tide.”¹²² The existing 300-acre Project makes wholly or partly unavailable seven percent of waterfowl foraging habitat, and the total Project would make wholly or partly unavailable 28.6 percent of waterfowl foraging habitat, mostly in dense and patchy eelgrass.¹²³ Hence, contrary to the RDEIR's unsupported conclusion that impacts to waterfowl would be less than significant, the proposed project would likely adversely affect numerous waterfowl species by reducing their food supply and increasing disturbance.

Response to Comment No. 17-58

See response to Comment 17-57 for response on the effects of increasing disturbance and Topical Response 1 regarding impacts associated with Coast's existing footprint. Given that the Coast's existing footprint is already included within the existing baseline, impacts associated with the existing footprint are properly excluded from the R-DEIR impact calculation. As provided in R-DEIR Table 6.5.22, the total overlap between the proposed project and waterfowl habitat is 8.4% of potential habitat (all habitat types). In addition, the project is not expected to make “wholly unavailable” any part of waterfowl foraging habitat. As further described in Impact BIO-32, waterfowl will be able to access eelgrass in the project area when the tide height is sufficient to allow access. Diving ducks, based on their feeding habits, would be expected to feed in the project area at higher tides or in the deeper channel areas; therefore, they would not be excluded from foraging in the project area due to the presence of aquaculture infrastructure. Like brant, dabbling ducks, such

as wigeon, pintail, mallard, and teal, would be able to access the project area when water depths are appropriate for access before infrastructure is exposed above the water surface during low tides. In addition, these ducks forage on a wide variety of vegetation and other organisms relative to brant, and there is no indication that alternate foraging opportunities are limiting in the bay system and surrounding areas.

Comment No. 17-59

Eelgrass has been noted as the most important single food item to waterfowl that winter in Humboldt Bay.¹²⁴ Waterfowl, including pintail, mallard, and green-winged and cinnamon teal feed on eelgrass seeds and infaunal bivalves.¹²⁵ Kelly & Evens (2013) found that many waterbirds are highly susceptible to disturbance and unlikely to habituate to it. Buffer distances well over 250 m. would be required to protect species including wigeon, greater and lesser scaup, goldeneye, surf scoter, canvasback, ruddy duck, grebes, mergansers, and loons from the negative impacts of motorized vessels.¹²⁶ As described above, the expanded project would bring 75 boat trips per week for a total of 292 hours. Yet the RDEIR fails to address the impacts of either existing or increased levels of disturbance to waterfowl.

Response to Comment No. 17-59

See response to Comment 17-57 for additional analysis of potential disturbance of waterfowl. For additional discussion of the Kelly et al. (1996) study, *see* Topical Response 8. While the comment cites Kelly et al. (1996) concerning appropriate buffer distances to prevent disturbances, the study determined that aquaculture operations did not result in disturbances: “We observed no movements of shorebirds into or out of plots in response to human activity and the distributions of shorebirds were not significantly related to the presence of oyster workers on aquaculture plots.”

Comment No. 17-60

C. Shorebirds. The RDEIR notes that several shorebird species that occur in Humboldt Bay are FWS birds of conservation concern (lesser yellowlegs, whimbrel, long-billed curlew, marbled godwit, short-billed dowitcher, and red knot). The mudflats and eelgrass beds of Humboldt Bay have extraordinary importance at local, regional, and hemispheric scales for shorebirds. Large percentages of global populations of shorebirds rely on Humboldt Bay each winter and fall. On the Pacific Flyway, migratory and wintering sites for shorebirds continue to shrink with coastal development, reducing habitat for these birds and increasing the importance of fairly intact existing sites such as the EBMA in Humboldt Bay. Shorebirds are generally in a state of decline. Yet the RDEIR concludes that impacts to shorebirds will be less than significant and provides no mitigation for loss of eelgrass habitat or increased disturbance to shorebirds. The finding of less than significant impact is unsubstantiated, based on numerous factual inaccuracies and false statements, and contradicted by existing science.

Response to Comment No. 17-60

See Topical Response 8 for additional analysis regarding the project’s impacts to shorebirds. The RDEIR acknowledges that Humboldt Bay is an important habitat for several species of migratory shorebirds. As further described in Topical Responses 2 and 8, the project is not anticipated to

result in a significant reduction of eelgrass (upon imposition of mitigation) or result in a significant impact to shorebirds. Therefore, no further mitigation is required.

Comment No. 17-61

Status of Migratory Shorebirds and Importance of Humboldt Bay. Migratory birds depend on a series of sites to provide resources and places to rest during physiologically challenging migrations. Threats to unprotected links in these chains of sites are driving rapid population declines of migratory birds around the world. Globally, 91 percent of migratory bird species have inadequate protected area coverage for at least some part of their annual cycle. Shorebirds are a group of migratory birds reliant on estuaries and are experiencing population declines. Loss of habitat due to anthropogenic impacts has been the primary driver of these losses in the U.S. and worldwide.¹²⁷ For the U.S., the 2014 State of the Birds Report¹²⁸ found that:

...shorebirds are declining more than many other species groups. Long-term migration counts for 19 shorebird species show an alarming 50 percent decline since 1974. Declines are particularly strong for long-distance migrants that breed in the Arctic and boreal forest.

Coastal wetlands are among the most productive and ecologically important ecosystems in the world and are under increasing threat globally due to anthropogenic impacts and changing environmental conditions, such as sea-level rise.¹²⁹ In the last 100 years, California has lost more than 70 percent of its intertidal wetlands to anthropogenic alterations.¹³⁰ Humboldt Bay hosts highly productive intertidal areas: “[i]mpressive populations of vertebrate predators suggest that the secondary production of the mudflats is high,”¹³¹ and “[t]he value and biological productivity of intertidal mudflats cannot be overemphasized. The bulk of the food organisms in Humboldt Bay consumed by fish and birds are produced here.”¹³² Humboldt Bay wetlands (intertidal areas and marshes) had been reduced by approximately 30 percent as of 1980.¹³³

In 1998, Humboldt Bay was designated as a Western Hemisphere Shorebird Reserve Network (WHSRN) site of International Importance for shorebirds, supporting over 100,000 shorebirds annually. Its relatively intact, productive mudflat and eelgrass habitats attract large numbers of shorebirds. In addition to its International Importance, Humboldt Bay likely qualifies as a site of Hemispheric Importance, supporting over 500,000 birds annually, or, which account for more than 30 percent of the biogeographic population for a species (see table below).

Compared with other Pacific coast sites, Humboldt Bay supports a rich shorebird community in terms of species diversity. Forty-six species have been recorded, including approximately 30 encountered regularly.¹³⁴ In comparison, 24 species have been recorded at Grays Harbor, Washington, 38 species at San Francisco Bay, and 26 species at the Frazer River Delta in Canada, all designated WHSRN sites of Hemispheric Importance.¹³⁵ The reasons for the higher diversity of shorebirds using Humboldt Bay are not fully known but are suggested to be significantly correlated with substrate heterogeneity. This correlation suggests that tidal flats with more microhabitats (as represented by substrate variation) support more taxa.¹³⁶ In addition to open mudflat, many shorebirds also forage in the bay’s “leopard skin” mudflat characterized by patches of eelgrass in small depressions. Species commonly found in this habitat are black-bellied plover, semipalmated plover, marbled godwit, black turnstone, long-billed curlew, dunlin, whimbrel, willet, long- and

short-billed dowitchers, sanderling, and lesser and greater yellowlegs.¹³⁷ In sum, a combination of diverse habitats optimally support shorebird diversity as well as abundance in Humboldt Bay.

Response to Comment No. 17-61

The R-DEIR agrees with this comment that Humboldt Bay is an important habitat for a number of shorebird species. *See* R-DEIR pgs. 6.5-38 and 6.5-39, Impact BIO-33.

Comment No. 17-62

Within Humboldt Bay, the EBMA is the largest contiguous mudflat and has associated roosting areas at Arcata Marsh and Jacoby Creek in the northwest part of the bay. Wide expanses of mudflat located there provide the unobstructed habitat needed by western sandpiper and dunlin to optimize feeding and energetics (Figure 2). Observations recorded in eBird from 2010-2014 suggest higher shorebird counts in the East Bay Management Area compared to other areas in the north or south bay.¹³⁸ However, this is a qualitative assessment that does not control for sampling effort, which is not uniform around the bay. Quantifying the importance of the East Bay Management Area requires further study. Regardless, all unmodified mudflat habitat in the Bay is of essential importance to shorebirds.¹³⁹

Response to Comment No. 17-62

See Topical Response 8 for additional analysis of the project's impacts to western sandpipers, which concludes that the project will have a less than significant impact. While the R-DEIR acknowledges that mudflats are important habitat for shorebirds, there is no evidence that shorebird habitat is limited in Humboldt Bay to the point that the project would significantly impact available shorebird habitat within the bay. However, in response to this comment, the Harbor District has included an additional alternative in the FEIR, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA and further reduces Coast's proposed footprint as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 17-63

Humboldt Bay Is an Essential Link in the Chain of Migratory Stopover and Wintering Sites for Pacific Flyway Shorebirds. Migratory shorebirds are dependent on a sequence of sites, a "linked chain of areas essential for completing their annual cycles."¹⁴⁰ Indeed, the system can only function successfully if each link remains strong and the chain unbroken. Use of particular stopover sites is not random.¹⁴¹ Humboldt Bay is a link in the Pacific Flyway chain for migratory shorebirds. For example, in 1996, 30 percent of western sandpipers fitted with radio tags at San Francisco Bay were relocated at Humboldt Bay on their spring migration north, providing evidence of the chain effect.¹⁴²

Humboldt Bay is one of the three most important estuaries for shorebirds between the U.S.-Mexico border and the Fraser River Delta in Canada. It is the key estuary for shorebirds between San Francisco Bay to the south and Willapa Bay to the north and one of only three International or Hemispheric WHSRN sites between Mexico and Canada. With about 15,000 acres of mudflat at mean low tide, Humboldt Bay contains about half the amount of similar habitat in San Francisco

Bay (29,000 acres), and 8-15 times more mudflat than Tomales and Bodega Bays (2000 acres and 900 acres, respectively).¹⁴³ As described below, Humboldt Bay is a critical wintering area—likely *the* critical wintering area—for the Beringean subspecies of marbled godwits.

Response to Comment No. 17-63

The R-DEIR agrees with the comment that Humboldt Bay is a critical estuary for Pacific Flyway shorebirds. See R-DEIR §§ 6.1.5.8 and 6.1.5.9. See response to Comment 17-69 for additional discussion of the Beringean subspecies of marbled godwit.

Comment No. 17-64

Selected Species of High Concern

Table 1. Importance of Humboldt Bay to a subset of shorebird species using the bay primarily during migration (A) or winter (B).

Species	Count ^a	Estimated Population ^d	Estimated % Population Reliant on Humboldt Bay ^e
<i>A) migration</i>			
Western Sandpiper	100,000 ^b	3,500,000	22.86%
Least Sandpiper	36,046	700,000	41.20%
Dunlin (Pacific breeding subspecies)	56,115	550,000	81.62%
<i>B) winter</i>			
Marbled Godwit	17,546	170,000	10.32%
Long-billed Curlew	609	140,000	0.435%

a: from Colwell & Danufsky 2006 unless otherwise noted. Danufsky, T. and M. Colwell. 2003. Winter shorebird communities and tidal flat characteristics at Humboldt Bay, CA. *The Condor*, 105(1):117-129. 2003

b: Colwell, M. 2015. Letter to Humboldt Bay Harbor, Recreation, and Conservation District.

c: Pacific Flyway Shorebird Survey. 2013. Note: Data are provided simply as north and south bay. Underlying raw data were not available from Pt Blue Conservation Science.

d: Andres, B.A., Smith, P.A., Morrison, R.I.G., Gratto-Trevor, C.L., Brown, S.C. & Friis, C.A. 2012. Population estimates of North American shorebirds, 2012. *Wader Study Group Bull.* 119(3): 178-194.

e: Assuming 100 percent turnover, twice a week for four weeks, for sandpipers and dunlin only. Godwit and curlew are winter residents and the population estimates are calculated directly from high counts.

Western Sandpiper (*Calidris mauri*)

The RDEIR asserts that “many species (e.g. western sandpipers) demonstrate plasticity in selecting stopover sites, thus allowing them to exploit food sources when available and to avoid predators. This is evidenced by large flocks of sandpipers routinely observed foraging on mudflats throughout Humboldt Bay for brief periods during migration. Because sandpipers demonstrate low site fidelity and rely on a very small proportion of the bay during migration, the Project (particularly given its generally low elevation) is unlikely to restrict foraging opportunities.”¹⁴⁴ This assertion is unsupported and is contradicted by the best available information about western sandpipers and their use of Humboldt Bay, as well as by shorebird conservation ecology and status in general. The Project, particularly the 95.5 acres proposed in the EBMA, would have significant impacts to western sandpipers that are not mitigated.

An estimated 22.86 percent of all western sandpipers use Humboldt Bay each winter in their migratory cycle (Table above). This is likely an underestimate, based on more current observations. On April 17, 2012, expert birder David Fix counted 250,000 western sandpipers at one location in

the EBMA. This single count represents seven percent of the global population of western sandpipers, 3.5 million.¹⁴⁵ The species is thought to be declining.¹⁴⁶ Habitat loss and degradation and disturbance, may be the most significant threats to western sandpipers.¹⁴⁷

Response to Comment No. 17-64

See Topical Response 8 for additional analysis of the project’s impacts to western sandpipers, which concludes that the project will have a less than significant impact. Western sandpipers and other shorebirds do demonstrate some plasticity in stopover sites; a study conducted by Burger et al. (1977) on the New Jersey coast reported that most of the shorebird species used two or more microhabitat types (*e.g.*, algal mudflats, sandy mudflats, wet or dry outer beach, or inner beach habitat). This has also been observed in Humboldt Bay (Colwell and Dodd 1997; Long and Ralph 2001) and San Francisco Bay (HTH 2005). Based on the information presented in Fernandez et al. (2010), it is unknown whether a population decline is occurring; annual high counts in several locations have shown declines when comparing counts from the 1980s or early 1990s to more recent years, but data are inadequate to demonstrate a population decline or determine the magnitude of decline if it is occurring. However, in response to this comment, the Harbor District has included an additional alternative in the FEIR, the EBMA Avoidance Alternative, which does not propose any expansion of Coast’s operations within the EBMA and further reduces Coast’s proposed footprint as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 17-65

Three sandpipers—dunlin, least, and western sandpipers—account for 53-87 percent of all shorebirds using Humboldt Bay.¹⁴⁸ All three species, but especially western sandpiper and dunlin, primarily use open habitats, such as mudflats, during migration and winter. Species using open habitats tend to rely on fast flights from the ground to escape aerial predators, which can be a major source of mortality in Pacific estuaries.^{149,150} Thus, vegetation and topographical features are not perceived as safe but as obstructive cover, allowing undetected approach by aerial predators, and are generally avoided.¹⁵¹ These species are known to avoid structures including aquaculture.^{152,153} The Project includes 184.4 acres of patchy eelgrass that is likely heavily utilized by western sandpiper. This includes 95.5 acres in the East Bay Management Area, where eBird records report the largest flocks.

Response to Comment No. 17-65

See Topical Response 8 (which discusses the Kelly et al. (1996) study) and response to Comment 17-64 (which discusses the Fernandez et al. (2010) study) for additional analysis of the project’s impacts to western sandpipers and dunlin. Van den Hout et al.’s (2010) study on predator escape tactics compared nearshore and farshore foraging species; nearshore species utilized shoreline habitats that could obscure predator approach (*e.g.*, “beach-cast wrack and cover provided by rocks and other habitat structures”) and relied on quick escape movements, whereas the farshore species foraged in open mudflats and relied on “many eyes” to detect predators and employed coordinated aerial escape flight maneuvers (van den Hout et al. 2010). The project, located in a nearshore environment, can provide similar cover to evade predation. This is further supported by Kelley et al. (1996). While Kelly et al. (1996) suggested that the aquaculture equipment could increase risk of

predation by raptors, they also observed that foraging least sandpipers remained on the ground beneath oyster racks during attacks by a peregrine falcon, and suggested that the aquaculture areas may have provided increased cover and protected them from predation.

Further, it is unlikely that the 184.4 acres of patchy eelgrass is heavily utilized by western sandpiper, given that this area is generally unavailable during a large proportion of the tidal cycle due to its low elevation. As noted above, the Harbor District has included an additional alternative in the FEIR, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA and further reduces Coast's proposed footprint as compared to the proposed project. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 17-66

Western sandpiper and dunlin avoid cultured areas and do not go under structures in Tomales Bay.¹⁵⁴ Further “a net decrease in overall shorebird use of open tidal flats developed for aquaculture” was driven in large part by the avoidance of these areas by western sandpiper and dunlin, the two most abundant shorebirds in the bay.¹⁵⁵ The authors cite other studies showing that small losses in the extent or quality of available shorebird feeding habitat could result in proportionally greater decreases in wintering shorebird populations.

Response to Comment No. 17-66

See Topical Response 8 regarding additional analysis of project-related impacts to dunlin and western sandpiper and discussion of the Kelly et al. (1996) study referenced in the comment.

Comment No. 17-67

Dunlin (*Calidris alpina*)

The RDEIR fails to evaluate the impacts of the existing operations of the Project on dunlin, even though an estimated 81.62 percent of the western Alaska breeding subspecies (*C. a. pacifica*)—the majority of the total population of dunlin rely on Humboldt Bay in the winter. This subspecies, numbering about 550,000, uses the Pacific Flyway exclusively and largely winters on the North Pacific coast from Baja to southern British Columbia.¹⁵⁶ The one-day high count for one site at Humboldt Bay reported in eBird by bird guide author David Fix, is 40,000 birds¹⁵⁷, more than seven percent of the total western subspecies and almost three percent of the total North American breeding population comprising three subspecies. Dunlin avoid structured natural and artificial habitats including aquaculture areas,^{158,159} making the unmodified mudflat and patchy eelgrass of Humboldt Bay critically important to this species. As noted above, the 184.4 acres of patchy eelgrass and mudflat are essential foraging habitat for dunlin.

Response to Comment No. 17-67

The R-DEIR described dunlin habitat in Humboldt Bay (*see* R-DEIR pg. 6.5-38) and the general impacts associated with shorebirds (including dunlin) in Impact BIO-33. Further analysis of impacts

to dunlin, including discussion of the Kelly et al. (1996) study referenced in this comment, is included in Topical Response 8.

Comment No. 17-68

Marbled Godwit (*Limosa fedoa*). The RDEIR barely mentions and fails to evaluate the impacts of the Project or existing operations to the marbled godwit, a species on the 2016 State of the Birds Watchlist, despite the fact that 10.32 percent of its global population winters on the bay (table above). Marbled godwit is among the species most at risk of extinction without significant conservation action.¹⁶⁰ The RDEIR states that “shorebirds are unlikely to forage in the 409 acres of the Project proposed in dense eelgrass beds; those areas experience frequent inundation and are of lower value to shorebirds compared to unvegetated mudflats, where shorebirds typically forage... in general, the elevation of the Project footprint is low in the tidal frame.”¹⁶¹ These statements are largely false. Marbled godwits forage on mudflats and in continuous and patchy eelgrass; in fact, marbled godwit correlates positively with eelgrass cover.¹⁶² That Humboldt Bay is of substantial importance to the marbled godwit is evidenced by the choice of this species as the mascot of the biannual “Godwit Days” shorebird festival focused on the bay.

Response to Comment No. 17-68

The comment is correct that marbled godwits forage in dense eelgrass beds. The quoted statement was intended to refer to the majority of shorebirds that occur in the bay, not specifically marbled godwits. Dunlin, least sandpipers, and western sandpipers are the most abundant species in Humboldt Bay, and these species typically forage extensively on mudflats. The vast majority of the project is proposed to occur in low-elevation areas that are frequently inundated such that they are unavailable for foraging shorebirds, especially smaller species, during a large portion of the tidal cycle. Connolly and Colwell (2005) found that marbled godwits used longline or control plots differently depending on location and did not detect a pattern of avoidance or attraction to aquaculture operations. Further, as described in Impact BIO-33 and Topical Response 8, field observation and time-lapse photography gathered during the avian study for the R-DEIR indicated that marbled godwits forage in Coast’s existing shellfish plots as soon as water depths are appropriate for foraging, similar to other species of shorebirds.

Comment No. 17-69

Further, the RDEIR unlawfully fails to mention or evaluate impacts to the Beringian subspecies of marbled godwit (*Limosa fedoa beringea*). Humboldt Bay is especially vital for this rare bird. Numbering only about 2,000 individuals, this species breeds only in a discrete area in southwest Alaska and winters from Washington to California, relying heavily on Humboldt Bay in the winter. This subspecies has a larger body and shorter beak than other marbled godwits and represents an important part of the genetic diversity in the world population of this vulnerable species.¹⁶³

Response to Comment No. 17-69

It appears that the Beringian subspecies of marbled godwit (*Limosa fedoa beringiae*) is not identified as a candidate, sensitive, or special-status species in local or regional plans, policies or regulations, or by CDFW or US FWS. This population is rated a “high concern” (4 out of 5) and a priority species for

conservation efforts in the U.S. Shorebird Conservation Plan (see Alaska Shorebird Group 2008 and Hickey et al. 2003). However, the rating and Conservation Plan is intended to direct conservation actions for the species, and does not act as a regulatory requirement or restriction on Humboldt Bay projects. It does not appear that this subspecies would not be considered a special-status species that warrants heightened protection under CEQA. Further, impacts to the Beringian subspecies of marbled godwit would be similar to those of other species of marbled godwit, which are expected to be less than significant. As described in response to Comment 17-68, there is no evidence that the project would result in a decrease in the population of the Beringian subspecies of marbled godwit or other marbled godwit subspecies, or otherwise disrupt their migratory pattern.

Comment No. 17-70

Long-billed curlew (*Numenius americanus*). Long-billed curlew, classified as —highly imperiled and declining,¹⁶⁴ is considered one of the highest priorities for monitoring and conservation among the shorebird species breeding in the temperate region.¹⁶⁵ This highlights the importance of protecting wintering habitats such as Humboldt Bay, which supports a winter population of approximately 609 curlews equaling 0.435 percent of the global population of 140,000. The RDEIR falsely presents far lower curlew numbers using the bay (300 individuals), and higher global population estimates (161,000 individuals) than in available data sets and literature that represent the best available information, as shown in the table above.¹⁶⁶

Response to Comment No. 17-70

In response to this comment, the text of the R-DEIR has been modified to include the range of estimates for Humboldt Bay at 200 to 600 individuals which incorporates the lower range estimate from Leeman and Colwell (2005) and the upper range estimate from Danufsky and Colwell (2003). The text has also been modified to include the range of estimates for the global population at 140,000 to 161,000 individuals which incorporates the lower estimate from Jones et al. (2008) and upper estimate from Andres et al. (2012). *See* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 17-71

Humboldt Bay was thoroughly surveyed for curlews from 1998-2002, which were distributed patchily with aggregations in certain areas (Figure 3). “Territoriality has been reported for approximately 25 percent of shorebird species, but few taxa defend food resources within territories as large and for as long as curlews... the patchy distribution of the curlew suggests that protection of high-quality foraging habitats (e.g., Elk River estuary) may be warranted, especially where areas of high human use are nearby”¹⁶⁷ The Project footprint overlaps with a number of documented curlew territories in the EBMA, on the west side of Bird Island, and around Sand Island. The impacts of existing and proposed aquaculture to these and other curlew territories is unknown.¹⁶⁸

Curlews are likely to feed in patchy eelgrass and mudflat and, to a lesser extent, dense eelgrass. The Project footprint includes 184.4 acres of patchy eelgrass and, together with the existing footprint, may overlap with half or more of curlew territories in the Bay. Coast did not present an analysis of the number of curlew territories overlapping with its existing and proposed operations, which could be done with the raw data from the Mathis et al. 2006 study. Therefore, the RDEIR fails to adequately describe the impacts of the Project and existing operations on this species.

Response to Comment No. 17-71

Contrary to the assertion in the comment, the R-DEIR uses the Mathis et al. (2006) data and evaluates the overlap between the proposed project footprint and observed curlew locations. As noted on R-DEIR pg. 6.5-109:

Curlews have been observed in intertidal habitats in densities ranging from 0.05 to 0.09 birds per hectare (or 0.02 to 0.04 birds per acre; Mathis et al. 2006). Density was estimated at 0.36 birds per hectare (0.15 birds per acre) in the Elk River estuary, where density of curlews was highest. Within the Project footprint, areas located on the southwest side of Bird Island and south of Sand Island include areas of high-density curlew use (>20 birds in an approximately 61 acre-area) along with other areas of lower curlew densities; however, it should be noted that longlines already occur (and occurred during the study period) within those high-density grid-cells mapped by Mathis et al. (as well as other areas with curlew use). While the coexistence of high-density curlew sites and Coast's existing aquaculture gear provides some evidence that curlews may not be adversely affected by the gear and culture activities, the resolution of the Mathis et al. study does not lend itself to any definitive conclusions regarding whether curlews are affected by longline gear. However, it should be noted that Mathis et al. also found that curlews were generally absent from low intertidal habitats in the center of Humboldt Bay exposed for shorter intervals than higher elevations, suggesting that curlews are less likely to rely on dense eelgrass beds for foraging. Therefore, curlews may not regularly forage in the majority of the Project area, given that it is mostly characterized by dense eelgrass at low intertidal elevations that is unlikely to be used frequently (if much at all) due to regular tidal inundation and low potential as foraging habitat.

The curlew territories analyzed by Mathis et al. (2006) were located in the Elk River estuary outside of the existing and proposed operations. Therefore, there is no overlap between the territories identified and the project footprint. In addition, even if there was an overlap, the Mathis et al. (2006) study was conducted in 1999, and one could not assume that eight individual territories would be identical to those observed more than 15 years ago.

Comment No. 17-72

The RDEIR acknowledges that “[c]urlews maintain winter foraging territories in North Bay, particularly along channel edges, and it is possible that some curlews may be displaced from newly developed aquaculture areas... their territoriality on mudflats during low tide suggest those areas represent important foraging areas for meeting their energetic needs for migration and reproduction.”¹⁶⁹ Yet the RDEIR finds no significant impact to curlews based on Conservation Measures BIO-10 and -12. This finding is unsubstantiated and contradicted by the best available information discussed above. Conservation Measure BIO-10 pertains to marine mammals and is irrelevant. It is unclear why this measure is offered for curlews. Conservation Measure BIO-12 — “Coast will not intentionally approach or harass migratory birds that are actively feeding or resting” — does not require measures to actively avoid birds.

Response to Comment No. 17-72

Although the R-DEIR states that "... some curlews may be displaced from newly developed aquaculture areas" and "... their territoriality on mudflats during low tides suggest those areas represent important foraging areas ...", there is no known literature that suggests that curlews are likely to be displaced from aquaculture areas, or that significant impacts would occur. Mathis et al. (2006) noted that high-density curlew sites occurred within existing aquaculture gear, but also noted that curlews may be less likely to rely on dense eelgrass beds at low intertidal elevations, which characterizes the majority of the project area. Connolly and Colwell (2005) found no preference by curlews in a comparison of longline versus control plots, but indicated that use or avoidance of aquaculture areas was difficult to assess due to the species' territoriality. Neither study indicates that curlews are displaced from, or unable to use, aquaculture areas due to the presence of aquaculture in a manner that would result in a significant impact under CEQA. The comment is correct that, while the R-DEIR cited the correct Conservation Measure, it cited the wrong number associated with the Conservation Measure. The analysis should have referenced Conservation Measure BIO-9, which requires a 10-ft buffer from subtidal channels, which are identified in the R-DEIR as preferred habitat for curlews. This correction has been made in FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 17-73

Impacts of Climate Change on Shorebirds in Humboldt Bay. The RDEIR fails to evaluate the impacts of its Project on shorebirds relative to sea level rise and underlying geological processes in Humboldt Bay. This information is readily available: the California State Coastal Conservancy found that Humboldt Bay will be more impacted by sea level rise than other areas on the west coast, due to underlying geological processes¹⁷⁰:

The higher relative sea level rise rates observed in Humboldt Bay ... indicate that a global rise in sea levels will affect Humboldt Bay faster than other parts of U.S. west coast; and within the bay the southern end will be affected sooner than the northern portions of the bay. Humboldt Bay water levels have increased approximately 0.5 m over the last 100 years due to a high [relative sea level] rise rate.

The report recommends "[c]onduct[ing] a detailed assessment of tidal wetland [sea level rise] vulnerability." Climate change is impacting shorebirds in predicted as well as unanticipated ways. Sea level rise is predicted to inundate 23-40 percent of shorebird intertidal habitats in the East Asian-Australasian Flyway.¹⁷¹ At least one shorebird, the red knot (*Calidris canutuscanutus*) has experienced reductions in body size linked to Arctic warming. Reduced body size has reduced individual fitness in this subspecies and may be a driver for recent steep population declines. Reduced body size and other morphological changes due to climate change may be impacting other Arctic shorebird migrants.¹⁷²

Response to Comment No. 17-73

Changes to Humboldt Bay from climate change are outside of the timeframe being discussed in the proposed project. Regional mean sea level (MSL) rise is projected to be 2.28 mm/year (Burgette et al. 2009). This suggests that MSL elevation may increase by approximately 1 inch (2.54 cm) over the 10-year term of the proposed permit for expansion. This amount of increase is not considered

significant. The project is designed to be below approximately +1.5 MLLW and impacts associated with the project are not expected to occur at higher elevations. Further, the project does not contribute to global climate change; therefore, impacts associated with global climate change will occur independent of the project and do not concern project-related impacts that are appropriately addressed pursuant to CEQA. There is also no known information regarding how climate change will impact shorebird populations in Humboldt Bay; therefore, any such analysis would be purely speculative. Regardless, given that aquaculture gear does not exclude or prevent shorebird use (*see* Topical Response 8), access to areas within Humboldt Bay will primarily depend on tidal elevation rather than cultivation activity.

Comment No. 17-74

Shorebirds are likely to experience significant reductions in the availability and quality of intertidal and other coastal habitats as a result of sea-level rise, and this loss of quality habitat will likely result in smaller shorebird populations. For example:

Shorebird risk factors include lengthy, energetically expensive migrations where they may be vulnerable to changes in wind patterns, dependence upon coastal migration stopover sites that are vulnerable to sea level rise, and dependence upon ecological synchronicities that may be disrupted by a changing climate. ... assessments of vulnerability to climate change often ignore problems associated with a migratory life history, causing them to underestimate vulnerabilities. Shorebirds are already in a vulnerable condition and climate change may exacerbate this. Reductions have been seen in virtually all shorebird flyways...¹⁷³

Response to Comment No. 17-74

See response to Comment 17-73.

Comment No. 17-75

Habitat loss from sea level rise at migratory bottleneck sites such as Humboldt Bay could disproportionately impact population persistence. In the East Asian-Australasian Flyway, models predicted that “sea level rise will inundate 23.4 percent of [shorebirds] intertidal habitat, and cause a reduction in population flow up to 72 percent across taxa.”¹⁷⁴ There has been no comprehensive analysis of shorebird habitat loss to sea level rise along the Pacific Flyway, yet this is an identified need.

Response to Comment No. 17-75

See response to Comment 17-73. An evaluation of the impacts to Pacific Flyway shorebirds due to climate change and sea level rise is beyond the scope of the EIR.

Comment No. 17-76

Impacts of Aquaculture Infrastructure on Shorebirds. The 2003 Southern Pacific Shorebird Conservation Plan sets forth priority conservation actions for Humboldt Bay that include prohibiting “further alteration of tidal flats for oyster culture.”¹⁷⁵ Shorebird species that forage in

Humboldt Bay eelgrass beds include black-bellied plover, semipalmated plover, marbled godwit, black turnstone, long-billed curlew, dunlin whimbrel, willet, long-billed and short-billed dowitchers, sanderling, and lesser and greater yellowlegs.

Response to Comment No. 17-76

See response to Comment 9-19. Impacts associated with the availability of eelgrass for shorebird foraging are further discussed in Impact BIO-33 and Topical Response 2.

Comment No. 17-77

The RDEIR points to a Humboldt Bay study showing that certain shorebird species have demonstrated preference for feeding in aquaculture plots in Humboldt Bay, while other species avoid these plots, with a greater overall abundance of shorebirds in longline plots vs. control plots.¹⁷⁶ However, this study does not demonstrate that the project would not have significant adverse impacts on some species, nor that its overall effects would be beneficial for any species. Marbled godwit and dowitchers correlate positively with eelgrass cover, and black-bellied plover avoids aquaculture plots.¹⁷⁷ The study's authors note that "temporary benefits to birds may be compromised by long term habitat impacts, such as increased sedimentation or loss of native mudflat fauna." Further, one author, Mark Colwell, a Humboldt State University shorebird ecologist with 25 years of experience in the North Bay notes in a 2015 comment letter to the Harbor District that:

To claim that loss and degradation of tidal flats (of whatever amount of area) would have less than significant' impact on shorebirds and other waterbirds that rely on this habitat is, at best, premature and, at worst, a misrepresentation of current knowledge on the subject. 7 percent of the bay is already in aquaculture production with unknown impacts on shorebirds. Mounting evidence indicates that, worldwide, populations of most shorebirds are in decline. Reasons for the decline are many but principal among them is the loss and degradation of habitats¹⁷⁸

Response to Comment No. 17-77

See Topical Responses 2 and 8 for additional discussion of the impacts on eelgrass and shorebirds. As noted in Topical Response 8, overlap between aquaculture and shorebird habitat does not necessarily imply that such grounds are unavailable for shorebird use or that aquaculture plots would represent lost or degraded habitat. The R-DEIR correctly notes and discusses species noted in the Connelly and Colwell (2005) study that preferred control plots as compared to shellfish plots. *See* Impact BIO-33. While the study noted that "temporary benefits to birds may be compromised by long term habitat impacts, such as increased sedimentation or loss of native mudflat fauna," it did not analyze these effects, which were beyond the scope of the study. A number of other studies have considered impacts associated with aquaculture to sediment, mudflats, and fauna, as further described in R-DEIR § 6.5. Mr. Colwell's comment appears to be inconsistent with his published work, at least as it regards his observations concerning Coast's existing cultured plots. As noted by Connelly and Colwell (2005), "Overall, birds did not appear to avoid longline areas as compared to adjacent tidal flats. Rather, many species were more abundant and diversity was greater on longline plots." While the comment may be correct that shorebird populations are declining, the best available science does not support the contention that the type of shellfish aquaculture cultivation

methods proposed by the project are a contributing factor to that decline. While impacts associated with shorebirds may not be “certain,” certainty is not required under CEQA; rather, the best available science supports that the project will have a less than significant impact on shorebirds.

Comment No. 17-78

The RDEIR fails to cite a key study from Tomales Bay, which also found some shorebirds fed preferentially within aquaculture areas in Tomales Bay, yet the net effect was “a net decrease in overall shorebird use of open tidal flats developed for aquaculture” driven in large part by the avoidance of these areas by western sandpiper and dunlin, the two most abundant shorebirds in the bay.¹⁷⁹ The authors cite other studies showing that small losses in the extent or quality of available feeding habitat for shorebirds could result in proportionally greater decreases in wintering shorebird populations. Other studies have found that, during migration, turnover times in shorebirds are often rapid and there is little time for habituation during a phase of heightened energy demand for the migrants.¹⁸⁰

Response to Comment No. 17-78

See Topical Response 8 for additional discussion of the impact of the project on shorebirds and discussion of the Kelly et al. (1996) study.

Comment No. 17-79

The RDEIR fails to evaluate the impacts of disturbance to shorebirds other than long-billed curlew and black-bellied plover, particularly in the 184.4 acres of patchy eelgrass that provides essential intertidal foraging habitat for shorebirds. The Project Operation and Maintenance section fails to include a description of current vessel activity in the bay. According to the previous DEIR, the existing project includes 57 trips amounting to 218 hours/week.¹⁸¹ The proposed Project would add 18 trips amounting to 74 hours/week. The total vessel activity would be 75 trips at 292 hours/week. This level of activity in the North Bay would clearly have a significant impact on shorebirds, a statement supported by the literature. In one study on the effects of human activity on shorebirds and waterbirds at a coastal refuge, birds were absent or disturbed 80 percent of the time in the presence of “men working.”¹⁸² When winter weather is severe and feeding conditions are poor, frequent disturbance of feeding birds can lead to starvation and death.¹⁸³

Overall, the high rate of disturbance caused by workers attending the mariculture areas would negatively impact birds and other wildlife through the energetic costs of flushing, loss of key foraging habitats, and loss of time in key foraging habitat. The RDEIR utterly fails to adequately evaluate the impact of these disturbances to shorebirds. The RDEIR’s evaluation of the impacts of disturbance on long-billed curlew are entirely inadequate. The EIR must be revised again to include full and accurate information about the Project’s effects on Humboldt Bay’s shorebirds and recirculated for further public comment.

Response to Comment No. 17-79

Impact BIO-33 and Topical Response 8 analyze the project’s impacts to a number of Humboldt Bay shorebird species, but focus on impacts associated with curlew and black-bellied plover, given the

territoriality of curlew and the results of the Connolly and Colwell (2005) study, which generally found a neutral or beneficial relationship between shorebirds and aquaculture gear, other than black-bellied plovers. See response to Comment 17-53 regarding the R-DEIR's analysis of Coast's existing operations and cumulative impacts associated with Coast's existing vessel use and additional trips proposed by the project. The Burger (1981) study is not applicable to the project, given that the "working" activities that it considered were mowing activities at the edge of a pond, which are louder, more intense, and of a greater duration than the activities associated with the proposed project.

Regarding disturbances to shorebirds, it should be noted that Kelly et al. (1996) found "no movements of shorebirds into or out of plots related to the presence of oyster workers on aquaculture plots" during a study of oyster culture in Tomales Bay, California, suggesting no negative impact from disturbance caused by workers planting, maintaining, and harvesting the shellfish cultivation plots. The Kelly et al. (1996) study evaluated impacts associated with rack-and-bag culture, which require daily maintenance as compared by longline culture, which only requires maintenance once every one to four months. See R-DEIR Table 4.3. Therefore, disturbances associated with the project would even be less than those found to be insignificant in the Kelly et al. (1996) study. The citation to Goss-Custard et al. (2006) is a behavioral model that estimated potential disturbance thresholds of oystercatchers (*Haematopus ostralegus*) in Baie de Some, France. The model showed a critical disturbance threshold of up to 1.0-1.5 times/daylight hour in winters with good feeding conditions and 0.2-0.5 times/daylight hour when feeding conditions were poor. This frequency of disturbance is orders of magnitude greater than that proposed by the project, and the focal species of that study, the oystercatcher, is not expected to frequent the project area. Kelly et al. (1996), which utilized boats for work in the aquaculture plots and had a similar suite of shorebird species, provides a more relevant (although not exact) point of comparison to evaluate disturbances associated with project activities.

Comment No. 17-80

The Proposed Project Would Have Significant Adverse Impacts on Salmonids

The RDEIR's assertion that the Project would have no significant impact on salmonids lacks any sound scientific basis. The RDEIR asserts that "ecological functions provided by oyster longline (e.g. prey resources) show similarities to those of eelgrass..."¹⁸⁴ However, as the Pacific Fishery Management Council has noted, "[t]he Project may significantly impact salmonid populations by reducing and altering EFH eelgrass habitat that provides foraging and refugia."¹⁸⁵ Humboldt Bay and its tributaries support coho salmon, Chinook salmon, steelhead trout and sea-run coastal cutthroat trout, a fact reflected in its designation as Essential Fish Habitat for salmonids under the federal Pacific salmon fishery management plan. The population of coho salmon protected under the federal and state Endangered Species Acts within the Humboldt Bay area is considered a "core" population for the Southern Oregon/Northern California Evolutionarily Significant Unit. These populations have also been declining, making further impacts to their health and productivity all the more significant.¹⁸⁶ Juvenile salmon and steelhead use eelgrass as a refuge from predators and to feed on epibenthic and epiphytic zooplankton, including copepods and amphipods that in turn feed on the bacteria from decaying eelgrass. Eelgrass also provides habitat for sand lance, surf smelt, and Pacific herring, all of which are important food items for juvenile and adult salmon.¹⁸⁷ The proposed project may significantly impact the salmon and trout populations of Humboldt Bay by potentially

reducing and altering eelgrass habitat that provides foraging and refuge areas. Changes in habitat structure caused by the addition of aquaculture gear may alter fish community assemblages which could increase direct predation on outmigrating smolts.¹⁸⁸

Response to Comment No. 17-80

The project, upon implementation of mitigation, is not expected to result in a net loss of eelgrass function and therefore is not anticipated to result in a significant impact to species, including salmonids, that rely upon eelgrass. *See* Topical Response 2. For additional analysis of impacts to salmonids, *see* response to Comment 6-13. Impacts to salmonid prey resources are discussed in Impact BIO-19. The R-DEIR conclusions related to ESA-listed salmonids, critical habitat, and salmonid EFH are consistent with a recent PBO for shellfish aquaculture in Washington State (NMFS 2016a). *See* response to Comment 3-13 for additional analysis regarding impacts to outmigrating smolts.

Comment No. 17-81

The Project Would Have Significant Adverse Impacts on Dungeness Crab. The RDEIR asserts that the Project will not have a significant adverse effect on Dungeness crab based on two incorrect assumptions: (1) the Project will not cause a significant loss of eelgrass habitat, and (2) “the project is not significantly affecting the mosaic of habitats present in North Bay. Oyster longlines can provide similar prey resources as eelgrass....”¹⁸⁹ As explained above, the Project would in fact cause serious reductions in eelgrass habitat.

This substantial loss of eelgrass function and structure would have a significant impact on Dungeness crab. Furthermore, aquaculture gear does not provide equivalent habitat function. Dungeness crabs have a complex life history that includes movement to and from estuaries and coastal areas. Vegetated, intertidal estuaries are important nursery habitats for young crabs.¹³⁷ Bare habitats are infrequently used by juveniles, most likely due to a lack of refuge from predation and decreased food abundance. After molting, “juvenile crabs are found in shallow coastal waters and estuaries, and large numbers live in beds of eelgrass or other aquatic vegetation that provide protection and substrate and harbor food organisms for early instars.”¹⁹⁰ Estuarine areas such as Humboldt Bay are important nursery areas for young Dungeness crabs.¹⁹¹

Response to Comment No. 17-81

The information presented in the comment does not discuss the most relevant literature, which is that associated with shellfish aquaculture interactions with Dungeness crab life stages. The information discussed in Impact BIO-16 is that: (1) Dungeness crabs in Humboldt Bay primarily occur in nearshore areas (within 75 m of a tidal channel) (Williamson 2006); (2) the potential overlap with this habitat is equivalent to 5.3% of the habitat typically used by Dungeness crabs; (3) there is no predicted change in areal extent of eelgrass; and (4) eelgrass density differences are not known to affect Dungeness crabs other than that higher eelgrass densities tend to exclude crabs. In addition, habitat such as shell deposition that occurred from historic shellfish aquaculture activities is likely providing key nursery habitat for Dungeness crabs, which is an association further described in Dumbauld et al. (1993, 2000). Finally, other studies that compared use of Dungeness crabs in eelgrass and oyster habitat indicated that there was no significant relationship to habitat type, but

rather the presence of structure and diversity of habitat was an important characteristic to Dungeness crabs (Hosack et al. 2006). The statements related to eelgrass are addressed in Topical Response 2. *See* response to Comment 17-28 regarding the ecological benefits of habitat diversity. Further, the literature cited in the comment provides general ecological information that does appear to support the conclusion that there would be significant impacts to Dungeness crabs from shellfish aquaculture operations:

- Schlosser and Eicher 2012: This document was a characterization of Humboldt Bay and Eel River Estuary benthic habitat. The data used for this document was incorporated into the R-DEIR analysis for both a general understanding of habitat characteristics within the intertidal habitat of North Bay (*see* R-DEIR § 6.5.1.1 and Figure 6.5.1.3) and eelgrass resources (throughout the R-DEIR). The R-DEIR analysis agrees with this document that young crabs will use intertidal estuaries as nursery habitats, and specific data related to Dungeness crab use of Humboldt Bay is incorporated in R-DEIR § 6.5.1.7. This statement does not support a conclusion of significant impact, only that crabs use intertidal habitats within Humboldt Bay.
- US FWS 1989: This is a general report about the life history requirements of Dungeness crab. There is no mention of potential interactions with shellfish aquaculture operations, and the only mention of Humboldt Bay is that crab megalops and instars were an important food resource for copper rockfish (citing to Prince and Gotshall 1976). It was noted from numerous studies reported in the R-DEIR that Dungeness crabs, especially larval forms, are important food resources for many species within Humboldt Bay, including coho salmon and Chinook salmon (*see* R-DEIR § 6.5.1.6 and Table 6.5.4). Establishing Dungeness crab as an important food resource does not support a conclusion of significant impacts. For additional discussion of this impact, *see* Impact BIO-16.
- CDFG 2001: This is a write-up within the “California’s Living Marine Resources: A Status Report” that looked at the status of the Dungeness crab fishery and status of the population. There is no information related to potential interactions with shellfish aquaculture, and the main impacts to the population cited by the authors (Hankin and Warner 2001) were overfishing, a shift to warmer waters temperatures in the ocean, nemertean egg predation, and water pollution in San Francisco Bay. However, the authors also indicated that crab populations off northern California, Oregon, and Washington have produced fairly stable long-term trends for more than 30 years, albeit based on limited data. The relevant information provided in this document that can be used to inform the proposed project is that Dungeness crabs use subtidal and intertidal habitats, mating and molting timing, and growth and development, all of which were discussed within the R-DEIR.

Comment No. 17-82

The Proposed Project Would Likely Have Significant Effects on Planktonic Food Sources. The RDEIR acknowledges that the proposed Project and the Harbor District’s Pre-Permitting Project would add substantially to the biomass of filter feeding organisms relying on planktonic food in Humboldt Bay. Many other species in Humboldt Bay also rely on plankton for survival, including herring and Dungeness crab. While the DEIR admits that “the existing and proposed culture would have some cumulative effect on Humboldt Bay food resources,” it fails to look further at how

significant that cumulative effect might be.¹⁹² Instead, the RDEIR dismisses the effect, stating that “there is an abundance of food available and cultured species will not significantly affect the food resources in the bay. Therefore, impacts to food resources for other filter feeding organisms are considered less than significant under CEQA.”¹⁹³ This circular reasoning does not justify its conclusion. If current and proposed operations cumulatively result in a significant reduction of a once-abundant abundant planktonic food source, that reduction could significantly and adversely affect other planktivores in Humboldt Bay. Moreover, the RDEIR does not present any evidence that these planktonic food sources, however abundant, are not already being fully utilized. We agree with the concerns regarding the carrying capacity analysis that DFW expressed in its Feb. 27, 2015 letter regarding Coast’s Initial Study. The letter noted that the analysis used by Coast shows greater than 10 percent of the available daily average phytoplankton is already being consumed by current aquaculture activities. The level of consumption could be even higher if the model is re-run as the Department recommended, utilizing a value of phytoplankton abundance calculated by taking the 7-day average of phytoplankton minima over a 10-year period in Humboldt Bay. Neither the RDEIR nor the October 2015 Carrying Capacity analysis provided as Appendix G appears to address these concerns. Furthermore, the Appendix G analysis indicates that the cumulative impact of the proposed culture operations could filter as much as 77 percent of available water in Humboldt Bay, thus approaching the flushing rate of the entire bay. The report attempts to dismiss the effects on planktonic resources by instead relying on alternative methods that contain untested assumptions that show less impact.¹⁹⁴ Coast dismisses the unfavorable results of its own modeling, which indicate that the Project could indeed deplete planktonic food sources, by suggesting that the model has shortcomings that render its results unreliable. Yet given that the RDEIR fails to provide any sound data or scientific evidence to affirmatively dispel these concerns, it cannot simply dismiss the significance of the Project’s effects on plankton.

Response to Comment No. 17-82

The conclusions of the Carrying Capacity Analysis (Appendix G of the R-DEIR) were found to be accurate and compare well to existing literature related to use of phytoplankton resources by shellfish aquaculture operations. While the R-DEIR found that the project would have some impact on planktonic food resources, it concluded that the effect would be less than the thresholds established in Gibbs (2007) where a reduction in food resources could have an effect on other species. Contrary to the comment, the model concluded that the cumulative impact of the project would not result in a significant reduction of food resources. Subsequent to receiving comments from CDFW, the model was revised and updated to respond to comments received on the initial study. The model was run using flushing rates of 3, 7, and 14 days, based on the different estimated flushing rates reported in the literature. *See* R-DEIR Appendix G, pg. 4. Even with significantly higher flushing rates, the model results indicated that the cumulative impacts associated with the project, in conjunction with Coast’s existing footprint and the Harbor District’s Pre-Permitting Project, would be less than significant. The model was also refined based upon review by NOAA’s Coastal Aquaculture and Planning Environmental Sustainability group, which generally supported use of the Gibbs (2007) framework and the model’s methodology. As noted in Appendix G of the R-DEIR, while the model employs the different parameters defined in Gibbs (2007), not all parameters are equally precise at evaluating the impact to carrying capacity:

CE values indicate that the amount of filtration by cultured shellfish in Arcata Bay may already be greater than 5% of the bay’s flushing rate with adjacent waters, and that with

the quantity of shellfish proposed by the Pre-Permitting Project and Coast Project, filtration could approach the flushing rate (i.e., CE value of 0.77 assuming a worst-case scenario flushing rate and the higher of the two CRs). However, unlike the other metrics, it is not necessarily detrimental for an ecosystem to have CE values this high. CE does not account for the amount of organic matter in the water, primary production rates, and the ability of the resources being consumed to be rapidly recirculated into the ecosystem through fecal decomposition, the microbial loop, and subsequent new primary production. While a CE value above one indicates that the clearance rate exceeds the flushing rate, it does not answer the more pertinent question of what impact that flushing has on available amounts of carbon and phytoplankton within the ecological system. While all metrics must be considered together, FP and RR are better metrics to specifically address what cumulative impact the projects will have on available food resources in Humboldt Bay. (R-DEIR, Appendix G, pg. 13)

These results are further supported by similar conclusions from Totten Inlet, Washington, which currently supports some of the highest densities of shellfish culturing in Puget Sound (Corps 2015). NewFields (2009) reported that, “Primary production by phytoplankton in Totten Inlet was estimated to be 40,614,000 kg C/year during the spring/summer period ... Of this total production, [just] 7.4 percent is consumed by primary consumers.” Not only was there found to be a minor component of the phytoplankton resources being used by all filter feeders (including those associated with shellfish aquaculture), but oyster growth parameters measured by an independent researcher were found to be greater in Totten Inlet compared to other locations of Puget Sound (Ruesink et al. 2013). It was concluded by NMFS (2016a) and US FWS (2016) that even areas with intensive culture in Washington State do not appear to be approaching the ecological carrying capacity of these systems. The same conclusion was reached in Appendix G of the R-DEIR.

Comment No. 17-83

The Proposed Project Would Have Significant Adverse Impacts on Recreational Activities. The RDEIR entirely fails to address impacts to birdwatching, a very important recreational use in Humboldt Bay. For example, the Godwit Days festival is hosted twice a year and each event attracts 400-600 birders from all over the country. Such impacts would likely result from disturbance of godwits, brant and other birds, and reductions in numbers of some bird species due to degradation of habitat and food sources. In addition, dozens of commenters on the 2015 DEIR and the RDEIR have raised concerns regarding the Project’s impacts on hunting, particularly with respect to brant.¹⁹⁵ While the RDEIR introduces Conservation Measure REC-1 to minimize disturbance due to active aquaculture activities on days open to brant hunting, it does not address impacts to the overall brant population (discussed above). These impacts to recreational uses must be fully analyzed in any revised EIR.

Response to Comment No. 17-83

The project is not anticipated to result in a significant impact to godwits, particularly to an extent that it would impact godwit populations. *See* response to Comment 17-68. Impacts to brant are further analyzed in Topical Response 4. For additional analysis of impacts associated with hunting, *see* Topical Response 6.

Comment No. 17-84

In addition, the RDEIR does not adequately address impacts to recreational watercraft use. As the RDEIR acknowledges, many people use small watercraft for recreational use of the bay for paddling, hunting, clamming, and other purposes.¹⁹⁶ Coast's existing operations are spread throughout the North Bay. The presence of aquaculture gear in this area already increases the difficulty of navigating safely, especially in poor weather or low lighting. At least nine individual comment letters on the 2015 DEIR, and two agency comment letters (County of Humboldt Planning Agency and Department of Fish and Wildlife), noted the hazards presented by the existing oyster farming gear. Figures 4a and 4b show these hazards to small watercraft. Any increase in the areal extent of operations could increase these hazards. As Figure 5 shows, Coast has failed to remove at least some of its discontinued apparatus, despite existing requirements to do so, per Special Condition No. 9 in the 2006 Coastal Development Permit requiring Coast to remove such apparatus within 30 days.¹⁹⁷ While the Project includes an intent to remove such apparatus (Mitigation Measures HAZ 2-4), the failure of Coast to adequately comply with this 2006 permit requirement calls into question the company's ability to do so for the Project.

Response to Comment No. 17-84

See Topical Response 7 for additional analysis of impacts to recreational uses. At the time that the picture in Figure 5 was taken, there were still shellfish on the longlines in the picture. The longlines were removed in fall 2016 once all shellfish had been harvested from the lines. Coast has complied, and will continue to comply, with its Coastal Development Permit conditions and Mitigation Measure HAZ 2-4.

Comment No. 17-85

Due to the importance of Humboldt Bay for brant hunting, Coast received numerous comments on the 2015 DEIR opposing proposed continued and expanded aquaculture in the North Bay. Comments from the FWS, DFW, the Coastal Commission, California Waterfowl Association, and numerous residents who enjoy hunting in the Bay describe the essential need to protect eelgrass beds and gritting areas from degradation and disturbance. The traditional skull boat (Figure 6) was developed in the area and is an important part of the hunting culture of the Bay. The Project described in the RDEIR does little to meaningfully address those uses or concerns or provide adequate mitigation for impacts to brant feeding, resting, and gritting.

Response to Comment No. 17-85

See Topical Response 6 for additional discussion of hunting impacts. *See* Topical Response 4 for additional discussion of brant impacts.

Comment No. 17-86

The DEIR Fails to Analyze a Reasonable Range of Alternatives. The RDEIR fails to satisfy CEQA's core requirement to analyze a range of alternatives that would avoid or substantially lessen the proposed project's impacts on the environment. The RDEIR does not consider any alternatives that might offer some environmental improvement over the project proposal—for example, smaller

expansions, consolidating operations in less sensitive areas or in smaller gaps in currently operated parcels, and altering the location and/or configuration of currently operated acreage. The RDEIR improperly rejects two environmentally superior alternatives, the Eelgrass Avoidance and Avoidance of East Bay Management Area alternatives, as infeasible. Coast provides no evidence to support the contention that these alternatives are actually infeasible. While these alternatives may reduce the profitability of operations, that is not a sufficient basis to reject them as infeasible. Moreover, an alternative that would substantially reduce a significant adverse impact cannot be excluded on the basis of alleged economic infeasibility without “meaningful comparative data” in the EIR and evidence supporting any claim of economic infeasibility. *Ctr. for Biological Diversity v. Cnty. of San Bernardino* (2010) 185 Cal.App.4th 866, 884. The revised DEIR should include a thorough analysis of both of these alternatives, which are viable alternatives for CEQA analysis and may be necessary to comply with California Coastal Zone Management Act permitting requirements

Response to Comment No. 17-86

The R-DEIR includes a reasonable range of alternatives that reduce the significant environmental impacts associated with the project while attaining most of the basic project objectives, in compliance with CEQA Guidelines § 15126.6. “The range of alternatives required in an EIR is governed by a ‘rule of reason’ that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.” CEQA Guidelines § 15126.6(f). The R-DEIR includes two alternatives, a reduced footprint alternative and an existing footprint alternative, that would reduce significant environmental impacts associated with the project. In response to this comment, Topical Response 5 includes additional economic data and projections to support that the Eelgrass Avoidance Alternative is economically and logistically infeasible. Further, the Harbor District has included an EBMA Avoidance Alternative in the FEIR which includes many of the changes suggested in the comment, including proposing no new cultivated plots within the EBMA and consolidating operations in the Bird Island and Mad River Areas. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 17-87

The RDEIR also fails to identify a valid Environmentally Superior Alternative. The RDEIR’s statement that “[b]ecause no significant unavoidable adverse impact has been identified for the Project or any of the proposed Alternatives, there is no alternative that is ‘environmentally superior,’ as defined by CEQA” is based on a false premise.¹⁹⁸ With the exception of the “No Project” alternative, all of the alternatives presented in the DEIR are likely to have significant adverse impacts on fish, wildlife, and their habitats. The “Alternative 1: 10-Foot Spacing Alternative” that the RDEIR asserts is the Environmentally Superior Alternative does not, in fact, reduce the footprint of aquaculture within eelgrass habitat or any other habitat type. To the contrary, this alternative would *increase* the footprint and the substantial negative impacts associated with these operations.

Response to Comment No. 17-87

With inclusion of the EBMA Avoidance Alternative, the R-DEIR alternative analysis and selection of the Environmentally Superior Alternative has been revised and the EBMA Avoidance Alternative has been identified as the Environmentally Superior Alternative. For a detailed description of this

alternative and a comparison to the other alternatives identified in the R-DEIR, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 17-88

An adequate revised DEIR must include an alternative that both avoids eelgrass in new expansion areas and removes oyster farming operations from the East Bay Management Area that is critical for Pacific herring spawning, black brant, other waterfowl, and shorebirds. We specifically recommend that mariculture activities cease in the EBMA, provide a 1000-ft. buffer for brant gritting areas, and avoid areas with high densities of long-billed curlew territories. We encourage Coast to work collaboratively with the relevant agencies and key stakeholders in a marine spatial planning framework to evaluate a revised project configuration that would meet project objectives while satisfying the CEMP, other applicable policies, and federal and state law.

Response to Comment No. 17-88

See response to Comment 17-6.

Comment No. 17-89

The RDEIR Fails to Analyze Cumulative Impacts Adequately. The RDEIR correctly notes the existing project, proposed Project, and Harbor District project would occupy 27.3 percent of eelgrass in North Bay, and 16.3 percent of intertidal habitat in North Bay overall. The DEIR's analysis of cumulative impacts suffers from similar flaws as its analysis of the impacts of the proposed project expansion. The DEIR's gross underestimate of the proposed expansion's impacts to eelgrass habitat and fish and wildlife species and the resulting erroneous "less than significant effect" conclusions fundamentally undermine the cumulative impacts analysis. The RDEIR similarly underestimates the overall impact of the proposed project, other existing aquaculture operations, and the Harbor District's pre-permitting aquaculture project. As discussed above, a rational, science-based examination of current and likely future impacts from aquaculture operations readily demonstrates that the proposed project would have individually and cumulatively significant adverse impacts on multiple biological and ecological resources.

Response to Comment No. 17-89

R-DEIR § 7 includes a robust discussion of cumulative impacts. Additional analysis of the project's eelgrass impacts is included in Topical Response 2. For discussion of other impacts, *see* above.

Comment No. 17-90

The RDEIR Fails to Acknowledge Impacts to Other Important Uses. The "Economic Impact Analysis" provided in Appendix J of the RDEIR addresses factors that are not relevant under CEQA. Specifically, the alleged economic benefit of a proposed project is not a factor that the lead agency may weigh in determining whether the project has a significant effect on the environment or otherwise complies with CEQA. Economic changes in and of themselves are not considered significant effects on the environment; an economic change that stems from a project's physical changes to the environment may only be considered in determining whether the physical change

itself is significant.¹⁹⁹ Predicted economic benefits may not be weighed against a proposed project's impacts to the environment.

Response to Comment No. 17-90

Consideration of economic benefits is permitted, and often required, under CEQA. In the event that the project results in significant and unavoidable environmental impacts, the Harbor District, as the lead agency, must determine if there are overriding considerations, including economic and other public benefits, that outweigh the significant and unavoidable environmental impacts. 14 CCR § 15093. While the project is not anticipated to result in unmitigated significant environmental impacts, an economic analysis was provided in Appendix J of the R-DEIR to assist with this analysis if necessary.

Comment No. 17-91

At the same time that it touts the purported economic benefits of the Project, Coast fails to acknowledge the many negative economic impacts that would result from the adverse physical changes the Project would have on habitats crucial for valuable uses such as ecotourism, birdwatching, paddling, commercial and recreational fisheries for Dungeness crab, salmon, and groundfish, hunting, and clamming. The annual Godwit Days festival generates at least \$170,000 per year for local businesses. Dungeness crab alone has generated \$45 million in ex-vessel revenue alone for North Coast ports, primarily Eureka. While the RDEIR need not analyze economic impacts under CEQA, to the extent it does so, it should identify the negative economic impacts that would result from the extensive physical changes that the Project would cause in Humboldt Bay.

Response to Comment No. 17-91

The commenter is correct that economic changes are not considered an "impact" to be evaluated under CEQA; however, as noted above, it is relevant to an analysis of overriding considerations or other factors that may result in approval of a project, despite significant environmental impacts described in the EIR. The R-DEIR concludes that the project will not have an impact to godwits or Dungeness crab; in fact, as noted on pg. 6.5-28 of the R-DEIR, crab prefer oyster aquaculture areas over eelgrass and unstructured habitat. *See* response to Comment 17-83 for additional discussion of impacts to godwits and tourism and response to Comment 17-81 for additional analysis of the project's impacts to Dungeness crabs.

Comment No. 17-92

Coast Has Not Complied with Mitigation Conditions Placed on Current Operations. Recognizing that Coast's operations (the same operations proposed for renewal here) would have adverse effects on eelgrass that would not be fully mitigated, the Coastal Commission attached a number of Special Conditions to its 2006 Coastal Development Permit. As described below, Coast has failed to meet at least three of those conditions. Coast's failure to comply with permit conditions on its existing operations seriously undermines its contention that it will carry out future monitoring and mitigation.

Special Condition No. 2 requires that “a maximum of 11.5 acres of future plantings be sited in known or historic eelgrass habitat within Coast’s EBMA. Future plantings in the EBMA shall be sited in the bed identified on Exhibit 2 as EB 7-2.”²⁰⁰ The majority of the proposed expansion is located mainly in the EBMA, directly violating the Special Condition. The RDEIR states: “[c]ertain comments received on the Draft IS and in response to the DEIR recommended avoiding planting in the EBMA (“East Bay Avoidance Alternative”), noting that the Coastal Commission had requested avoidance of the area as part of CDP No. E-06-003 issued for the existing footprint.”²⁰¹ The DEIR dismisses this violation of a Special Condition by stating, “[t]he primary reason that the East Bay Avoidance Alternative was screened from further review is that it would not avoid or substantially reduce a significant impact identified in the RDEIR. The primary reason that the East Bay Avoidance Alternative was suggested is that the East Bay provides ground for herring spawn and is used by brant and other shorebirds. As further addressed in Section 6.0, the RDEIR has evaluated those impacts and determined that the Project, including the proposed footprint in the EBMA, would result in a less than significant impact to such species. Moreover, the East Bay has some of the best shellfish growing conditions in North Bay, with excellent water quality, lower wave exposure, and increased upwelling correlated with peaks in phytoplankton abundance. Expanding culture in this area will thus significantly further Project objectives without creating any significant environmental impacts. Therefore, this alternative was screened from further evaluation.”²⁰² As should be abundantly clear from our comments above, the assertion that the project would have no significant impacts in the EBMA is wrong.

Response to Comment No. 17-92

The revised project requests that the condition previously imposed by the California Coastal Commission that limited planting within the EBMA be revised. That condition limited development within the EBMA to ensure that the mitigation measures imposed by the Coastal Commission, including funding a salmon restoration project and dedication of a 50-acre parcel for conservation, fully mitigated for project impacts. Coast has not “violated” the condition; rather, Coast is seeking amendments to the previously approved project to plant beyond the footprint previously permitted. This is the same as any other proposed amendment to a coastal development permit approved by the Coastal Commission. The R-DEIR evaluates those changes, including any potential impacts associated with increased planting within the EBMA. However, in response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast’s operations within the EBMA. For a detailed description of this alternative and its impacts, *see* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 17-93

Special Condition No. 3 required that in the months of December, January, and February, “Coast shall visually inspect beds prior to planting and/or harvesting, to determine if Pacific herring (*Clupea pallasii*) has spawned on eelgrass, culture materials, or substrate. If herring spawning is observed, Coast shall: 1) postpone for two weeks planting and/or harvesting activities on those beds where spawning has occurred, and 2) notify the California Department of Fish and Game (DFG) Eureka Marine Region office of the spawn within 24 hours. Coast shall keep records of when DFG was notified of the spawning event, and those records shall be included with the annual report...” As described earlier in this letter, DFW and the Coastal Commission have noted that Coast *never*

contacted DFW in regard to herring spawn, despite confirmation of spawn taking place in December-February in the area of aquaculture operations.

Response to Comment No. 17-93

See responses to Comments 17-43 and 17-47. Coast has complied with this condition. It has not reported herring spawn on its gear because it has not observed herring spawn on its gear during the current permit term.

Comment No. 17-94

Special Condition No. 7 required that “within 30 days of harvest on any plot that is being abandoned, or taken out of production for one year or more, the applicant shall remove all oyster culture apparatus from that plot, including but not limited to stakes, racks, and pallets.” As noted above, Coast’s failure to undertake this required remediation has created navigational hazards and impediments to recreation and casts serious doubt on Coast’s future compliance with Mitigation Measures related to these hazards, including: Mitigation Measure HAZ-2: Within 30 days of harvest on any area that is being discontinued or taken out of production for one year or more, Coast will remove all shellfish culture apparatus from the area, including but not limited to, stakes, racks, baskets, and pallets; Mitigation Measure HAZ-3: Coast will implement annual employee training regarding marine debris issues and how to identify loose culture gear and proper gear repair and removal methods; and Mitigation Measure HAZ-4: Coast will conduct quarterly bay cleanups in coordination with other interested parties or organizations, which will include walking portions of the bay and shorelines to pick up escaped shellfish gear and other trash (regardless of whether it is generated by the Project). The volume of shellfish gear collected shall be recorded.²⁰³

Response to Comment No. 17-94

See response to Comment 17-84.

Comment No. 17-95

Conclusion. For the reasons explained above, the RDEIR fails in multiple ways to adequately analyze the effects of Coast’s massive proposed expansion of oyster aquaculture operations in Humboldt Bay, as well as the effects of continued operations. A properly revised DEIR must correct these significant failures to observe CEQA’s public informational requirements, including identifying alternatives that avoid any significant impact to eelgrass habitat and fish and wildlife species dependent on it. The public must then be given an opportunity to comment on the significant new information that new revised DEIR contains. We recommend that the new revised DEIR include an alternative that both avoids eelgrass in any expansion areas and removes oyster farming operations from the EBMA that is critical for Pacific herring spawning, black brant, other waterfowl, and shorebirds. We also recommend that mariculture activities cease in the East Bay Management Area, provide a 1000-ft. buffer for brant gitting areas, and avoid areas with high densities of long-billed curlew territories. We encourage Coast to work collaboratively with the relevant agencies and key stakeholders in a marine spatial planning framework to evaluate a revised project configuration that would meet project objectives while satisfying the CEMP, other applicable policies, and federal and state law.

Response to Comment No. 17-95

See response to Comment 17-6.

Comment Letter No. 18

Mark Hennelly, California Waterfowl Association, mhennelly@calwaterfowl.org
Dennis Slater, Tulare Basin Wetlands Association
Steve Chappell, Suisun Resource Conservation District
Don Kirby, Cal-Ore Wetlands and Waterfowl Council
Ed Miller, Black Brant Group
Bill Gaines, Gaines & Associates, billgaines1@sbcglobal.net

Comment No. 18-1

The below signed waterfowl conservation organizations believe that the Recirculated Draft Environment Impact Report (DEIR) for Coast Seafoods Company's Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project substantially fails to sufficiently address the waterfowl, eelgrass and recreational (i.e. hunting) impacts of the proposed project. For this reason, we urge you to reject the DEIR.

Response to Comment No. 18-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 18-2

Specifically, the proposed project's footprint remains too large (594 acres), a significant number of eelgrass beds are still impacted and the level of disturbance to brant and waterfowl hunting remains too high. Unfortunately, the proposed Conservation Measures fail to adequately address these significant impacts.

Response to Comment No. 18-2

The commenter believes that the comment is too large; however, the purpose of the EIR is to evaluate the environmental impacts associated with the proposed project. A claim that a project or development is "too large," independent of environmental concerns, is outside the scope of an EIR analysis. See *Bowman v. City of Berkeley*, 122 Cal.App.4th 572 (2004). Regardless, the R-DEIR includes several alternatives that evaluate a reduced scale or farm footprint, including a new EBMA Avoidance Alternative that proposes no new cultivation within the EBMA and further reduces the size of Coast's proposed cultivated footprint. For an analysis of the project's impacts on eelgrass, see Topical Response 2. For an analysis of brant and hunting impacts, see Topical Responses 4 and 6, respectively.

Comment No. 18-3

Pacific Black Brant and Other Waterfowl Species Which Depend Upon Eelgrass Humboldt Bay contains approximately 5,646 acres of eelgrass, which represents roughly half of the California's total eelgrass habitat.

Eelgrass is one of the most productive of aquatic habitats, but its overall low statewide abundance makes it one of the rarest of all habitats in California. Collectively, only six Bay ecosystems (Humboldt Bay, San Francisco Bay, San Diego Bay, Mission Bay, Morro Bay and Tamales Bay) support almost all of the known eelgrass beds in the state. Yet, in many of these areas eelgrass acreage is declining – including Morro Bay where eelgrass has declined from 344 acres in 2007 to just 10 acres in 2013.

Eelgrass has also been substantially reduced along other parts of the Pacific Coast. Responding to the threats faced by eelgrass, the National Marine Fisheries Services set a goal of "no net loss" as part of its California Eelgrass Mitigation Policy.

It should also be noted that, once degraded, healthy eelgrass beds are very difficult to re-establish. For example, considerable effort and funding has been dedicated to eelgrass restoration efforts in Morro Bay over the past five years. Unfortunately, these efforts have thus far not proven successful.

Response to Comment No. 18-3

The R-DEIR agrees with the comment that eelgrass is an important resource for a number of species and incorporates the CEMP no net loss of eelgrass function standard referenced in the comment. While eelgrass has declined in a number of estuaries due to eelgrass wasting disease and water quality conditions, as described in R-DEIR § 6.5.1.3, it is at or near historic highs in Humboldt Bay (NOAA 2009), with extensive and relatively stable coverage throughout the bay. *See* responses to Comments 17-32 and 17-33 for additional discussion of eelgrass recovery, particularly as it relates to the project.

Comment No. 18-4

Healthy eelgrass is vital foraging habitat for many waterfowl, including canvasback and other diving duck species. But it is particularly critical to the black brant goose, California's only sea goose. For example, during the 1930s, a disease decimated eelgrass beds and black brant populations declined significantly.

Black brant are a bird of Management Concern and a Focal Species of the U.S. Fish and Wildlife Service. They must travel thousands of miles away from their wintering and staging grounds in California in order to breed in the coastal areas of the Arctic. Any compromise in their ability to make that migration due to insufficient food resources or delayed migration could lead to either direct mortality during migration or reduced reproductive potential.

Unlike other waterfowl species, brant have not adapted to feed significantly on agricultural crops, and eelgrass remains by far the most important component of their diet, particularly in the winter and spring. The specialization on eelgrass makes the Pacific brant particularly vulnerable to forced

changes in their environment, and aquaculture has the greatest potential for degrading wintering and staging habitats. Monitoring efforts by waterfowl biologists suggest that brant disproportionately use bays with greater abundance of eelgrass.

Humboldt Bay's eelgrass beds host over 80,000 brant geese, or 60 percent of the total brant goose population in the Pacific Flyway, throughout the year. Yet, the wintering population objective of 5,000 a set forth in the Pacific Flyway Brant Management Plan has still not been met.

Response to Comment No. 18-4

The R-DEIR acknowledges the critical importance of eelgrass as a food resource for brant. *See* R-DEIR pgs. 6.5-32 through 6.5-35 and BIO-25. For additional discussion of the project's impacts to brant, *see* Topical Response 4.

Comment No. 18-5

Available scientific studies demonstrate that aquaculture negatively affects brant. Studies show that brant change their seasonal use patterns due to habitat disturbance. In Washington State, oyster farming activities were correlated with reductions in eelgrass abundance and in turn, significant decreases in brant use-days.

Response to Comment No. 18-5

For additional discussion of the project's impacts to brant, *see* Topical Response 4. *See* response to Comment 17-55 for additional discussion of the study referenced in the comment.

Comment No. 18-6

In addition, eelgrass is essential spawning habitat for herring, whose roe is a vital food source for many bird species. Pacific sea ducks are more dependent on herring than any other taxa of birds. Harlequin ducks aggregate in British Columbia only when feeding on herring spawn, while long-tailed ducks and Steller's eiders seek out and preferentially feed on herring roe.

Scoters in particular are highly dependent on herring roe for overwinter survival and breeding success. Scoters dramatically alter their movement and habitat use patterns in spring to take advantage of ephemeral and energy-rich herring roe, suggesting that this food resource is of particular importance to these species. Please note that surf scoters have declined by 50-60% in the last 50 years while greater and lesser scaup, two other diving ducks that depend on herring roe, have declined by 15%.

Response to Comment No. 18-6

For additional discussion regarding eelgrass and herring impacts, *see* Topical Responses 2 and 3, respectively. Although herring roe is an important component of their diet, in one study in British Columbia, mussels (*Mytilus edulis*) appeared to be very common prey in both spring and fall (Vermeer 1981). It should also be noted that surf scoters are strongly attracted to and feed on

biofouling mussels that accumulate on the shellfish aquaculture structures (Kirk et al. 2007, Žydelis et al. 2008) and could therefore benefit from the project.

Comment No. 18-7

Waterfowl Hunting. Black brant are highly sought after by waterfowl hunters, who have historically provided the most important assistance to the U.S. Fish and Wildlife Service and Department of Fish and Wildlife for waterfowl conservation efforts. For example, in California, roughly two-thirds of our remaining waterfowl habitats are privately owned and managed year-round with waterfowl hunting as the primary incentive. Hunters also contribute greatly to state and federal waterfowl conservation efforts via their purchase of state and federal duck stamps, contributions to federal Pittman-Robertson Act funding, and their significant financial contributions to non-profit waterfowl conservation organizations which partner with state and federal resource agencies on waterfowl projects. Waterfowl hunters also contribute greatly to waterfowl research via their reporting of bird bands, participation in wing bee surveys, and other means.

Along with Morro Bay, Humboldt Bay is arguably the most important hunting area for black brant in California. In fact, a waterfowl tradition unique to Humboldt Bay was developed that centers around distinctive scull boat design, manufacture and use primarily for brant hunting.

Hunting on North Humboldt Bay is generally limited per California Fish and Game Commission regulations to 3 days a week during the regular waterfowl season (mid-October through the last Sunday in January), for a total of only 43 hunt days. There is also a post-season youth hunt on the first Saturday and Sunday of February, which is restricted to youth 17 years of age and younger.

Brant hunting opportunity is even more limited, with the season only running from November 8 through December 14th (for the 2016/17 season). However, tides and the timing of the brant migration even further restrict the window of opportunity for brant hunting, so that there may be only a handful of days each year for brant hunters to use North Humboldt Bay.

Successful waterfowl hunting is dependent on a minimal amount of human disturbance in waterfowl habitat areas, including from artificial structures, powerboat traffic and foot traffic. Because of this, many waterfowl hunting areas managed by the Department of Fish and Wildlife and U.S. Fish and Wildlife Service restrict or ban non-hunting uses during waterfowl season.

Response to Comment No. 18-7

See Topical Response 6 regarding the project's effects concerning brant hunting.

Comment No. 18-8

Humboldt Bay is a publicly-owned navigable waterway and subject to the Public Trust Doctrine. The public right of navigation over navigable waters extends to waterfowl hunting. As cited in State Attorney General Opinion 85-602:

“In *Forestier v. Johnson*, supra, 164 Cal. 24, 40, the Supreme Court stated: “...the hunting of wild game...is a privilege which is incidental to the public right of navigation.”

“In *People ex rel. Baker v. Mack*, supra, 19 Cal. App. 3d 1040, 1048, the court interpreted Forestier as recognizing “that members of the public had an absolute right to navigate and hunt in small boats” on navigable waters.”

As such, navigable waters must be first and foremost managed in the public interest, rather than for any private gain. Private activities, such as mariculture operations, cannot obstruct the navigability of tidal waters or unduly impact with Public Trust resources, including wildlife and boat-dependent recreational activities such as hunting.

Response to Comment No. 18-8

The public’s right to navigation and hunting is not absolute. For example, the California Fish and Game Commission permits aquaculture leases, provided that such leases do not “*unreasonably* impede public access to state waters” for fishing and navigation. Fish & Game Code § 15411. The Commission “may prohibit any recreational activity in any aquaculture area subject to a state water bottom lease if it determines that the activity is detrimental” to shellfish cultivation. *Id.* The Harbor District has similarly been granted the authority by the state to lease tidelands within its jurisdiction for aquaculture uses, provided that it properly considers impacts to navigation and fishing. Harbors & Navigation Code, App. 2, §§ 4, 18. The Harbor District has considered impacts to navigation, fishing, and other recreational uses in R-DEIR § 6.11, and has concluded that the project will result in less than significant impacts to such uses.

Further, as discussed in R-DEIR § 4.5.2, the project would promote commerce on the Harbor District’s tidelands, which is recognized as a valid and appropriate public trust use. The Harbor District is not required to favor one public use over another. *Marks v. Whitney*, 6 Cal.3d 251, 259 (1971). Promotion and support of a commercial aquaculture industry itself qualifies as a proper public trust use. *See National Audubon Society v. Superior Court*, 33 Cal.3d 419, 435 (1983)(defining promotion of a commercial brine shrimp fishery as a valid public trust use). Evaluating navigational and recreational impacts under CEQA satisfies the Harbor District’s obligation to consider impacts to public trust uses, and the public trust doctrine does not impose any additional procedural requirement independent of CEQA. *Citizens for East Shore Parks v. California State Lands Comm’n*, 202 Cal.App. 4th 549, 577-79 (2011). Therefore, the Harbor District has properly considered impacts to public trust resources, including fishing and hunting rights.

Comment No. 18-9

Proposed Mitigation Measures and Why They Are Inadequate. While we appreciate the Conservation Measures proposed to reduce impacts to eelgrass, black brant and waterfowl hunting, we do not believe that these efforts will reduce impacts to less than a significant level. Please note our comments on the following Conservation Measures:

Conservation Measure BIO 2: Longline spacing for new shellfish culture plots would occur at 10-ft intervals for cultch-on-longline and alternating 9-ft and 16-ft intervals for basket-on-longline.

Comment: Brant, like other waterfowl, avoid artificial structures that might harbor predators or impede the birds’ landing or taking off efforts. Spreading the longlines out a few more feet will do nothing to reduce this natural tendency. Hunting waterfowl over aquaculture gear is also virtually

impossible, as they create significant boat hazards and interfere with the placement of decoys, for example.

Response to Comment No. 18-9

Conservation Measure BIO-2 is intended to ensure that longlines are placed at a spacing that, based on the best available science, does not appear to result in losses to eelgrass areal coverage or density. Therefore, longlines spaced at the intervals required in Conservation Measure BIO-2 are not anticipated to result in reductions in eelgrass, and therefore not anticipated to result in reductions of brant food resources. As further described in Topical Response 4, while the additional longlines proposed by the project will result in some avoidance of the area by brant while the longlines are exposed, the amount of avoidance is considered to be less than significant and not an overall impediment to brant for access to food resources. *See* Topical Response 6 for additional analysis of impacts to hunting.

Comment No. 18-10

Conservation Measure BIO 12: Coast will not intentionally approach or harass migratory birds that are actively feeding or resting within the project area. Comment: Regardless of the intent, the significantly increased aquaculture activities that will result from the project will create additional disturbance to brant, other waterfowl and waterfowl hunting activities. They will also degrade existing eelgrass beds through powerboat and foot trampling.

This new human-induced disturbance includes not only the additional powerboat traffic that will be required to ferry workers to and from the expanded aquaculture areas, but the operations and maintenance activities of the workers themselves within the aquaculture areas.

Simply put, brant and other waterfowl will flush from the noise of powerboats or the silhouette of a human being anywhere near where they are resting or feeding. This additional disturbance will also degrade and displace hunting opportunities.

Response to Comment No. 18-10

See Topical Responses 2, 4, and 6 for additional discussion of impacts to eelgrass, brant, and hunting, respectively. As noted in Impact BIO-26, the project would result in a minimal number of additional boat trips per week as compared to existing conditions, and the temporary and sporadic passage of boats will not result in a significant impact to brant.

Comment No. 18-11

Conservation Measure REC-1: Coast shall avoid operations in the mapped area of the EBMA from midnight until sunset on days designated by CDFW as brant hunting days, including season opening and closing days.

Comment 1: The “Hunting Avoidance Area” is far too small to be effective, does not include the majority of hunting areas, fails to cover the entire regular waterfowl season, and was not created in consultation with the majority of the hunters who use North Humboldt Bay. The additional boat

trips and harvest activities associated with significantly expanded mariculture operations will degrade and displace hunting activities, many of which are already limited by F&G Commission regulations, tides and the timing of waterfowl migrations.

Response to Comment No. 18-11

See Topical Response 6 for further discussion of hunting impacts and development of Conservation Measure REC-1. As noted in Topical Response 6, the project does not overlap with the majority of identified hunting areas and there are substantial areas available for waterfowl hunting that are not affected by the project, even if hunters choose to avoid the project area. Because the project would result in a less than significant impact to hunting, no mitigation or additional conservation measures are required.

Comment No. 18-12

Comment 2: To the best of our knowledge, Coast failed to consult with anyone who actively hunts the bay for brant or other waterfowl species, or who is sufficiently familiar with hunting in the bay, when establishing their proposed “Hunting Avoidance Area”. If waterfowl hunters were consulted prior to Coast’s design of this area, their names should be referenced in the document.

Response to Comment No. 18-12

See Topical Response 6.

Comment No. 18-13

Conclusion. The proposed project will drive brant and other waterfowl away from North Humboldt Bay due to resulting degradation and displacement of eelgrass habitat, as well as in increased disturbance. This is particularly problematic just prior to spring migration when waterfowl need sufficient food resources to fuel their journey to northern breeding grounds. The proposed project will also reduce and degrade scull boat and other hunting opportunities because of greater disturbance, reduced waterfowl use and displacement of hunting sites.

Notwithstanding the failure to reach brant wintering population goals (as mentioned above), the current balance of existing aquaculture operations, waterfowl hunting, other recreation and wildlife use seems to be working at an acceptable level in North Humboldt Bay. However, Coast Seafoods’ expansion, as currently proposed, will undermine this balance and inappropriately place commercial activities above the needs of Public Trust resources.

For all the reasons discussed above, we ask the Harbor District to reject the draft EIR. The Harbor District should ensure that any subsequent project does not result in any loss or degradation of Humboldt Bay’s eelgrass beds, and does not negatively affect black brant populations or associated hunting activities.

Response to Comment No. 18-13

See Topical Responses 4 and 6 for additional discussion of brant and hunting impacts.

Comment Letter No. 19

Kevin Vella, Regional Biologist CA/NV
National Wild Turkey Federation
5341 Spreading Oak Ln.
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Comment No. 19-1

I am writing this public comment to illustrate my strong opposition to the proposed expansion of Coast Seafoods Company aquaculture production in Humboldt Bay. Being a wildlife biologist by trade, and having previously worked on crucial waterfowl habitat restoration projects, I can tell you that this will have a strong negative impact on over-wintering black brant populations. As you know, black brant are a highly specialized species that rely almost entirely on an eelgrass diet throughout their migrations south to Baja, Mexico and back up to Alaska. For example, the loss of eelgrass stocks on the East coast in the 1930's saw a reduction of the Atlantic brant population by nearly 90% in the following years. That example alone exemplifies the importance of eelgrass to this dynamic species.

With over 80,000 black brant (60% of the Pacific population) that stop-over in Humboldt Bay, the proposed reduction in 20% of the bay's current eelgrass beds would have serious negative effects on this population. I urge you to strongly consider these negative implications throughout your decision making process.

Response to Comment No. 19-1

The R-DEIR acknowledges the importance of eelgrass as a food resource for brant. For additional discussion of the project's impacts to eelgrass and brant, *see* Topical Responses 2 and 4, respectively.

Responses to Individual Commenters

Comment Letter No. 20

Petition (Jimmy Smith, plus 40 others)

Comment No. 20-1

"As retired Humboldt Bay Harbor Recreation and Conservation District Commissioner, I am somewhat disappointed in this response. The proposed increased expansions will impact water bird use. The few islands and other essential habitats have already been exploited beyond reason. Currently there seems to be even more culturing on some of the Arcata tidelands and no specific culturing practice will eliminate the wildlife/expansion conflict. Hopefully the agencies will understand that many species are dependent on the relatively few intertidal areas in Humboldt Bay. In addition, the people of the state of California have a right to fisheries and navigation on our bays. A quick look at the expansion plans will demonstrate a severe if not dangerous network of mariculture materials that compromise public access. Traditional hunting, fishing and boating are very important to Humboldt Counties economy. Most importantly, we host the second highest shorebird/water bird use in California, second only to San Francisco Bay and we have identified 100 species of fish in Humboldt. I worked very hard to help the oyster industry upgrade their culturing practices in the late 90s. The Harbor Commission, environmental groups, agencies and the industry agreed to reduce Eel Grass impacts and I believe they have done that. However, expansion proposals of this magnitude are not in the best interest of wildlife, fisheries or the boating public."

Response to Comment No. 20-1

See Topical Responses 4 and 8 for additional analysis regarding project-related impacts to birds. *See* Topical Response 7 for additional analysis regarding recreational impacts. *See* Topical Response 6 for additional discussion of hunting impacts.

Comment No. 20-2

We the Undersigned agree with the text of former Humboldt County Supervisor Jimmy Smith's letter and petition The Humboldt Bay Harbor Commission to reject Coast Seafood's Mariculture expansion proposal in North Humboldt Bay. This proposal amounts to a seizure of traditional public hunting areas on public lands and navigable waterways, disregard for public wildlife resources, disregard for public safety and recreation and should not be allowed.

Response to Comment No. 20-2

See response to Comment No. 20-1.

Comment Letter No. 21

John Prangley
3205 Lucia Ave., Eureka CA 95503

Comment No. 21-1

I am strongly opposed to your District renewing the permit and approving an expansion of oyster production by Coast Seafood's Company.

Response to Comment No. 21-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 21-2

Permitting a considerably larger footprint to install more oysters on long lines in Arcata Bay would significantly impact eelgrass habitats, sensitive species, herring fisheries, Pacific black brant, and all waterfowl hunting, sculling, kayaking, recreational boating, fishing, as well as sailing.

Response to Comment No. 21-2

See Topical Response 2 for additional discussion of the project's impacts to eelgrass. *See* Topical Response 3 for additional discussion of herring impacts. *See* Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively. *See* Topical Response 7 for additional analysis of recreational impacts.

Comment No. 21-3

The impact of an increased oyster farming footprint on the bay has not been adequately mitigated by the R-DEIR and is therefore inappropriate. Impacts to recreational boating has failed to address safety.

Adverse impacts can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia. In addition, the oyster culture gear blocks my use of the bay and disrupts my enjoyment of the natural resources in the bay.

Response to Comment No. 21-3

See Topical Response 7 for additional analysis of recreational impacts.

Comment No. 21-4

Because of the numerous problems generated by increased amount of oyster production gear in Arcata Bay, I am opposed to renewing the permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Permit Requests in Arcata bay, Humboldt County, California.

Response to Comment No. 21-4

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 22

William H. Breen III
Retired Eureka Police Officer
684 Tropical Parkway
Orange Park, Fl 32073
breenw@bellsouth.net
904-254-2791

Comment No. 22-1

I am very strongly opposed to your District approving an expansion of oyster production by Coast Seafoods Company.

Response to Comment No. 22-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 22-2

Letting Coast Seafoods use a considerably larger area to install more oysters on long lines in Arcata Bay would significantly impact eelgrass habitats, the eelgrass is very important to several migrating waterfowl species and any reduction could impact or be harmful to or be a violation of U.S. Migratory species act. It would also impact sensitive species, herring fisheries, Pacific black brant, and all waterfowl hunting, sculling, kayaking, recreational boating, fishing, as well as sailing.

Response to Comment No. 22-2

See Topical Response 2 for additional discussion of the project's impacts to eelgrass. *See* Topical Response 3 for additional discussion of herring impacts. *See* Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively. *See* Topical Response 7 for additional analysis of recreational impacts. *See* Topical Response 6 for additional discussion of hunting impacts.

Comment No. 22-3

The impact of an increased oyster farming footprint on the bay has not been adequately mitigated by the R-DEIR and is therefore inappropriate. Impacts to recreational boating has failed to be address safely.

Adverse impacts can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia. In addition, the oyster culture gear blocks my use of the bay and disrupts my enjoyment of the natural resources in the bay.

Response to Comment No. 22-3

See Topical Response 7 for additional analysis of recreational impacts.

Comment No. 22-4

I have spent many days duck hunting, Brant hunting, Sculling and fishing in Humboldt bay. The Bay is a prime area for wild bird habitat and watching all year and the increased Oyster beds would impact that in a very adverse way.

Response to Comment No. 22-4

See Topical Response 6 for additional discussion of hunting impacts.

Comment No. 22-5

Because of the numerous problems generated by increased amount of oyster production gear in Arcata Bay, I am opposed to renewing the permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Permit Requests in Arcata bay, Humboldt County, California.

Response to Comment No. 22-5

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 23

Dr. Stanley W. Harris
1959 Charles Ct.
Arcata, CA 95521

Comment No. 23-1

This letter is submitted in review of the Recirculated Draft Environmental Impact Report (DEIR) for Coast Seafoods Co., SCH #2015082051.

As an Ornithologist with 57 years of avian monitoring data on Humboldt Bay and the Northern CA coastal environs, I am concerned with the permit renewal and expansion of oyster production proposed by Coast Seafoods Company.

Response to Comment No. 23-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 23-2

The R-DEIR fails to fully mitigate the adverse impacts of trampling eelgrass, human disturbance to bird foraging opportunities, and related fish and wildlife use of this rich tidal environment. The proposed expansion is too large. I support the spatial planning approach and proposals being developed by the Audubon Society. All oyster culture should be removed from the East Arcata Bay Management Area. Future oyster culture should be confine to west Arcata bay where previous development limits eelgrass recovery.

Response to Comment No. 23-2

See Topical Response 2 and responses to Comments 9-33 and 9-34 for additional discussion of eelgrass impacts and trampling. *See* Topical Responses 4 and 8 for additional analysis of project-related bird impacts. The commenter believes that the project is too large; however, the purpose of the EIR is to evaluate the environmental impacts associated with the proposed project. A claim that a project or development is “too large,” independent of environmental concerns, is outside the scope of an EIR analysis. *See Bowman v. City of Berkeley*, 122 Cal.App.4th 572 (2004). However, in response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast’s operations within the EBMA and locates the majority of Coast’s proposed expansion in West North Bay.

Comment No. 23-3

As a former Humboldt Bay waterfowl hunter it is clear to me that the increase in oyster culture long lines, pipes, baskets and related gear are a serious hazard to public safety and recreational boating. As someone who enjoys bird watching on Arcata Bay several days each week, the materials that would be installed will diminish my enjoyment of these tidal wetlands.

Response to Comment No. 23-3

See Topical Response 7 for additional analysis of recreational impacts.

Comment No. 23-4

The Humboldt Bay Harbor, Recreation and Conservation District should decline to issue the requested permits and select a less damaging project alternative, allowing limited oyster production only in the western portion of Arcata Bay, Humboldt County, California.

Response to Comment No. 23-4

See response to Comment 23-2.

Comment Letter No. 24

David Ward, MS, eelgrass and waterfowl biologist
6700 Fernhill Ave.
Anchorage, AK, 99516

Jeff Black, PhD, DSc, waterfowl biologist
1440 Union Street,
Arcata, CA, 95521

Comment No. 24-1

We are concerned that the Recirculated Draft Environmental Impact Report (RDEIR) fails to adequately address the environmental impacts associated with Coast Seafood's proposed aquaculture expansion into North Bay of Humboldt Bay. Eelgrass populations are the foundation habitat structure for this bay, conferring substantial benefits to local and global communities, including support of invertebrates, fishes, waterfowl, and other marine wildlife. Besides providing habitat at various life stages for economically important species, eelgrass populations deliver other ecosystem services in the form of sequestering carbon in the underlying sediments (NOAA 2014). Seagrasses sequester 15 times as much carbon as tropical forests per hectare of area, and thus, play a critical role in the reduction of global carbon levels. For these and other reasons mentioned below we advise against the expansion for the following specific reasons:

Response to Comment No. 24-1

The importance of eelgrass habitat is well recognized within the R-DEIR. *See* R-DEIR § 6.5. However, the current understanding of shellfish aquaculture is that it also can provide nursery habitat for the same species noted above (Ambrose and Anderson 1990, Doty et al. 1990, Dumbauld et al. 1993, Eggleston and Armstrong 1995, Simenstad and Fresh 1995, Magnusson and Hilborn 2003, Hudson 2016, NMFS 2016a). Several studies related to habitat connectivity also indicate that a diversity of habitats, including mudflats, and access to channels are important ecological characteristics within an estuary, especially for highly migratory species (Holt et al. 1983, Orth et al. 1984, Boström et al. 2006, Hosack et al. 2006, Sheaves 2009). The best available science, as discussed in the R-DEIR, supports the conclusion that shellfish aquaculture neither impedes movement between habitats nor significantly degrades the type of habitat that can be used by species within estuaries. One of the more relevant statements made recently by NMFS (2016a) was that,

“there are no ESA-listed salmon stocks in any of the watersheds that feed Willapa Bay and Grays Harbor, suggesting that aquaculture, which has been in place in these areas for over 100 years, is not a limiting factor there.”

Comment No. 24-2

1. The revised plan does little to reduce (1% reduction, 6 acres) the impact footprint on eelgrass habitat into North Bay proposed in the original aquaculture expansion. The revised plan will still impact 594 acres of eelgrass extent or about 30% of all eelgrass cover in Humboldt Bay. Keep in mind that the eelgrass in this bay also represents about 30% of the remaining eelgrass habitat in California and the largest remaining bed of intertidal eelgrass along the Pacific coast between Mexico and Washington. All other large bays in California have lost and degraded their intertidal eelgrass beds from human development and activities (Wyllie-Echeverria and Short 1996). Humboldt Bay's location in northern California, distant from other large embayments, and its unique combination of dense cover of intertidal and subtidal eelgrass populations creates a highly productive and species diverse ecosystem.

Response to Comment No. 24-2

See Topical Response 2 regarding additional analysis of project-related impacts to eelgrass.

Comment No. 24-3

2. The original DEIR and the RDEIR has misapplied our assumptions published in the journal *Ecosphere* (i.e. Stillman et al. 2014); we were coauthors of this publication, providing information about the geese and eelgrass for the mathematical model described in the paper. The revised plan suggests that there will be insignificant impact to foraging black brant (Appendices E and F), but it is clear from the 2015 Brant Survey (Appendix E) that these geese avoid aquaculture plots during low tides, when brant do most of their feeding and when most nutritious eelgrass is available. The survey showed use of the aquaculture plots during high tide when the longlines and eelgrass are underwater but it is not known whether brant are feeding successfully on the eelgrass in the plots. So how can the expansion have an insignificant impact on brant foraging? Using a project-specific model and some of the same input parameters as in Stillman et al 2014 (Appendix F), a conclusion was made that the reduction in bay-wide eelgrass biomass posed by the existing and proposed expansion would be low (3%) and have insignificant impact to brant foraging. Why is 3% deemed insignificant? This conclusion assumes that brant would forage on shoots taller than the longlines and other structures (when tide height allows) and aquaculture proposed in the October 2015 DEIR would have reduced overall eelgrass biomass by 5% within the project footprint. Both assumptions are untested assumptions. Furthermore, we presume the "low and insignificant" conclusion was based on a so called '10% threshold' for an impact on brant foraging based on Stillman et al (2014). It seems that the 10% threshold attributed to Stillman et al. (2014) has been applied inappropriately in the DEIR/RDEIR. This shortcoming was pointed out in our previous letters. As coauthors of the Stillman et al. (2014) paper, we were not commenting on whether 10% or any% was acceptable. We were merely describing which factors had the most impact on the bird's behavior over a 100-year period as sea levels changed. Here's the quote from our paper

"We assess the amount of change that occurs in stopover duration (days) and daily mass gain (g per day) after each model input parameter was increased and decreased sequentially by 10% relative to the originally assigned parameter value. We chose to vary each parameter value by a fixed amount, rather than by the amount by which the parameter varies in the real system, because the amount of variation has not been measured in all cases."

Response to Comment No. 24-3

See Topical Response 4 for additional discussion of the project's impacts to brant and use of the Stillman et al. (2015) model. The R-DEIR acknowledges that the project will result in brant avoidance of longlines when longlines are exposed at low tides, and quantifies that impact, ultimately concluding that the project will have a less than significant impact under CEQA given the availability of eelgrass in Humboldt Bay to meet brant dietary requirements and the project's no net loss of eelgrass function (upon incorporation of mitigation). This conclusion is based on the best science available, using studies that have evaluated impacts associated with the same cultivation methods proposed by the project in Humboldt Bay. See Impact BIO-25 for additional analysis.

As further noted in BIO-25, the Stillman et al. (2015) model uses a conservative estimate of the total eelgrass biomass available in Humboldt Bay. Eelgrass biomass at the beginning of their model simulation is calculated only for the three youngest shoots of the turion occurring within "dense eelgrass beds" (based on NOAA Coastal Services mapping 2009), and thus does not include biomass for older shoots or eelgrass occurring throughout the bay in "patchy" eelgrass patches (defined as >10% to <85% cover). Brant preferentially feed on the three youngest shoots because they are the most energetically dense (Moore 2002), and tend to choose areas of higher biomass and nutritional quality (Moore and Black 2006b); however, they also forage in areas of lower biomass and nutritional quality due to tide-height restrictions to high-quality foraging areas (Moore and Black 2006b) and brant consume the older leaves, although in smaller proportions (Moore 2002). Brant are observed over longlines when tides permit. Based on these studies, and an understanding of brant dietary habitats, there is no reason to assume that brant would be occupying longline areas for reasons other than to feed on eelgrass shoots.

A 10% change in environmental conditions was used as a basis for the less than significant determination because the model predicts this amount of environmental change to have a statistically significant (as opposed to significant under CEQA) effect, and no other information was provided in the manuscript to support an inference that any value less than 10% that would result in an effect on brant. See response to Comment 17-53 for additional discussion of the thresholds established in the Stillman et al. (2015) model and incorporation in the R-DEIR analysis.

Comment No. 24-4

3. The expansion will affect 594 acres of eelgrass, most of which is continuous intertidal eelgrass (i.e., beds exposed at >-0.5 feet mean lower low water tides), a relatively rare eelgrass population along the Pacific coast from Washington to Mexico. The affected area represents about 25% of the mean spatial extent of all eelgrass in North Bay, but a majority of its intertidal eelgrass population (based on mean spatial estimates from 1997-2009 in Appendix D of draft EIR).

4. There is little evidence that current trends in eelgrass abundance (biomass) and distribution (spatial extent) are stable in Humboldt Bay. There have been few quantitative bay-wide surveys of

trends for the distribution and abundance of eelgrass in this bay since 2009. A survey in 2015 associated with this RDIR showed a 20% decline from 2009 levels. We would argue that losses will likely continue as they have done in 5 of 6 major embayments with eelgrass in southern California and Baja California through degradation from human and environmental impacts. Significant declines have been reported at Morro Bay, CA where spatial extent has dropped by 96% from 139 ha in 2007 to 5 ha in 2015 (Merkel 2015) and at Mission Bay, where spatial extent has decreased by 25% since 1997 (Merkel 2013). The eelgrass distribution has remained relatively stable in San Diego Bay; however, estimates in 2014 are below levels in the mid-2000s (Merkel 2014a). Negative trends in eelgrass spatial extent have also been reported in Baja California at San Ignacio Lagoon (37% decline since 2000; López-Calderón (2012), and San Quintin Bay (35% decline since 1987; Ward et al. 2003, Simancas 2013).

Response to Comment No. 24-4

See response to Comment 17-15 regarding worldwide declines in eelgrass and the related causes for such decline. In terms of the literature cited above, this information provides an understanding of the stressors that have resulted in eelgrass declines within the different estuaries:

- Merkel 2015: This is a monitoring report of eelgrass beds in Morro Bay, CA. The authors indicate that the eelgrass wasting disease (*Labyrinthula zosterae*) was noted in 2012, and declines have continued since that time. This report also documents the progress of the recovery plan for Morro Bay eelgrass since 2012. While this study is alarming in terms of eelgrass loss and lack of recovery as of 2015, it is not related to shellfish aquaculture impacts to eelgrass and is not a similar situation as that occurring in Humboldt Bay eelgrass beds. It is notable that the risk of infection from the eelgrass wasting disease is typically greater in plants that are already subject to stressors related to increased temperatures, disturbance, or pollution. At least in terms of water quality, the presence of a shellfish industry can improve water quality and the overall health of an estuary.
- Merkel 2013: This is a monitoring report of eelgrass beds in Mission Bay in San Diego, CA. The authors indicated that eelgrass has expanded over much of the bay floor. Eelgrass showed a recovery between 2007 (the lowest measurement) to 2013 of 123 acres. In addition, eelgrass occupied 43% of the bay in 2013, which was an increase from the 2007 survey period. The authors attributed the recovery to changes in water quality and bay health, including fewer severe sewage spills, fewer construction projects and increase in BMPs, effective storm water interception, and reduced runoff of nitrogen rich fertilizers. This was consistent with the previous trends in eelgrass expansion and loss in Mission Bay where it was noted that the significant expansion between 1988 to 1997 was related to water quality improvements. The significant loss of eelgrass in 2007 was attributed to the eelgrass wasting disease, which was also connected to a die-off event in Humboldt Bay in 2013.
- Merkel 2014a: This is a monitoring report of eelgrass beds in San Diego Bay, CA. This report documents that eelgrass has been in continued recovery since the decline between 2004 and 2008 from the eelgrass wasting disease. Between 2008 to 2014, there has been an expansion from 1,315.1 acres to 1,955.7 acres, most of which (39%) occurred between 2008 and 2011. While eelgrass was still lower in 2014 as compared to the record high in 2004, the trend is increasing not decreasing.

- López-Calderón 2012: This is a doctoral dissertation in San Ignacio Lagoon from the Universidad Autónoma de Baja California. Based on a summary of a workshop for seagrass beds in Laguna San Ignacio and adjacent areas (Riosmena-Rodriguez 2009) it was noted that seagrass distribution is highly variable, including seasonal reductions between December and April. The estuary also has significant resources of other seagrasses (e.g., *Gracilaria vermiculophylla*, *Ruppia maritima*), and there were declines between 2005 and 2008, which is consistent with eelgrass declines farther north (San Diego Bay and Mission Bay) in the same timeframe. A more recent update for this estuary (Riosmena-Rodriguez and Lopez-Calderon (2012)) indicated that there has been a 37% decline between 1990 to 2005 (based on Landsat images), and cited overfishing of scallops (wild fishery), use of prohibited fishing gear, high temperatures, and lack of sexual reproduction for recovery as the main factors for the decline.
- Ward et al. 2003: This was an analysis of spatial change of eelgrass distribution in Bahia San Quintin, Baja California, Mexico, in 1987 and then again in 2000. The comparison of the two years showed a 13% loss of eelgrass areal extent, with most losses occurring in the subtidal areas. During the 13-year period, intertidal eelgrass classified as patchy expanded by approximately 250 ha and eelgrass classified as continuous declined by 114 ha. Losses were attributed to sediment loading and turbidity caused by a flooding event in the winter of 1992-93. As stated in the paper: “Oyster farming was not associated with any detectable losses in eelgrass spatial extent, despite the increase in number of oyster racks from 57 to 484 over the study period.”

It is notable that the examples of eelgrass loss along the West Coast reported above are almost all related to poor water quality conditions, and yet multiple bays that have thriving eelgrass habitat also have shellfish aquaculture industries (e.g., Willapa Bay, Grays Harbor, Samish Bay, Tillamook Bay, Netarts Bay, Yaquina Bay, Tomales-Drakes Bay), all of which are also important fall and winter stopover areas for black brant along the West Coast. While the trend in eelgrass stability in connection with bays that also have shellfish aquaculture cannot be definitively correlated with the presence of a shellfish aquaculture industry, the ancillary benefits to water quality that result in having a thriving shellfish aquaculture industry in a waterbody is present in all of the above estuaries. If, as numerous of the cited literature indicate, water quality is a controlling factor to eelgrass resources throughout the world, then it is reasonable to conclude that a well-designed shellfish aquaculture operation can be a good management policy within an estuary.

Comment No. 24-5

5 Humboldt Bay is considered a key spring staging location for black brant returning from north from Mexico, where the majority of the Pacific Flyway (PF) population winters. Brant stop here because of its high eelgrass abundance and its relative isolation from adjacent stopover locations (Moore et al. 2004). Stillman et al (2015) showed that only minor losses (10%) in eelgrass abundance and feeding time may affect the bird's duration of stay and mass gain for subsequent northward migration. This is important because delays in migration and reductions in body reserves can have negative consequences on the probability that these birds breed, and the success of their clutch and survival of offspring, if they do nest (Sedinger et al. 2011, Schamber et al. 2012). Currently, the PF population of black brant is in decline caused by reductions in juvenile survival and recruitment that is likely linked to reductions in eelgrass during winter and migration (Sedinger et al. 2011).

Response to Comment No. 24-5

The R-DEIR agrees with this comment that Humboldt Bay is a critical staging area for brant, that eelgrass is a critical food resource for brant, and that lack of adequate food resources can impact brant migration and population levels. *See* R-DEIR pgs. 6.5-32 through 6.5-35. The R-DEIR uses the Stillman et al. (2015) model and thresholds identified in the comment to evaluate the project's impacts to brant. *See* Impact BIO-25 and R-DEIR Appendix F for additional analysis.

Comment No. 24-6

6. Recent eelgrass losses reported above have been greatest for intertidal populations, the eelgrass population that will be potentially most affected by the expansion. San Quintin Bay has lost 45% of its intertidal eelgrass (1046 ha in 2000 to 433 ha in 2014), including nearly all of its dense cover of intertidal eelgrass (604 ha in 2000 to 5 ha in 2014} over the last decade (Ward et al. 2003, Simancas 2013). Only sparse eelgrass remains. Similarly, Morro Bay has lost virtually all of its intertidal eelgrass beds. Humboldt Bay managers should guard against similar losses in Humboldt Bay.

Response to Comment No. 24-6

See response to Comment 24-4 and Topical Response 2 for additional analysis of the project's impact to eelgrass.

Comment No. 24-7

Given the downward trends in eelgrass spatial extent at Humboldt and other embayments of California, we believe that it unwise for the Coast Foods oyster expansion to occur in Humboldt Bay because of the likely negative impacts to the intertidal eelgrass beds and the community it supports. Eelgrass populations along the Pacific coast are currently under stress and it would be imprudent to add additional stresses to this threatened and cherished biotype.

Response to Comment No. 24-7

See response to Comment 24-4 and Topical Response 2 for additional analysis of the project's impact to eelgrass.

Comment Letter No. 25

EDWARD MACAN
1812 16th Street
Eureka, California 95501
(707) 441-1292
hermeticl@earthlink.net

Comment No. 25-1

As you know, Humboldt Bay is a globally significant Important Bird Area. The dense eelgrass beds

and mudflats of Humboldt Bay support Pacific herring, Dungeness crab, waterbirds, and the highest diversity of shorebirds on the west coast and some of the highest abundances.

Response to Comment No. 25-1

The R-DEIR acknowledges the importance of Humboldt Bay to birds and the other species listed in the comment. *See* R-DEIR § 6.5.

Comment No. 25-2

Coast Seafoods already farms 300 acres in the bay- twice as large as the farming footprint in Tomales Bay. These farms damage eelgrass beds and exclude birds from their feeding grounds. Now the company wants to exploit this loophole to expand its farming convert more than 600 additional acres of healthy eelgrass in Humboldt Bay to oyster fanning. This massive project would convert an additional 20% of Humboldt Bay's eelgrass to oyster farming.

This proposal is not in alignment with the values of a majority of the residents of the city of Eureka, or of Humboldt County at large.

Response to Comment No. 25-2

See Topical Response 2 regarding impacts to eelgrass and Topical Responses 4 and 8 for additional discussion of the project's impacts to birds.

Comment No. 25-3

Please reject Coast Seafood's revised EIR and support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the Bay, starting with consolidating oyster farms on the west side of the Bay.

Response to Comment No. 25-3

In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA and locates the majority of Coast's proposed expansion in West North Bay. *See* FEIR Section 4, *Revisions to the R-DEIR*.

Comment Letter No. 26

James S. Sedinger
30 Sagittarius Court
Reno, NV 89509

Comment No. 26-1

I am writing to express my concern about the proposed expansion of shellfish culture in Humboldt Bay. Please add this letter to the comments section of the project history file associated with:

RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT

Coast Seafoods Company
Humboldt Bay Shellfish Aquaculture
Permit Renewal and Expansion Project
Humboldt County, California
SCH #2015082051
July 2016

Response to Comment No. 26-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 26-2

Brant are nearly completely dependent on eelgrass for nutrition outside their breeding period, when they are in the Arctic. The proposed expansion has the potential to substantially impact eelgrass beds that survey data show are heavily used by brant. As Black and Ward point out eelgrass has been substantially reduced along the Pacific coast of North America. Our work has shown that reproductive performance of brant is directly tied to their access to eelgrass (Sedinger et al. 2006, 2011) and older work shows that brant disproportionately use bays with greater abundance of eelgrass (Wilson and Atkinson 1995).

Response to Comment No. 26-2

See responses to Comments 24-4 and 24-5. The R-DEIR agrees with this comment that eelgrass is critical to brant. *See* Topical Response 2 regarding the project's impacts to eelgrass and Topical Response 4 and Impact BIO-25 for an analysis of the project's impact to brant foraging capabilities and food resources.

Comment No. 26-3

Recent work shows that fall age ratios (proportion young in fall) in brant are declining rapidly (C. Amundson unpublished manuscript) and have been below the level needed to maintain populations for about the past decade. These declines represent in part events on breeding areas in Alaska (Sedinger et al. 2016) but declining productivity could also reflect declining habitat quality on wintering and migration areas (see above).

More importantly, annual survival of both first-year brant and adults, from both southwestern Alaska and the north slope of Alaska has declined substantially since 2000 (Leach et al.

unpublished). Sport hunting accounts for only a small portion of these declines. While habitat quality has declined in southwestern Alaska over that period, habitat on the north slope of Alaska is excellent. Thus, the similar trends in survival of multiple age classes of brant that nest in widely separated areas suggests declines in quality of habitat in wintering and migration areas. These declines in survival when combined with declines in productivity indicate a population in serious peril. Consequently, no conversion or loss of important habitat for brant can be justified at present. I recommend that Coast Seafoods request for expansion be denied.

Response to Comment No. 26-3

The project is not anticipated to result in an impact to the brant population or brant migratory patterns. *See* Topical Response 4 for additional discussion of this issue.

Comment Letter No. 27

Cliff Feldheim
3880 Solomon Island RD
West Sacramento CA, 95691
916-376-0548
cfeldheim@gmail.com

Comment No. 27-1

Although I do not live in Humboldt County anymore (I have fished and hunted Humboldt Bay since 1992 from the shoreline and in a boat), I still travel on a regular basis to the Bay with my family to view birds and hunt waterfowl, particularly Black Brant. I am strongly opposed to your District renewing the permit and approving an expansion of oyster production by Coast Seafoods Company.

Response to Comment No. 27-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 27-2

Permitting a considerably larger footprint to install more oysters on long lines in Arcata Bay would significantly impact eelgrass habitats, sensitive species, herring fisheries, Black Brant, waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. Eel grass habitats are increasingly rare along California's coast, and of critical importance to species such as Black Brant.

Response to Comment No. 27-2

See Topical Response 2 for additional discussion of the project's impacts to eelgrass. *See* Topical Response 3 for additional discussion of herring impacts. *See* Topical Responses 4 and 8 for

additional discussion of brant and shorebird impacts, respectively. *See* Topical Response 7 for additional analysis of recreational impacts.

Comment No. 27-3

The impact of an increased oyster farming footprint on the Bay has not been adequately mitigated by the R-DEIR. Impacts to waterfowl, particularly ducks and Black Brant were dismissed as insignificant without any review of the scientific literature. The scientific literature has shown clearly that increased disturbance on wintering waterfowl prompts them to leave an area, see the work listed below (as well as the references within these manuscripts):

Fleskes, J. P., J. L. Yee, G. S. Yarris, M. R. Miller, and M. L. Casazza. 2007. Pintail and mallard survival in California relative to habitat, abundance, and hunting. *Journal of Wildlife Management* 71:2238-2248,

Fleskes, J.P., D.S. Gilmer, and R.L. Jarvis. 2003. Distribution of female northern pintails in relation to hunting and location of hunted and non-hunted habitats in the Grassland Ecological Area, California. *California Fish and Game* 88(2): 75-94).

Melissa L. Pease, Robert K Rose, Mark J. Butler, 2005. Effects of human disturbances on the behavior of wintering ducks, *Wildlife Society Bulletin* April 2005: Vol. 33, issue 1, pg(s) 103-112

Schmidt, Peter E., 1999. Population counts, time budgets, and disturbance factors of black brant (*Bran ta bernicla nigricans*) at Humboldt Bay, California. MSc. Thesis, HSU.

Response to Comment No. 27-3

The available scientific literature was extensively reviewed in Impacts BIO-26 through BIO-33. Additional analysis of project-related impacts to brant and shorebirds is provided in Topical Responses 4 and 8, respectively. *See* response to Comment 17-55 for additional discussion of the Schmidt (1999) thesis. Fleskes et al. (2007 and 2003) deal primarily with the effects of human hunting pressure, and not the anthropogenic activities associated with oyster culture. The former concluded that “Nonhunting mortality had a small effect on winter survival compared to hunting.” Pease et al. (2005) investigated the responses of 7 species of dabbling ducks to: a pedestrian, a bicyclist, a traveling truck and an electric passenger tram. The authors recorded whether a duck showed no observable response, became alert, swam away or flew away in response to these various disturbance types. That study did not determine how long individual ducks left an area if they flew, nor did it directly address potential impacts of anthropogenic disturbance on survivorship or reproduction.

Comment No. 27-4

Additionally, the section addressing the impacts to recreational boating has failed to address safety. Adverse impacts can range from boat damage, physical harm or death to the boaters while attempting to extricate themselves from the oyster gear. The oyster culture gear can block the use of the Bay and disrupt the enjoyment of the natural resources in the Bay.

Response to Comment No. 27-4

See Topical Response 7 for additional discussion of recreational impacts.

Comment No. 27-5

The Bay has a long tradition of hunting and fishing and this project threatens those traditions, as well as, the wildlife that use the Bay (some of which can be found few places in California, I am opposed to renewing the permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Permit Requests in Arcata bay.

Response to Comment No. 27-5

See Topical Response 6 for additional discussion of hunting impacts.

Comment Letter No. 28

Stan Brandenburg, P.E.
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Cutten, CA 95534
stan.brandenburg@gmail.com

Comment No. 28-1

The importance of North Humboldt Bay's Eelgrass meadows to the health and well-being of California's native fish and wildlife is very well documented. They are an irreplaceable part of California's Public Trust and as such must be treated with utmost care to ensure their viability and vitality as an ecosystem for all posterity.

Please add this letter to the comments section of the project history file associated with:

RECIRCULATED DRAFT ENVIRONMENTAL IMPACT REPORT
Coast Seafoods Company
Humboldt Bay Shellfish Aquaculture
Permit Renewal and Expansion Project
Humboldt County, California
SCH #2015082051
July 2016

Response to Comment No. 28-1

The R-DEIR agrees with the comment and acknowledges the importance of Humboldt Bay for a number of species. *See* R-DEIR § 6.5.

Comment No. 28-2

Coast Seafood's DEIR proposes a significant mariculture expansion in the eelgrass meadows of North Humboldt Bay, CA. The polygons shown in Figure 1.1 of the DEIR expose an overreach and trivialization of the health and well-being of this vitally important estuary. Polygons on a map translate into a reality that is far different from the ideas that they represent. The picture below is representative of what these polygons will look like if Alternatives 1 and 2 of this proposed project are allowed to proceed. 622 acres is 18 acres shy of 1 square mile. These hatched areas on a map will translate into solid oysters with little room for anything or anyone else. A square mile of oysters...

Response to Comment No. 28-2

The proposed acreage is not continuous and is proposed to be located in a number of different locations in North Bay. *See* response to Comment 16-2 for additional discussion regarding the scale of the proposed project.

Comment No. 28-3

Based on over 40 years of observation while hunting, fishing, and working on Humboldt Bay, I would like to rebut the following claims of less than significant in addition to some proposed conservation and mitigation measures contained in Coast Seafood's July 2016 DEIR (SCH #2015082051).

Response to Comment No. 28-3

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 28-4

1. Conservation BI0~11 states that, "Coast will not intentionally approach or harass marine mammals during vessel transits."

Although Coast says they will not intentionally approach these animals, it is easily observed that any vessel traffic, intentional or not, will run harbor seals off of their haul outs, especially a large skiff. And since low tide is when Coast will transit to and from proposed culture areas they will be continually disturbing these animals. How about a 1000' operational exclusion zone around any known Marine Mammal haul-outs? This is the equivalent of two city blocks. (A block is approx. 500ft).

Response to Comment No. 28-4

NOAA has established guidelines for managing marine mammals to prevent their harassment whether in water or when hauled out which identifies a buffer zone of 100 yards (approximately 91 m) as protective and allows for cautious approaches by vessel to marine mammals in water up to 50

yards (NOAA 2006). The proposed expansion plots would be located approximately 300 m from the only identified marine mammal haul-out location within the project area, located on Sand Island (*see* R-DEIR Figures 6.5.27 and 6.5.28). There is no data to indicate that current, or expanded, vessel operation associated with the proposed project would result in significant disturbance to marine mammals. Coast has also committed through Conservation Measure BIO-10 to not conduct activities when marine mammals are observed to be hauled out in or near culture areas. The R-DEIR concludes that this conservation measure, in connection with Conservation Measure BIO-11, will minimize disturbances to marine mammals.

Comment No. 28-5

2. Conservation BIO-12: "Coast will not intentionally approach or harass migratory birds that are actively feeding or resting within the project area"

Again, as with the marine mammals, intent is not the issue. Just by transiting to and from culture areas both resident and migratory birds will be disturbed and pushed off their feeding and resting areas. During hunting season, every time an oyster skiff transits one side of North Bay or the other, the Brant and ducks get up and fly to the other side of the bay or leave the bay entirely because they have a flight distance in excess of 1000 yards (1/2 mile). There is no way around it except to prohibit boat traffic entirely, which is unreasonable, or perhaps impose a 5mph speed limit on North Humboldt Bay from 15 October to 15 April, which is the peak duration for migratory waterfowl and shorebirds. I cannot count all the hunts that have been ruined for me over the years because an oyster skiff flushed the birds away that I was hunting. And the same thing happens during the off-season, Skiffs scare birds. Additionally, since the proposed project limits under Alternatives 1 and 2 lie squarely in the middle of all prime feeding/resting/rafting areas in North Humboldt Bay, both resident and migratory birds will get little or no rest and will leave under duress. That is what migratory birds do when they get too much pressure, they leave. Perhaps an appropriate alternative conservation measure would be no mariculture activities whatsoever on Wednesdays, Saturdays, Sundays, and Holidays from 15 October to 15 April. This alternative conservation measure would ensure the migratory birds get plenty of feed and rest while here.

Response to Comment No. 28-5

See Topical Response 4 regarding project-related impacts to brant and Topical Response 6 for additional analysis regarding hunting impacts. Regarding disturbances to birds, it should be noted that Kelly et al. (1996) found "no movements of shorebirds into or out of plots related to the presence of oyster workers on aquaculture plots" during a study of oyster culture in Tomales Bay, California, suggesting no negative impact from disturbance caused by workers planting, maintaining, and harvesting the shellfish cultivation plots. The Kelly et al. (1996) study evaluated impacts associated with rack-and-bag culture, which require daily maintenance as compared by longline culture, which only requires maintenance once every one to four months. *See* R-DEIR Table 4.3. Therefore, disturbances associated with the project would even be less than those found to be insignificant in the Kelly et al. (1996) study.

However, in response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA. *See* FEIR Section 4, *Revisions to the R-DEIR*. A restriction that would prevent

Coast from conducting all shellfish operations for half the year is economically and logistically infeasible, in that it will disrupt the planting, maintenance, and harvesting of the oysters, prevent maintenance of Coast's cultivated plots in violation of a number of the proposed mitigation measures and conservation measures adopted in the R-DEIR, and prevent cultivation and harvesting of its product during peak season, which would set the company at a significant competitive disadvantage as compared to the rest of the shellfish industry. Given that impacts associated with brant and hunting are considered less than significant, no further mitigation is required.

Comment No. 28-6

3. Impact BIO 25, CONSERVATION BIO-12 and Mitigation BIO-I: " ... Coast will convert 100 acres of its existing culture footprint from 2.5 ft. spaced single-bung cultch on loogline to 10-ft spaced, double-bung cultch-on-longline."

These proposed conservation and mitigation measures indicate a total lack of understanding of the feeding and roosting habits of Black Brant in North Humboldt Bay. In my 40+ years of observation, I know that these birds want nothing around them while feeding or roosting except bare mudflat or eelgrass meadow. It is a safety mechanism from predators and a good one. They shy away from any objects that stick up because they might conceal a predator. This behavior is exactly why hunters are not allowed to use a sink box, or use a vessel that conceals the hunter below the waters' surface. Ever since cultch and bag on longline have been placed on North Humboldt Bays' eelgrass meadows it has been my observation that normal, healthy Brant will neither feed nor roost in *any* area where either cultch on longline or bag on longline are located when exposed during low tide periods. This behavior is observable wherever these types of mariculture exist in North Humboldt Bay and has shown no signs of changing. And this goes for the majority of other resident and migratory birds too. Placing this mariculture on 10' spacing will do nothing except continue to deny North Humboldt Bay's migratory and resident bird populations the opportunity to feed and roost wherever it is placed. I do not see anywhere in the document where there has been an analysis on Black Brant Feeding Habits and Mariculture spacing's in North Humboldt Bay. Are there any test plots? A 100' spacing between 12' rows would be a good place to start. Furthermore, migratory waterfowl raft and rest above their feeding areas until the tide drops out. Since cultch and bag on longline stick up from the bottom, as much as three feet in places, these birds are forced to swim off their feeding and rafting areas because the PVC pipes start sticking them in the chest and their feet hit the submerged oysters and ropes. They don't like it. Alternatives 1 & 2 of this proposal will severely impact the feeding and resting habits of Black Brant and other migratory waterfowl through displacement.

Response to Comment No. 28-6

Impacts to brant, waterfowl, and shorebird foraging are discussed in Impacts BIO-25, BIO-32, and BIO-33, respectively. Two sources of empirical evidence indicate that brant only avoid aquaculture areas when infrastructure is exposed above the water surface, as described in Impact BIO-25 and R-DEIR Appendix E. First, time lapse video footage indicates that brant will traverse areas with longline infrastructure until the infrastructure emerges above the water surface. The time lapse video indicated that brant return to aquaculture areas when water begins to cover the infrastructure. In addition, results of 2015 North Bay brant surveys (R-DEIR Appendix E) indicate that brant traverse aquaculture plots when infrastructure is submerged at a similar rate to areas that lack

infrastructure. The analysis in BIO-25 uses these empirical observations to explicitly account for brant avoidance of aquaculture infrastructure and the associated loss of foraging opportunities as part of the project-specific modeling. The same empirical observations described in R-DEIR Appendix E also established that other waterfowl and shorebirds readily forage under aquaculture longlines. Locating lines at 100-ft spacing is economically infeasible, given that it would reduce farm output by 95%. Given that the project-related impacts to birds are less than significant, further mitigation is not required.

Comment No. 28-7

4. IMPACT BIO-27: (See Coast Figure 1.1 below)

Although no major Brant gritting sites fall directly within proposed areas, the substantial increases in boat and human activities associated with Alternatives I and 2 will cause Brant to leave the area, thus denying them the use of their grit sites. Additionally, the DEIR only identifies one gritting site (#4) which puts suspicion on the data used, because most Brant hunters know that Sand Island and the sandbar immediately to east (#1 & #2) are the major gritting sites in North Humboldt Bay and they are not even identified.

Response to Comment No. 28-7

The area adjacent to Sand Island is identified as a brant gritting site in the R-DEIR. *See* Impact BIO-27, R-DEIR Figure 6.5.28. *See* response to Comment 9-6 for additional discussion of project-related impacts to brant grit sites.

Comment No. 28-8

6. IMPACT BIO-28: (See preceding rebuttals to IMPACTS BIO 25-27)

6.11.4 Effects analysis of proposed project

Impact Rec-2 effects on recreational users of the bay.

Impacts to recreational boaters:

"The increased presence of aquaculture equipment in the bay has the potential to impact recreational users of the water including hunters, kayakers, canoers, and stand-up paddle boarders."(COAST DEIR)

"Upon implementation of Conservation Measures REC-1 and REC-2, IMPACTS REC-1 and REC-2 would be less than significant". (COAST DEIR)

At least this document acknowledges that there is a potential for impact to recreational boaters. However, the proposed conservation measures REC-1 and REC-2 make slight of the navigational hazards posed by this type of aquaculture equipment.

REC-I which proposes a Hunting Avoidance Area during Brant Season in a small portion of North Bay ignores the reality that high speed boat activity of any kind will flush migratory waterfowl at flight distances in excess of 1000 yards during hunting season. I have had innumerable hunts ruined by oyster skiffs over the years flushing the birds I was hunting, intentional or not and they were not just in the eastern portion of North Bay. Some of Humboldt Bay's most productive historic hunting grounds are located in the western half of North Bay, and there is no mention anywhere about a HAA anywhere in this portion of the Bay. The proposed increase in boat traffic will make open water waterfowl hunting in North Bay next to impossible. To say that this measure mitigates for loss of recreational hunting opportunity is indicative that this measure was written by someone who has never done it. The only sure way to prevent user conflict is cease all aquaculture operations during daylight hours coincident with the regular waterfowl season on Wednesdays, Saturdays, Sundays, and Holidays. That is 43 legal hunt days.

Response to Comment No. 28-8

See response to Comment 28-5. *See* Topical Response 7 for additional discussion of project-related impacts to recreational uses.

Comment No. 28-9

REC-2 makes a feeble attempt to address the inherent hazards to navigation that this aquaculture gear poses for vessels of all types.

1. Before 1997 this gear *did not exist* on Humboldt Bay. It was reasonable to assume that one could navigate the soft sediments of North Bay's intertidal zone in a skiff, scullboat, canoe, kayak, paddleboard or any other small shallow draft boat provided there was at least 1.5 feet of water for cover. This is no longer true. These man-made hazards to navigation are very dangerous and have the potential to cause serious material damage, injury, or death. Posting coordinates on a website and assuming a 10' or 16' long line spacing to mitigate for placing these hazards in Public, Navigable Waters is irresponsible at best and borders on negligence. A map will not help when it is dark, foggy, windy, or no OPS. And to assume a fixed safe navigational direction ignores the fact that the wind does not care about direction.

2. I cannot count how many times that I have used the eelgrass meadows as a safe haven from the wind and the current in North Bay's channels while hunting. Wherever this aquaculture gear is placed makes what was previously a safe haven very dangerous given the right conditions.

Response to Comment No. 28-9

See Topical Response 7 for additional discussion of project-related impacts to recreational uses. The project will be mapped and marked to provide appropriate notification of the location of the proposed aquaculture plots to permit avoidance by recreational users.

Comment No. 28-10

3. Additionally, Coast currently stacks harvest baskets in a haphazard manner (Figure 2.) and these steel baskets stick up 6', which is an average high tide. They did not exist in North Humboldt Bay's eelgrass meadows prior to 1997 either. Hit one of these and it will rip the motor off, hole the boat, or both.

Figures 3a, 3b, and 4 show the reality of existing hazards from the current 297 acres of this aquaculture gear. This gear sticks up out of the mud from a three-foot minimum to a maximum of 5' and is poorly marked. This is the kind of gear maintenance that can be expected from Coast. Adding another 622 acres to it would make the vast majority of North Bay's eelgrass meadows unnavigable at mean low tide levels and very sketchy at mean high tides because there is no way to tell exactly how much water is covering the beds. To say that there is no significant impact ignores the realities of safe navigation. I am very concerned about the safety of junior or inexperienced hunters and recreational boaters colliding with these man-made structures.

Response to Comment No. 28-10

The pictures referenced in the comment were taken after longline stakes became elevated during storm activity and are not representative of typical longline post elevations. As further described in R-DEIR § 4, longline stakes are approximately 12 inches above the substrate, with 18 inches of PVC pipe planted in the substrate. Double-hung longlines are planted at approximately 16 inches in height and basket-on-longlines are planted approximately 2.5 to 3-ft above the substrate. Any stakes partially dislodged or elevated due to storm activity or other environmental conditions will be resecured by Coast as part of its routine maintenance and marine debris surveys, required pursuant to Mitigation Measures HAZ-1, HAZ-4 and HAZ-5. See Topical Response 7 for additional discussion of recreational impacts.

Comment No. 28-11

Impacts to Recreational Hunting: Although Coast's DEIR acknowledges the exclusionary nature of culture equipment, to say that this proposed project has no significant impacts to recreational hunting ignores the following critical information: (for the sake of brevity, I will discuss Black Brant hunting only, but the effects will be the same with the regular waterfowl season)

1. Northern Black Brant season is 30 days long. Out of these 30 days, there are only 14 days that are legally huntable on North Humboldt Bay because of the Wed., Sat, Sun, Holidays restriction. This is a 53% decrease in hunt days before one even gets a boat wet.

2. Out of this 14-day season, there are only 132 legally huntable hours (14 days X 9.45 hrs. of legally huntable daylight hours).

3. North Bay's eelgrass meadows can be hunted anywhere as long as there is 1.5 feet of water covering them.

4. Wherever placed, cultch on longline, float-bag on longline and rack and bag mariculture effectively raise the huntable and navigable tide level to 3', or 3.5 feet depending on the vessel.

5. An analysis of the December 2016 tide tables for Humboldt Bay shows that of the 14 legally huntable days on North Bay, 11 of these days have afternoon daylight low tides that are below 3.5 feet.

6. Each of these low tides translates into a 3 hr loss of legal, available hunting time or more wherever this aquaculture gear is placed because this is how much time it takes the tide to cover the aquaculture gear in a manner sufficient enough to allow hunting. This translates into a minimum 31.5% loss of hunting time and this analysis does not even account for the loss of available layout hunting area. This much time is highly significant given the narrow window of opportunity recreational hunters have to hunt Black Brant.

Response to Comment No. 28-11

As provided by Conservation Measure REC-1, Coast will avoid operations in the Hunting Avoidance Area during brant season, thereby providing an uninterrupted portion of the bay where hunters can hunt without interference. As noted in the comment, hunters can access anywhere in North Bay to hunt brant. As further described in Topical Response 6, the project overlaps with 8.5% of the total available intertidal and subtidal hunting area in North Bay and 5.2% of the total available Humboldt Bay hunting area (including Entrance Bay and South Bay). While the project would not exclude hunters from planted areas, there would still be ample area within Humboldt Bay to hunt, even if hunters choose to avoid Coast's planted shellfish plots.

Comment No. 28-12

7. Mitigation 810-1. This mitigation measure indicates a total lack of understanding of the feeding and roosting habits of Black Brant in North Humboldt Bay. In my 40+ years of hunting North Bay, I know that these birds want nothing around them while feeding or roosting except bare mudflat or eelgrass meadow. It is a safety mechanism from predators and a good one. They shy away from any objects that stick up because they might conceal a predator. This behavior is exactly why hunters are not allowed to use a sink box or use a vessel that conceals the hunter below the waters' surface. Ever since cultch and bag on longline have been placed on North Humboldt Bays' eelgrass meadows it has been my observation that given a choice, normal healthy Brant will neither feed nor roost in any area where either clutch on longline or bag on longline arc located when exposed during low tide periods. This behavior is observable wherever these types of mariculture exist in North Humboldt Bay and has shown no signs of changing. And this goes for all the other birds too. Placing this mariculture on 10' spacing will do nothing except deny these birds the opportunity to feed and roost wherever it is placed. Furthermore, waterfowl raft and rest above their feeding areas until the tide drops out. Since cultch and bag on longline stick up from the bottom, as much as three feet in places, these birds are forced to swim off their rafting areas because the PVC pipes start sticking them in the chest and their feet hit the submerged oysters and ropes. They don't like it. Alternatives 1 & 2 will severely impact the feeding and resting habits of Black Brant and other migratory waterfowl through displacement and this displacement will severely impact the recreational hunting opportunities on North Bay as a result.

Response to Comment No. 28-12

See response to Comment 28-6.

Comment No. 28-13

8. Hunting Avoidance Area. Although this is a step in the right direction, the proposed HAA is bogus and will effectively be useless because of increased boat traffic and the fact that Brant are extremely skittish during hunting season. I have observed flight distances in excess of 1000 yards (1/2 mile) and it takes exactly one flush to drive the Brant from North Bay. I have witnessed this event too many times to count. I have also had more hunts ruined by oyster skiffs that I can count. Rowing 4 miles for a chance at a Brant only to have an oyster skiff flush them away leaves a really bad taste in one's mouth. The HAA should be all of North Bay during daylight hours coincident with legal hunt days. Furthermore, these rules should apply not only during Brant season, but the regular waterfowl season as well. Additionally, what hooters or group of hunters were consulted outlining the limits of the proposed HAA? California Waterfowl? Ducks Unlimited? Who were these individuals? Why they were not identified in the document? What was the criteria for determining this area?

Response to Comment No. 28-13

To clarify, the R-DEIR concludes that hunting impacts are considered less than significant without any mitigation. Conservation Measure REC-1 was included to respond to public comments received but is not relied upon in the R-DEIR to reduce impacts to less than significant levels. While the Harbor District and Coast have attempted to determine the areas used by brant hunters, including outreach to the California Waterfowl Association, CDFW, US FWS, and others, they have not been able to identify areas hunters use as primary hunting areas. No comments received describe the areas used by hunters other than general comments that hunters use all of North Bay. The best-known documentation of primary hunting areas are those described in the HBMP.

As further described in Topical Response 6, while the project would result in some overlap of hunting areas identified by the Harbor District in its HBMP, and would increase Coast's cultivation footprint within North Bay, over 90% of identified hunting areas and North Bay would remain free from any cultivation activity. Coast's cultivation activity is also not anticipated to exclude hunters from planted plots. Because the project is anticipated to result in less than significant impacts without mitigation, no additional mitigation is necessary. Further restrictions on Coast's operations to accommodate all waterfowl hunting seasons are not feasible, given that it would prohibit Coast from conducting its operations for approximately three to four months (October – January), including the months where shellfish demands are traditionally the highest, which would represent a severe competitive disadvantage to Coast in comparison to the rest of the shellfish industry and would make the project economically infeasible. *See* response to Comment 28-6 for additional discussion of disturbances to brant.

Comment No. 28-14

For the afore mentioned reasons, and many, many more, it is reasonable to conclude that an increase of this magnitude, or any increase at all has the real potential to devastate the recreational

Pacific Black Brant hunting in Humboldt Bay, possibly forever, because if the Brant populations crash, hunting will cease. Right now, North Humboldt Bay is the healthiest that I have ever seen it in my lifetime. The eelgrass meadows are recovering nicely from decades of abuse and are teeming with fish, birdlife, and eelgrass. The Brant stick around until April and the first of May like they should. A decent balance has been struck and it is good to see. The footprint of oyster mariculture has been reduced and seems to be at an acceptable level, although it is in need of serious improvements, but overall it seems workable at current levels.

However, now this balance is in serious jeopardy. Coast Seafood is proposing to blanket the Public eelgrass meadows of North Humboldt Bay with cultch on longline and float bag mariculture where none has ever existed. To allow this plan to proceed would remove all gains to the health of our magnificent estuary over the last 20 years and would be an egregious violation of the Public Trust. I have experienced firsthand the effects of greed and overharvesting natural resources. I am a former local commercial fisherman and logger and I know from personal experience that the ones who suffer from the aftermath of collapse are not the ones with fat bank accounts from extraction; it is always the land, the fish, wildlife and the people who work it. The derelict Pulp mills on the Samoa peninsula are testament to this fact. Remember the consequences of poor farming practices in the Prairie States? History remembers it as the Dustbowl. Let's not turn North Humboldt Bay into a Mud-bowl by allowing this aggressive proposal to succeed. It must be remembered that the primary management objective for North Humboldt Bay is the preservation of the eelgrass and the bays other environmental values.(ch.5.1 hbhrcd management plan) Humboldt Bay is the only estuary left in OR and CA with significant eelgrass left for Pacific Black Brant, whose successful migration and breeding in far northern arctic areas is dependent on getting enough fat reserves from the high nutrient value eelgrass they are dependent upon, as well as not being disturbed during their spring staging.

Response to Comment No. 28-14

To clarify, as further described in R-DEIR § 4, all of the proposed footprint is located in areas that have been historically farmed by Coast. Regarding consistency with the HBMP, it is generally supportive of aquaculture, while noting that there are potential conflicts with other resources, even when there are conflicts with other uses and resources like eelgrass. *See* HBMP, at 145. The project site is in a location designated for mariculture uses under the HBMP. *Id.* at 158. The chapter cited by the comment notes that mariculture uses are a legitimate use of Humboldt Bay, that requires a balancing of “legitimate economic uses of Trust lands” and the “possible effects on the natural ecological processes in the bay.” *Id.* at 199. The project is consistent with this goal through imposing conservation measures and mitigation measures that reduce the project’s environmental impacts to less than significant levels. *See* response to Comment 13-6 for additional analysis regarding the project’s consistency with the HBMP. For additional analysis regarding the project’s impacts to brant, *see* Topical Response 4.

Comment No. 28-15

Because of the previously mentioned reasons it is not only my opinion, but many other citizens' opinions as well as former Humboldt County Supervisor Jimmy Smith's opinion that Alternative 4 of this DEIR. is the best course of action for this project. This is the no project alternative.

Additionally the following conservation measures and permit conditions should be applied to the existing mariculture operations and any future ones as well.

Response to Comment No. 28-15

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 28-16

1. The HAA should be all of North Bay during daylight hours coincident with any legal Bay hunt days (Wed., Sat., Sun., & holidays) during any and all waterfowl seasons.

Response to Comment No. 28-16

See response to Comment 28-13.

Comment No. 28-17

2. 300 acres should be the maximum allowable footprint for existing and future mariculture operations in all of North Humboldt Bay.

Response to Comment No. 28-17

The comment requests regulatory or legislative changes to limit the amount of aquaculture in Arcata Bay. Both the Harbor District's enabling legislation and the HBMP support the responsible expansion of aquaculture in Humboldt Bay as an important commercial and economic use. The request for regulatory and legislative changes is beyond the scope of this EIR; however, the R-DEIR includes Alternative 3, which would limit Coast's operations to the existing footprint. *See* R-DEIR § 5.3.3.

Comment No. 28-18

3. All existing cultch on longline, bag on longline, or rack and bag shall be re-configured to have no more than a 12' width of cultch separated by a 100' minimum spacing between rows. This would allow migratory birds and fish to re-occupy their native habitat and ensure healthy eelgrass corridors as well as relatively safe navigation corridors for recreational boaters.

Response to Comment No. 28-18

See response to Comment 28-6.

Comment No. 28-19

4. AU Harvest Baskets shall be removed immediately from any area not being actively harvested. No stockpiling of steel harvest baskets is allowed.

Response to Comment No. 28-19

This recommended measure is vague as to what would be considered “actively harvested.” This concern is already addressed through Mitigation Measure HAZ-5, which requires that Coast will not leave tools, loose gear, or construction materials on its owned and leased tidelands or surrounding areas for longer than one tide cycle. All gear installed in the project area will be kept neat and secure.

Comment No. 28-20

5. All aquaculture equipment used shall be removed within 30 days of harvesting, and the area vacated shall not be re-used for a period of 3 years to allow full eelgrass recovery.

Response to Comment No. 28-20

The comment is addressed through Mitigation Measure HAZ-2, which requires that “Within 30 days of harvest on any area that is being discontinued or taken out of production for one year or more, Coast will remove all shellfish culture apparatus from the area, including but not limited to stakes, racks, baskets, and pallets.” Coast typically replants longlines as soon as possible, usually either at the same time as harvest or within a couple of months after harvest. This condition would increase trampling impacts to eelgrass, given that it will require additional work on the beds to plant and remove longlines. Further, as described in R-DEIR § 6.5.9.1, widespread removal of longlines could also have potential adverse effects on eelgrass. This mitigation measure is also considered infeasible, in that it would reduce Coast’s shellfish farm production by 50%, significantly impact its crop rotation, and require a significant amount of additional labor and maintenance associated with planting and removing longlines. Further, given that the R-DEIR concludes that impacts to eelgrass are fully mitigated through incorporation of mitigation measures that are more feasible and less impactful, no further mitigation is required.

Comment No. 28-21

6. All existing cultch operations shall be marked every 100' around their perimeters with PVC pipe that has retro-reflective tape on the end that is above the waters' surface. These marker pipes shall stick up 6' above the mean high tide level and the corners of each bed shall be marked with a 360 degree white light for navigation during periods of darkness.

Response to Comment No. 28-21

As further described in Impact REC-2, Coast uses marker stakes driven into the substrate at the corners of each culture area, which have reflective tape to make them highly visible. This method of identification is considered less impactful on the surrounding habitat as compared to artificial lighting.

Comment No. 28-22

7. All marine mammal resting areas (haul outs) will be protected from commercial boat traffic at low tide with a 360 degree, 1000' diameter buffer zone.

Response to Comment No. 28-22

A 1,000-ft buffer zone is unsupported by the relevant literature. The project design complies with the 100 m buffer zone recommended by NOAA. *See* response to Comment 28-4 for additional detail.

Comment No. 28-23

Choosing Alternative 4 and incorporating the above mentioned permit conditions for current and future mariculture operations in North Humboldt Bay will ensure that this priceless estuary will be healthy for fish and wildlife, safe for recreational users and continue to be a productive mariculture operation for many years to come.

Response to Comment No. 28-23

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 29

Dean Glaser
1546 Ronald Ave
Fortuna, CA 95540
camelg@aol.com
707-725-3035

Comment No. 29-1

I am strongly opposed to your District renewing the permit and approving an expansion of oyster production by Coast Seafoods Company.

Response to Comment No. 29-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 29-2

Permitting a considerably larger footprint to install more oysters on long lines in Arcata Bay would significantly impact eelgrass habitats, sensitive species, herring fisheries, Pacific black brant, and all waterfowl hunting, sculling, kayaking, recreational boating, fishing, as well as sailing.

Response to Comment No. 29-2

See Topical Response 2 for additional discussion of the project's impacts to eelgrass. *See* Topical Response 3 for additional discussion of herring impacts. *See* Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively. *See* Topical Response 7 for additional analysis of recreational impacts.

Comment No. 29-3

The impact of an increased oyster farming footprint on the bay has not been adequately mitigated by the R-DEIR and is therefore inappropriate. Impacts to recreational boating has failed to address safety.

Adverse impacts can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia. In addition, the oyster culture gear blocks my use of the bay and disrupts my enjoyment of the natural resources in the bay.

Response to Comment No. 29-3

See Topical Response 7 for additional discussion of recreational impacts.

Comment No. 29-4

Because of the numerous problems generated by increased amount of oyster production gear in Arcata Bay, I am opposed to renewing the permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Permit Requests in Arcata bay, Humboldt County, California.

Response to Comment No. 29-4

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 30

Allen A Pierce Jr.
4598 Campton Road
Eureka, CA 95503

707-442-7279

Comment No. 30-1

I am strongly opposed to the new permitting and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwittingly become tangled in the oyster gear after encountering fog, darkness, changing tidal influences, or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by increased oyster gear in Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion, I object for the oyster company to downplay the danger and state that there is "no significant impact", which is ludicrous, and so would anyone else that was entangled in the gear on Arcata Bay.

Response to Comment No. 30-1

See Topical Response 6 for additional discussion of hunting impacts and Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 31

Kenny Jameson
6826 London Dr
Eureka, CA 95503
707-839-7995

Comment No. 31-1

I am strongly against renewing the permit and any expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion project as it is proposed because it is in direct opposition to California Waterfowl Association's and Ducks Unlimited's views on acceptable impacts for the Pacific black brant population.

I agree with the concerns expressed by California Waterfowl Association and Ducks Unlimited that any expansion into areas important for brant would likely cause unacceptable impacts. In order to

protect this extremely critical area for brant feeding, gritting and resting, I am strongly against renewing the permit and any expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion project as it is proposed.

Response to Comment No. 31-1

See Topical Response 4 for additional discussion of project-related impacts to brant.

Comment Letter No. 32

Arthur H Lange
2171 Notre Dame Dr
Eureka, CA 95503
707-443-4804

Comment No. 32-1

I am strongly opposed to the new permitting and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwittingly become tangled in the oyster gear after encountering fog, darkness, changing tidal influences, or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by increased oyster gear in Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion. I object for the oyster company to downplay the danger and state that there is "no significant impact", which is ludicrous, and so would anyone else that was entangled in the gear on Arcata Bay.

Response to Comment No. 32-1

See Topical Response 6 for additional discussion of hunting impacts and Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 33

Jim Moore

1138 Bay St
Eureka, CA 95501
707-443-1523

Comment No. 33-1

I am strongly opposed to the new permitting and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwittingly become tangled in the oyster gear after encountering fog, darkness, changing tidal influences, or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by increased oyster gear in Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion. I object for the oyster company to downplay the danger and state that there is "no significant impact", which is ludicrous, and so would anyone else that was entangled in the gear on Arcata Bay.

Response to Comment No. 33-1

See Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 34

Kent Barnes
1968 South Gwen Rd
McKinleyville, CA 95519

Comment No. 34-1

I am strongly opposed to the new permitting and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwillingly become tangled in the oyster gear after encountering fog, darkness, changing tidal influences, or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by increased oyster gear in Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion. I object for the oyster company to down play the danger and state that there is "no significant impact", which is ludicrous, and so would anyone else that was entangled in the gear on Arcata Bay.

Response to Comment No. 34-1

See Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 35

David J. Orluck
1144 C street
Arcata, CA 95521

Comment No. 35-1

I am strongly opposed to the new permitting and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwittingly become tangled in the oyster gear after encountering fog, darkness, changing tidal influences, or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by increased oyster gear in Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion. I object for the oyster company to down play the danger and state that there is "no significant impact", which is ludicrous, and so would anyone else that was entangled in the gear on Arcata Bay.

Response to Comment No. 35-1

See Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 36

Mike Flockhart
P.O. Box 315 / 2325 Tawndale Lane
Hydesville, CA 95547

Comment No. 36-1

I am strongly opposed to the new permitting and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly Impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The Impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwittingly become tangled in the oyster gear after encountering fog, darkness, changing tidal influences, or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear. or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by Increased oyster gear in Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion. I object for the oyster company to down play the danger and state that there is "no significant impact", which is ludicrous, and so would anyone else that was entangled in the gear on Arcata Bay.

Response to Comment No. 36-1

See Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 37

Patrick Conaty
1645 Filbert St. # 201
San Francisco, CA 94123
415-732-9963
pwconaty@gmail.com

Comment No. 37-1

I am strongly opposed to the new permitting and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwittingly become tangled in the oyster gear after encountering fog, darkness, changing tidal influences, or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by increased oyster gear in Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion. I object for the oyster company to down play the danger and state that there is "no significant impact", which is ludicrous, and so would anyone else that was entangled in the gear on Arcata Bay.

Response to Comment No. 37-1

See Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 38

Xou Her
24 Clark St
Eureka, CA 95501
559-708-6165
HER132@yahoo.com

Comment No. 38-1

I am strongly opposed to the new permitting and expansion of more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwittingly become tangled in the oyster gear after encountering fog, darkness.

changing tidal influences, or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by increased oyster gear on Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion. I object for the oyster company to down play the danger and state that there is "no significant Impact", which is ludicrous, and so would anyone else that WBS entangled in the gear on Arcata Bay.

Response to Comment No. 38-1

See Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 39

Kev McClendon
360 N. Fortuna Blvd
Fortuna, CA 95540
707-496-7827
kevmclendon@yahoo.com

Comment No. 39-1

I am strongly opposed to the new permitting and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because It is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly Impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The Impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwittingly become tangled in the oyster gear after encountering fog, darkness, changing tidal influences. or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by Increased oyster gear in Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion. I object for the oyster company to down play the danger and state that there is "no significant impact", which is ludicrous, and so would anyone else that was entangled in the gear on Arcata Bay.

Response to Comment No. 39-1

See Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 40

Allen Terry
585 Rigby Ave
Rio Dell, CA 95562
707-498-2048

Comment No. 40-1

I am strongly against renewing the permit and any expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion project as it is proposed because it is in direct opposition to California Waterfowl Association's and Duck Unlimited's views on acceptable impacts for the Pacific black brant population.

I agree with the concerns expressed by California Waterfowl Association and Ducks Unlimited that any expansion into areas important for brant would likely cause unacceptable impacts. In order to protect this extremely critical area for brant feeding, gritting and resting, I am strongly against renewing the permit and any expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion project as it is proposed.

Response to Comment No. 40-1

See Topical Response 4 for additional discussion of brant impacts.

Comment Letter No. 41

Travis Dortch
1101 Riverside Dr
Rio Dell, CA 95562
707-601-5527

Comment No. 41-1

I am strongly against renewing the permit and any expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion project as it is proposed because it is in direct opposition to California Waterfowl Association's and Duck Unlimited's views on acceptable impacts for the Pacific black brant population.

I agree with the concerns expressed by California Waterfowl Association and Ducks Unlimited that any expansion into areas important for brant would likely cause unacceptable impacts. In order to

protect this extremely critical area for brant feeding, gritting and resting, I am strongly against renewing the permit and any expansion for more acres or oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion project as it is proposed.

Response to Comment No. 41-1

See Topical Response 4 for additional discussion of brant impacts.

Comment Letter No. 42

Chao Her
24 Clark Street
Eureka, CA 95501
707-362-0993
Herchao24@yahoo.com

Comment No. 42-1

I am strongly opposed to the new permitting and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because It is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwittingly become tangled in the oyster gear after encountering fog, darkness, changing tidal influences, or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by increased oyster gear in Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion. I object for the oyster company to down play the danger and state that there is "no significant impact". which is ludicrous, and so would anyone else that was entangled in the gear on Arcata Bay.

Response to Comment No. 42-1

See Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 43

James L. Roberts

520 Ryan Ct
Eureka, CA 95503

Comment No. 43-1

I am strongly opposed to renewing the permit and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is in direct opposition to California Public Resource Code, section 5905.

California Public Resources Code in the 5900 sections recognizes the importance of public land for recreational purposes. This division shall be known and may be cited as the California Wildlife, Coastal, and Park Land Conservation Act.~ See more at: <http://codes.ca.gov/public-resources-code/prc-sect-5900.html#sthash.qVTAdgwX.dpuf>

Wildlife, coastal, and park land conservation is in the public interest and is necessary to keep these lands in open-space, natural, and recreational uses, to provide clean air and water, to protect significant environmental and scenic values of wildlife and plant habitat, riparian and wetland areas, and other open-space lands, and to provide opportunities for the people of California to enjoy, appreciate, and visit natural environments and recreational areas.

It is the intent of the People of California in enacting this division that it be carried out in the most expeditious manner possible, and that all state officials implement this division to the fullest extent of their authority. - See more at: <http://codes.ca.gov/public-resources-code/prc-sect-5905.html#sthash.AjZTgc7Y.dpuf>

This code states that the conservation of the bay means that the people of California can enjoy, appreciate and visit the natural environment of Arcata Bay, and use the bay for recreational purposes either at low tide or high tide without having to be threatened by oyster equipment. It also states "that all state officials implement this division to the fullest extent of their authority" in spite of Coast Seafood 's desire to increase their oyster footprint in Arcata Bay.

Since increasing the oyster bed footprint is in direct opposition to the California Public Resources Code 5905, I am strongly against renewing the permit or approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion.

Response to Comment No. 43-1

The California Wildlife, Coastal, and Park Land Conservation Act provides a funding resource for counties, cities, and districts to fund public parks, open-space, recreational areas, and conservation areas. It does not represent a limitation on development of coastal lands. The Harbor District has been granted the authority by the state to lease tidelands within its jurisdiction for aquaculture uses. Harbors & Navigation Code, App. 2, §§ 4, 18. The Harbor District has appropriately considered impacts to navigation, fishing, and other recreational uses in R-DEIR § 6.11, and has concluded that the project will result in less than significant impacts to such uses. Further, the project area has not been designated for cultivation and open space purposes since at least the 1950s, when Coast started

leasing the project area for shellfish cultivation purposes. For additional discussion of public trust concerns related to the project, *see* response to Comment 18-8.

Comment Letter No. 44

Charlotte Holland
2005 Huntoon St
Eureka, CA 95501
707-442-4947

Comment No. 44-1

I am strongly opposed to renewing the permit and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is in direct opposition to California Public Resource Code, section 5905.

California Public Resources Code in the 5900 sections recognizes the importance of public land for recreational purposes.

This division shall be known and may be cited as the California Wildlife, Coastal, and Park Land Conservation Act. See more at: <http://codes.rindlaw.com/ca/public-resources-code/prc-sect-5900.html#slhash ,qVT AdgwX.dpuf>

Wildlife, coastal, and park land conservation is in the public interest and is necessary to keep these lands in open-space, natural, and recreational uses, to provide clean air and water, to protect significant environmental and scenic values of wildlife and plant habitat, riparian and wetland areas, and other open-space lands, and to provide opportunities for the people of California to enjoy, appreciate, and visit natural environments and recreational areas.

It is the intent of the people of California in enacting this division that it be carried out in the most expeditious manner possible, and that all state officials implement this division to the fullest extent of their authority. - See more at: <http://codes.rindlaw.com/ca/public-resources-code/prc-sect-5905.html#sthash.AjZTgc7Y.dpuf>

This code states that the conservation of the bay means that the people of California can enjoy, appreciate and visit the natural environment of Arcata Bay, and use the bay for recreational purposes either at low tide or high tide without having to be threatened by oyster equipment. It also states "that all state officials implement this division to the fullest extent of their authority" in spite of Coast Seafood's desire to increase their oyster footprint in Arcata Bay.

Since increasing the oyster bed footprint is in direct opposition to the California Public Resources Code 5905, I am strongly against renewing the permit or approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion.

Response to Comment No. 44-1

See response to Comment 43-1.

Comment Letter No. 45

Linda Lange, Wiyot Member
2171 Notre Dame Dr
Eureka, CA 95503

Comment No. 45-1

I am strongly opposed to renewing the permit and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is in direct opposition to California Public Resource Code, section 5905.

California Public Resources Code in the 5900 sections recognizes the importance of public land for recreational purposes.

This division shall be known and may be cited as the California Wildlife, Coastal, and Park Land Conservation Act. See more at: <http://codes.findlaw.com/ca/public-resources-code/prc-sect~5900.html#sthash.qVTAdgwX.dpuf>

Wildlife, coastal, and park land conservation is in the public interest and is necessary to keep these lands in open-space, natural, and recreational uses, to provide clean air and water, to protect significant environmental and scenic values of wildlife and plant habitat, riparian and wetland areas, and other open-space lands, and to provide opportunities for the people of California to enjoy, appreciate, and visit natural environments and recreational areas.

It is the intent of the People of California in enacting this division that it be carried out in the most expeditious manner possible, and that all state officials implement this division to the fullest extent of their authority. - See more at: <http://codes.findlaw.com/ca/public-resources-code/prc-sect~5905.html#sthash.AjZTgc7Y.dpuf>

This code states that the conservation of the bay means that the people of California can enjoy, appreciate and visit the natural environment of Arcata Bay, and use the bay for recreational purposes either at low tide or high tide without having to be threatened by oyster equipment. It also states "that all state officials implement this division to the fullest extent of their authority" in spite of Coast Seafood's desire to increase their oyster footprint in Arcata Bay.

Since increasing the oyster bed footprint is in direct opposition to the California Public Resources Code 5905, I am strongly against renewing the permit or approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion.

Response to Comment No. 45-1

See response to Comment 43-1.

Comment Letter No. 46

Janet L. Smith
1280 Leslie Rd
Eureka, CA 95503

Comment No. 46-1

I am strongly opposed to renewing the permit and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is in direct opposition to California Public Resource Code, section 5905.

California Public Resources Code in the 5900 sections recognizes the importance of public land for recreational purposes. This division shall be known and may be cited as the California Wildlife, Coastal, and Park Land Conservation Act. - See more at: <http://codes.findlaw.com/ca/public-resources-code/prc-sect-5900.html#sthash.qVTAdgwX.dpuf>

Wildlife, coastal, and park land conservation is in the public interest and is necessary to keep these lands in open-space, natural, and recreational uses, to provide clean air and water, to protect significant environmental and scenic values of wildlife and plant habitat, riparian and wetland areas, and other open-space lands, and to provide opportunities for the people of California to enjoy, appreciate, and visit natural environments and recreational areas.

It is the Intent of the People of California in enacting this division that it be carried out in the most expeditious manner possible, and that all state officials implement this division to the fullest extent of their authority. - See more at: <http://codes.findlaw.com/ca/public-resources-code/prc-sect-5905.html#slhash.AjZTgc7Y.dpuf>

This code states that the conservation of the bay means that the people of California can enjoy, appreciate and visit the natural environment of Arcata Bay, and use the bay for recreational purposes either at low tide or high tide without having to be threatened by oyster equipment. It also states that all state officials implement this division to the fullest extent of their authority" in spite of Coast Seafood's desire to increase their oyster footprint in Arcata Bay.

Since increasing the oyster bed footprint is in direct opposition to the California Public Resources Code 5905, I am strongly against renewing the permit or approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion.

Response to Comment No. 46-1

See response to Comment 43-1.

Comment Letter No. 47

Roman Parlich
1601 Simpson lane
Eureka, CA 95503
707-442-4673

Comment No. 47-1

I am strongly opposed to the new permitting and expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion because it is going to generate more safety hazards for boating enthusiasts.

Permitting a larger footprint for more oyster beds in Arcata Bay would significantly impact all waterfowl hunting, sculling, kayaking, recreational boating, fishing, and sailing. This would cover 365 days a year 24 hours a day.

The impact of an increased oyster farming footprint also creates more safety problems as boaters and hunters unwittingly become tangled in the oyster gear after encountering fog, darkness, changing tidal influences, or sudden bad weather. The potential catastrophic consequences can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia.

Therefore, because of the major safety problems generated by increased oyster gear in Arcata Bay, I am strongly against the new permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Company: Humboldt Bay Shellfish Culture Permit Renewal and Expansion. I object for the oyster company to down play the danger and state that there is "no significant impact", which is ludicrous, and so would anyone else that was entangled in the gear on Arcata Bay.

Response to Comment No. 47-1

See Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 48

Steven Grantham
P.O. Box 645
Bayside CA 95524

Comment No. 48-1

Again I have given much thought to the proposed project described in the subject Draft Environmental Impact Report (DEIR). The level of effort depicted in the DEIR lacks from an application of an analyses pertinent to impacts to Recreation in the project area and would benefit from a real examination of the local recreational conditions and how the proposed project would "really" impact the legal activities that traditionally exist (seasonal waterfowl hunting). It is my

opinion based on intuition and first-hand experience that if implemented as described in either preferred, and as is alternatives, excluding the no project, that the proposed project left unmitigated results in a significant impact to my access, use, and enjoyment of the recreational resources in the proposed permit area.

It is my opinion that the DEIR missed the mark on assessing the effects to recreational users (particularly legal waterfowl hunting) of the project area, and would benefit in its final stages if it considered the effects of the project on recreational user's safety. access through the project area, and impacts of expanded boat traffic, and gear on migratory waterfowl, regardless of the total footprints acres. Ultimately recreational impacts should examine how the proposed project would effect users access, use, and enjoyment of recreational resources.

Response to Comment No. 48-1

See Topical Responses 4 and 7 for additional discussion of the project's impacts to brant and recreational uses, respectively.

Comment No. 48-2

I have attached the Part 6.11 and included my comments in red text in locations I thought warranted them. In my previous comments (Grantham 29, 2015) I consistently express concern for further consideration of recreational users safety and future access to the project. Upon further reflection it is evident that if the project is permitted and either Alternative 1 or 2 are selected the safety issue would be mute as legal waterfowl hunting in the proposed permitted areas would likely cease to exist thereby marking and end of tradition and a significant effect to the environment.

Response to Comment No. 48-2

See Topical Response 6 for additional discussion of the project's impact to hunting.

Comment No. 48-3

6.11 Recreation. 6.11.1 Existing Conditions. Existing uses in the Project area are primarily mariculture and recreation. Recreation activities in and around North Bay include boating, paddling (e.g., kayaks, canoes and stand-up paddle boards), fishing, clamming, birdwatching, and hunting. Hunting for waterfowl is conducted on the bay, sloughs, marshes, and adjacent agricultural and other uplands. Hunting (regulated by CDFW) is allowed at several locations, including the State of California managed area at Fay Slough Wildlife Area, portions of the U.S. Fish and Wildlife Service (USFWS) Jacoby Creek and Eureka Slough units are open during the State of California waterfowl hunting season, which is generally, October 10 through January 22 for duck, and a variable period between October 10 and March 10 for geese, depending on the species. Hunting is generally conducted using boats, sculling in a low-profile skiff, walking along levees, and using temporary or permanent blinds along the shoreline. Boating and paddling in North Bay is somewhat limited because of the shallow water and tidal conditions; popular areas include The Mad River Slough area, with ("unofficial") access from the Highway 255 bridge and other locations (HBMP DEIR 2006).

Response to Comment No. 48-3

This comment restates the R-DEIR. No further comment is required.

Comment No. 48-4

6.11.2 Pertinent Laws and Regulations. The Humboldt Bay Management Plan recognizes that recreation encompasses a wide range of existing and potential outdoor activities in and around Humboldt Bay. The Management Plan classifies the Project area as "Combined Water Use - Mariculture". In such areas, coastal dependent uses may be given priority over recreational uses. This is consistent with the Management Plan's focus on balancing harbor, coastal industrial, commercial, conservation, and recreational uses in the bay. This means that recreational opportunities are not always maximized. Is this the authors opinion or is this in the source materials not cited here. Please cite sources. Humboldt County's General Plan recognizes recreation-tourism as one of the County's primary industries. The County's Humboldt Bay Area Local Coastal Plan similarly sets forth a number of recreation policies with relevance to the Project, including:

- 30220. Coastal areas suited for water-oriented recreational activities that cannot readily be provided in inland water areas shall be protected for such uses.

Waterfowl hunting Humboldt Bay (Arcata Bay) from a scull boat is a local tradition that dates back over 100 years. The activity is distinctively suited to the proposed permit area and conditions and the boat styles adapted to these are part of that tradition. Waterfowl hunting (activity) Humboldt Bay (cannot readily be provided inland) in a scull boat are synonymous with that proposed permit area and are reflections of this place's geography and history. The activity in the location of proposed permit area is a local tradition and it is legal. The tradition is afforded by the expanse of the North Bays eel grass meadows and mudflats That when submerged draw migratory waterfowl that can only be hunted in these locations from a scull boat. I derive profound waterfowl hunting enjoyment from the project area.

The City of Eureka's General Plan contains the following goal for recreation in the coastal zone:

- Goal 5.8. To provide for public open space and shoreline access ways throughout the Coastal Zone, consistent with protecting environmentally sensitive habitat and other coastal priority land uses.

Response to Comment No. 48-4

The R-DEIR includes a general summary of the state and local laws associated with recreational uses. For additional discussion of hunting impacts, *see* Topical Response 6.

Comment No. 48-5

The proposed project would result in an impact to "access ways throughout the Coastal Zone" in that 600 plus additional acres of semi to fully submerged additional shellfish equipment would at times during the daily tide shifts pose navigational hazardous to waterfowlers in scull boats attempting to access hunting opportunities in areas previously open and free to access in the coastal

zone. It is further anticipated that the placement of the mariculture and the added human activity it will generate will displace migratory waterfowl. This is an effect to recreation in the Coastal Zone, this is an effect to my enjoyment of that access. I believe it to be significant.

Response to Comment No. 48-5

See Topical Responses 4 and 7 for additional discussion of the project's impacts to brant and recreational uses, respectively.

Comment No. 48-6

6.11.3 Definition of Significance and Baseline Conditions

Significance criteria are those listed in the CEQA checklist, a project's effects on recreation would be significant if the project would:

Neither of the cited significance criteria apply to this project nor do they afford an effective impact analysis on legal recreational waterfowling in the project area. Perhaps they were intended to serve as examples of scenarios that the authors of the DEIR might consider, but the concept should be adapted to local conditions that might be impacted by the proposed project.

1. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated
2. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

6.11.4 Effects Analysis of Proposed Project. IMPACT REC-I: Effects on recreational facilities.

The Project is expected to create a small increase in boat traffic and culture activity on the bay in areas utilized for recreation, boating, and hunting (see Table 4.4, Project Description). Coast would add 2 additional small boats (1 scow and 1 skiff) to its fleet and increase the number of crew manning skiffs and scows to 7 (with the exception of Skiff 4). The frequency and duration of skiff and scow trips on the bay would remain the same as under current conditions. In addition, the number of trips per week taken by Coast's two harvesters would increase, with the Mary Elizabeth operating one additional trip per week and the Elusive two additional trips per week. In total, there would be a maximum of 18 additional boat trips per week for a total of 74 additional boat hours per week.

Response to Comment No. 48-6

As noted by the commenter, the R-DEIR incorporates the significance criteria provided in the state's CEQA Checklist. However, in compliance with this comment, R-DEIR Impact REC-2 discusses effects to recreational boaters and hunters. While it discusses these impacts in a qualitative manner, qualitative thresholds of significance are permissible under CEQA. 14 CCR § 15064.7(a). In response to this comment, R-DEIR § 6.11.3 has been clarified to include a third significance criteria: "3. Significantly reduce the acreage in Humboldt Bay available for recreational boating or

hunting.” These changes have been incorporated into the Final EIR. *See* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 48-7

The increased boat traffic and its effect on waterfowl and hunting in those areas the DEIR acknowledges that are used by hunters should not be the subject of speculation. It is arguable that the presence of a single oyster boat in the areas that are hunted, based on my first hand observation frightens birds and they fly away, effectively removing the hunting opportunity. This is an effect on a legal hunting opportunity and to my enjoyment of the Bays recreational resource.

As described above, the Project would also increase the coverage or aquaculture-related infrastructure on intertidal areas in the bay. Longline aquaculture would occupy a maximum of 618 additional acres and rack-and-bag up to 4 additional acres.

Response to Comment No. 48-7

See Topical Response 6 for additional discussion of the project’s impact to hunting.

Comment No. 48-8

The increase coverage of aquaculture-related infrastructure in those areas that are hunted will effectively eliminate those areas from hunting. Birds will not use those areas, due to increase boat traffic and presence of obstructive gear.

As described below, boat-based recreational users could navigate over the lines when tidal height allows and between the widely-spaced longlines when the tide height is not adequate to allow boat passage over the lines (but still adequate for navigation). Boats too big to navigate between lines may be temporarily excluded from culture areas at low tides, however many such boats would likely be excluded from shallow intertidal areas at low tides regardless of the presence of culture equipment. At low tides, when the tidelands are exposed, recreational users will be free to walk in and around culture areas and should easily be able to navigate around and between aquaculture gear.

Response to Comment No. 48-8

See Topical Response 6 for additional discussion of the project’s impact to hunting.

Comment No. 48-9

Under optimal circumstance the statement above may be true. But in those instances when the locally seasonal north winds pick up, and a scullboat waterfowl hunter is on the Bay the submerged, both fully and partially, gear pose serious navigational hazards.

Response to Comment No. 48-9

See Topical Response 7 for additional discussion of recreational impacts.

Comment No. 48-10

Although the Project would expand infrastructure in tidal areas and increase boat traffic and worker presence associated with expanded culture activities, it would not result in physical impacts to recreational facilities. That is probably true if the author's definition of "recreational facilities" did not include the Bay as the facility and the hunting on the bay as the recreation. Exclusion from culture areas during low tides is expected to be limited to a small subset of recreational watercraft that are too large to navigate between longlines but that would not otherwise be excluded at the same tidal height. Is this speculation or has an analysis been conducted. If so please cite sources. Because the Project is expected to employ between approximately 60-70 individuals, most of whom will be employed in the Humboldt area and are already living in the community, it should not increase recreational use or represent an increased demand on recreational facilities. Agreed, however does the author have any notion of whether the increased number of individuals would be inclined to recreate in the project area? Neither construction nor expansion of existing recreational facilities will be required. Therefore, impacts to recreational facilities would be less than significant. With all due respect to the authors, this statement is categorically not relevant to the project as proposed.

The "facility" that would be affected is the tidelands and the Bay that provide habitat for migratory waterfowl and seasonal legal hunting of these waterfowl. Not a contrivance requiring analysis or statements concerning "construction nor expansion of existing facilities". The projects footprint and its requisite infrastructure placed in traditional hunting grounds is the "facility" that warrant analysis of impacts. The analysis in this part does not take into account local and legal traditional waterfowl hunting and fail to appropriately account for the recreational opportunity that will be impacted by the proposed project.

Response to Comment No. 48-10

See response to Comment 48-6 and Topical Response 6. Humboldt Bay is not a "recreational facility" as that term is used in the CEQA Checklist. Rather, it refers to recreational facilities that may need to be constructed to service the project or any increases in population resulting from project activities. Therefore, this concern is properly addressed in the R-DEIR. The R-DEIR considers impacts associated with hunting in Impact REC-2.

Comment No. 48-11

IMPACT REC-2: Effects on recreational users of the bay.

Impacts to Recreational Boaters

As described above, the Project would add new structures (Are these the facilities that will adversely impact recreational hunting?) to the bay in the form of additional FLUPSY bins and additional shell fish equipment in intertidal areas in the form of longlines and rock-and-bag equipment. The increased presence of aquaculture equipment in the bay has the potential to impact recreational users of the water including hunters, kayakers, canoers, and stand-up paddle boarders. The potential for impacts should be analyzed and should show evidence that the affected user groups were consulted and the extent of the impact accurately depicted and mitigated. Sources of consultation should be

cited appropriately. The Project's mariculture equipment could be located in areas of watercraft (e.g., boats, kayaks) access in intertidal areas (Figure 6.11.1). This equipment would only affect watercraft when the tides are high enough for small vessels with shallow drafts to move through intertidal areas occupied by culture equipment, but so low that the vessels can't move readily over the equipment. Given the low elevation of the proposed longline culture equipment, the additional amount of time that vessels would be prevented from accessing the Project site as compared to existing conditions would be minimal. Wide 10-ft (cultch) and 16-ft (basket) spaces between longlines would allow smaller watercraft (e.g., kayaks) to move through shellfish beds when the tide height was adequate for navigation but not for passing over the longlines; in those cases, navigation may be limited to two directions (e.g., parallel to rows of equipment). Watercraft too large to navigate between exposed longlines will be temporarily excluded from culture areas during low tides.

Response to Comment No. 48-11

See Topical Response 7 for additional discussion of recreational impacts.

Comment No. 48-12

Figure 6.11.1 Preferred Alternative: Map of recreation access locations and park/wildlife areas in North Bay. On average, culture in the expansion area will be exposed by falling tides approximately 13% (Phase I) to 18% (Phase II) of any 24-hour period; the total time that watercraft will be excluded from navigating over the lines will be somewhat greater and will primarily depend on the draft of the watercraft in question. Many boats that are unable to navigate between longlines may be otherwise excluded from shallow intertidal areas once the tidal height is too low to allow for passage over the line.

Recreational users will be able to visually identify culture areas by the presence of long PVC pipes driven into the substrate at the corners of each culture area; these markings are visible at all tidal elevations. Coast will also ensure that recreational and other users have up-to-date information to plan and conduct outings on the bay. This information essentially acknowledges that the permit area will not be accessible for waterfowl hunting, thus my access and enjoyment, but does not identify that impact nor mitigations. Coast will provide an updated map to the Harbor District annually showing the locations of its intertidal and subtidal shellfish culture in North Bay. The Harbor District will post this map to its website. Coast will also post the map of its culture locations to its website and provide electronic copies of the map to interested parties. Watercraft movement in subtidal areas, including in the primary and secondary navigation channels for watercraft, would not be affected.

Workers will routinely visit culture areas for installation, inspections, maintenance, planting and harvesting, product grading, and other activities related to aquaculture practices (see Tables 4.2 and 4.3, Project Description). However, the Project would only involve a small number of additional boat trips per week, which would be a negligible percentage of overall boat traffic in Humboldt Bay (Table 4.4, Project Description). Any increase in boat traffic will affect when, how, and if migratory birds will be able to use the permit area. If they are driven from the permit area that will be an adverse effect on recreation waterfowl hunting. These activities frequently occur at low tide when recreational watercraft will already be excluded from the culture area by the tide level. Further, Coast

employees take care to avoid recreational boaters and small craft recreational users and no impact associated with additional boat trips is anticipated.

Response to Comment No. 48-12

See Topical Response 6 for additional discussion of the project's impact to hunting.

Comment No. 48-13

Impacts to Recreational Hunting. Waterfowl hunters are known to use intertidal areas in d1c Project vicinity, with a primary focus on the EBMA. (This knowledge is based on 100 plus years of traditional waterfowl hunting that has spawned a class of boats distinctive to the area. How did the authors arrive at this? Cite sources.) Hunting is regulated by CDFW: hunters are allowed to hunt without interference The proposed project and its gear and routine visits by crew would result in interference and hence an effect to my access, use and legal waterfowl hunting (recreation). Hw1ting is reg1dated by the time of year and sometimes day of the week, depending on the species. Recreational hunting could be impacted by Project activities. It very likely that when all of the permitted gear is in place and the requisite boat traffic is working that mariculture will result in disconnect of the birds and, the bird use of the area will shift to somewhere else, thus impacting the legal waterfowl hunting in the project area Effectively eliminating my use, access and enjoyment of the recre1tional resources in the project area. This is a significant effect to the environment that should be mitigated. This may include sporadic flushing of birds due to noise associated with boat trips and harvest activities. This is the effect to legal waterfowl hunting, use, access and enjoyment that should be evaluated for significance and mitigated. However, as noted above, the Project would only result in a small increase in boat trips, with an average of two to three additional boat trips per day. Therefore, the impact associated with the Project is anticipated to be less than significant this should be evaluated in the DEIR and should apply criteria that reveal a transparent evaluation. further, as described in Section 6. I L5 below, to minimize potential interactions with waterfowl hunters, Coast will limit work in portions of the EBMA during early morning and daylight hours on designated days during brunt hunting season (Hunting Avoidance Area). Brant hunting season is Typically Wednesdays, Saturdays and Sundays between mid-November and mid-December. Figure 6.11.2 The Hunting Avoidance Area was designed in consultation with recreational hunters to encompass prime waterfowl hunting grounds in North Bay. This statement pertinent to consultation should cite its source. To my knowledge a number of waterfowl hunters that use the "EBMA" were not "consulted". Myself included.

6.11.5 Conservation Measures. This section identifies specific Conservation Measures that have been incorporated into the Project by Coast and are intended to mi1limize the Project's recreational impacts. The Conservation Measures ore intended to ensure that the Project maintains a high standard that is environmentally responsible.

Given their critical importance in ensuring that significant impacts are avoided, Conservation Measures are treated similarly to Mitigation Measures and will be included in the Mitigation and Monitoring Plan for this EIR. The following Conservation Measures are incorporated into the Project:

Response to Comment No. 48-13

See Topical Response 6 for additional discussion of project-related impacts to hunting. Regarding impacts associated with brant, waterfowl, and other shorebirds, see Impacts BIO-25, BIO-26, BIO-27, BIO-31, BIO-32, BIO-33, and Topical Responses 4 and 8.

Comment No. 48-14

Conservation Measure REC-1: Coast shall avoid operations in the mapped area of the EBMA from midnight until sunset on days designated by CDFW as brant hunting days, including season opening and closing days (typically brant hunting is limited to Wednesdays, Saturdays, and Sundays between November 15 and December 15). This acknowledges an impact to brant hunting which is only a portion of the recreational and legal waterfowl hunt. Waterfowl season begins in October and runs through the end of January. The entire waterfowl season should be recognized in this portion of the document as a recreational activity that will be affected and mitigated for. This conservation measure shall not apply in the case of emergency conditions or other operations, such as marine debris removal, required by Coast to comply with other conditions of approval or mitigation measures, or ensure the safety of its operations.

Conservation Measure REC-2: By December 1 of each year, Coast will submit a current bed map to the Harbor District for posting on the Harbor District's website; Coast will also post the current bed map on its website. The map will describe the locations of all of Coast's subtidal and intertidal culture in North Bay. Coast will provide electronic copies of the bed map upon request.

Figure 6.11.2 Area to be avoided during brant hunting season (Hunting Avoidance Area), as described in Conservation Measure REC-1.

6.11.7 Level of Significance Before Mitigation. Upon implementation of Conservation Measures REC-1 and REC-2, IMPACTS REC-1 and REC-2 would be less than significant.

6.11.7 Mitigation Measures. No Mitigation Measures are necessary.

6.11.8 Level of Significance After Mitigation. Compliance with the Conservation Measures REC-1 and REC-2, identified above, would reduce potential impacts associated with recreation to a level that is less than significant. Therefore, no significant and unavoidable adverse impacts relating to recreation remain.

6.11.9 Effects Analysis of Alternatives. Alternative 1: 10 Foot Spacing Alternative

Alternative 1 would have a substantially similar or slightly greater impact on recreational users of the bay as the Project (See Figure 6.11.1). Because Alternative 1 does not involve increased spacing on Coast's existing footprint, recreational users would not enjoy the same expanded access to the 100-acre mitigation area as under the Project. As with the Project, the potential for interaction with or impact on recreational boaters remain less than significant under Alternative 1. Further, as with the Preferred Alternative, there is no expected impact to subtidal areas or primary navigational channels. With implementation of Conservation Measure REC-2, IMPACT REC-2 would thus be less than

significant. Similarly, because Alternative 1 includes shellfish culture on the same footprint as the Project, it would have a substantially similar impact on recreational hunting as the Project. However, upon implementation of Conservation Measure REC-1, IMPACT REC-2 remain less than significant. There would be no expected IMPACT REC-1 under Alternative 1.

Alternative 2: Reduced Acreage Alternative

Although impacts would be similar, Alternative 2 would be slightly less likely to impact recreation than the Preferred Alternative due to the reduced acreage of cultivation. The smaller cultivated footprint also translates into fewer boat trips and boat hours on the bay as compared to the Preferred Alternative. As compared to existing conditions, Alternative 2 would require an additional 17 boat trips through the bay per week, or 68 additional boat hours. Because these increases are less than but very close to the increases required under the Preferred Alternative, the above analysis applies equally to Alternative 2. Impacts to recreational hunting would also be slightly lessened, given that there would be potential overlap with preferred recreational hunting areas. Under Alternative 2, Coast would continue to implement Conservation Measures REC-1 and REC-2. As with the Preferred Alternative, IMPACTS REC-1 and REC-2 to be less than significant under Alternative 1.

Response to Comment No. 48-14

For discussion of expanding Conservation Measure REC-1 to include the entire waterfowl hunting season, *see* response to Comment 28-13.

Comment No. 48-15

Alternative 3: Existing Footprint Alternative. Under Alternative 3 there would be no change to the environmental baseline. IMPACTS REC-1 and REC-2 would therefore be less than significant under Alternative 3. This alternative is already a hazard and significant effect on access to the acres, and legal waterfowl hunting in the permit area. This footprint provides the first hand baseline for recognizing that expansion of the proposed project as a significant effect on recreation. This footprint has eliminated my access, use and enjoyment of the permit area.

Alternative 4: No Project Alternative. Under the No Project Alternative Coast's existing permit would not be renewed and existing infrastructure related to shellfish culture would be removed. Total removal of all of Coast's existing aquaculture equipment would require up to 2 years if Coast were permitted to phase the removal of culture and between 3-6 months if removal was required immediately. During the period of active removal, activity on the beds would be more intense than under existing conditions, with larger crews needed to harvest all remaining shellfish and remove associated equipment. This burst of activity would have the potential to impact recreational users and hunters more significantly, particularly if removal coincides with active hunting seasons. However, after removal, Alternative 4 would have less of a long-term impact as compared to the Preferred Alternative, given that it would remove all of Coast's existing structures. IMPACTS REC-1 and REC-2 are therefore considered less than significant under Alternative 4.

Having experienced the significant effects of the existing footprint alternative in terms of safety and interference of legal waterfowl hunting, access, recreational use, and enjoyment in the permit area Alternative 4 is preferred by this author.

Response to Comment No. 48-15

See Topical Response 6 for additional discussion of the project's impact to hunting.

Comment Letter No. 49

Jeremy Rasmussen
707-834-6808
jrratmuff@aol.com

Comment No. 49-1

My name is Jeremy Rasmussen first of all I would like to thank you for reading this email, I know you must be very busy. I am writing you because I am a concerned about the proposed expansion of the oyster beds in North Humboldt Bay. The Pacific Black Brant in my opinion have been using North bay more and more over the years especially during the return trip from Baja Mexico to Cold bay Alaska. I am an avid hunter of Black Brant and bird watcher of these bird in the off season. I was born and raised in Humboldt county and my family has been hunting these for soon to be 4 generations. This is a tradition that I am currently handing down to my 6-year-old son. These birds are one of the reasons that I have never considered leaving the area even know crime rates are rising every day. They can only be harvested in a handful of locations. I would also like to say that a fair amount of money is injected into the local community every season with the purchase of hunting gear, shells, optics, building supplies for blinds etc. It is not anything close to 6 million dollars but I hope someone can take this into consideration. During these times of electronic devices and games it is great to take my kids out Brant Hunting and spend quality time doing something that was passed down from my grandfather. In short hunting Black Brant is my life. In the off season we are preparing for the season. It is my passion and I couldn't imagine living in this area without it. I am not a biologist so I hope that the necessary studies and groups will be involved for the best outcome for both parties. Thank you for listening to my concerns.

Response to Comment No. 49-1

See Topical Response 6 for additional discussion of the project's impact to hunting.

Comment Letter No. 50

Ken Bates F/V Ironic
kenbatesironic@gmail.com

Comment No. 50-1

Abandon Mariculture Debris

The first oyster beds in Humboldt Bay were established on the "Bracut" Flats in East Bay in 1910, these abandoned structures are still visible from the highway at low tide. Major oyster culture began in the 1950's. This included redwood slat fencing of beds (with built-in bat ray traps) and by the late 1960's and early 1970's, pressure treated 2" x 6" wooden racks with 1/8 inch wire hangers and

black plastic pipe. Later, hundreds of plastic vexar bags and "onion" bags were used for the containment of seed oysters. All of these components have been lost and scattered over time. Since 1974, I have fished Pacific Herring and anchovies in Humboldt Bay. All of these lost mariculture objects continue to come up in my nets when fishing. Some areas in North East Humboldt Bay have been rendered unworkable due to mariculture junk on the bottom. Presently, I catch short PVC pipes - 3/4" x 2' in length, tangles of 1/4" polypropylene yellow rope with oyster shells, and the occasional onion bag. In East Bay, there are close to fifty lost "Fathoms Plus" brand plastic commercial crab traps that were distributed on the mudflats by Coast Oyster Co. to remove native rock crabs. These discarded traps end up in water deeper than the six foot buoy line and only show up when tangled in other fishing gear. These traps continue to "ghost fish" to this day! Probably the most damaging to fishing gear are the lost, steel cylindrical baskets (3' x 4' -weight about 80 pounds). These always tear completely through my nets. On one occasion, Coast Seafood lost 14 of these baskets. I was able to find and grapple 11 of these baskets. I have the position (marked on my plotter) of one basket that I could not retrieve during my attempt to clean up the fishing area. I also catch the newest items - 2'x2' trays with fine mesh bottoms and, black mesh plastic cylinders with PVC floats attached with plastic wire ties. The plastic colored wire ties have become common marsh trash along with quarter inch diameter yellow polypropylene rope scraps. These items I also find against my dock on Indian Island. I turn all of this "found" mariculture debris into the Eureka Fish and Wildlife office.

Response to Comment No. 50-1

Coast recognizes that marine debris is a significant concern for the community. While Coast could have done more to address this issue in the past, Coast has improved its practices in operation, maintenance, and cleanup activities in an attempt to minimize its operational impacts in Humboldt Bay. Coast will continue to work with the community to improve its cleanup efforts to identify and remove and/or repair lost or damaged gear. These efforts include performing weekly cruises around the perimeter of North Bay and Entrance Bay at high tide to pick up debris, including both aquaculture materials and any other marine debris. Most debris picked up by Coast during these cruises consist of non-aquaculture materials, including cans, water bottles, plastic bags, coffee cups, timber, and tires. Coast also performs low-tide inspections on its beds and mudflats at each low tide. Low-tide inspections generally involve the removal of aquaculture debris in close proximity to the oyster beds, including cultch bags, clam bags, baskets, pipe, rope, wire ties, and other miscellaneous items. In addition to its commitment to being a responsible steward for Humboldt Bay, Coast has a significant financial interest in retaining its property and equipment for repair and reuse. Therefore, it is in Coast's best interests, as well as the best interests of the community and Humboldt Bay, to regularly clean and maintain its farmed footprint.

It is very rare for Coast to lose a SEAPA basket from a longline. Over the past 10 years, Coast has improved its practices to ensure that baskets and other gear are properly maintained and are not lost. Coast installs stops on longlines with SEAPA baskets that prevent baskets from sliding off any broken line. It is extremely rare for longline stakes and other gear to become dislodged. Coast also regularly monitors its cultivated areas and surrounding areas for loose or escaped aquaculture gear. Additionally, Mitigation Measures HAZ-1 through HAZ-5 have been proposed in the R-DEIR to reduce the risk of marine debris.

Comment No. 50-2

Since the late 1970's, all commercial fishermen are required to have a "Marpol" (Marine Pollution Act) sign on board their vessels stating that it is illegal to introduce plastic anywhere (bays, estuaries, oceans) in the Marine environment. North Humboldt Bay now contains over 40 miles of 3/4" PVC pipe cut into eighteen inch lengths, as well as section of two inch PVC pipes up to twenty feet long, scattered throughout North Bay including many areas to which Coast Seafoods does not have legal access.

Response to Comment No. 50-2

See response to Comment 50-1. The comment is incorrect that Coast has planted PVC pipes in areas that it does not have legal access. All planted areas, and areas proposed to be planted, are in Coast's owned and leased areas.

Comment No. 50-3

I oppose any mariculture expansion by Coast Seafoods and request that the state require a massive clean-up of mariculture debris by Coast Seafoods and that Coast Seafoods also be required to post a bond to fund future removal of their mess.

Response to Comment No. 50-3

This request does not concern the proposed project and is beyond the scope of the EIR. As noted in response to Comment 50-1, Coast conducts routine cleanups of Humboldt Bay to collect any escaped gear, as well as debris that is unassociated with its aquaculture uses. The R-DEIR further addresses this concern through imposition of Mitigation Measures HAZ-1 through HAZ-5.

Comment No. 50-4

Habitat Impacts

I have included my 1999 letter to the Army Corps of Engineers concerning habitat damage in North East Bay. I have also included Coast Seafoods response to my concerns. I have fished Pacific Herring in Humboldt Bay for thirty-three years and assisted California Fish and Wildlife with both fish and eel grass survey work. It has been my understanding that Coast Seafoods (as a permit condition) are required to report herring spawning activity and further, to cease operations in those areas while herring eggs hatch. This reporting has never happened to my knowledge. Coast Seafoods continues to ignore the conditions required for their operation within the confines of their mariculture permits.

Response to Comment No. 50-4

See responses to Comments 17-47 and 17-93.

Comment No. 50-5

Oversight and Monitoring

There has been a complete absence of "credible" oversight of Coast Seafood operations by any state agency. No agency personnel have ridden as observers during planting, maintenance, or harvesting operations. No state agency has actually "ground truth" surveyed Coast Seafood lease boundaries. In fact, Coast Seafoods was recently discovered on a number of parcels outside of their lease boundaries. The commercial fishing fleet involved in the take of groundfish are required to pay for a "third party" federal observer during every fishing trip. Coast Seafoods should have to fund and carry a state observer during their operations to document the habitat damage they claim not to inflict. Observer coverage might possibly shed light on such occurrences as the massive eel grass break up observed coming out of the East Bay area during May of 2014, a period of calm weather and mild tides. Observer coverage might also record the effects of the new high-intensity LED floodlights (now operating at night on Coast Seafood vessels and equipment), on migrating bird populations in North Bay.

Response to Comment No. 50-5

Harbor District staff have observed Coast's cultivation activities on numerous occasions, including multiple boat trips to observe Coast's existing planting, maintenance, and harvesting operations. Many of these occasions have included other agency representatives, including representatives from NMFS, CDFW, the California Coastal Commission, U.S. Army Corps of Engineers, and RWQCB. Coast has also worked with the Harbor District and California State Lands Commission to confirm Coast's leased boundaries; this investigation resulted in Coast removing its cultivated product that was previously included in its Harbor District lease but subsequently determined to be outside of the Harbor District's jurisdiction. *See* DEIR § 4.5.4.7. Coast also entered into a lease with the Manila Community Services District (MCSD) upon a similar discovery that certain area previously leased from the Harbor District was located within areas owned by the MCSD. It is important to note that these areas were previously thought to be within the areas owned and managed by the Harbor District.

A requirement for a State employee to act as a full-time observer of Coast's operations is unwarranted. The Harbor District, Coastal Commission, Corps, and RWQCB all retain jurisdiction over the project to investigate any potential violations of permit conditions or mitigation measures and seek enforcement if such conditions are violated. Further, the project will incorporate an extensive monitoring plan that will compare the project's impacts to eelgrass to control plots, which will provide a significant amount of information regarding the project's impacts to eelgrass. A summary of the proposed eelgrass monitoring plan is included as Appendix C of the FEIR. Note that the draft monitoring plan has undergone peer review and may be subject to further revision based on those comments.

Comment No. 50-6

Unlike the small scale local oyster growers, Coast Seafoods/Pacific Group continue to behave as if their size and financial horsepower render them beyond regulation. Until such time as the State of California (not the Harbor District) is successful in obtaining complete compliance by Coast

Seafoods/Pacific Group within the terms of their permits, I continue to oppose any and all mariculture expansion by Coast Seafoods/Pacific Group. Thank you for considering my comments.

Response to Comment No. 50-6

The Harbor District is not aware of any information that supports the comment that Coast is in violation of its existing permits. *See* responses to Comments 50-2, 50-3, 50-4, and 50-5 for additional information and analysis.

Comment Letter No. 51

Phil Grunert
707-599-5775
philgrunert@att.net

Comment No. 51-1

I am opposed the any increase of aquaculture in North Humboldt Bay. It is to fragile enviroment and cannot with stand further expansion. Expasion would inhibite hunting and fishing. It could also have a negative affect on general boating of all types.

Response to Comment No. 51-1

See Topical Response 6 for additional discussion of impacts to hunting and Topical Response 7 for additional discussion of impacts to recreational uses.

Comment Letter No. 52

Stephen Rosenberg,
Eureka, Calif.
sjreur@aol.com

Comment No. 52-1

Dear Mr. Crider and Commissioners: Further expansion of oyster culture on North Bay beyond the present cultivation areas threatens eelgrass, black brant, herring, ducks, shorebirds, salmon, crabs and a host of other estuarine species. Major govt. agencies including the Calif. Dept of Fish and Wildlife as well as hunting and environmental groups are against the proposed expansion. Further, the Harbor District's management plan mandates that North Bay be managed primarily for its environmental resources. (ch.5.1). The proposed expansion would impede recreational navigation and hunting, create a safety hazard and be visually unattractive.

Response to Comment No. 52-1

See Topical Responses 2, 4, 6, 7, and 8 for additional discussion of the topics discussed in the comment. The HBMP is generally supportive of aquaculture, while noting that there are potential conflicts with other resources, even when there are conflicts with other uses and resources like

eelgrass. *See* HBMP, at 145. The project site is in a location designated for mariculture uses under the HBMP. *Id.* at 158. The chapter cited by the comment notes that mariculture uses are a legitimate use of Humboldt Bay, that requires a balancing of “legitimate economic uses of Trust lands” and the “possible effects on the natural ecological processes in the bay.” *Id.* at 199. The project is consistent with this goal through imposing conservation measures and mitigation measures that reduce the project’s environmental impacts to less than significant levels.

Comment No. 52-2

The existing cultivated area was narrowly approved in the late 1990"s when dredging and cultch dumping was concomitantly eliminated. The result has been a restoration of eelgrass and a resurgence of winter use by black brant, which is a primary management goal regarding each species. As succinctly stated by the late supervisor Jimmy Smith in his letter to the District on May19,2016, "the few islands and other habitats have already been exploited beyond reason" .. "expansion proposals of this magnitude are not in the best interests of wildlife, fisheries or the boating public". Specifically, I am most concerned about the proposed expansion north of the Bird Island area adjacent to the east side of Mad River Channel and the extension of operations into the area of the eastside of the bay north of the old Fay Slough channel.

The area between the existing Bird Island operations and the operations to the north is the last open corridor for brant and hunters on the west side of the bay and the proposed expansion areas are directly on top of the most favored area of the brant on the west side of the bay. This corridor is used by the brant in their daily migrations and resting and feeding from one side of the bay to the other . The East bay area north of the old Fay Slough channel represents, with the exception of a small operation off Arcata Redwood (which should be eliminated), the largest undisturbed eelgrass bed in north bay and the area of highest waterfowl and herring use. It must be declared permanently off limits.

Response to Comment No. 52-2

See Topical Response 6 for additional discussion of project-related hunting impacts.

Comment No. 52-3

The overriding point here is that the unit integrity of the present eelgrass beds must be preserved, leaving wide corridors and areas for the wildlife to rest and feed and for recreationalists to safely navigate and enjoy.

Response to Comment No. 52-3

See Topical Response 2 for additional discussion of impacts to eelgrass and Topical Response 7 for additional discussion of recreational impacts.

Comment Letter No. 53

Terry Cook
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Eureka, CA 95501
trcook37@gmail.com
707-845-1835

Comment No. 53-1

I am a 5th generation Humboldt county resident who has been using North Bay my whole life for recreation and sport. I have four children that I frequently take boating into North Bay and the current conditions trying to avoid the Oyster Farm Gear is difficult as is. I can not imagine trying to enjoy our waters with even more impacted use. My great great uncle was one of the first dentists in Eureka, an avid duck hunter, and one of the original founding members of the duck club that was out at the McBride Ranch. I was blessed to have a childhood that included being on our bay and the natural beauty it offers. I do not want this beauty impacted by more commercial use to the detriment of our ecosystem. Therefore, I am strongly opposed to your District renewing the permit and approving an expansion of oyster production by Coast Seafoods Company.

Response to Comment No. 53-1

See Topical Response 6 for additional discussion of impacts to hunting and Topical Response 7 for additional discussion of recreational impacts.

Comment No. 53-2

Permitting a considerably larger footprint to install more oysters on long lines in Arcata Bay would significantly impact eelgrass habitats, sensitive species, herring fisheries, Pacific black brant, and all waterfowl hunting, sculling, kayaking, recreational boating, fishing, as well as sailing.

Response to Comment No. 53-2

See Topical Response 2 for additional discussion of the project's impacts to eelgrass. *See* Topical Response 3 for additional discussion of herring impacts. *See* Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively. *See* Topical Response 7 for additional analysis of recreational impacts.

Comment No. 53-3

The impact on eelgrass habitats caused by 622 acres of increased oyster farming on the bay has not been adequately mitigated by the R-DEIR and is therefore inappropriate. The proposed expansion is too large. All oyster production gear should be removed from the East Arcata Bay. The R-DEIR has failed to address safety impacts to recreational boating.

Response to Comment No. 53-3

See Topical Response 2 for additional discussion of the project's impacts to eelgrass. The commenter believes that the project is too large; however, the purpose of the EIR is to evaluate the environmental impacts associated with the proposed project. A claim that a project or development is "too large," independent of environmental concerns, is outside the scope of an EIR analysis. *See*

Bowman v. City of Berkeley, 122 Cal.App.4th 572 (2004). See Topical Response 7 for additional analysis of recreational impacts. Removal of Coast's existing plots within the EBMA is not required under CEQA, as impacts associated with Coast's existing plots are considered part of the environmental baseline. See Topical Response 1. However, an additional alternative has been added to the FEIR which would eliminate any new cultivation within the EBMA and further reduce Coast's proposed cultivation in eelgrass as compared to the proposed project. See FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 53-4

Adverse impacts can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia. In addition, the oyster culture gear blocks my use of the bay and disrupts my enjoyment of the natural resources in the bay.

Response to Comment No. 53-4

See Topical Response 7 for additional analysis of recreational impacts.

Comment No. 53-5

The project R-DEIR proposes Conservation Measure REC-1 to limit operations that conflict with hunters between Nov. 15 to Dec.15th. This is inadequate because it does not address to entire length of waterfowl hunting season.

Response to Comment No. 53-5

See response to Comment 28-13.

Comment No. 53-6

Because of the numerous problems generated by increased amount of oyster production gear in Arcata Bay, I am opposed to renewing the permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Permit Requests in Arcata bay, Humboldt County, California.

Response to Comment No. 53-6

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 54

Aaron Moore
moore.aaron84@gmail.com

Comment No. 54-1

I am asking that the proposed oyster farming expansion be rejected, and that a better balance of aquaculture operations and eelgrass habitat in North Humboldt Bay be maintained. Humboldt Bay offers the largest eelgrass beds in California and the Pacific Brant severely depend on the eelgrass that is generated in that Bay. With declining eelgrass beds in Morro, San Francisco and Tamales Bays, Humboldt Bay plays a vital role in the preservation of the Brant species. Black Brant are a species that have experienced near extinction in the past and through many efforts their numbers have rebounded. Please do not set them back, I urge you to seek other alternatives instead of damaging a vital aquaculture.

Response to Comment No. 54-1

See Topical Response 4 for additional discussion regarding project-related brant impacts.

Comment Letter No. 55

Philip Lantsberger, CPA
Schwartz, Giannini, Lantsberger & Adamson
4578 Feather River Dr., Suite D
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P 209-474-1084, F 209-474-0301

Comment No. 55-1

While the applicant may have good intentions, eel grass is vital to the health of our coast and tidal estuaries and eel grass beds are a fraction of what they were historically. They need to be protected until such point as they make a significant rebound in the acres of eel grass beds. Species like Brant depend on the eel grass beds and without them there numbers will plummet again.

Thus you must reject the application or find other space outside of the eel grass beds for their expansion but it is wrong to threaten our natural resources for a for profit venture.

Response to Comment No. 55-1

See Topical Response 2 for additional discussion of project-related impacts to eelgrass and Topical Response 5 regarding additional analysis of the Eelgrass Avoidance Alternative. *See* Topical Response 4 regarding additional analysis of the project's impacts to brant.

Comment Letter No. 56

Richard J. Todoroff, DVM
A concerned local citizen

Comment No. 56-1

Thank you for allowing me to voice my concerns regarding the Coast Seafoods Co. Recirculated Draft EIR dated July, 2016, to permit expansion of its oyster mariculture operations from the existing 294.5 acres to 916.5 acres.

The conclusion that there will be "no significant impact" by expansion of Coast's operations is not only inaccurate but could prove tragic for a number of species that use, and indeed require, resources found in Humboldt Bay. Of these, I will comment primarily upon the Pacific Black Brant (*Branta bernicla nigricans*, hereafter "brant), which requires Common Eelgrass (*Zostera marina*, hereafter "eelgrass") as its obligatory food source.

I fear the effects will be insidious but real.

Response to Comment No. 56-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 56-2

The majority of brant migrate from breeding grounds in Alaska to their main wintering sites along the Gulf of California in a single flight of about 54 hours. Some stop at bays that contain eelgrass on their way south, where they are subject to sport hunting. (Pacific Flyway Council). Of greater concern in the current matter is their return migration north from January through mid-April, during which they stage at various locations in order to refuel and acquire fat reserves in order to reproduce. Up to 60% of the entire population of brant stage in Humboldt Bay (Lee 2001, cited in Moore, 2004).

Response to Comment No. 56-2

The R-DEIR agrees with this comment that Humboldt Bay is an important staging ground for brant.

Comment No. 56-3

Brant are a California State listed Species of Special Concern both during wintering and staging (Shuford and Gardali, 2008). Humboldt Bay is the fourth-most utilized body of water in the Pacific Flyway for staging brant, which make disproportionate use of Humboldt vs. other bays with eelgrass due to its geographic isolation from other bodies of eelgrass (Moore et al. 2004). Even at peak "fatness", the adult females have only about 20% of the calories needed to reproduce when they arrive in the Arctic breeding grounds (Ward 2005), so any disruption of staging brant will have substantial adverse effects on reproduction. This is borne out by a recent model (Stillman et al. 2015), which predicts a decrease in weight gain of about 33% with as little as a 10% reduction in

food intake. This suggests that a small reduction in eelgrass amount or access can have a substantial effect on reproductive success.

Response to Comment No. 56-3

See Topical Response 4 regarding the project's impacts to brant, including incorporation of the Stillman et al. (2015) model referenced in the comment.

Comment No. 56-4

Brant feed by tipping down (or standing at very low tides) and clipping leaves of eelgrass. The shorter younger leaves in the center of the plant are highest in protein and the most digestible, so are preferred. Eelgrass bends easily in the water column, so that they are accessible to brant only at tides lower than 0.9 meters (MLLW) and indeed the preferred leaves are only accessible at tides of 0.3 meters or less (Moore and Black 2006b) so the duration during which these leaves are available is quite limited. Only recently has brant feeding on drifting eelgrass leaves ("drift feeding") been documented, by a smaller proportion of birds and at tidal heights of >0.9 meters, and as a means of reaching daily energy requirements (Elkinton 2013) rather than accumulating fat stores. It seems likely that these leaves are much less nutritious than those in standing plants, but this has not been tested.

Response to Comment No. 56-4

As further described in Topical Response 4, Impact BIO-25, and R-DEIR Appendix F, the R-DEIR analysis uses the Stillman et al. (2015) model, which calculates available eelgrass based on the three youngest shoots of the turion occurring within "dense eelgrass beds" (based on NOAA Coastal Services mapping 2009), and thus does not include biomass for older shoots or eelgrass occurring throughout the bay in "patchy" eelgrass patches (defined as >10% to <85% cover). Brant preferentially feed on the three youngest shoots because they are the most energetically dense (Moore 2002), and tend to choose areas of higher biomass and nutritional quality (Moore and Black 2006b); however, they also forage in areas of lower biomass and nutritional quality due to tide-height restrictions to high-quality foraging areas (Moore and Black 2006b) and brant consume the older leaves, although in smaller proportions (Moore 2002). Therefore, the R-DEIR analysis is very conservative, in that the modeling employed ignores certain types of eelgrass that are available, but not preferred, for brant foraging. The Stillman et al. (2015) model calculates eelgrass available for brant based on Humboldt Bay tidal elevations, depth-specific eelgrass biomass, shoot length projections, and the maximum depth brant reach below the water surface (0.4 m; Clausen 2000). *See* response to Comment 7-3 and R-DEIR Appendix F for additional analysis of the elevations where brant are excluded from foraging.

Comment No. 56-5

The proposed expansion of cultch-on-longline and basket-on-longline by a total of 622 acres is of greatest concern. Incredibly, Coast leases and ownership currently covers virtually all the dense eelgrass beds in Arcata Bay (Fig.1.1). The proposed expansion of cultch-on-longline and basket-on-longline will create a patchwork of impediments to brant over all these eelgrass beds (Fig. 4.15). Even with 10-foot spacing, it seems unlikely that brant will feed in these areas.

Response to Comment No. 56-5

See Topical Response 4 for additional discussion of the project's impacts to brant foraging.

Comment No. 56-6

The 2015 Black Brant Survey Memorandum (Appendix E) was unfortunately restricted to the areas near the Samoa Bridge. Plot counts even in this restricted area showed that, at low tide when they would be expected to feed upon eelgrass, brant avoided the oyster plots, with a 26-fold difference in bird density between existing plots (0.1 bird/acre) and undeveloped plots (2.6 birds/acre). At high tide, there was little difference in bird density between developed and undeveloped plots, reinforcing the idea that birds avoid the visible structure. No images of brant foraging upon eelgrass were included in the report, although brant swimming in a boat lane (Picture 2) and "apparently feeding on algae" (Picture 3) were included.

Response to Comment No. 56-6

As noted in the comment, brant avoid longline culture during low tides when the culture is visible. This avoidance was evaluated in Impact BIO-25 using the Stillman et al. (2015) model, which quantified the potential effects of such avoidance. As further described in Topical Response 4 and Impact BIO-25, these impacts were determined to be less than significant.

Comment No. 56-7

It seems likely that brant will not effectively feed in areas of cultch on longline irrespective of their spacing or elevation. There is so much visual and tactile disturbance by the pipes and cultch that effective undisturbed grazing on exposed beds would seem impossible. If brant drift-feeding (again, a maintenance activity) is considered to be effective feeding, then the biology of the species has been conveniently ignored. Even the illustration that depicts cultch on longline (Fig.6.6.2) shows eelgrass plants collapsed alongside it; brant would not feed in such a cluttered area, whereas they would in the absence of structure. A shift to use of the North Bay has been noted since 2012 (see Appendix B letter from CDFW dated Sept. 23, 2015) further stressing the importance of this resource to the species.

Response to Comment No. 56-7

See response to Comment 56-6.

Comment No. 56-8

In summary, the loss of access to any eelgrass resources in the North Humboldt Bay poses a risk to brant reproduction, and the combination of disturbance and diminished access caused by oyster mariculture, may cause substantial declines in the population.

Response to Comment No. 56-8

See Topical Response 4 regarding additional analysis of project-related impacts to brant.

Comment No. 56-9

Hunting can and will be stopped if brant populations decline to below 90,000 (Pacific Flyway Council), an option that is readily agreed upon by the hunting community. I suggest that Coast's mariculture operations in Humboldt Bay be held at least to the same standard, and if the brant population declines, all their operations cease and all infrastructure be removed from Humboldt Bay.

Response to Comment No. 56-9

Mitigation measures are only required under CEQA to reduce significant environmental impacts. Based on the R-DEIR analysis, the project will result in a less than significant impact to brant. Therefore, no mitigation is required. Further, as noted in DEIR § 6.5.1.8, brant populations in Humboldt Bay have fluctuated significantly and face a number of environmental stressors unrelated to the project that can significantly influence their population, including hunting and factors associated with other Pacific Flyway locations. Given the number of both direct and indirect factors that can affect the brant migratory population, it is unreasonable to include the proposed mitigation measure. However, Mitigation Measure BIO-4 has been included to address the project's indirect impacts on brant, to ensure that brant continue to have adequate food resources to support their migratory patterns and population.

Comment Letter No. 57

Rick Schussel
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Comment No. 57-1

Please do not allow expansion of Coast seafood farming of oysters. This would cause tremendous loss of eelgrass which is the food source for Brant geese. The expansion will impact Brant populations. There is no doubt of that. Coast's request will likely not be their last, and I urge you to not allow the change in use of this area and rather to side with our natural resources and waterfowl

Response to Comment No. 57-1

See Topical Response 4 regarding additional analysis of project-related impacts to brant.

Comment Letter No. 58

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707-667-6272

Comment No. 58-1

As a Wildlife Biologist with 38 years of professional experience working on wetlands, and migratory bird habitats, particularly waterfowl, I am opposed to the proposed Coast Seafoods project described in the recirculated DEIR (RDEIR). Your District should select an eelgrass avoidance alternative, reduce the size of project area substantially (if phase I is allowed), deny permits for phase II, and eliminate all oyster production in the East Arcata Bay Management Area. Avoidance of all eelgrass habitats would be preferable to attempted mitigation. Compliance with the National Oceanic & Atmospheric Administration (NOAA) CA Eelgrass Mitigation Policy is desired for National Environmental Policy Act (NEPA) reviews. My opposition to the proposed project is based on the following;

Response to Comment No. 58-1

As noted in R-DEIR § 6.5, the R-DEIR incorporates the CEMP's no net loss of eelgrass function standard to evaluate project impacts to eelgrass. The Eelgrass Avoidance Alternative was eliminated from further analysis because it did not achieve any of the project objectives and was economically infeasible. Additional support for these conclusions is provided in Topical Response 5. In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA. *See* FEIR Section 4, *Revisions to the R-DEIR*.

Comment No. 58-2

As described the project would have significant unmitigated impacts to eelgrass in Arcata bay. The proposal to self-mitigate by changing spacing on 100 acres of oyster culture is inadequate. The RDEIR fails to substantiate the claim that a change of spacing from 2.5 feet to 10 feet will reduce impacts to eelgrass on an additional 622 acres of oyster culture below the level of significance. The trampling impact calculations are not fully descriptive of all adverse impacts from foot traffic. The calculations seem to indicate that Coast Seafoods staff is able to walk in a straight line in mud that is sometimes knee deep and that the number of times they walk back and forth conducting the harvest work can be predicted exactly. This is overly optimistic and unreasonable. Walking through bay mud and slippery eelgrass covered beds will have dramatic adverse unmitigated impacts. The final EIR should show all math calculations made addressing trampling impacts.

Response to Comment No. 58-2

See Topical Response 2 for additional discussion of eelgrass impacts and the adequacy of proposed mitigation. *See* responses to Comments 9-33 and 9-34 for additional discussion of eelgrass impacts associated with trampling.

Comment No. 58-3

The claim in Section 6.5.4 that "spatial overlap between culture areas and habitat is not a quantification of impact ... " is erroneous. One acre of oyster culture over eelgrass habitat is certainly one acre of adverse impact to numerous species of fish and wildlife that depend on this rich aquatic environment. This discrepancy places all the rest of the project analysis on project impacts in to question. Conclusions based on these false assumptions are invalid.

Response to Comment No. 58-3

See Topical Response 2 for additional discussion of eelgrass impacts.

Comment No. 58-4

The adverse impacts to wintering and migratory populations of Pacific black brant are significant and could be catastrophic. Previous letters of comment, including USFWS, Humboldt Bay National Wildlife Refuge letter dated Dec. 30, 2015, on the project DEIR have provided a thorough review of the reasons that brant are susceptible to forage shortages due to the limited amount of time that each tidal cycle allows them to forage on eelgrass, therefore I do not provide that information again here. The RDEIR provides survey data again substantiating the fact that brant are excluded from foraging inside oyster culture areas once the tidal cycle exposes gear.

Response to Comment No. 58-4

See Topical Response 4 for additional discussion of brant impacts and response to Comment 7-3 for additional discussion of the availability of eelgrass for brant foraging.

Comment No. 58-5

The use of a computer model by Stillman is based on assumptions that remain untested. The statements near the end of Appendix F seems to acknowledge the limitations, "A direct comparison to the results of Stillman et al. (2015) model is not possible because they did not account for biomass reduction or temporal loss of availability with brant avoidance of exposed longline infrastructure within existing aquaculture areas ... " The writer goes on to state that "However, we do not expect the differences between biomass estimates used in Stillman et al. and those presented here to be substantially different other than the reduction in biomass associated with existing aquaculture areas." I suggest to you that the "expectations" of the RDEIR author are wrong and they are attempting to use a study in ways that it may not have been designed to be applied. The final answer to these disputed assumptions requires a monitoring program that has not been approved or put in place. The lack of information to substantiate the claims made in the RDEIR should result in a denial of the requested permits.

Response to Comment No. 58-5

See Topical Response 4 regarding use of the Stillman et al. (2015) model, which represents the best available science given that it evaluates potential impacts to brant based on specific data from Humboldt Bay. Brant avoidance of aquaculture equipment is based on empirical observations of

brant interaction with Coast's existing aquaculture gear, as further described in R-DEIR Appendix E. A summary of the proposed eelgrass monitoring plan is included as Appendix C of the FEIR. Note that the draft monitoring plan has undergone peer review and may be subject to further revision based on those comments.

Comment No. 58-6

The future climatic conditions under which the requested permit will operate may not be fully known or documented at this time. However, as the Dec. 29, 2015 comment letter on the Final Initial Study for Proposed Coast Seafoods Shellfish Co. Culture Permit Renewal and Expansion Project by Dr. Jeff Black and David Ward reflects important current knowledge and documentation of recent water temperature increases. In part they point out that "1. Eelgrass populations along the Pacific coast of North America are currently under extreme stress from disease and high water temperatures. A common link to the recent eelgrass losses has been the rise in air and water temperatures, a primary driver of eelgrass distribution and abundance (Neckles and Short 1997). Sea surface temperatures have increased by >3oC (>5oF) in the north Pacific since 2014 (http://www.nwfsc.noaa.gov/news/features/food_chain/). These unusually high sea temperatures have been associated with increased prevalence of the pathogen, *Labyrinthula zosterae* or wasting disease on eelgrass. Outbreaks of wasting disease have been linked to increases in sea temperatures and dramatic losses of eelgrass beds in the north Atlantic (Rasmussen 1977, Short et al. 1986). On the Pacific coast, outbreaks of wasting disease and significant loss of eelgrass beds have occurred recently in the San Juan Islands WA, Mission Bay CA, and in San Quintin Bay, Baja California. Wasting disease has been reported in Humboldt Bay in recent years (F. Short personal communication) and it is the mature beds and shallow intertidal beds of eelgrass that appear to be most susceptible to outbreaks of wasting disease (Groner et al. 2014). Humboldt Bay managers should be vigilant and protective of the bay's remaining eelgrass population." For these reasons it is important to approach any oyster culture expansion cautiously due to uncertain future conditions that will undoubtedly affect eelgrass during the expected life or performance time of the Humboldt Bay Harbor, Recreation, and Conservation District (HBHRCD) permit. It would be inappropriate to permit the 622 acre expansion at present.

Response to Comment No. 58-6

See response to Comment 24-4.

Comment No. 58-7

The request by Coast Seafoods for permits covering Phase I and Phase II totaling 622 acres without full mitigation is inappropriate. The "Adaptive Management" approach suggested in the document proposes to make use of information that does not currently exist to make changes in future management after adverse impacts occur. This approach amounts to using monitoring in lieu of mitigation. The CA Environmental Quality Act does not allow Monitoring to be used in lieu of Mitigation. Phase II should be considered as a separate project at a later date, if the HBHRCD pre-permitting project does not meet all the future demands for oyster production area.

Response to Comment No. 58-7

The R-DEIR concludes that the mitigation proposed under Mitigation Measure BIO-1 fully mitigates for the project's impact to eelgrass. As an extra layer of precaution, and to comply with mitigation requirements imposed by the CEMP and U.S. Army Corps of Engineers, Mitigation Measure BIO-1 also includes a monitoring plan and adaptive management plan to confirm the R-DEIR's assumptions concerning the project's impacts to eelgrass and the amount of ecological lift provided by Mitigation Measure BIO-1. While the best available science supports Coast's impact analysis and proposed mitigation, the adaptive management plan provides a safeguard in the event that the monitoring plan reveals that the impacts are greater than expected or that the proposed mitigation fails to compensate for anticipated reductions in eelgrass density. The adaptive management plan commits Coast to a decision tree to evaluate what action(s) must be taken if the assumptions in the R-DEIR are incorrect; however, given the variability in the number of possible outcomes, it is impossible and imprudent to commit to a particular course of corrective action at this time, as optimal corrections will be dependent on monitoring results and identification of potential issues. The adaptive management plan includes significance thresholds regarding what would be considered a significant deviation from the EIR's assumptions and a range of corrective actions that could be taken by Coast and the appropriate regulatory agencies in the event that the project results in greater than expected losses of eelgrass. This level of specificity, without committing to one specific change or adaptive measure, is permissible under CEQA. *Center for Biological Diversity v. Department of Fish & Wildlife*, 234 Cal.App.4th 212, 240-241 (2015). Therefore, the R-DEIR does not propose monitoring in lieu of mitigation; rather it proposes full mitigation *and* monitoring and adaptive management. The R-DEIR also acknowledges that Phase II may require revision or additional mitigation based on the results of the monitoring, which will be reviewed prior to implementation of Phase II.

Comment No. 58-8

The Cumulative impacts to American wigeon description in 7.2.3.12 are poorly written or just draw conclusions without connecting cause and effect. The fact that the highest densities of wigeon in the bay coincide with winter waterfowl hunting season, does not support the statement that "Moreover, the highest densities of wigeon in the bay coincide with winter waterfowl hunting, indicating that winter habitat use is not strongly influenced by disturbance." This statement is mistaken, as any disturbance may influence wigeon to forage in sub-optimal locations or prevent foraging for periods of time. Wigeon and all wintering waterfowl are subject to food shortages, and high energy demands due to cold winter temperatures, and therefore the added stress of anthropogenic activities such as boat traffic and maintenance of oyster culture sites may be significant forage disturbances due to the time of year when they occur. In a Master's thesis titled *Habitat Shifts and Foraging Performance of American Wigeon in Winter*, Brendan Leigh (2015) states that "In my study, wigeon had the lowest energy intake rates on bay habitats during mid-winter, falling short of estimated DEE." The DDE is defined as daily energy expenditure. Wigeon use of eelgrass is important in Dec. and January each winter until heavy winter rains allow wigeon to move to inland sites that may be energetically superior. The eelgrass of Humboldt Bay is a critical wintering habitat during a portion of each year. The "Cumulative Impacts to Wigeon and other Waterfowl" section is inadequate.

Response to Comment No. 58-8

As further described in Impact BIO-32, wigeon are not anticipated to avoid aquaculture gear except at tide levels too low to allow access to shellfish beds by water. Further, while eelgrass is an important source of wigeon diet, there are other sources of vegetation available for wigeon foraging. As further described in Topical Response 2, the project is not anticipated to result in a significant reduction to eelgrass density or areal extent (upon incorporation of mitigation); therefore, to the extent wigeon rely upon eelgrass for dietary needs, the project will not result in a significant depletion of that resource.

Comment No. 58-9

The RDEIR fails to address public safety impacts to recreational boating. Adverse impacts that are likely to occur from an additional 622 acres of oyster gear in Arcata bay include damage to vessels, physical harm to boaters by drowning or hypothermia. It will be difficult for boats to navigate around the extensive oyster gear proposed and shifts in wind direction, tidal currents and severe winter weather would make it impossible to navigate through expanded culture areas for significant periods of time every day. As a recreational boating enthusiast, who has been using the tidal wetlands in Humboldt Bay since 1978, I am concerned that additional oyster culture gear blocks my use of the bay and disrupts my enjoyment of the natural resources living in the bay. Recreational boating, sculling, hunting access, kayaking, fishing, as well as sailing would all be diminished by new hazards to navigation.

Response to Comment No. 58-9

See Topical Response 7 for additional analysis of recreational impacts.

Comment No. 58-10

Project proponents could have selected a less damaging alternative, such as eelgrass avoidance. It appears to me that the RDEIR fails to meet the minimum requirements under CEQA for avoidance or minimization of adverse impacts. The HBHRCDC should seriously consider selecting a lower impact alternative for this project or deny this permit request. Because of the numerous problems associated with the proposed increase of oyster production gear, I urge you to reject Coast Seafoods Permit request in Arcata bay, Humboldt County, California.

Response to Comment No. 58-10

The DEIR includes a number of alternatives that reduce impacts to eelgrass, including a reduced footprint alternative and 10-ft spaced longline alternative. Analysis of these alternatives and the feasibility of each is included in R-DEIR § 5. *See* response to Comment 58-1.

Comment Letter No. 59

Casey Ganskie
casey.bbunlimited@gmail.com

Comment No. 59-1

I'm writing as a conservationist opposing the further development of Humboldt Bay for oyster farming.

This habitat should be managed and preserved in a way to protect our natural resources rather than exploiting it for profit.

Allowing oyster farming expansion would be devastating to the black brant population and it's our responsibility as stewards of the land to make decisions that will not leave a lasting impact.

I deeply hope these ideas are considered in the decision moving forward.

Response to Comment No. 59-1

See Topical Response 4 regarding additional analysis of project-related impacts to brant.

Comment Letter No. 60

Fred H. Todd
108 Wall St.
Ft. Bragg, CA 95437
fredwillfish@hotmail.com

Comment No. 60-1

I am strongly opposed to your District approving an expansion of oyster production by Coast Seafoods Company.

Response to Comment No. 60-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 60-2

Permitting a considerably larger footprint to install more oysters on long lines in Arcata Bay would significantly impact eelgrass habitats, sensitive species, herring fisheries, Pacific black brant and all waterfowl hunting, sculling, kayaking, recreational boating, fishing, as well as sailing.

Response to Comment No. 60-2

See Topical Response 2 for additional discussion of the project's impacts to eelgrass. *See* Topical Response 3 for additional discussion of herring impacts. *See* Topical Responses 4 and 8 for

additional discussion of brant and shorebird impacts, respectively. *See* Topical Response 7 for additional analysis of recreational impacts. *See* Topical Response 6 for additional discussion of hunting impacts.

Comment No. 60-3

The impact of an increased oyster farming footprint on the bay has not been adequately mitigated by the R-DEIR and is therefore inappropriate. Impacts to recreational boating has failed to address safety.

Adverse impacts can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia. In addition, the oyster culture gear blocks my use of the bay and disrupts my enjoyment of the natural resources in the bay.

Response to Comment No. 60-3

See Topical Response 7 for additional analysis of recreational impacts.

Comment No. 60-4

Because of the numerous problems generated by increased amount of oyster production gear in Arcata Bay, I am opposed to approving the expansion for more acres of oyster production that is part of Coast Seafoods Permit Requests in Arcata bay, Humboldt County, California.

Response to Comment No. 60-4

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 61

Ted Romo
3419 Edgewood Rd.
Eureka, CA 95501
(707) 496-0525
Email: blackbrantsky@yahoo.com

Comment No. 61-1

Humboldt Bay Harbor Recreation and Conservation District
Advisory Committee Policy Prioritization Worksheet

Red = High Priority Green = Medium Priority Black = Low Priority

Categories	Policy
Recreational Administration	RA-1: Humboldt Bay Management Plan Advisory Committee as a forum for recreation opportunities
	RA-2: Partnerships with other recreation providers
	RA-3: Recreation opportunities to be integrated with other District functions
	RA-4: Capital improvement program and recreation budgeting
Recreational Opportunities Planning	ROP-1: Recreation planning to be an ongoing and coordinated function
	ROP-2: Needs assessment and related use preference data
	ROP-3: Identification of designated recreational use areas
	ROP-4: Future recreation areas to be reserved as needed
Recreational Facilities and Access	RFA-1: Safe and appropriate public recreational access to and use of the Bay
	RFA-2: Project approvals shall incorporate public access and associated services and amenities where
	RFA-3: Water-oriented recreation facilities; access for fishing and shellfish harvesting
	RFA-4: Coastal-dependent industrial and commercial uses may take priority in designated Harbor or
	RFA-5: Environmentally and culturally sensitive areas
	RFA-6: Prevention of significant adverse environmental effects
	RFA-7: Protection of recreational areas
	RFA-8: Minor amounts of fill authorized
	RFA-9: Support public transportation
	RFA-10: Signage and parking for public recreation areas, access points, and trails
	RFA-11: Signage for boating safety

Recreation – Specific Activities	RSA-1: Improvement and provision of boat launch sites
	RSA-2: Assistance to, maintenance of, and consideration of marinas
	RSA-3: Considerations for live-aboard boats
	RSA-4: Anchorage, security, and disposition of recreational boats
	RSA-5: Support opportunities for recreational fishing
	RSA-6: Protect District-owned beaches for visitor-serving uses
	RSA-7: Prohibition of off-highway vehicles on District-controlled properties
	RSA-8: Use of concessionaires
	RSA-9: Support for a water trails program for Humboldt Bay
Recreation – Interpretation and Outreach	RIO-1: Interpretive program
	RIO-2: Public interpretive center
	RIO-3: Directing recreational users toward appropriate areas of the bay
	RIO-4: Support for consistency in interpretive signs and displays.
Recreation – Visual Resources	RVR-1: Views of Humboldt Bay shall be protected
	RVR-2: Coastal-dependent uses shall facilitate public viewing, if feasible
	RVR-3: Scenic views and vistas map
	RVR-4: Trash and debris removal
	RVR-5: Coordination with other jurisdictions on visual quality
	RVR-6: Lighting shall meet federal and state guidelines
	RVR-7: District to consider future policy on billboard controls

Displayed above is a worksheet that was submitted January 15, 2009 by Adam Wagschal to help the District identify the Harbor District policies for prioritizing recreational use within Humboldt Bay. The priorities are rated high, medium, and low. You will notice there are a few highs, numerous mediums, and a few lows.

The highs represent the highest priorities for implementation. The medium priorities represent a consensus that these areas were important for the district to maintain. The current plans presented by Coast Oyster basically eviscerate the directions that were given by the subcommittee to the Harbor District to maintain. The overall DEIR essentially gives each one of these policies a low ranking priority developed by a single company rather than by a committee of actual users of Humboldt Bay.

To grant and approve the DEIR would be hypocritical for the Humboldt Bay Harbor, Recreation and Conservation District because their title states that recreation and conservation should be their priorities for the users of Humboldt Bay. One would surmise from their title that they would be the protectors of the bay against commercial enterprises and influences that would change our recreational areas from a recreational and conservation area to commercialization. The plan, as written, is being objected to by the California Department of Fish and Wildlife, United States Department of Fish and Wildlife, California Coastal Commission, California Waterfowl Association, National Fisheries Association, Audubon Society of California, and local Humboldt County residents. The DEIR is based on modeling; however, "models do not make decisions or predictions." (1- page 4) "models provide guidance, not the answers." (1-page 5) Statistician George E.P. Box said, "ALL MODELS ARE WRONG, but some are useful." (1-page 6) "the actual future real-world outcomes will be different." (1-page 7).

Response to Comment No. 61-1

The HBMP is generally supportive of aquaculture. *See* HBMP, at 145. The project site is in a location designated for mariculture uses under the HBMP. *Id.* at 158. While the comment notes several of the recreational priorities adopted in Section 4.0 of the HBMP, the priorities associated with aquaculture are listed in Section 3.5 of the HBMP, associated with the Harbor District's Harbor Element Planning Policies. *See* response to Comment 13-6 for additional analysis regarding the project's consistency with the HBMP. For additional analysis of the project's impacts to recreational uses, *see* DEIR § 6.11.

Comment No. 61-2

What we are dealing with is a real-world scenario. The effect of up to one square mile of aquaculture ropes, plastic, and shading equipment will have a negative visual impact on the enjoyment of the bay and an environmental impact on the ecosystem of Humboldt Bay, including eel grass, black brant, salmon, crab, and herring.

Response to Comment No. 61-2

See Topical Response 2 for additional discussion of the project's impacts to eelgrass. *See* Topical Response 3 for additional discussion of herring impacts. *See* Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively.

Comment No. 61-3

The recreational use of boating will be significantly impacted by increasing the overall oyster-farm footprint because the existing equipment currently is hazardous and impedes the safety of all boaters that use North Bay. One example is our hunting experience of two years ago when our boat motor

became entangled within the current oyster gear around Sand Island, due to the tidal current and wind pushing us into the gear before our engine could be restarted. We were lucky to be able to extricate ourselves from the current oyster structures without damaging our boat motor; however, if the conditions were at a different level, we could have found ourselves in a precarious situation of life-endangering circumstances.

Therefore, Humboldt Bay is a public bay that is to be used and enjoyed by ALL of the people who would like to enjoy its beauty in its various aspects, whether they are local residents or tourists. Increased commercialization with its visual and physical pollution and safety concerns is only addressing a monetary advantage for the oyster farmers and robs us of our use of public land.

The natural beauty of Humboldt Bay needs to be preserved by not interfering with eelgrass beds, maintaining undisturbed wide corridors and areas on which wildlife may feed and rest, and allowing recreational users to safely navigate and enjoy the overwhelming magnificence of the entire bay.

Choosing Alternative 4 from the DEIR will ensure that this priceless estuary in North Bay will be healthy for fish and wildlife, safe for recreational users and continue to be a productive aquaculture operation for many years to come.

Response to Comment No. 61-3

See Topical Response 7 for additional analysis of recreational impacts. While boats can occasionally encounter longlines, the R-DEIR incorporates measures to reduce such interactions as much as possible. As further described in Impact REC-2, Coast's aquaculture plots will be marked with PVC marker stakes that are visible at all tides and clearly delineate the boundaries of Coast's cultured plots. The R-DEIR also incorporates Conservation Measure REC-2, which requires posting of Coast's bed maps to alert boaters of the location of Coast's planted plots.

Comment Letter No. 62

Daniel Schwartz
danrobs831@gmail.com

Comment No. 62-1

Hello, Im emailing to you express my concern about the loss of eelgrass and its effect on the Brant population, and request that you reject the proposed oyster farming expansion.

Response to Comment No. 62-1

See Topical Response 4 regarding additional analysis of project-related impacts to brant.

Comment Letter No. 63

Scott Mc Morrow
Inverness, CA
samcmorrow@yahoo.com

Comment No. 63-1

I'm writing to urge you to reject the expansion of oyster farming that is being proposed by Coast Seafood Company, and adopt the Alternative 4: No Project Alternative stipulated in the DEIR. It is imperative that that a better balance of aquaculture operations and eelgrass habitat in North Humboldt Bay be maintained.

Humboldt Bay's eelgrass beds are a vital sensitive habitat that support a wide variety of wildlife. As such, this important habitat must not be encroached upon by an expansion of mariculture activities.

Response to Comment No. 63-1

See Topical Response 2 regarding additional analysis of project-related impacts to eelgrass.

Comment Letter No. 64

Steve Brott
brott.steve@yahoo.com

Comment No. 64-1

I urge you to please consider the consequences the expanded oyster farming in HB. The Pacific Brant has seen major declines in their population over the years and HB harbors the majority of Bryant come migration time.
Please reject the proposed oyster farm for the sake of the Pacific brant.

Response to Comment No. 64-1

See Topical Response 4 regarding additional analysis of project-related impacts to brant.

Comment Letter No. 65

Doug Dahme
ddahme@sbcglobal.net

Comment No. 65-1

I am not in favor of the Oyster farming expansion. Black brant are a more important species to this community and others! Please reject this proposal!

Response to Comment No. 65-1

See Topical Response 4 regarding additional analysis of project-related impacts to brant.

Comment Letter No. 66

Tom Orgain
3014 Ulloa Street
San Francisco, CA 94116
torgain@comcast.net

Comment No. 66-1

Please carefully evaluate any expansion by Coast Seafoods. The balance between commercial and recreation should be balanced according to the good faith mission of the special district.

Response to Comment No. 66-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 67

Geoff Belyea
gbelyea@icloud.com

Comment No. 67-1

Please do not allow the expansion of the oyster farming operation in Humboldt Bay. The expansion would seriously degrade the remaining eel grass beds which provide valuable feeding habitat to migratory Black Brant. Existing eel grass beds in both Humboldt and Morro Bays are critical to the survival of migratory Black Brant and with already degraded habitat along the California Coast line the important of the Humboldt Bay eel grass beds can not be underscored.

Response to Comment No. 67-1

See Topical Response 4 regarding additional analysis of project-related impacts to brant.

Comment Letter No. 68

Jesse Limas SR
jslimasmft@aol.com

Comment No. 68-1

I am against the expansion of Oyster farming in humboldt bay that would reduce eel grass that is necessary for wildlife survival especially Geese! Please consider the environmental issues over the financial gain for a few. Thank You.

Response to Comment No. 68-1

See Topical Response 4 regarding additional analysis of project-related impacts to brant.

Comment Letter No. 69

Juliette Bohn
JPB Consulting
1125 16th Street, Suite 205
Arcata, CA 95521
(707) 845-1498
juliettepbohn@gmail.com

Comment No. 69-1

It was good to see the expanded environmental impact analysis based on the comments received during the first round. I still prefer a two phased approach to expansion and would also like to see an impact review with public input before phase 2 is initiated. Also, I would prefer to see 3rd party impact monitoring - it was not clear to me whether or not Coast was proposing to do this internally or hire out for these services. Regardless, self-monitoring is not effective when increasing profitability is a primary driver.

Response to Comment No. 69-1

The proposed eelgrass monitoring would be conducted by a third-party biologist. *See* response to Comment 58-7 regarding additional details regarding the proposed eelgrass monitoring and adaptive management plan that will be implemented to inform proposed Phase II cultivation activities.

Comment Letter No. 70

Brad Endicott
970 Hilltop Drive, Fortuna, Ca. 95540
bendicott826@gmail.com
(707) 682-6638

Comment No. 70-1

I am strongly opposed to your District renewing the permit and approving an expansion of oyster production by Coast Seafoods Company.

Response to Comment No. 70-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 70-2

Permitting a considerably larger footprint to install more oysters on long lines in Arcata Bay would significantly impact eelgrass habitats, sensitive species, herring fisheries, Pacific black brant, and all waterfowl hunting, sculling, kayaking, recreational boating, fishing, as well as sailing.

Response to Comment No. 70-2

See Topical Response 2 for additional discussion of the project's impacts to eelgrass. *See* Topical Response 3 for additional discussion of herring impacts. *See* Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively. *See* Topical Response 7 for additional discussion of recreational impacts.

Comment No. 70-3

The impact on eelgrass habitats caused by 622 acres of increased oyster farming on the bay has not been adequately mitigated by the R-DEIR and is therefore inappropriate. The proposed expansion is too large. All oyster production gear should be removed from the East Arcata Bay. The R-DEIR has failed to address safety impacts to recreational boating.

Response to Comment No. 70-3

See response to Comment 23-2.

Comment No. 70-4

Adverse impacts can range from boat damage, physical harm to the boaters while attempting to extricate themselves from the oyster gear, or death by drowning or hypothermia. In addition, the oyster culture gear blocks my use of the bay and disrupts my enjoyment of the natural resources in the bay.

Response to Comment No. 70-4

See Topical Response 7 for additional discussion of recreational impacts.

Comment No. 70-5

The project R-DEIR proposes Conservation Measure REC-1 to limit operations that conflict with hunters between Nov. 15 to Dec. 15th. This is inadequate because it does not address to entire length of waterfowl hunting season.

Response to Comment No. 70-5

See response to Comment 28-13.

Comment No. 70-6

Because of the numerous problems generated by increased amount of oyster production gear in Arcata Bay, I am opposed to renewing the permit and approving the expansion for more acres of oyster production that is part of Coast Seafoods Permit Requests in Arcata bay, Humboldt County, California.

Response to Comment No. 70-6

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 71

(Note: See under Response to Agencies pg. 3-122 for comments and responses to Comment Letter No. 71)

Comment Letter No. 72

Ms. Heike Lessman
Schillerstr 10
Bad Pyrmont, DE 31812
hkbkl@hotmail.de

Comment No. 72-1

As someone who cares deeply about California birds and wildlife, I'm writing to ask that you and your fellow commissioners reject the proposal from Coast Seafoods' Company to expand aquaculture operations for oysters and other shellfish an additional 622 acres, almost exclusively into healthy eelgrass beds. This massive proposed project would convert an incredible 5% of the state of California's eelgrass and 11% of Humboldt Bay's eelgrass, to oyster farming.

Response to Comment No. 72-1

See Topical Response 2 for additional discussion of the project's impacts to eelgrass.

Comment No. 72-2

Humboldt Bay is considered a globally significant Important Bird Area by the National Audubon Society and Birdlife International. The eelgrass beds and mudflats of Humboldt Bay support an incredible 60% of migrating Pacific Brant Geese, as well as between 10% to 20% of all wintering Marbled Godwits, Semipalmated and Least Sandpipers, and Willets, as well as tens of thousands of other shorebirds. These eelgrass beds are the heart of the Bay's Pacific herring run which provides essential food for Surf Scoters, Western Grebes, Clark's Grebes, and are recognized by federal and state agencies as vital for herring, salmon, Dungeness crab and other commercially important fish.

Response to Comment No. 72-2

The R-DEIR acknowledges the importance of Humboldt Bay for brant and a variety of other shorebirds and species. *See* R-DEIR § 6.5.

Comment No. 72-3

Eelgrass provides essential habitat for birds and wildlife, and it is recognized by the Magnuson-Steven Act as Essential Fish Habitat for its role as a nursery for young salmon and groundfish. Aquaculture of the type proposed for Humboldt Bay is not compatible with eelgrass which is why the State Department of Fish and Wildlife has a No Net Loss policy for eelgrass and does not permit aquaculture within 10 feet of eelgrass.

Response to Comment No. 72-3

See Topical Response 2 for additional discussion of the project's impacts to eelgrass. As noted in R-DEIR § 6.5, the R-DEIR implements the CEMP no net loss of eelgrass function standard in evaluating impacts to eelgrass. The comment also requests the inclusion of eelgrass buffers recommended by CDFW. The CDFW buffer is a recommended buffer for leases managed by the

California Fish and Game Commission; it is not a regulatory restriction and the Harbor District is not required to implement the recommended buffer. Further, CDFW's recommendation makes no distinction between different types of shellfish cultivation techniques, which can have significantly different impacts on eelgrass and other aquatic resources.

While Coast has included Conservation Measure BIO-4, which requires rack-and-bag culture plots to incorporate a 25-ft buffer from existing eelgrass beds, appropriately spaced longline culture has significantly different impacts to eelgrass. *See* Topical Response 2. This distinction is recognized in the CEMP, which acknowledges that appropriately spaced shellfish longlines may not require mitigation for eelgrass losses (NMFS 2014). Further, both the U.S. Army Corps of Engineers and NMFS have concluded that longlines spaced 10-ft apart may be placed in fallow aquaculture areas in Washington State without further mitigation or buffer requirements (Corps 2015; NMFS 2016a). Given the extensive analysis in the R-DEIR regarding the impacts of the specific proposed cultivation methods on eelgrass and recognition from other regulatory agencies that appropriately spaced shellfish longlines do not have an adverse impact to eelgrass, incorporation of CDFW's general eelgrass buffer is unwarranted.

Comment No. 72-4

Eelgrass is one of the most sensitive and critical marine habitats on the West Coast. The science is unequivocal that aquaculture usually damages and can destroy eelgrass. There is also an emerging body of evidence that eelgrass cannot easily be encouraged to grow in new "mitigation" areas, as the proponents of the Humboldt Bay project assert.

Response to Comment No. 72-4

See Topical Response 2 for additional discussion regarding impacts to eelgrass and the adequacy of proposed mitigation. The proposed mitigation would not be located in "new mitigation" areas; rather, it would be located in areas that already have eelgrass where regrowth has been shown to be successful. *See* response to Comment 17-33 for additional discussion of the likelihood of success of the project's proposed mitigation.

Comment No. 72-5

While the project proponents claim that this expansion of aquaculture in Humboldt Bay will have no impact on birds and other wildlife, but the State Department of Fish and Wildlife says that "a multitude of significant, unavoidable environmental impacts are likely to occur" and that "it would likely affect several bird species."

Response to Comment No. 72-5

See Topical Responses 4 and 8 for additional analysis of the project's impacts to bird species.

Comment No. 72-6

Again, I urge you to reject Coast Seafood's' proposal to expand aquaculture operations in Humboldt Bay. Any change to existing operations must be subject to comprehensive environmental review.

Response to Comment No. 72-6

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 73

Mr. John Stokes
362 10th St
Arcata, CA 95521-5942
gadumma@msn.com

Comment No. 73-1

As someone who cares deeply about California birds and wildlife, I'm writing to ask that you and your fellow commissioners reject the proposal from Coast Seafoods' Company to expand aquaculture operations for oysters and other shellfish an additional 622 acres, almost exclusively into healthy eelgrass beds. This massive proposed project would convert an incredible 5% of the state of California's eelgrass and 11% of Humboldt Bay's eelgrass, to oyster farming,

Response to Comment No. 73-1

See response to Comment 72-1.

Comment No. 73-2

I agree with the State Department of Fish and Wildlife's No Net Loss policy for eelgrass. I do not believe that "mitigation" can make up for the project's destruction of eelgrass.

Response to Comment No. 73-2

See response to Comment No. 72-3.

Comment No. 73-3

I strongly disagree with the project proponents claim that this expansion of aquaculture in Humboldt Bay will have no impact on birds and other wildlife. I agree with the State Department of Fish and Wildlife's assessment that "a multitude of significant, unavoidable environmental impacts are likely to occur" and that "it would likely affect several bird species."

Response to Comment No. 73-3

See response to Comment No. 72-5.

Comment No. 73-4

Again, I urge you to reject Coast Seafood's' proposal to expand aquaculture operations in Humboldt Bay. Any change to existing operations must be subject to comprehensive environmental review.

Response to Comment No. 73-4

See response to Comment 72-6.

Comment Letter No. 74

Ms. Judy Lundquist
220 Castlewood Dr
Lexington, KY 40505-3630
j.10.lundquist@gmail.com

Comment No. 74-1

As someone who cares deeply about California birds and wildlife, I'm writing to ask that you and your fellow commissioners reject the proposal from Coast Seafoods' Company to expand aquaculture operations for oysters and other shellfish an additional 622 acres, almost exclusively into healthy eelgrass beds. This massive proposed project would convert an incredible 5% of the state of California's eelgrass and 11% of Humboldt Bay's eelgrass, to oyster farming,

Surely we don't need oysters that badly.

Response to Comment No. 74-1

See response to comment 72-1.

Comment No. 74-2

Humboldt Bay is considered a globally significant Important Bird Area by the National Audubon Society and Bird life International. The eelgrass beds and mudflats of Humboldt Bay support an incredible 60% of migrating Pacific Brant Geese, as well as between 10% to 20% of all wintering Marbled Godwits, Semipalmated and Least Sandpipers, and Willets, as well as tens of thousands of other shorebirds. These eelgrass beds are the heart of the Bay's Pacific herring run which provides essential food for Surf Scoters, Western Grebes, Clark's Grebes, and are recognized by federal and state agencies as vital for herring, salmon, Dungeness crab and other commercially important fish.

Response to Comment No. 74-2

See response to Comment 72-2.

Comment No. 74-3

Eelgrass provides essential habitat for birds and wildlife, and it is recognized by the Magnuson-Steven Act as Essential Fish Habitat for its role as a nursery for young salmon and groundfish.

Aquaculture of the type proposed for Humboldt Bay is not compatible with eelgrass which is why the State Department of Fish and Wildlife has a No Net Loss policy for eelgrass and does not permit aquaculture within 10 feet of eelgrass.

Response to Comment No. 74-3

See response to Comment 72-3.

Comment No. 74-4

Eelgrass is one of the most sensitive and critical marine habitats on the West Coast. The science is unequivocal that aquaculture usually damages and can destroy eelgrass. There is also an emerging body of evidence that eelgrass cannot easily be encouraged to grow in new "mitigation" areas, as the proponents of the Humboldt Bay project assert.

Response to Comment No. 74-4

See response to Comment 72-4.

Comment No. 74-5

While the project proponents claim that this expansion of aquaculture in Humboldt Bay will have no impact on birds and other wildlife, but the State Department of Fish and Wildlife says that "a multitude of significant, unavoidable environmental impacts are likely to occur" and that "it would likely affect several bird species."

Response to Comment No. 74-5

See response to Comment 72-5.

Comment No. 74-6

Again, I urge you to reject Coast Seafood's' proposal to expand aquaculture operations in Humboldt Bay. Any change to existing operations must be subject to comprehensive environmental review.

Response to Comment No. 74-6

See response to Comment 72-6.

Comment Letter No. 75

Mr. Michael Sullivan
10930 Vivaracho Way
San Diego, CA 92124-2228
msullivan@san.rr.com

Comment No. 75-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 75-1

In response to this comment, the Harbor District has included an additional alternative, the EBMA Avoidance Alternative, which does not propose any expansion of Coast's operations within the EBMA and consolidates the majority of Coast's proposed expansion in West North Bay. *See* FEIR Section 4, *Revisions to the R-DEIR*.

Comment Letter No. 76

Mrs. Joan Paul & PJ Sullivan
4946 Sullivan St
Ventura, CA 93003-5267
punkinsullivan4@aol.com

Comment No. 76-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Too many companies are destroying our land, water & other resources! It's time we protect this from happening! It does not help the people, land water & the health of our planet or the area that should be protect! Sick of the greed to others,, who care only about themselves & could care less about what & who they hurt!

Response to Comment No. 76-1

See response to Comment 75-1.

Comment Letter No. 77

Mrs. Kristey Harrington
65813 Acoma Ave
Desert Hot Springs, CA 92240-3801
kristey777@live.com

Comment No. 77-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning

approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

California has lost too many acres already due to drought and other causes. It doesn't matter what your beliefs or faith is in regards to this critical area. Fish and birds were here on earth first. If we lose them your profits won't matter because people won't be able to survive.

Californians have already lost their natural fertile soils. PLEASE don't destroy the feeding acres of the few birds left. They may look like many to you, but the western flyaway zone has already lost thousands of migrating birds

Response to Comment No. 77-1

See response to Comment 75-1 and Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively.

Comment Letter No. 78

Ms. norma Campbell
37 Decorah ln
Campbell, CA 95008-2424
sqrrlady@hotmail.com

Comment No. 78-1

Coast Seafoods already farms 300 acres in the bay- twice as large as the farming footprint in Tamales Bay. These farms damage eelgrass beds and exclude birds from their feeding grounds

And now they wish to enlarge their occupation by increasing their size by at least 600 acres. This is wrong and damaging to the environment and the feeding grounds of so many species of birds.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay.

Response to Comment No. 78-1

See Topical Response 2 for additional analysis of eelgrass impacts. *See* Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively.

Comment No. 78-2

In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 78-2

See response to Comment 75-1.

Comment Letter No. 79

Ms. Graciela Huth
8732 El Manor Ave
Los Angeles, CA 90045-3707
pesceto@gmail.com

Comment No. 79-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

The ignorance and greed that these companies show are the best example of the stupidity of the owners of these companies that only want to make one more dollar today by destroying the future of our descendants. Wetlands are one of the best natural resources we have to generate WATER. Yes the same water we need to survive. California Wetlands should be declared part of our national heritage and nobody should be allowed to exploit them. Cancel these permits and send these owners to find some other way to support themselves!

Response to Comment No. 79-2

See response to Comment 75-1.

Comment Letter No. 80

Ms. Michal Lynch
889 San Antonio Creek Rd
Santa Barbara, CA 93111-1305
michalcathy@cox.net

Comment No. 80-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

As much as I like oysters, I much prefer to protect the entire environment, which may ultimately even protect oysters too.

Response to Comment No. 80-1

See response to Comment 75-1.

Comment Letter No. 81

Mr. William Mitchel
716 Sundown Cir
Bishop, CA 93514-3171
wmitchel@cebridge.net

Comment No. 81-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Little by little habitat for wildlife is being taken away. Each instance doesn't seem that consequential but it all adds up. So, each is important.

Response to Comment No. 81-1

See response to Comment 75-1.

Comment Letter No. 82

Mr. Neel Siebold
1628 Keyes Rd
Ramona, CA 92065-3546
nsieboldl@gmail.com

Comment No. 82-1

As a concerned citizen of our great state, I ask you to please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Thank you.

Response to Comment No. 82-1

See response to Comment 75-1.

Comment Letter No. 83

Mrs. Phyllis Act
602 Manzanita Ave
Corte Madera, CA 94925-1609
pjact@sbcglobal.net

Comment No. 83-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

We need to protect the integrity of our natural environment for the future health of our planet. Don't destroy the natural cycle of life for our wildlife. Thank you.

Response to Comment No. 83-1

See response to Comment 75-1.

Comment Letter No. 84

Ms. Wendy Williams
7443 Wisconsin Dr
Citrus Heights, CA 95610-7431
wendy@wendypwilliams.net

Comment No. 84-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Balance is key. The company has plenty and to give it more acreage is to create unbalance. It is time for us as a nation to more and more act ethically and morally with an environmental understanding. Let's not give in to one more bottomline focused business. The bottom-line of economic profit should not always win in decisions about the environment. The Bay is the Commons. It does not belong to Coast Seafood. Humboldt Bay belongs to all citizens and I urge you to reject greed and support the need for a balanced, sustainable ecosystem. Stop this Bay grab!!! Protect the birds and the citizens of the Pacific Flyway!

Response to Comment No. 84-1

See response to Comment 75-1.

Comment Letter No. 85

Mrs. Ellen Franzen
970 Jones St
Berkeley, CA 94710-1847
ellen_franzen@yahoo.com

Comment No. 85-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

As a birdwatcher for over 50 years, and a California resident for over 50 years, I am very concerned about losing the diversity of shorebirds in this area, especially in this time of climate change.

Response to Comment No. 85-1

See response to Comment 75-1.

Comment Letter No. 86

Ms. Cassie Webb
5553 Woodforest Dr
Sacramento, CA 95842-2146
cfwebb@gmail.com

Comment No. 86-1

There is only one special area like Humboldt Bay in California. As a third generation Californian, please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 86-1

See response to Comment 75-1.

Comment Letter No. 87

Mrs. Nancy Higbee
21230 Onaknoll Dr
Perris, CA 92570-7873
higshomel@gmail.com

Comment No. 87-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay,

starting with consolidating oyster farms on the west side of the bay. Please act to preserve the eelgrass from further damage. It is an important nursery for all kinds of marine life besides its importance to waterbirds.

Response to Comment No. 87-1

See response to Comment 75-1.

Comment Letter No. 88

Ms. Jane H Beattie
PO Box 5591
Ketchum, ID 83340-5591
rbmt80@yahoo.com

Comment No. 88-1

Please reject Coast Seafood's revised EIR.

Help support a balance of oyster farms and resource protection in Humboldt Bay.

Please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories.

It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 88-1

See response to Comment 75-1.

Comment Letter No. 89

Ms. Beverly Minn
2723 Lincoln Ave SW
Bandon, OR 97411-9589
bevandkent@hotmail.com

Comment No. 89-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories.

I love eating oysters, but I like waterfowl and shorebirds, too. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 89-1

See response to Comment 75-1.

Comment Letter No. 90

Ms. Auna Harris
2904 G St
Eureka, CA 95501-4449
auna.nichole.harris@gmail.com

Comment No. 90-1

I work for Redwood National Park as a ranger and I've taken many trios to Humboldt Bay to watch birds since moving here 2 years ago. I have even started leading birding programs at the park out to the Bay and surrounding areas. Our birds are precious resources and the habitat they need is already in decline, let's not make it worse.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 90-1

See response to Comment 75-1.

Comment Letter No. 91

Ms. Patricia Gussler
1410 N Roundtree Ln
Anaheim, CA 92801-1327
trishrg62@gmail.com

Comment No. 91-1

Please do the right thing to protect the environment over the capitalists. We are the voice for those who have none, our wildlife. We need you to help protect this habitat. Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 91-1

See response to Comment 75-1.

Comment Letter No. 92

Ms. Judith Kahle
343 Wyoming St
Fairfield, CA 94533-5146
ourplanethome-care@yahoo.com

Comment No. 92-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Eelgrass is critical to this aquatic food system, including fish we eat, fish we don't eat, birds and more. Do not let this damaging expansion occur.

Response to Comment No. 92-1

See response to Comment 75-1.

Comment Letter No. 93

Mrs. Gail Marshall
1000 Angel Heights Dr
Fortuna, CA 95540-1551
gmmarshall@gmail.com

Comment No. 93-1

I live in Fortuna but spend many happy hours bird watching on the bay. So much habitat destruction statewide - the birds desperately need our treasured bay!

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 93-1

See response to Comment 75-1.

Comment Letter No. 94

Mrs. Deb and Randy Buckler
1650 Traffic Way
Atascadero, CA 93422-1520
gotrandy@tcsn.net

Comment No. 94-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Humboldt is better than this. Please stand up and protect this habitat.

Response to Comment No. 94-1

See response to Comment 75-1.

Comment Letter No. 95

Mrs. Kathy Forrest
2125 Tice Creek Dr Apt 2
Walnut Creek, CA 94595-2999
kztrees@comcast.net

Comment No. 95-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. The birds were here long before restaurant patrons decided they wanted more oysters. Please give the birds a chance.

Response to Comment No. 95-1

See response to Comment 75-1.

Comment Letter No. 96

Mrs. Nancy Miller
411 Poppinga Way
Santa Maria, CA 93455-4201
sistergh1976@gmail.com

Comment No. 96-1

Reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories.

It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 96-1

See response to Comment 75-1.

Comment Letter No. 97

Mr. john pasqua
843 S Escondido Blvd
Escondido, CA 92025-5005
killself5150@yahoo.com

Comment No. 97-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. HELP SAVE THE PACIFIC FLYWAY BIRDS TODAY IN HUMBOLDT COUNTY.

Response to Comment No. 97-1

See response to Comment 75-1.

Comment Letter No. 98

Mrs. celia scott
1520 Escalona Dr
Santa Cruz, CA 95060-3312
twinks2@cruzio.com

Comment No. 98-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Humboldt Bay is the most vital

and unspoiled coastal wetland in California, and vital to protection of birds and other creatures. Enough oyster farming already!

Response to Comment No. 98-1

See response to Comment 75-1.

Comment Letter No. 99

Mrs. R. Jane Gagner
1250 Searles St
Eureka, CA 95501-1271
lorax3@humboldtmail.com

Comment No. 99-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. I live in Humboldt very near the bay and bird sanctuary. I have the pleasure of seeing the birds on a daily and yearly basis. We need to keep our world in balance since we are the ones who tend to throw it way off. Please, help keep the balance. Reject the Coast Seafood's revised EIR!

Response to Comment No. 99-1

See response to Comment 75-1.

Comment Letter No. 100

Ms. R. Eng
232 F St
Redwood City, CA 94063-1040
rengsecond@gmail.com

Comment No. 100-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

If you work on controlling global warming you will do more to maximize the abundance of sea life in the future.

Response to Comment No. 100-1

See response to Comment 75-1.

Comment Letter No. 101

Mr. C. S.
Saratoga
San Diego, CA 92107
csoragha@hotmail.com

Comment No. 101-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.
PLEASE PROTECT MIGRATORY BIRDS AND HUMBOLDT BAY NOW - REJECT COAST SEAFOOD'S REVISED EIR!! THANK YOU.

Response to Comment No. 101-1

See response to Comment 75-1.

Comment Letter No. 102

Ms. Anne Adams
3630 6th Ave Apt 411
San Diego, CA 92103-4382
annelOll@cox.net

Comment No. 102-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

They should not be there at all so reject their newest ideas. Thank you

Response to Comment No. 102-1

See response to Comment 75-1.

Comment Letter No. 103

Ms. Robin Keister, MS Avian Science
1793 Nephi Dr
Fairfield, CA 94534-2930
robinakei@yahoo.com

Comment No. 103-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. We must stop destroying the oceans or they will become a wasteland.

Response to Comment No. 103-1

See response to Comment 75-1.

Comment Letter No. 104

Mr. Greg Cahill
4234 La Salle Ave
Culver City, CA 90232-3212
gregfcahill@gmail.com

Comment No. 104-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Please think about why you and others choose to live in such a naturally beautiful area and do your best to preserve it.

Response to Comment No. 104-1

See response to Comment 75-1.

Comment Letter No. 105

Ms. Monica Schwalbenberg-Pena
6136 Batesole Dr
Santa Rosa, CA 95404-9504
milvan@sbcglobal.net

Comment No. 105-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay, a globally significant Important Bird Area. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 105-1

See response to Comment 75-1.

Comment Letter No. 106

Mr. Frank Kiernan
1571 Lariat Ln
Olivehurst, CA 95961-9370
frank@fksservices.com

Comment No. 106-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

We need to protect and use resources wisely so we do not destroy the environment for other animals and birds (along with the water occupants). This can be done if we want and do not just serve big business owners for profit.

Response to Comment No. 106-1

See response to Comment 75-1.

Comment Letter No. 107

Ms. Pat Marriott
1530 Oakhurst Ave
Los Altos, CA 94024-6040
patmarriott@sbcglobal.net

Comment No. 107-1

Please reject Coast Seafood's revised EIR and support a BALANCE of oyster farms and resource protection in Humboldt Bay.

Specifically, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories.

It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 107-1

See response to Comment 75-1.

Comment Letter No. 108

Ms. Monica DuClaud
461 2nd St Apt 230
San Francisco, CA 94107-4106
duclaud@comcast.net

Comment No. 108-1

I urge you to reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay.
Particularly, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms located on the west side of the bay.

Response to Comment No. 108-1

See response to Comment 75-1.

Comment Letter No. 109

Ms. Linda Goetz
521 Del Medio Ave Apt 226
Mountain View, CA 94040-1149
linda_goetz@yahoo.com

Comment No. 109-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

One has to consider the many variants that go together to form a holistic environmental ecosystem. Plants, trees, sand, the PH of the water and oyster predators/mold/fungi must all be taken into account together and considered together. Please make sure you do as much due diligence as

possible - do not go in with one solution for one species that doesn't take into account how that solution will affect other ones.

Response to Comment No. 109-1

See response to Comment 75-1.

Comment Letter No. 110

Mr. Evan Hauge
1911Chennault ct.
Marina, CA 93933
epalmerh@gmail.com

Comment No. 110-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Our wildlife is the shared heritage of the residents of California, and with migratory birds, the shared heritage of the world. This habitat is critical to sustain this shared heritage. It is more important to preserve this shared heritage than it is to produce oysters, employ people, and make a profit.

Response to Comment No. 110-1

See response to Comment 75-1.

Comment Letter No. 111

Mrs. Melinda Isaacson
23031 Dolorosa St
Woodland Hills, CA 91367-6106
langzo@earthlink.net

Comment No. 111-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. *In* particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Please preserve the natural eelgrass beds and mudflats of Humboldt Bay for the diverse waterbirds, shorebirds, herring and crab in this critical habitat.

Response to Comment No. 111-1

See response to Comment 75-1.

Comment Letter No. 112

Mrs. Julie Fisher
126 Village Run W
Encinitas, CA 92024-3053
jisfishing4u@yahoo.com

Comment No. 112-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay, with strong preference for protecting native habitats and wild species.

In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gitting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

The reality is that humans have long been grotesquely over-populated.

The invasion of the Americas by Europeans and others is nothing more than a 500 year long history of the raping and pillaging of America's wild ecosystems and native cultures, with only a few areas that are protected; yet, even those protected areas are impacted by adjacent uses, tourists, and even intrusions by resource extraction companies (like oyster farmers). So, there are NO actual "pristine" areas in the Americas, only some preserves that are less or more impacted by humans.

Worse, global trade agreements NOW have American suppliers rushing to feed, not just the U.S. population, but rather a WORLD population now approaching 8 BILLION (with a B), and that will rise to 11 Billion by year 2100! There is NO way that the Americas can support a bloated world population hungry for our food and resources! If we allow that, we will rape the final holding grounds of America's last wild ecosystems.

Nations and states need to severely limit exports (and imports) so that nations around the globe are FORCED to produce mostly LOCALLY grown food and locally caught food and that they MUST join in a world-wide discussion of HOW to implement population REDUCTION policies that are fair, non-bigoted, and will quickly pressure people and reward people around the globe to have NO more than 1 child per couple. It is NOT enough now to have "stable world populations". With every nation wanting to live a higher quality of life (more modern), the current 8 Billion, once able to buy more goods and services, WILL force a clear cutting and strip mining all remaining resources of the lands and waters!

World over-population IS the elephant in the room that NO one wants to discuss; yet it is the pivot upon which all else depends. IF we fail to address world population with fair and fast acting population reduction policies, the fate of the world's native ecosystems will be sealed into the extinction books.

IN fact, EIRs are really nothing more than a verbose and revolting record of the steady destruction of America's wild ecosystems. Success stories are few and far between, with only temporary improvements that are always at risk for further "impacts" with, yet another, EIR promising "mitigation" that never works or does NOT work for very long ... and then it's on to the next project that will "impact" the area, including the mitigation lands and waters.

It's bullshit. It is typical "white man/ European legal maneuvers that make it appear that we are protecting habitats, but it's all smoke and mirrors. Native Americans know all about that.

Response to Comment No. 112-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 113

Mrs. Janet Lee
31 Castanea Ridge Rd
La Honda, CA 94020-9765
jdlee@sonic.net

Comment No. 113-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 113-1

See response to Comment 75-1.

Comment No. 113-2

According to studies of bird migration, threats to migratory birds have grown with habitat destruction especially of stopover and wintering sites, as well as structures such as power lines and wind farms. Don't add to the death of migratory birds by taking away important resources necessary for their survival.

Response to Comment No. 113-2

See Topical Responses 4 and 8 for additional discussion of project-related impacts to birds.

Comment Letter No. 114

Ms. Virginia Becchine
2306 Ridge Rider Rd
Bradley, CA 93426-9645
ginnybe@pacbell.net

Comment No. 114-1

I sincerely hope you will reject the revised EIR proposed by Coast Seafood. Their Coast Seafood farms damage eelgrass beds and take away bird feeding areas. They already have 300 acres which has done considerable damage. This area cannot withstand any enlargement of these oyster farms. The Humboldt Bay area must be protected from further encroachment of humans. Perhaps Coast Seafood can look at ways to make their current acreage more productive. I realize Coast Seafood want to make more money but I wonder if people really need to eat more oysters. Would they eat oysters if they knew how much damage the oyster farms caused.

I again want to ask you to reject the revised EIR from Coast Seafood. Humboldt Bay need your help. Thank you.

Response to Comment No. 114-1

See Topical Response 2 for additional discussion of project-related eelgrass impacts. *See* Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively.

Comment Letter No. 115

Mrs. Jean Piette
5395 Bell Rd
Auburn, CA 95602-9217
jean39.piette@gmail.com

Comment No. 115-1

Please understand that I support reasonable advances in the industry and enjoy the seafood available in Humboldt Bay on my dinner plate. I am also aware of the impact some actions have on our oceans, bays, waterways, sea life and birds.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories.

It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 115-1

See response to Comment 75-1.

Comment Letter No. 116

Mrs. Beatrijs Irena Olender
912 Capri Dr
Campbell, CA 95008-6044
irenawrites@earthlink.net

Comment No. 116-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. There has been already such a profound loss of habitat for birds and bird life! Do you know, that 50% of all birds have been lost since 1970? At this rate there will not be any left for our grandchildren to admire and enjoy. PLEASE, PLEASE BE RESPONSIBLE IN YOUR PLANNING!

Response to Comment No. 116-1

See response to Comment 75-1.

Comment Letter No. 117

Ms. Donna Naney
151 Georgia Ave
Oak Ridge, TN 37830-5468
dnaney012@comcast.net

Comment No. 117-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. I grew up in California. My family had an early 1800's presence there. This is a reasonable proposal. Resource protection, balance, no desecration--please. And please again.

Response to Comment No. 117-1

See response to Comment 75-1.

Comment Letter No. 118

Ms. Michelle Turner
2361 Sleepy Hollow Dr
Shingle Springs, CA 95682-9405
mjcturner@comcast.net

Comment No. 118-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. This is a very important marine area that must be kept from pollution and habitat destruction, Thank you.

Response to Comment No. 118-1

See response to Comment 75-1.

Comment Letter No. 119

Mr. Dean Griswold
8784 Mohawk Way
Fair Oaks, CA 95628-2929
griswomd@ix.netcom.com

Comment No. 119-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 119-1

See response to Comment 75-1.

Comment No. 119-2

As a Biologist and 13 year resident of Arcata, I am intimately familiar with Humboldt Bay and it's biological diversity. I strongly urge you to protect the uniqueness by limiting the oyster farms to the existing 300 acres of oyster farming. Tripling the size of the existing operation is a threat to the existing biological diversity and degrade the health of the bay.

Response to Comment No. 119-2

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 120

Ms. Liz Taylor
1827 Clement Ave
Alameda, CA 94501-1313
subseaconcierge@gmail.com

Comment No. 120-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Oysters can also be raised in on shore situations with no impact on eel grass.

Response to Comment No. 120-1

See response to Comment 75-1.

Comment Letter No. 121

Mrs. Gayle Spencer
2603 Alpine Rd
Menlo Park, CA 94025-6315
bwfolks@pobox.com

Comment No. 121-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. These birds need habitats that would be threatened. Don't let that happen.

Response to Comment No. 121-1

See response to Comment 75-1.

Comment Letter No. 122

Ms. Susan Potluru
6692 Archwood Ave
San Diego, CA 92120-2402
kate@potluru.com

Comment No. 122-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. This is not asking much to preserve a beautiful ecosystem.

Response to Comment No. 122-1

See response to Comment 75-1.

Comment Letter No. 123

Ms. Diane Armstrong
2117 Tice Creek Dr Apt 2
Walnut Creek, CA 94595-2998
diane.armstrong@comcast.net

Comment No. 123-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Every step taken to maintain ecological balance here in California shows the way to other states and other countries. Please. Thank you.

Response to Comment No. 123-1

See response to Comment 75-1.

Comment Letter No. 124

Ms. Myrna Barth
3745 Bagley Ave
Los Angeles, CA 90034-7404
myrnagb@yahoo.com

Comment No. 124-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

We must protect migratory birds!

Response to Comment No. 124-1

See response to Comment 75-1.

Comment Letter No. 125

Ms. Jacalyn Booth
1975 Maricopa Hwy
Ojai, CA 93023-2309
2gateways@gmail.com

Comment No. 125-1

Please REJECT Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. THE PLAN MUST BE BALANCED AND NOT JUST IN FAVOR OF COAST SEAFOOD!! We do not need more oyster farming!

Response to Comment No. 125-1

See response to Comment 75-1.

Comment Letter No. 126

Ms. Lorinda Smith
17323 Via Chiquita
San Lorenzo, CA 94580-3507
justkind@msn.com

Comment No. 126-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew

winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. This is very important for ALL of us.

Response to Comment No. 126-1

See response to Comment 75-1.

Comment Letter No. 127

Ms. Jill Denton
PO Box 6359
Los Osos, CA 93412-6359
jillgdfnd@aol.com

Comment No. 127-1

Eel grass is essential for coastal health and survival of countless bird species. Coast Seafoods proposal would decimate mudflats and eelgrass beds. Please reject their revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 127-1

See response to Comment 75-1 and Topical Response 2 for additional discussion regarding project-related impacts to eelgrass.

Comment Letter No. 128

Ms. Diane Langejans
1501 Simplicity
Irvine, CA 92620-2858
dkisland@att.net

Comment No. 128-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

The above proposed suggestions sound very doable. Allowing the oyster farms to be on one side of the bay, while allowing the bird area to be protected where the eelgrass beds, and mudflats of Humboldt Bay are located. These areas which allow the other sea creatures such as the Pacific

herring, Dungeness crab, waterbirds and a large diversity of shorebirds are important to all people on the west coast, and definitely deserve our protection as well.

Response to Comment No. 128-1

See response to Comment 75-1.

Comment No. 128-2

If Coast Seafoods has such a great interest in producing more oyster farms, perhaps another area further north or south could be located where these farms could be expanded to feed people, in an area that does not endanger the Humboldt Bay area. Additionally, is it at all possible for this Coast Seafood's Company to farm oysters in a different manner? Perhaps the oyster farming could take place in a man-made locale, where other native plant and animal species are not endangered by the current farming methods of oyster farming. This is just an idea and food for thought on the part of the oyster farmers of Coast Seafoods. Many oysters in Washington are farmed in areas where other sea creatures and plants are not even located. Have other options been considered by Coast Seafood's company?

Response to Comment No. 128-2

The project incorporates the most sustainable currently known methods of shellfish aquaculture. For example, in Puget Sound and Hood Canal, NMFS and US FWS identified 10-ft spacing of longline culture (including flip bag/basket culture) as the only culture method that can be used in fallow culture areas with listed salmon species where eelgrass has recolonized (over 2,700 acres in Washington State) without any required mitigation (US FWS 2016; NMFS 2016a). Coast has leased and cultivated on its tidelands in Humboldt Bay for over 60 years, it is not feasible or required under CEQA to request that Coast abandon its leased and owned property, particularly when the R-DEIR concludes that the project will not result in any unavoidable significant environmental impacts.

Comment No. 128-3

These special indigenous plants such as eelgrass, special mudflats in the bay helping Pacific herring, Dungeness crabs, waterbirds and the great variety of special shorebirds, are each one deserving of their individual and important protection from the state of California's people. I am in favor of protecting the native creatures and indigenous plants in the Humboldt Bay. With sincere thanks for your consideration on this matter of importance.

Response to Comment No. 128-3

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 129

Ms. Barbara Minneman

301 Lava Ct
Martinez, CA 94553-5430
blminneman@comcast.net

Comment No. 129-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Please protect migratory birds in Humboldt Bay! This is critical habitat let's not loose any more of it

Response to Comment No. 129-1

See response to Comment 75-1.

Comment Letter No. 130

Ms. Carolyn Moser
4554 N Avenida Polacca
Tucson, AZ 85749-9524
carolynmoser@comcast.net

Comment No. 130-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 130-1

See response to Comment 75-1.

Comment Letter No. 131

Ms. April Garbat Vaughan
235 S San Pedro St
Apt 329
Los Angeles, CA 90012-3563
rationalmystic@yahoo.com

Comment No. 131-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning

approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 131-1

See response to Comment 75-1.

Comment No. 131-2

Research here in Southern California shows that eel grass and a healthy bay system help us with storms and erosion-please protect the habitat that enables this ecosystem to work.

Response to Comment No. 131-2

See Topical Response 2 for additional discussion regarding project-related impacts to eelgrass.

Comment Letter No. 132

Mr. Richard Nielson
1251 Los Olivos Ave
Apt 4
Los Osos, CA 93402-3301
richs16196@yahoo.com

Comment No. 132-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

One day on the horizon vast extinctions and no food chain will bring reality to the idiots that can't see beyond the Ledger, they most probably won't realize there about to starve to death.

Response to Comment No. 132-1

See response to Comment 75-1.

Comment Letter No. 133

Ms. Carolyn Frazee
499 Redmond Rd
Eureka, CA 95503-9592
cfrazee@gmail.com

Comment No. 133-1

Humboldt Bay is precious to us and we need to keep it healthy to protect the wildlife that depends on it. I paddle the bay several times a month and it is important to me that we continue to have thriving fish and ocean mammal populations. More space in the bay for oyster farms will not further this goal.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 133-1

See response to Comment 75-1.

Comment Letter No. 134

Ms. Thamar Wherrit
PO Box 708
Mount Shasta, CA 96067-0708
thamar@hughes.net

Comment No. 134-1

So much human-caused destruction everywhere! We're supposed to be an intelligent species, but much of what we do, or allow to be done, belies that. If what is left is not protected and preserved, we'll be the biggest losers.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Please make your decision with consideration, intelligence and integrity.

Response to Comment No. 134-1

See response to Comment 75-1.

Comment Letter No. 135

Ms. Sheila Toner
13111 Thistledown Ct
Auburn, CA 95603-4149
shetoner@hotmail.com

Comment No. 135-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. Do not allow them to expand their already large operation into more sensitive and vital habitat.

In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories.

It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 135-1

See response to Comment 75-1.

Comment Letter No. 136

Mrs. Channon Doughty
1640 W 10th St
San Pedro, CA 90732-3704
channonmelissa@gmail.com

Comment No. 136-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. We cannot exploit all of nature and expect to keep on living healthfully.

Response to Comment No. 136-1

See response to Comment 75-1.

Comment Letter No. 137

Dr. Lawrence Thompson
1069 Felicia Ct
Livermore, CA 94550-8134
thompson14ster@gmail.com

Comment No. 137-1

Our migratory birds face many human-caused risks and **DEPEND ON HUMBOLDT BAY FOR THEIR SURVIVAL**. Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial

planning approach to protect the East Bay Management Area. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 137-1

See response to Comment 75-1.

Comment Letter No. 138

Dr. Sally Bianco
6256 Wall Ln
Paradise, CA 95969-3240
lazuleye@gmail.com

Comment No. 138-1

Eelgrass beds are important habitat for aquatic organisms and the other animals who feed on them. There is abundant science supporting the value of this habitat and the critical need to conserve it. Placing commerce ahead of conservation is giving away our public natural resources to industry profits.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 138-1

See response to Comment 75-1.

Comment Letter No. 139

Mr. Eric Atherton
1170 S Tremaine Ave
Los Angeles, CA 90019-1720
atherton.eric@gmail.com

Comment No. 139-1

I strongly oppose conversion of 600+ additional acres of eelgrass in Humboldt Bay to oyster farming and urge you to reject Coast Seafood's revised EIR. We must work toward a balance of natural resource protection and oyster farming, beginning with consolidating oyster farms on the west side of the bay.

Please reject Coast Seafood's revised EIR.

Response to Comment No. 139-1

See response to Comment 75-1.

Comment Letter No. 140

Dr. Janet Baas
19351 Hatteras St
Tarzana, CA 91356-1117
jrbaas@earthlink.net

Comment No. 140-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 140-1

See response to Comment 75-1.

Comment No. 140-2

As a biologist and environmental scientist I am asking your help to protect one of the west coast's most important places for birds. In Humboldt Bay, a loophole in state authority leaves these essential wetlands vulnerable. Coast Seafoods already farms 300 acres in the bay- twice as large as the farming footprint in Tamales Bay. These farms damage eelgrass beds and exclude birds from their feeding grounds. Now the company wants to exploit this loophole to expand its farming convert more than 600 additional acres of healthy eelgrass in Humboldt Bay to oyster farming. This massive project would convert an additional 20% of Humboldt Bay's eelgrass to oyster farming.

Response to Comment No. 140-2

See Topical Response 2 for additional discussion regarding project-related impacts to eelgrass. *See* Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively.

Comment No. 140-3

Humboldt Bay is a globally significant Important Bird Area. The dense eelgrass beds and mudflats of Humboldt Bay support Pacific herring, Dungeness crab, waterbirds, and the highest diversity of shorebirds on the west coast and some of the highest numbers of birds. It needs your protection now.

Response to Comment No. 140-3

The R-DEIR acknowledges the importance of Humboldt Bay for the species listed in the comment.
See R-DEIR § 6.5.

Comment Letter No. 141

Mr. Norbert Beising
175 Jed Smith Ln
Crescent City, CA 95531-9521
nbeising@charter.net

Comment No. 141-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. "I once read that President Jefferson was concerned that the enormous amount of clear cutting of Americas forests and draining of wet lands has on the climate . If he recognized that, why do we who know what all does damage still do it?"

Response to Comment No. 141-1

See response to Comment 75-1.

Comment Letter No. 142

Ms. Mary Ann Ambrose
5417 E Keegan Way
Hereford, AZ 85615-9292
ambrose.m@sbcglobal.net

Comment No. 142-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Although I have retired to Arizona, I consider California my home, and know the Humboldt bay well as a birder and conservationist. Please act responsibly!

Response to Comment No. 142-1

See response to Comment 75-1.

Comment Letter No. 143

Ms. Mona Gevarter
11706 Dorothy St Apt 8
Los Angeles, CA 90049-5586
monagevarter@yahoo.com

Comment No. 143-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

We are doing too much as a country or a business in destroying the habitat of too many.

We need to stop.

Response to Comment No. 143-1

See response to Comment 75-1.

Comment Letter No. 144

Mr. Apollo Environmental Artist
PO Box 402113
Hesperia, CA 92340-2113
apollo@apollo-aloha.com

Comment No. 144-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

The beauty of our planet should be held in respect as well as reverence and awe! As the caretakers of this precious jewel called Earth, it is our duty to become more harmonious with our environment; for what we hold in our hands is a trust for future generations.

What we do today, creates tomorrow.

Response to Comment No. 144-1

See response to Comment 75-1.

Comment Letter No. 145

Ms. Veronica Smith
5037 McFarlane Rd
Sebastopol, CA 95472-5710
vdeva1948@gmail.com

Comment No. 145-1

Birds and an undisturbed habitat are too important to allow excessive development of any kind. Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 145-1

See response to Comment 75-1.

Comment Letter No. 146

Dr. Kimberly Jannarone
635 Waller St
San Francisco, CA 94117-3320
kimberlyjannarone@hotmail.com

Comment No. 146-1

Please do not accept Coast Seafood's revised EIR.

Please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories.

It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 146-1

See response to Comment 75-1.

Comment Letter No. 147

Ms. Rachael Denny
2318 Lakeview Dr
Bradley, CA 93426-9624
stormdragon71@netscape.net

Comment No. 147-1

I respectfully request that you reject Coast Seafood's revised EIR, and work to support a balance of oyster farms and resource protection in Humboldt Bay. I would, in particular, recommend that you support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Lets do this!

Thank you for your time and consideration.

Response to Comment No. 147-1

See response to Comment 75-1.

Comment Letter No. 148

Mrs. Kimberly Paige
55 Stratford Rd
Kensington, CA 94707-1241
kimpaige55@gmail.com

Comment No. 148-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Humans need to do better by the other living beings on the planet!

Response to Comment No. 148-1

See response to Comment 75-1.

Comment Letter No. 149

Mrs. Christa romanowski
16190 Winchester Club Dr
Meadow Vista, CA 95722-9352
budnic1982@yahoo.com

Comment No. 149-1

I urge you to act to protect these important wetlands and mudflats that are important for birds and marine wildlife. Coast Seafoods already farms hundreds of acres. Isn't that enough? Please consider the needs of wildlife in deciding the future of this very important Humboldt Bay!

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 149-1

See response to Comment 75-1.

Comment Letter No. 150

Dr. Kathlyn Grabenstein
3121 Killarney Ln
Costa Mesa, CA 92626-2610
grabensteink@gmail.com

Comment No. 150-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

I have visited Humboldt County several times to bird and am so impressed by the natural beauty of the area. The exploitation of our marine environment for the financial benefit of a few, is not good stewardship.

Response to Comment No. 150-1

See response to Comment 75-1.

Comment Letter No. 151

Ms. Leslie Swallow
2401 Tomales Rd
Petaluma, CA 94952-9400
swallow@svn.net

Comment No. 151-1

I was a resident of Eureka in the late 70s. Not much has changed. Yes, the local people need jobs. Many employers take advantage of this desperation in the form of low wages with or if any benefits. At the same time, the people's wealth is the Bay. this environment must be respected and protected at all costs. It's your responsibility to reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management

Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 151-1

See response to Comment 75-1.

Comment Letter No. 152

Mrs. Suzannah Ferron
9737 Shadow Island Dr
Sunland, CA 91040-1517
suzannah@pobox.com

Comment No. 152-1

I am writing to urge you to reject Coast Seafood's revised EIR.

I urge you to, instead, to support a marine spatial planning approach that will protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. Instead of allowing the decimation of critical eelgrass beds and mudflats that support Pacific herring, Dungeness crab, waterbirds, and the highest diversity of shorebirds on the west coast in some of the highest numbers, we must balance resource protection and oyster farms, starting by consolidating oyster farms on the west side of the bay.

In this time of unprecedented environmental destruction and rapidly worsening climate change, we simply cannot afford to allow the destruction of our wetlands, bays and waterways for private profit. Once these critical and unique ecosystems are destroyed, they are gone forever. We cannot continue to prioritize the short-term profits of a handful of individuals over the long-term health and wellbeing of our critical ecosystems, which is part of healthy environment for everyone.

Again, please reject Coast Seafood's revised EIR and protect Humboldt Bay's wetlands and the uniquely diverse plant and animal communities they support. Thank you.

Response to Comment No. 152-1

See response to Comment 75-1 and Topical Response 2 for additional discussion of project-related impacts to eelgrass.

Comment Letter No. 153

Ms. Freda Salatino
186 El Solyo Heights Dr
Felton, CA 95018-9305
freda@cruzio.com

Comment No. 153-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay.

In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories.

This would create a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 153-1

See response to Comment 75-1.

Comment Letter No. 154

Ms. Becky Bowen
15340 Seadrift Ave# 94
Caspar, CA 95420-0118
casparbeck@comcast.net

Comment No. 154-1

This message comes to urge you to reject Coast Seafood's revised SIR and support a balance and ecological diversity in Humboldt Bay. We care deeply about the bay as a part of a Global Important Bird Area and I'm sure you are aware of the significance of migration that passes through the area. Hundreds of thousands of shorebirds drop down to feed and refuel on heroic migrations from the Arctic Circle to points south.

Response to Comment No. 154-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project..

Comment No. 154-2

The bay, with a rich source of food, is critical to these birds and the eel grass is a critical part of the food web.

We support a marine spatial planning approach to protect the East Bay Management Area-- especially for the protection of brants and long-billed curlew winter territories. We support a wise and thoughtful balance of resource protection and oyster farms and know this can be a reality with your help.

Response to Comment No. 154-2

See response to Comment 75-1.

Comment Letter No. 155

Ms. Jan Nolte
411 Olive Ave
Palo Alto, CA 94306-2226
jano.four@yahoo.com

Comment No. 155-1

I strongly support farming of any kind which co-exists in the least damaging way with wilderness areas and migration routes. We can't expect to be thoughtless exploiters forever--we must find intelligent ways to share the planet with Nature, so that whatever damage our farming practices inflict on the environment can heal.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 154-2

See response to Comment 75-1.

Comment Letter No. 156

Ms. Deborah Filipelli, PhD
PO Box 341
The Sea Ranch, CA 95497-0341
dfilipelli@mcn.org

Comment No. 156-1

The following represents my position in strong opposition to Coast Seafood's proposal to expand its oyster farming operation in Humboldt Bay.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay.

In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 156-1

See response to Comment 75-1.

Comment Letter No. 157

Mr. Kevin & Colleen McCoy
35514 S. Highway 1
Gualala, CA 95445
native@mcn.org

Comment No. 157-1

As somebody who went to Humboldt State University I became very fond of the bottom lands that edge the Bay and all of the wonderful wildlife found there. Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 157-1

See response to Comment 75-1.

Comment Letter No. 158

Mrs. Margaret Hunter
9150 Gallatin Rd
Downey, CA 90240-2927
margkhun@hotmail.com

Comment No. 158-1

For our future generations, please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 158-1

See response to Comment 75-1.

Comment Letter No. 159

Ms. Laura Peck
47800 Madison St Unit 152
Indio, CA 92201-6679
solitudaSO@aol.com

Comment No. 159-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Although I live in the desert, I have a great interest in the wellbeing of migratory birds and would urge you to consider their plight.

Response to Comment No. 159-1

See response to Comment 75-1.

Comment Letter No. 160

Mr. Allen Royer
1165 Garfield Ave
San Jose, CA 95125-3114
algroyer@yahoo.com

Comment No. 160-1

We need to protect the natural habitat of Humboldt Bay more than we need more oysters. Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and longbilled curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 160-1

See response to Comment 75-1.

Comment Letter No. 161

Ms. Denise Louie
11 Malta Dr
San Francisco, CA 94131-2815
denise_louie_sf@yahoo.com

Comment No. 161-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew

winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

I love to eat oysters, but I'll stop, because I'd rather see healthy natural ecosystems.

Response to Comment No. 161-1

See response to Comment 75-1.

Comment Letter No. 162

Ms. Janice Keber
665 Clarion Pl
Claremont, CA 91711-2930
janicek_l@yahoo.com

Comment No. 162-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 162-1

See response to Comment 75-1.

Comment No. 162-2

This area is one of my favorite vacation destinations, and the gradual destruction of the bay would change that. Aesthetics are important if you value the tourist trade. Oysters can, however, be brought in from elsewhere in a pinch; they are not worth the degradation of the Bay.

Response to Comment No. 162-2

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 163

Dr. J.P. Hollenbeck
2250 NW Hazel Ave
Corvallis, OR 97330-3915
hollenb@peak.org

Comment No. 163-1

It has come to my attention that an large expansion of oyster farming beds in Humboldt Bay has been proposed. I am seriously concerned about the impact this expansion may have on the ecological integrity of the Humboldt Bay system. Migratory birds may be critically affected. I urge you to reconsider the expansion of oyster farms, as currently proposed.

Response to Comment No. 163-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 163-2

As suggested by the California Audubon Society, a spatially explicit approach to planning resource use in the Bay may allow for a balance of oyster farming and ecological function that ultimately supports all resource use in the Humboldt Bay ecosystem. Beyond fisheries and migratory birds.

Please reject Coast Seafood's revised EIR and advocate a reasonable balance of economic activity and natural resource protection in Humboldt Bay. In particular, please support the marine spatial planning approach to protect the East Bay Management Area, as proposed by California Audubon Society.

Response to Comment No. 163-2

See response to Comment 75-1.

Comment Letter No. 164

Ms. Linda Morgan
10 Cherrywood Ct
San Pablo, CA 94806-3767
redwoodbird@aol.com

Comment No. 164-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is important to protect eel grass beds. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 164-1

See response to Comment 75-1.

Comment Letter No. 165

Ms. Tashia Spradley
PO Box 61
Imlay, NV 89418-0061
tashia_spradley@yahoo.com

Comment No. 165-1

I'm an HSU graduate and though I now live in northern Nevada I am a frequent return visitor to the Humboldt area. Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 165-1

See response to Comment 75-1.

Comment Letter No. 166

Ms. Lane Whitlow
312 E Briardale Ave
Orange, CA 92865-4306
laney.whitlow@gmail.com

Comment No. 166-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. As a graduate in Marine Biology at Humboldt State University, I am greatly concerned about the habitat and the local bird populations. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 166-1

See response to Comment 75-1.

Comment Letter No. 167

Ms. Arlene Bryles
1612 17th St
Eureka, CA 95501-2502
abryles@suddenlink.net

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resources. I have been a resident of Eureka since 1954 and I strongly believe that we need to protect the Humboldt Bay from development that could destroy its habitat.

Response to Comment No. 167-1

See response to Comment 75-1.

Comment Letter No. 168

Ms. Renee Nelson
12430 Backdrop Ct
Bakersfield, CA 93306-9719
idealfellow99@gmail.com

Comment No. 168-1

As an environmental planner with a special interest in migrating birds along the Pacific Flyway, I understand the critical nature of preserving habitat I implore you to please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 168-1

See response to Comment 75-1.

Comment Letter No. 169

Mr. Paul Jacobson
PO Box 1931
Willits, CA 95490-1931
paldenlama@yahoo.com

Comment No. 169-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side.

Response to Comment No. 169-1

See response to Comment 75-1.

Comment Letter No. 170

Mr. Jim Tietz
41212 Windwood Road
Shaver Lake, CA 93664
jimtietz@yahoo.com

Comment No. 170-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

I lived in Arcata for several years. Someday I hope to move back. In the meantime, I enjoy visiting to see the mostly unspoiled beauty of the Humboldt Bay and the wildlife that thrive there. I'm an avid bird watcher and a vegetarian. Hence, I care about the welfare of the birds that utilize the bay, and I don't give a damn about the livelihood of the oyster farmers.

Response to Comment No. 170-1

See response to Comment 75-1.

Comment Letter No. 171

Ms. Jodie Crandell
7001 Calexico Ln
Citrus Heights, CA 95621-4360
jcrandell@technikon.us

Comment No. 171-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

The migration of all the birds that use this important area is a treat that I take my grandchildren to as much as I can. Please make sure we can continue to enjoy this.

Response to Comment No. 171-1

See response to Comment 75-1.

Comment Letter No. 172

Ms. Naomi Zuckerman
PO Box 434
Whitethorn, CA 95589-0434
nz101j@hotmail.com

Comment No. 172-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Please do not allow the greed of one corporation to destroy the natural habitat that is an irreplaceable treasure. This belongs to ALL Californians and should not be destroyed without a majority vote of same. In this time of extreme climate crisis, it is more important than ever to preserve what we have. We have no idea of the long term effects of the farms already installed and cannot recreate these treasures.

It would be the height of ignorance and foolhardiness to allow this diestruction.

Response to Comment No. 172-1

See response to Comment 75-1.

Comment Letter No. 173

Mr. Mark Young
1506 Fern Dr
Eureka, CA 95503-6123
markyoung@suddenlink.net

Comment No. 173-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Richard let's Not muck up another Humbolt resource.

Response to Comment No. 173-1

See response to Comment 75-1.

Comment Letter No. 174

Ms. MaryAlice Denson
PO Box 158
Alderpoint, CA 95511-0158
madenson@asis.com

Comment No. 174-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

I love oysters. I love birds. I am dismayed that everything has to expand and grow to accommodate humans above the rest of the inhabitants of this planet, including eel grass. Sustain rather than grow. I am not a greedy oyster eater.

Response to Comment No. 174-1

See response to Comment 75-1.

Comment Letter No. 175

Miss Elizabeth Morata
2661 Bolier Ave
Mckinleyville, CA 95519-3310
liz.morata@gmail.com

Comment No. 175-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Economic growth is important, but not at the constant and continuous destruction of important natural resources that matter to all of us in the long run.

Response to Comment No. 175-1

See response to Comment 75-1.

Comment Letter No. 176

Mrs. Barbara Kelley
2433 Apache Dr
Bishop, CA 93514-1997
bjkelleynoise@gmail.com

Comment No. 176-1

We often visit Humboldt Bay to birdwatch and enjoy the area. We enjoy staying at hotels, eating at local restaurants, and shopping as part of our trips there. We wouldn't be visiting your area if it weren't for the bird life. If more of the bay is developed for commercial or other purposes, the habitat will not support these birds.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 176-1

See response to Comment 75-1.

Comment Letter No. 177

Ms. Leigh Fonseca
1115 S Eliseo Dr
Greenbrae, CA 94904-2016
leigh.fonseca@gmail.com

Comment No. 177-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

These lands and grasses are essential to migrating birds and it would be allowing one company and one crop to destroy the habitat of so many creatures. Please reconsider and choose a plan that keeps this vital area in balance.

Response to Comment No. 177-1

See response to Comment 75-1.

Comment Letter No. 178

Mr. Eric Caine
123 Achor Ct
Modesto, CA 95354-0309
ericcaine@sbcglobal.net

Comment No. 178-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. Our natural resources are irreplaceable and a heritage to be protected and passed down to future generations.

Response to Comment No. 178-1

See response to Comment 75-1.

Comment Letter No. 179

Ms. Ann Schieding
PO Box 280
River Pines, CA 95675-0280
asflowe rga rden@gmail.com

Comment No. 179-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Please compromise sensibly and prevent undue destruction of this vulnerable and valuable habitat.

Response to Comment No. 179-1

See response to Comment 75-1.

Comment Letter No. 180

Ms. GINA BILWIN
PO Box 8811
Bend, OR 97708-8811
ginmonbil@gmail.com

Comment No. 180-1

OVERFISHING OUR OCEANS IS KILLING OUR WILDLIFE.
MARINE FARMS MUST BE WELL PLANNED, BALANCED, CONTROLLED FOR ALL TO SURVIVE. Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 180-1

See response to Comment 75-1.

Comment Letter No. 181

Ms. Maryellen Mckee
PO Box 307
Whitethorn, CA 95589-0307
sageplant01@gmail.com

Comment No. 181-1

This is not in the interest of the coastal environment of our beautiful coastal town and habit... I would urge the harbor district to not sell out to something that will in the long run begin the demise of an area of immense beauty and home to an entire ecology.

Response to Comment No. 181-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 182

Ms. Linda Winkler
797 Upper Pacific Dr
Whitethorn, CA 95589-9164
lwjewels@gmail.com

Comment No. 182-1

Big money is taking over the world, lets do our best to protect our little corner!

Response to Comment No. 182-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not

a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 183

Mrs. Pamela Parsons
PO Box 511
Garberville, CA 95542-0511
pamnmanuel@asis.com

Comment No. 183-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. I have lived here long enough to love the birds of the bay more than the seafood. Do the right thing for our planet.

Response to Comment No. 183-1

See response to Comment 75-1.

Comment Letter No. 184

Mrs. Terri Middlemiss
8016 Lorene Ave
Inyokern, CA 93527-2310
catbird4@earthlink.net

Comment No. 184-1

Migrating birds especially need healthy stopovers full of food and safety to help them on their many thousands of miles flight. What a wonder they do in migration. They need our support.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 184-1

See response to Comment 75-1.

Comment Letter No. 185

Mrs. Nancy Berry
2809 Sapra St
Thousand Oaks, CA 91362-2042
calendula310@gmail.com

Comment No. 185-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Thank you very much for giving this careful consideration.

Response to Comment No. 185-1

See response to Comment 75-1.

Comment Letter No. 186

Mr. Ian Frazer
2121 Sophy Pl
Redding, CA 96003-9386
frazieri@hotmail.com

Comment No. 186-1

Please reject Coast Seafood's revised EIR. As a resident of Northern California and user of Humboldt Bay I am concerned that the EIR will diminish my enjoyment of public resources. Please protect the bay and prioritize public use by protecting wild life.

In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 186-1

See response to Comment 75-1.

Comment Letter No. 187

Ms. Diana Thatcher
1130 9th St Apt 7

Santa Monica, CA 90403-5213
thatcher@ucla.edu

Comment No. 187-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

I appreciate your consideration of my request.

Response to Comment No. 187-1

See response to Comment 75-1.

Comment Letter No. 188

Ms. Josephine Polifroni
149 Midland Way
Danville, CA 94526-4848
jpolfironi@earthlink.net

Comment No. 188-1

Industry should not dictate environmental standards. Destroying more sanctuary so more area is available to oyster farms is unacceptable.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 188-1

See response to Comment 75-1.

Comment Letter No. 189

Mr. Daniel O'Connell
111 W Hawthorne St Apt 5
Eureka, CA 95501-3693
mercusmaximus@gmail.com

Comment No. 189-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

P.S. As a politically active business owner I am more interested in our rare wildlife resources than our oyster tax revenue. It's what makes us special.

Response to Comment No. 189-1

See response to Comment 75-1.

Comment Letter No. 190

Mr. Sandy Kuicinski
3501 Anderson Pkwy
Toledo, OH 43606-2006
windsor914@att.net

Comment No. 190-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. CAUSING POLLUTION OF EARTH AND ANIMAL ABUSE ARE NEW SINS FOR TODAY ANNOUNCED BY BOTH POPES!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Response to Comment No. 190-1

See response to Comment 75-1.

Comment Letter No. 191

Ms. Sheila Desmond
3148 Piper Ct
Cameron Park, CA 95682-9130
sheila_desmond@att.net

Comment No. 191-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew

winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

There have been other attempts to "fix" supposed problems with migratory birds that didn't work. Reject the revised EIR.

Response to Comment No. 191-1

See response to Comment 75-1.

Comment Letter No. 192

Mr. William Schoene
1519 Oak St
Santa Monica, CA 90405-4847
williamschoene@gmail.com

Comment No. 192-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. The wetlands of Humboldt Bay are a vital site for migrating water birds and essential for their continued survival. Wetlands are critical endangered ecosystems and are supposed to be protected from commercial activities. Only a loophole has allowed Coast Seafood's oyster farming at all and now they want to blow through this loophole and triple the size of their oyster farm.

Response to Comment No. 192-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment No. 192-2

In particular, please support a marine spatial planning approach that protects the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

If human activities are always judged to be more important than the survival of wild ecosystems, we will soon whittle nature down to a simplified ecological framework that will collapse under the weight of the human demands placed upon it. If we can keep a healthy portion of the planet wild and thriving, we have a good chance of surviving long enough to work out how to balance our needs with those of the natural world.

Response to Comment No. 192-2

See response to Comment 75-1.

Comment Letter No. 193

Mr. Guildford Windley
693 Parkview Cir
Pacifica, CA 94044-1530
ghwblue@aol.com

Comment No. 193-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. We need to make sure wild life has it's place to thrive, if all the species die off, they will be taking us with them.

Response to Comment No. 193-1

See response to Comment 75-1.

Comment Letter No. 194

Ms. Kay Gillis
317 Palm Ave
Kentfield, CA 94904-1036
kaygillis@comcast.net

Comment No. 194-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. This revised EIR should be rejected on grounds that it is not well thought out and needs re-examination.

Response to Comment No. 194-1

See response to Comment 75-1.

Comment Letter No. 195

Ms. Cheryl Freeman
3309 Mateus ave.

Newport Beach, CA 92663
cheryl_fre@msn.com

Comment No. 195-1

The preservation of healthy habitat in coastal areas, forests and inland migratory plains has been shown to be beneficial for humans and animals alike. Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 195-1

See response to Comment 75-1.

Comment Letter No. 196

Ms. andarin arvola
pob 976
19681 dorffi rd
fort bragg, CA 95437
andarin@mcn.org

Comment No. 196-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

THIS SENIOR CITIZEN, AUDUBON MEMBER AND CONSERVATIONIST HAS WATCHED NATURE BECOME SERIOUSLY UNBALANCED OVER MY YEARS ON THIS EARTH. WE HUMANS ARE THE DESTROYERS OF ALL OTHER SPECIES FROM MINUSCULE TO LARGE (NOT TO MENTION OUR OWN). THIS AMOUNTS TO A MONOCULTURE AND WILL LEAD TO MORE DESTRUCTION - JUST SO CORPORATIONS CAN MAKE MORE MONEY AND ELITIST CAN EAT MORE OYSTERS?!

LET'S GET REAL HERE, WHO'S "GOOD IDEA" IS THIS?

Response to Comment No. 196-1

See response to Comment 75-1.

Comment Letter No. 197

Mr. Ian Taylor
36360 County Road 30
Davis, CA 95616-9438
iantaylor@yahoo.com

Comment No. 197-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

The importance of Humboldt Bay as habitat for birds, fish, and other wildlife is valued by people throughout California and beyond. Thank you for considering the vital link the bay creates between your community and the world.

Response to Comment No. 197-1

See response to Comment 75-1.

Comment Letter No. 198

Mrs. Ruth Cain
2747 Via Capri
Clearwater, FL 33764-5901
salsharfel@gmail.com

Comment No. 198-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

The earth has a balance, if you takeaway one of those creatures that contribute to that balance, you mess up everything for everyone!

Response to Comment No. 198-1

See response to Comment 75-1.

Comment Letter No. 199

Dr. Caroline Hall

PO Box 6359
Los Osos, CA 93412-6359
accesspnt@aol.com

Comment No. 199-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 199-1

See response to Comment 75-1.

Comment No. 199-2

We have lost most of the eel grass here in Morro Bay and with it a great deal of diversity. Please don't let the same thing happen in Humboldt Bay.

Response to Comment No. 199-2

See Topical Response 2 for additional discussion of eelgrass impacts.

Comment Letter No. 200

Mr. Jim Royer
337 Henrietta Ave
Los Osos, CA 93402-2435
jrmotmot@gmail.com

Comment No. 200-1

Please reject Coast Seafood's revised EIR and help to support a better balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and tong-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. I have witnessed the death of most of the eelgrass in Morro Bay and the rapid decline of wintering brant numbers here, making the health of Humboldt Bay even more important.

Response to Comment No. 200-1

See response to Comment 75-1.

Comment Letter No. 201

Ms. Joan Herskowitz
1175 Kildeer Ct
Encinitas, CA 92024-1278
jmherskowitz@yahoo.com

Comment No. 201-1

On behalf of the 2,200 member Buena Vista Audubon Society located in Oceanside, California, we ask you to reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay. We need to protect the birds of the Pacific Flyway for future generations.

Thank you for your consideration of our views on this important matter.

Response to Comment No. 201-1

See response to Comment 75-1.

Comment Letter No. 202

Mr. Daniel McGinnis
4552 Wildcat Ln
Concord, CA 94521-3507
dannymcginnis2@yahoo.com

Comment No. 202

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. if not I am sure we can mobilize enough people to have Coast Seafood be economically impacted and a damaged brand.

Response to Comment No. 202-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 203

Ms. Dorothea A. Petrosky
115 Harden Pkwy Apt J

Salinas, CA 93906-5199
dotpetrosky@att.net

Comment No. 203

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Birds need our protection.... please don't give in to the big corporate giants who take away our open spaces for their own greed & profits. I don't want to have to choose between the two ... why can't we find a compromise?

Response to Comment No. 203-1

See response to Comment 75-1.

Comment Letter No. 204

Ms. Libby Maynard
2318 Harris St
Eureka, CA 95503-4749
libby.maynard@gmail.com

Comment No. 204-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

We can't afford to lose any more eel grass beds. Already, there has been a marked decrease in Black Brant. Please do not allow this.

Response to Comment No. 204-1

See response to Comment 75-1.

Comment Letter No. 205

Ms. Lucinda Adamson
70 Mill Rd
Arcata, CA 95521-9637
la@birdallyx.net

Comment No. 205-1

Humboldt Bay is known for nature, environmentalism, Godwit Days, and important bird habitat. As a resident of Manila, Ca, I believe we have a responsibility to protect our natural surroundings and not to exploit our natural resources so that a couple people can make more money. The bay is for everyone to enjoy and it's health should not be up for sale.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 205-1

See response to Comment 75-1.

Comment Letter No. 206

Mr. Don Baccus
2171stSt
Pacific Grove, CA 93950-3603
dhogaza@pacifier.com

Comment No. 206-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 206-1

See response to Comment 75-1.

Comment No. 206-2

Humboldt Bay is one of the most important shorebird feeding and resting areas during migration on the west coast of North America, and deserves the highest level of protection possible.

Response to Comment No. 206-2

The R-DEIR acknowledges that Humboldt Bay is a critical staging area for shorebirds.

Comment Letter No. 207

Ms. Nancy Paradiso

16722 Robert Ln
Huntington Beach, CA 92647-4243
office@scalacs.org

Comment No. 207-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and tong-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Long range planning is the key to preserving the area for birds, marine life and other species in the area. Please do not buy into one corporation's plan for the area. We must protect the animals and birds that depend on that area for food and habitat.

Response to Comment No. 207-1

See response to Comment 75-1.

Comment Letter No. 208

Mr. Jerry Fox
435 N 2nd St Unit 225
San Jose, CA 95112-4062
revfox7@gmail.com

Comment No. 208-1

As a former resident and pastor in Arcata, I ask if you will consider rejecting Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 208-1

See response to Comment 75-1.

Comment Letter No. 209

Ms. Patricia Witman
28437 Sage Glen Tri
Escondido, CA 92026-6617
patwitman53@gmail.com

Comment No. 209-1

As a graduate of HSU, I have seen first hand what a wonderful place the bay is for bird life. As a professional conservationist, I have strong opinions about the value of the vulnerable natural world vs the desires of the commercial world. Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 209-1

See response to Comment 75-1.

Comment Letter No. 210

Mrs. Kathleen Svien
16712 County Road 14
Utica, MN 55979-4141
daws@clear.lakes.com

Comment No. 210-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

I was visiting my 5-yr-old grandson (and his parents--my daughter is the Mom) in April and May in Eureka. We loved walking in the Arcata park and learning about and seeing the wonderful birds. Certainly checking into whether or not this oyster farm expansion is seriously detrimental is only prudent and a good idea for local leaders to pursue for assuring the people's trust. Perhaps this isn't disastrous, but what if it is? Study it and check it out. Better yet, have the company prove that it isn't a problem. After the smart use of the dump site, and the wonderful programs teaching little ones, and old ones like me, about the local birds, it would be a shame if local bird populations were damaged.

Response to Comment No. 210-1

See response to Comment 75-1.

Comment Letter No. 211

Ms. Martha Longshore
PO Box 1074

Arcata, CA 95518-1074
mlongshore@farshoredesign.com

Comment No. 211-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

We are so lucky to live in a place with healthy ecosystems to protect. Let's not mess it up.

Response to Comment No. 211-1

See response to Comment 75-1.

Comment Letter No. 212

Mrs. Sandra Andersen
PO Box 4888
Eureka, CA 95502-4888
sanander@hotmail.com

Comment No. 212-1

Please do not allow this expansion of oyster farming, especially on the east side. We must support a more balanced approach to Humboldt Bay business versus planning for important bird and wildlife territories and resource protection.

Thank you!

Response to Comment No. 212-1

See response to Comment 75-1.

Comment Letter No. 213

Mrs. Kathryn Waste
6287 Berry Ln
Eureka, CA 95503-6605
kwaste@suddenlink.net

Comment No. 213-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew

winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

I agree with the pre-printed statement above. It is unreasonable to destroy feeding grounds when it is unnecessary. This can be negotiated so that each sides' needs can be met. Please do not take action based upon the wants of a company (profit orientated) against the public good (protecting our natural world and the balance of life in our bay) prematurely. I very much believe that it is your responsibility to gather all available information on this subject and come up with a win/win decision. Respectfully, I will be watching what you do.

Response to Comment No. 213-1

See response to Comment 75-1.

Comment Letter No. 214

Mrs. Sally Schwartz
152 Webster Street
Petaluma, CA 94952-2483
jakesvida@gmail.com

Comment No. 214-1

AS A FAMILY THAT SPENDS OUR SUMMER VACATION AT HUMBOLDT BAY, WE URGE YOU TO DO MUCH MORE TO TRULY "PROTECT" THE BIRDS THAT DEPEND ON THE BAY. PLEASE SAY A FIRM "NO" TO COAST SEAFOODS COMPANY! IT WOULD BE FOOLISH TO PERMIT THIS COMPANY TO FURTHER DISRUPT LIFE IN THE BAY FOR THE BIRDS WHICH NEED THE BAY FOR THEIR SURVIVAL. WE THANK YOU FOR YOUR VISION..... AND FOR YOUR COURAGE.

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 214-1

See response to Comment 75-1. *See* Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively.

Comment Letter No. 215

Mr. Greg Chapman
3888 D St
Eureka, CA 95503-6031
greg@humboldt.edu

Comment No. 215-1

I along with many residents of the area live here because of the beauty and wildlife Humboldt Bay has to offer. I'm an avid bird watcher and field guide for the local bird festivals put on by the community and am opposed to any expansion by companies that threaten the birding and wildlife habitat in Humboldt Bay.

Response to Comment No. 215-1

See Topical Responses 4 and 8 for additional discussion of brant and shorebird impacts, respectively.

Comment No. 215-2

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 215-2

See response to Comment 75-1.

Comment Letter No. 216

Ms. Deborah Salizzoni
934 Gibson Ave
Eureka, CA 95503-4902
salizzoni@sbcglobal.net

Comment No. 216-1

Please let Humboldt Bay show the world how to live in balance with nature instead of exploiting her for greed. Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Do the job you were hired to do, protect the bay!

Response to Comment No. 216-1

See response to Comment 75-1.

Comment Letter No. 217

Ms. Alice Howard
70501 Parkfield Coalinga Rd
San Miguel, CA 93451-9727
parkfieldalice@gmail.com

Comment No. 217-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Birds are having a tough time as it is, foraging for food. The effects of the drought have made it harder to find insects, seeds and plants. I think giving birds a hand, such as protecting eel grass, and protecting a diverse environment is the right thing to do!

Response to Comment No. 217-1

See response to Comment 75-1.

Comment Letter No. 218

Ms. Patricia Lotus
2425 C St
Eureka, CA 95501-4110
trishale@sonic.net

Comment No. 218-1

Our ocean is being polluted and needs drastic steps before expanding oyster farming. First, expansive testing must be done on agriculture discharge into our rivers and ocean. First, we must clean up our oceans and prevent discharge from rivers into the ocean. I will not be eating any shellfish here locally or from anywhere until this is done.

It is imperative that you reject Coast Seafood's revised EIR; this will help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories.

My belief is that it is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 218-1

See response to Comment 75-1. The project is anticipated to have neutral or beneficial impacts to water quality. *See* R-DEIR § 6.9.

Comment Letter No. 219

Mr. Riley Mcintire
1870 Phillips Way
Los Angeles, CA 90042-1039
riley.mcintire@gmail.com

Comment No. 219-1

Coast Seafoods' expansion--at the cost of changing the character of the wetlands with negative consequences—should be rejected in favor of an integrated approach to the conservation of the wetlands. Wetlands are easy to destroy, and with unintended consequences are extremely hard to remediate.

Wetlands are a valuable resource for California, too many have been lost. It's imperative we preserve what's left.

Response to Comment No. 219-1

This comment contains introductory, opinion, anecdotal, closing, or general information, and is not a direct comment on environmental issues or the content or adequacy of the EIR. This comment will be forwarded to the decision-makers for their required review and consideration prior to any approval or denial action being taken on the project.

Comment Letter No. 220

Mr. Tom Leskiw
155 Kara Ln
Mckinleyville, CA 95519-8922
tomleskiw@gmail.com

Comment No. 220-1

Please reject Coast Seafood's revised EIR. This is too big an increase in aquaculture acreage to balance all resource uses of eelgrass beds.

Response to Comment No. 220-1

See Topical Response 2 for a discussion of project-related impacts to eelgrass.

Comment Letter No. 221

S Silan
6600 Summerhill Rd
Somerset, CA 95684-9280

Comment No. 221-1

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 221-1

See response to Comment 75-1.

Comment Letter No. 222

Richard B. Kramer, Ph.D.
2500 SW Miles St
Portland, OR 97219-2558

Comment No. 222-1

DO THE RIGHT THING

Please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 222-1

See response to Comment 75-1.

Comment Letter No. 223

Warren Fries
2941 Corte Diana
Carlsbad, CA 92009-5913

Comment No. 223-1

Do what's good for the long term and please reject Coast Seafood's revised EIR and help to support a balance of oyster farms and resource protection in Humboldt Bay. In particular, please support a marine spatial planning approach to protect the East Bay Management Area, brant gritting sites, and long-billed curlew winter territories. It is possible to have a balance of resource protection and oyster farms in the bay, starting with consolidating oyster farms on the west side of the bay.

Response to Comment No. 223-1

See response to Comment 75-1.

Section 4.0 Revisions to the R-DEIR

This section of the FEIR provides changes to the R-DEIR that have been made to clarify, correct, or add to the environmental impact analysis for the project. Such changes are the result of public and agency comments received in response to the R-DEIR. The revisions are organized by section and page number as they appear in the R-DEIR. Text deleted from the R-DEIR is shown in ~~strike through~~ and added text is underlined. The changes described in this section do not result in any new or increased significant environmental impacts that would result from the Project.

1.6 Summary of Project Alternatives

A. Section 1.6.5, Alternative 5: EBMA Avoidance Alternative, page 1-9, is added as follows:

1.6.5 Alternative 5: EBMA Avoidance Alternative

Under Alternative 5, Coast would renew regulatory approvals for its existing shellfish culture activities and add an additional 256 acres of intertidal oyster culture, consisting mostly of a mix of double-hung cultch-on-longlines spaced 10-ft apart and basket-on-longlines with two rows of baskets separated by 9-ft, followed by a 16-ft space. Similar to the Preferred Alternative, this alternative would be installed in phases, with 165.2 acres planted in Phase I and 90.8 acres planted in Phase II. This alternative also proposes no additional cultivation within the East Bay Management Area (EBMA). For mitigation for this alternative, Coast would remove 42 acres of existing longlines as mitigation for Phase I and 22.7 acres of existing longlines as mitigation for Phase II. Therefore, the net expansion in cultivated tidelands for this alternative would be 191.3 acres.

B. Section 1.6.5, Environmentally Superior Alternative, page 1-9, is revised as follows:

~~1.6.5~~ 1.6.6 Environmentally Superior Alternative

~~Alternative 1: 10-Foot Spacing Alternative~~ Alternative 5: EBMA Avoidance Alternative is the Environmentally Superior Alternative because it would achieve some of the Project objectives with no significant unmitigated impact to eelgrass and without any significant and unavoidable impacts to other resources. While the impacts to brant, herring, shorebirds, waterfowl, and green sturgeon were all deemed to be less than significant, this alternative would also further lessen impacts to those species, in addition to other species for which the EBMA represents important habitat. A program of eelgrass monitoring would ensure that impacts to eelgrass are as predicted. The selection of the Environmentally Superior Alternative is described more fully in Section 5.0.

5.1 Purpose and Scope (Project Alternatives)

A. Section 5.1.2, Scope of Alternatives Analysis, page 5-1, the first paragraph of that section is revised as follows:

This section describes ~~four~~ five proposed project alternatives. The effects of the proposed alternatives are analyzed in conjunction with the effects of the Preferred Alternative in Section

6.0. The environmentally superior alternative is identified in Section 5.4, below. Each alternative is evaluated concerning its ability to meet the following project objectives:

5.2 Alternatives Considered and Rejected During Project Planning

A. Section 5.2.2, Avoidance of East Bay Management Area, page 5-9, the language is removed:

~~5.2.2 Avoidance of East Bay Management Area~~

~~Certain comments received on the Draft IS and in response to the DEIR recommended avoiding planting in the EBMA (“East Bay Avoidance Alternative”), noting that the Coastal Commission had requested avoidance of the area as part of CDP No. E-06-003 issued for the existing footprint.⁴ The revised Project analyzed in this R-DEIR incorporates avoidance of the EBMA to the extent feasible, including a significantly reduced overlap with prime herring spawning locations and with important habitat at channel margins. The revised Alternative 2 described in Section 5.3.2 also includes a significant pull-back from the EBMA that is similar to a true avoidance alternative, although under that alternative Coast would still be permitted to plant along the fringes of continuous eelgrass in a portion of EBMA.~~

~~The primary reason that the East Bay Avoidance Alternative was screened from further review is that it would not avoid or substantially reduce a significant impact identified in the R-DEIR. The primary reason that the East Bay Avoidance Alternative was suggested is that the East Bay provides ground for herring spawn and is used by brant and other shorebirds. As further addressed in Section 6.0, the R-DEIR has evaluated those impacts and determined that the Project, including the proposed footprint in the East Bay Management Area, would result in a less than significant impact to such species. Moreover, the East Bay has some of the best shellfish growing conditions in North Bay, with excellent water quality, lower wave exposure, and increased upwelling correlated with peaks in phytoplankton abundance. Expanding culture in this area will thus significantly further Project objectives without creating any significant environmental impacts. Therefore, this alternative was screened from further evaluation.~~

5.3 Alternatives Selected for Further Analysis

A. Section 5.3, Alternatives Selected for Further Analysis, pages 5-10 and 5-11, is revised as follows:

The alternatives described below were screened primarily on their potential to reduce or eliminate the effects of the Project on eelgrass, although one alternative (EBMA Avoidance Alternative) is provided for both avoidance of eelgrass and habitat identified in comments as important for herring spawn and certain bird species (see Section 6.5, Biological Resources). These alternatives may not achieve the most basic Project objectives; however, for the purposes of providing a full range of alternatives for the public and decision makers, this analysis is provided. Based on these criteria, ~~four~~ five project alternatives were identified that would: 1) continue Coast’s current shellfish culture activities in Humboldt Bay and increase intertidal oyster culture by 622 acres using 10-ft spacing between cultch-on-longlines; 2) continue Coast’s current shellfish culture activities in Humboldt Bay and implement only Phase I of project development—a 210-acre expansion; 3) continue Coast’s current shellfish culture activities in Humboldt Bay without expanding intertidal oyster culture; 4) discontinue Coast’s existing shellfish culture operations in Humboldt Bay and remove associated infrastructure; and 5)

continue Coast's current shellfish culture activities in Humboldt Bay and increase oyster culture by a net total of approximately 191 acres primarily using 10-ft spaced double-hung cultch-on-longlines and basket-on-longlines with 9-ft and 16-ft spacing. Each alternative's environmental impacts are compared to the proposed Project in Section 6.0 and determined to be environmentally superior, neutral, or inferior. However, only those impacts found significant and unavoidable are used in making the final determination of whether an alternative is environmentally superior or inferior to the proposed Project.

B. Section 5.3.5, EBMA Avoidance Alternative, page 5-16, is added as follows:

5.3.5 Alternative 5: EBMA Avoidance Alternative

Under Alternative 5, Coast would renew regulatory approvals for its existing shellfish culture activities and seek regulatory approval to implement a 165.2-acre expansion associated with a Phase I (Figure 5.8) and 90.8-acre expansion associated with a Phase II (Figure 5.9). Cumulatively, this would be a 256-acre expansion of shellfish aquaculture activities in North Bay. The culture methods used would be the same as proposed under the Preferred Alternative, although the overall acreage is significantly reduced. In addition, this alternative avoids new culture within the EBMA and on Sand Island, which are areas identified by the resource agencies and other commenters as priorities due to important Pacific herring spawning and bird habitat (EBMA) and green sturgeon use (Sand Island). The amount of culture within the Phase I expansion area would include 89.2 acres of double-hung, 10-ft spaced cultch-on-longline; 71.9 acres of basket-on-longline with two rows of baskets separated by 9-ft, followed by a 16-ft space; and up to 4 acres of rack-and-bag and/or basket-on-longlines outside of existing eelgrass beds (25-ft buffer). The amount of culture in the Phase II expansion area would include up to 90.8 acres of either double-hung cultch-on-longline or basket-on-longline, at the same spacing intervals described above.

Although conversion of the 100 acres of existing culture is no longer proposed for mitigation under the EBMA Avoidance Alternative, Coast may still convert up to approximately 18.4 acres of existing 2.5-ft cultch-on-longlines to baskets-on-longlines with the spacing described above. While this conversion is likely to increase density of eelgrass within shellfish culture plots, Coast is not seeking mitigation credit for that uplift.

In total, there would be between 6,672 and 10,440 longlines¹ and up to 360 racks (or 160 basket-on-longline longlines) planted under Alternative 5. Approximately 9,188 cultch-on-longlines would be removed². This represents a net change increase of 1,252 lines if the proposed expansion in Phase II uses entirely cultch-on-longline methods and a reduction of 2,516 lines if Phase II uses the only basket-on-longline culture.³

¹ The range is due to the flexibility to either plant four acres of rack-and-bag or basket-on-longline culture in Phase I and a mixture of cultch-on-longline and basket-on-longline culture for Phase II.

² This is based on an average range of longlines that typically exist in Humboldt Bay, the actual range can be lower (135 lines/acre) or higher (152 lines/acre) depending on if there are 2.5-ft spaced longlines or 2.5-ft longlines with 5-ft gaps between groups of 5 lines.

³ It is notable that production would still increase under this scenario, even with a reduction of lines, because basket-on-longline culture can produce more oysters per acre compared to cultch-on-longline cultch methods.

Because the expansion area footprint would be reduced compared to the Preferred Alternative, there would be slightly fewer boat trips needed throughout the bay (Table 5.2). While Coast would still require two additional small watercraft, existing harvesters would be run less often than under the Preferred Alternative.

As with the Preferred Alternative, Coast would also seek regulatory approval to add eight new upweller bins to its existing FLUPSY, cultivate Pacific and Kumamoto oysters in its existing clam rafts, and relocate approximately 820 longlines from where they are currently planted to an area within its Harbor District Lease.

Mitigation for this expansion would include total removal of existing culture (fallowing) and would be based on a 4:1 ratio of expansion acreage to removed existing culture acreage. Coast is proposing to provide 42.0 acres of mitigation for Phase I (Figure 5.8) that would occur within the first 3 years of the project. For Phase II, 90.8 acres of expansion acreage would result in the removal of 22.7 acres as mitigation (Figure 5.9). Mitigation would precede or occur concurrently with expansion activities. In total, the alternative would result in a net increase of 191.3 acres of Coast's cultivated footprint.

Given the difference in proposed mitigation, Alternative 5 proposes a different monitoring plan as compared to the draft eelgrass monitoring plan described in FEIR Appendix C. To monitor eelgrass impacts in proposed expansion areas, monitoring will include a combination of aerial (Unmanned Aerial Vehicle or UAV) and ground sampling to assess eelgrass cover and density. Sampling will consider factors affecting eelgrass in Humboldt Bay including historic ground culture, elevation, exposure, and substrate conditions. Sampling will occur prior to and after expansion to assess changes in eelgrass condition through time as well as comparisons to appropriate reference sites. Regarding areas where aquaculture gear has been removed, eelgrass functions associated with mitigation areas are presumed to be restored after aquaculture are removed and associated activities cease (see Section 6.5.1.4). The mitigation sites were chosen for their high ecological value for green sturgeon, black brant, and certain other species identified in Section 6.5. Monitoring of these mitigation areas would include observations to document changes in eelgrass communities that occur after removal. These observations will include aerial imagery collected using a UAV and sufficient ground sampling to support habitat classification of the imagery.

Coast will ensure that monitoring reports are produced after each sampling period. Sampling is likely to include more intensive observations during years 0 (prior to project), 3, and 5. Monitoring is planned to continue for up to 5 years; however, if performance criteria are achieved by year 3, monitoring may end after agency coordination. Reports will evaluate changes in both eelgrass density and area in expansion areas. The adaptive management plan described in Mitigation Measure BIO-1 will be used to guide decision-making following reporting of eelgrass monitoring results for the project expansion areas.

While this alternative would allow Coast to increase its oyster production above current levels, the total number of longlines and oysters planted would still be substantially less than under the Preferred Alternative. The use of basket-on-longline culture can provide sufficient production to make this option economically feasible. Therefore, while this alternative would meet Coast's Project objectives, it would not further the objectives as much as the Preferred Alternative.

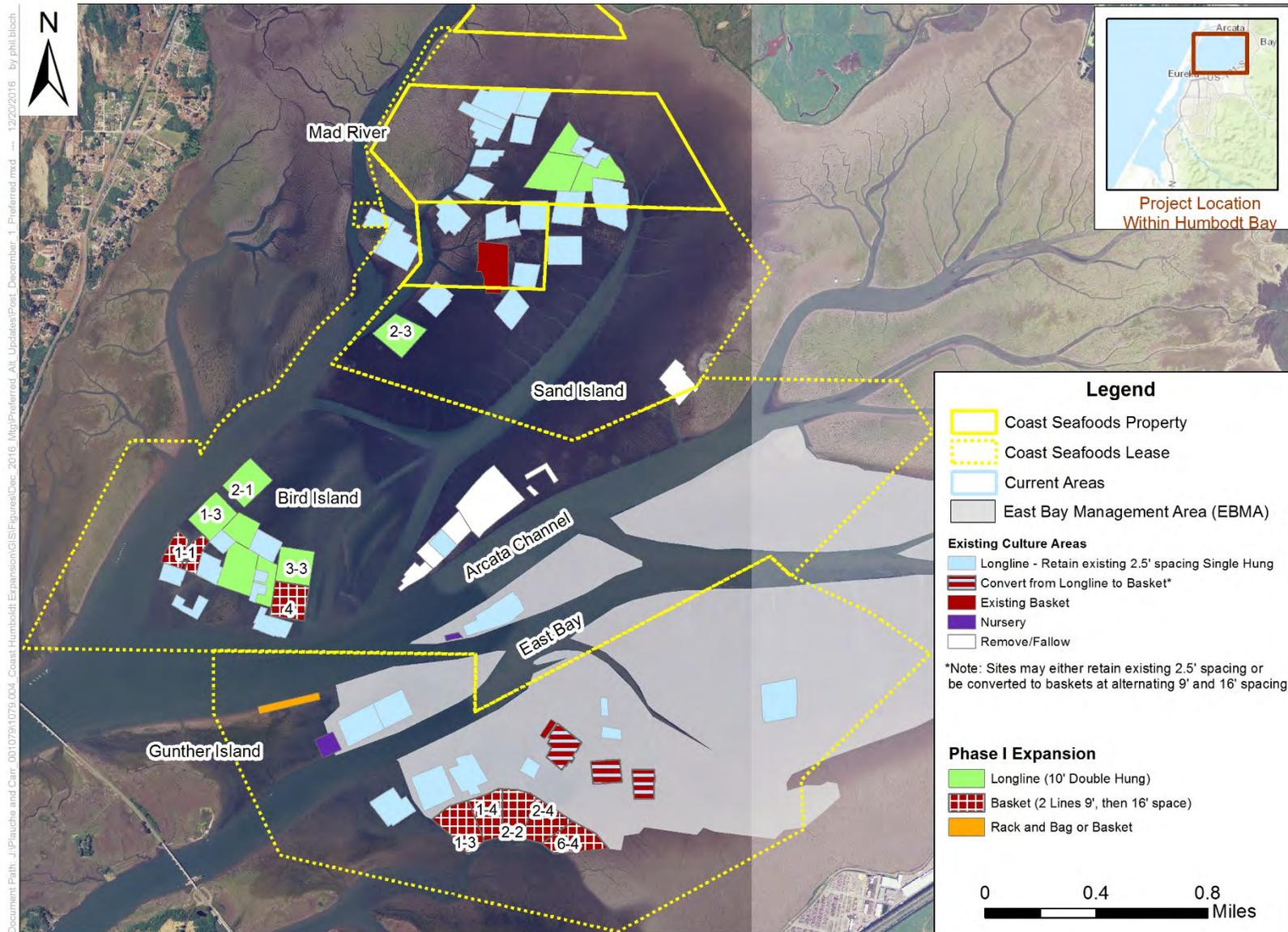


Figure 5.8 Overview of Phase I of the EBMA Avoidance Alternative Showing Proposed Expansion and Removal of Existing Aquaculture.

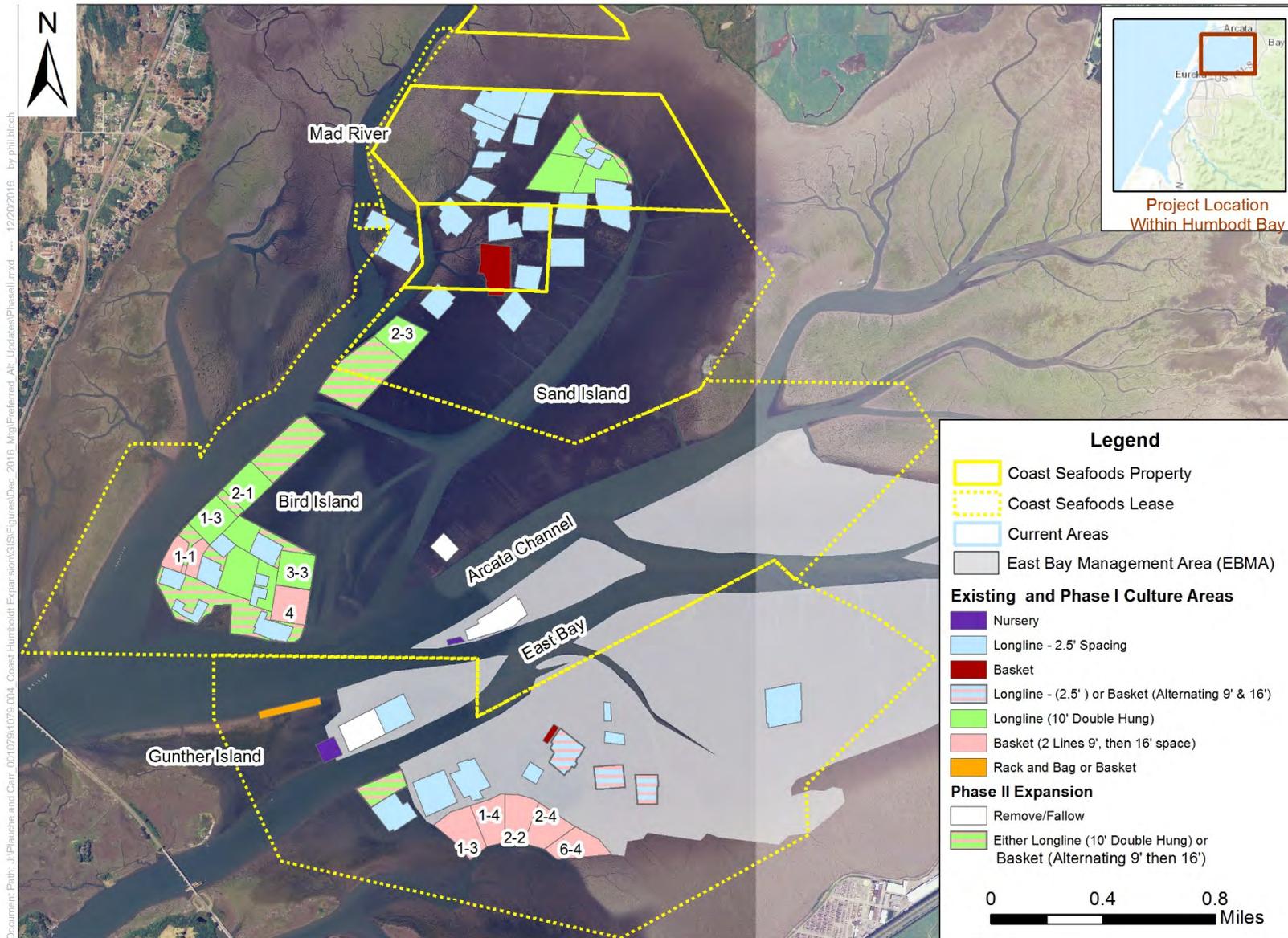


Figure 5.9 Overview of Phase II of the EBMA Avoidance Alternative Showing Proposed Expansion and Removal of Existing Aquaculture.

5.4 Environmentally Superior Alternative

- A. Section 5.4, Environmentally Superior Alternative, pages 5-16 to 5-17, paragraph 2 of this section and Table 5.3 are revised as follows:

Because no significant unavoidable adverse impact has been identified for the Project or any of the proposed Alternatives, there is no alternative that is “environmentally superior,” as defined by CEQA. However, for the benefit of the public, this DEIR identifies ~~Alternative 5-4: 10-Foot Spacing~~ EBMA Avoidance Alternative, as the environmentally superior alternative because it has less potential environmental impacts but still accomplishes some of the Project’s objectives, and specifically avoids habitat that several regulatory agencies and commenters have identified as important habitat for a number of species. ~~Alternative 1: 10 Foot Spacing Alternative, also accomplishes some of the Project objectives, but has greater, but still less than significant, environmental impacts than the EBMA Avoidance Alternative.~~ Alternative 2: Reduced Footprint Alternative, also accomplishes some of the Project objectives, but has identified significant impacts to eelgrass that must be offset by compensatory mitigation. Alternative 3: Existing Footprint, has the least potential impacts to the environment, but achieves none of the Project objectives. Alternative 4: No Project, has fewer potential impacts to the environment than the Project, but similarly does not achieve any Project objectives.

Impact Categories	Alternative 1: 10-Foot Spacing	Alternative 2: Reduced Footprint	Alternative 3: Existing Footprint	Alternative 4: No Project	Alternative 5: <u>EBMA Avoidance</u>
Cultural and Archaeological Resources	Less	Less	Less	Less	<u>Less</u>
Aesthetics	Substantially Similar	Less	Less	Less	<u>Less</u>
Biological Resources	Less	Less	Less	Less	<u>Less</u>
Air Quality	Substantially Similar	Substantially Similar	Less	Less	<u>Substantially Similar</u>
Greenhouse Gases	Substantially Similar	Substantially Similar	Less	Less	<u>Substantially Similar</u>
Hydrology and Water Quality	Substantially Similar	Substantially Similar	Less	Less	<u>Substantially Similar</u>
Hazards and Hazardous Substances	Substantially Similar	Substantially Similar	Less	Less	<u>Substantially Similar</u>
Recreation	Substantially Similar	Less	Less	Less	<u>Less</u>
Noise	Substantially Similar	Less	Less	Less	<u>Less</u>
Transportation and Traffic	Substantially Similar	Less	Less	Less	<u>Less</u>

3.4 Environmental Resources

A. Section 3.4.6, Hazards and Hazardous Materials, page 3-5, is revised as follows:

There are relatively few hazards or hazardous materials in Humboldt Bay, which is dominated by natural landscapes. However, Humboldt Bay has historically been used for industrial processes such as bleaching of paper pulp, pesticide and herbicide manufacturing and waste incineration, which likely contributed chemicals such as dioxins to the Bay (Pacific Shellfish Institute 2007). The primary source of dioxins in Humboldt Bay is from fungicides used as wood preservation treatments at lumber mills around Humboldt Bay until the 1980s (Zalewski 2011). In addition, the Bay is frequently transited by recreational and commercial watercraft with internal combustion engines, which pose a hazard associated with the potential release of fuel and lubricants into the Bay.

6.4 Cultural, Archaeological, and Tribal Cultural Resources

A. Section 6.4.2, Pertinent Laws and Regulations, page 6.4-1 and 6.4-2, the first paragraph of that section is revised as follows:

A number of state and federal historic preservation laws, regulations and policies address the need to manage potentially significant and/or sensitive (e.g., human remains) archaeological and Native American resources identified during advance project or permit review or discovered inadvertently and in “post-review” settings. These include:

- CEQA: Requires analysis by the Lead Agency to determine if the Project will cause a significant impact to “historical resources” and “tribal cultural resources,” including archaeological and Native American sites. Project approval may be conditional, for example, avoidance or mitigation (data recovery) of known archaeological resources, monitoring of ground disturbing activities in identified sensitive areas by local Tribal Representatives and/or professional archaeologists, and implementation of protocols for inadvertent archaeological discoveries.
- Section 106 of the National Historic Preservation Act: Requires analysis by the Lead Federal Agency (that provides funding or a permit for the “undertaking”) and consultation with the California State Historic Preservation Officer, Advisory Council on Historic Preservation, culturally affiliated Native American Tribes, and others, as appropriate, to “resolve adverse effects” on “historic properties” including archaeological and Native American sites. Section 106 is the key Federal historic preservation law, and final approval of the undertaking may be conditional as specified in a legally binding Agreement among the parties.
- Public Resources Code Section 6313: Title to all abandoned shipwrecks and historic resources located on submerged lands of California is vested in the state and under the jurisdiction of the California State Lands Commission.

B. Section 6.4.7, Mitigation Measures, Mitigation Measure CR-2, pages 6.4-6 through 6.4-8, is revised as follows:

Mitigation Measure CR-2: Protocols for inadvertent discovery of any cultural or archeological resource.

Should an archaeological resource be inadvertently discovered during ground-disturbing activities, the Tribal Historic Preservation Officers (THPO) appointed by the Blue Lake Rancheria, Bear River Band of Rohnerville Rancheria and Wiyot Tribe, and California State Lands Commission (CSLC), shall be immediately notified and a qualified archaeologist with local experience retained to consult with the Harbor District, the three THPOs, CSLC, Coast, and other applicable regulatory agencies to employ best practices for assessing the significance of the find, developing and implementing a mitigation plan if avoidance is not feasible, and reporting in accordance with the Harbor District's Standard Operating Procedures, as memorialized in this Mitigation Measure and as further laid out in the Harbor District Protocol.

1. Ground-disturbing activities shall be immediately stopped if potentially significant historic or archaeological materials are discovered. Examples include, but are not limited to, concentrations of historic artifacts (e.g., bottles, ceramics) or prehistoric artifacts (chipped chert or obsidian, arrow points, groundstone mortars and pestles), culturally altered ash-stained midden soils associated with pre-contact Native American habitation sites, concentrations of fire-altered rock and/or burned or charred organic materials, and historic structure remains such as stone-lined building foundations, wells or privy pits. Ground-disturbing Project activities may continue in other areas that are outside the discovery locale.
2. An "exclusion zone" where unauthorized equipment and personnel are not permitted shall be established (e.g., taped off) around the discovery area, plus a reasonable buffer zone, by the District, or party who made the discovery.
3. The discovery locale shall be secured (e.g., 24-hour surveillance) as directed by the District if considered prudent to avoid further disturbances.
4. Coast's plant manager (located at 25 Waterfront Drive in Eureka) or party who made the discovery and initiated these Protocols shall be responsible for immediately contacting by telephone the parties listed below to report the find:
 - a. The Harbor District's authorized POC, as listed in the Harbor District Protocol; and
 - b. Coast's Cultural Resources POC.
5. Upon learning about a discovery, the District's POC shall be responsible for immediately contacting by telephone the POCs listed below to initiate the consultation process for its treatment and disposition:
 - a. THPOs with Blue Lake Rancheria, Bear River Band and Wiyot Tribe; ~~and~~
 - b. Other applicable agencies involved in Project permitting (e.g., USACE, California Coastal Commission, etc.); and
 - c. The California State Lands Commission.
6. In cases where a known or suspected Native American burial or human remains are uncovered, the Humboldt County Coroner (707-445-7242) shall also be notified immediately, along with the property owner of the discovery site. In addition, Mitigation Measure CR-3 shall be followed.
7. Ground-disturbing Project work at the find locality shall be suspended temporarily while the District, the three THPOs, the CSLC, a consulting archaeologist and other applicable parties consult about appropriate treatment and disposition of the find. Ideally, a Treatment Plan will be developed within three working days of discovery notification. Where the Project can be modified to avoid disturbing the find (e.g., through project redesign), this may be the preferred option. Should human remains be encountered, the provisions of State laws shall apply and Mitigation Measure CR-3 followed. The

Treatment Plan shall reference appropriate laws and include provisions for analyses, reporting, and final disposition of data recovery documentation and any collected artifacts or other archaeological constituents. Ideally, the field phase of the Treatment Plan may be accomplished within five (5) days after its approval, however, circumstances may require longer periods for data recovery.

8. Any and all inadvertent discoveries shall be considered strictly confidential, with information about their location and nature being disclosed only to those with a need to know. The District's authorized representative shall be responsible for coordinating any requests by or contacts to the media about a discovery.
9. These Mitigation Measures shall be communicated to Coast's field work force (including contractors, employees, officers and agents) and such communications may be made and documented at safety briefings.
10. Ground-disturbing work at a discovery locale may not be resumed until authorized in writing by the District and CSLC.
11. The plant manager or party who made the discovery and initiated these Protocols, shall make written notes available to the Harbor District describing: the circumstances, date, time, location and nature of the discovery; date and time each POC was informed about the discovery; and when and how security measures were implemented.
12. The plant manager, Cultural Resources POC, or party who made the discovery shall record how the discovery downtime affected the Project work schedule.
13. Treatment Plans and corresponding Data Recovery Reports shall be authored by professionals who meet the Federal criteria for Principal Investigator Archaeologist and reference the *Secretary of the Interior's Standards and Guidelines for Archaeological Documentation* (48 Fed. Reg. 44734-44737).
14. Final disposition of all collected archaeological materials shall be documented in a final Data Recovery report and its disposition decided in consultation with Tribal representatives.
15. Final Data Recovery Reports, along with updated confidential, standard California site record forms (DPR 523 series) shall be filed at the Northwest Information Center of the California Historical Resources Information System, the CSLC, and the Harbor District, with report copies provided to the three identified THPOs.
16. The final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the CSLC must be approved by the CSLC.

C. Section 6.4.7, Mitigation Measures, Mitigation Measure BIO-4, page 6.4-9, is revised as follows:

Mitigation Measure BIO-4: ~~Existing culture longline spacing conversion and eelgrass recovery. Coast will convert 100 acres of its existing culture footprint from 2.5-ft spaced, single-hung cultch on longline to 10-ft spaced, double-hung cultch on longline. Impact on eelgrass availability to black brant. If monitoring data demonstrate that eelgrass impacts are above the Project's adaptive management thresholds and additional mitigation is implemented, the mitigation provided eelgrass must be available to black brant.~~

D. Section 6.4.9, Effects Analysis of Alternatives, page 6.4-10, is revised as follows:

Alternative 5: EBMA Avoidance Alternative

As with the Preferred Alternative, the placement of stakes and posts associated with intertidal culture under Alternative 2 has the potential to impact historic, archaeological and tribal cultural resources. Impacts to these resources would be less likely under Alternative 5 due to the reduced footprint of intertidal culture as compared to the Preferred Alternative. Rather than a 622-acre expansion area, Alternative 5 proposes 256 acres of new cultivated plots. The total number of new longlines planted under Alternative 5 would also be further reduced by more than 50% from 29,852 to 6,672 - 10,440 longlines. As with the Preferred Alternative, if historic, archaeological or tribal cultural resources are encountered, Mitigation Measures CR-1, CR-2, and CR-3 would be implemented. Further, Conservation Measures BIO-1 through BIO-12 and Mitigation Measures BIO-1 through BIO-4 will also carry forward to ensure that impacts to eelgrass and other resources remain less than significant. With mitigation, IMPACTS CR-1, CR-2, and CR-3 are thus considered less than significant under Alternative 5.

6.5 Biological Resources

- A. Section 6.5.1.4, Historical and Existing Shellfish Aquaculture, page 6.5-15, the first paragraph of that section is revised as follows:

Coast began its Humboldt Bay shellfish aquaculture operation in the 1950s, and has conducted activities on as many as 1,000 acres throughout its history (Figure 6.5.9). Historical shellfish operations have potentially affected eelgrass areal extent. From 1955 to 2006, bottom culture and mechanical (suction) dredge harvesting was the primary form of shellfish aquaculture operations in Humboldt Bay, which resulted in reduction of eelgrass and a deposition of shell material during harvest operations. In the summer of 1997, pursuant to a management plan submitted to the California Department of Fish and Wildlife (CDFW) (Coast 1997), existing bottom culture operations were transitioned exclusively to off-bottom culture, which has resulted in eelgrass moving back into areas that were affected by previous activities. Studies evaluating eelgrass recovery indicate that *Zostera marina* plants tend to recover from total removal in 4 m² plots within a period of 2 to 4 years (Boese et al. 2009, Ruesink et al. 2012) or longer than 4 years in drag dredged harvest areas in mud and silt substrates (Tallis et al. 2009). Suction dredge harvested areas in Humboldt Bay were up to 10 acres (40,469 m²) and, although impacts were originally documented by Waddell (1964), no data on recovery was provided other than to state that recovery took up to 2 years ~~recovery from this type of activity has not been reported in the literature.~~ A review of the aerial imagery between 2003 and 2011 show that eelgrass is present in these dredged beds and indicates that there was substantial recovery even within oyster longline plots (Figure 6.5.10). Note that the longlines shown in Figure 6.5.10 are spaced at 2.5 ft apart, and the two areas circled on the map were studied by Rumrill and Poulton (2004) that looked specifically at recovery of eelgrass in oyster longline plots, as discussed more in Section 6.5.4. The aerial imagery from the 2009 mapping effort (NOAA 2012, Schlosser and Eicher 2012) also showed recovery of the same areas, which equates to approximately a 6-year recovery period (2003 to 2009), and likely much less given the above observations.

Information on recovery of eelgrass is related to resilience, which is a concept originally discussed by Holling (1973). As noted in Dumbauld et al. (2009), “resilience depends on the extent of the disturbance relative to the mobility of key species, and the frequency of disturbance relative to generation time.” Because West Coast estuaries are very energetic systems, which have frequent natural disturbance events, such as winter storms and extreme tidal exchange, the

system is naturally adapted to pulse disturbance events. One of the concluding statements from the Dumbauld et al. (2009) review was that:

Aquaculture as disturbance is generally within the scope of existing “natural” disturbances to the system (e.g winter storms) and other ecosystem engineers (e.g. eelgrass and burrowing shrimp) are also inherently adapted to this scale of disturbance. Certain anthropogenic disturbances have reduced estuarine resilience, for instance habitat removal via wetland diking and filling, hardening of surfaces in the watershed, nutrient additions, invasive species such as Spartina, and possibly food web modifications like removal (sharks, skates and sturgeon) or protection (harbor seals and sea lions) of large predators. In contrast, bivalve aquaculture does not remove area from the estuary or degrade water quality, and thus is less likely to undermine resilience.

B. Section 6.5.1.6, Special Status Marine Aquatic Species Potentially Affected, Table 6.5.3, page 6.5-21, is revised as follows (note the information in yellow and underlined):

Species	Life Stage	Timing											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pacific lamprey	Adult (up)												
	Adult (down)												
Green sturgeon	Adult/sub-adult												
White sturgeon	Adult/sub-adult												
Coho salmon	Adult												
	Juvenile												
Chinook salmon	Adult												
	Juvenile												
Steelhead	Adult												
	Juvenile												
Coastal cutthroat	Adult												
	Juvenile												
Longfin smelt	Adult												
	Juvenile												

Species	Life Stage	Timing												
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
California sea lion	Adult													
Harbor seal	Adult													
	Pups													
Harbor porpoise	Adult													
			Based on limited description							Revised				
			Based on clear timing description							Revised				
<i>Sources:</i> Goetz 1983, Kucas and Hassler 1986, Cole 2004, HBWAC and RCAA 2005, Pinnix et al. 2005, Wallace and Allen 2007, Burns 2008, Lowry et al. 2008, Israel et al. 2009, Schlosser and Eicher 2012, Ricker et al. 2014, CDFW 2016b, Pinnix, pers. comm, 2015, Wallace and Allen 2015, <u>Goldsworthy, pers. comm., 2016</u>														

C. Section 6.5.1.6, Special Status Marine Aquatic Species Potentially Affected, Salmonids – Coho Salmon, Chinook Salmon, Steelhead Trout, and Coastal Cutthroat Trout, pages 6.5-23 and 6.5-24, the first four paragraphs of that section are revised as follows:

Salmonids – Coho Salmon, Chinook Salmon, Steelhead Trout, and Coastal Cutthroat Trout

Humboldt Bay supports three salmonid species that are listed as threatened under the Federal ESA (NMFS 2016a): coho salmon Southern Oregon-Northern Coastal California (SONCC) evolutionary significant unit (ESU), the Northern California steelhead trout distinct population segment (DPS), and the California coastal Chinook salmon ESU. The coho salmon SONCC ESU is also listed as threatened under CESA, and the Humboldt Bay Tributaries population are considered “functionally independent” within this ESU (NMFS 2014a). Additionally, Humboldt Bay supports coastal cutthroat trout, a CDFW species of special concern (CDFW 2016b).

Salmonid life history is characterized by periods of adult upstream migration, spawning and egg development, fry and juvenile development, juvenile downstream migration, and stream-estuary ecotone rearing. Channels within marsh habitats may be of particular importance to juvenile salmonids because of the high insect and invertebrate prey resources and potential refuge from predators (Bottom et al. 2005). There is significant use of the tidal portions of Humboldt Bay tributaries, including Freshwater Creek, Elk River, and Salmon Creek by juvenile salmonids (Wallace 2006, Wallace and Allen 2007, Wallace and Allen 2015). While this stream-estuary ecotone is very important for salmonid survival, most of the Humboldt Bay sloughs are contained between levees and the adjacent marshes were converted to pasture lands over the last 150 years.

Sampling efforts in eelgrass beds of Humboldt Bay have not resulted in the capture of juvenile salmonids. For example, Pinnix et al. (2005) sampled over a two-year period (August 2003 to August 2005) using fyke nets, shrimp trawls, beach seines, purse seines, cast nets, and minnow traps. The authors identified a diverse and abundant fish community using the mudflats, oyster culture, and eelgrass meadows in Humboldt Bay, including a total of 49 species from 22 families of fishes. However, over the two years of sampling, no salmonid species were captured in any of the six different types of sampling gear employed in these studies. Another long-term study was conducted from June 1994 through August 1995 and then again from May 2003 through May 2006 in a small eelgrass bed adjacent to the main channel near the mouth of Entrance Bay (Garwood et al. 2013). The study collected 43 species representing 20 families of fishes, but only one juvenile steelhead and no other salmonids were collected throughout the six-year study.

~~There are two basic life history strategies for juvenile coho salmon in Humboldt Bay tributaries (Wallace and Allen 2007). The first strategy includes coho salmon that rear in the upper estuary (near salt marsh habitat) for the summer and migrate back upstream to over-winter, and the second strategy include coho salmon that rear in the lower estuary (e.g., intertidal habitat of Humboldt Bay) and then migrate to the ocean.~~

Coho salmon have a generally simple 3-year life history. The adults typically migrate from the ocean to the freshwater spawning grounds in late summer and fall, and spawn by mid-winter. Adults die after spawning. The eggs are buried in nests, called redds, in the rivers and streams where the adults spawn. The eggs incubate in the gravel until fish hatch and emerge from the gravel the following spring as fry. These 0+ age fish typically rear in freshwater for about 15 months before migrating to the ocean. The juveniles go through a physiological change during the transition from fresh to salt water called smoltification. The 1+ age smolts typically out-migrate through Humboldt Bay to the ocean within a 10- to 12-day period (discussed more below). Coho salmon typically rear in the ocean for two growing seasons, returning to their natal streams as 3-year-old fish to renew the cycle.

A recent study related to 1+ age coho salmon smolts that were ready to migrate out to the ocean in Humboldt Bay, California, by Pinnix et al. (2013) used acoustic transmitters that were surgically implanted into out-migrating coho salmon smolts that exhibited this second life history strategy. Coho salmon smolts spent more time in the stream-estuary ecotone compared to the lower estuary intertidal habitat of Humboldt Bay. During their residency in Humboldt Bay, coho salmon smolts primarily used deep channels and channel margins and lasted an average of 15 to 22 days before migrating out to the open ocean were present in the estuary an average of 10 to 12 days. Coho smolts They were also detected near floating eelgrass mats adjacent to the channels, but not over eelgrass beds, although this may have been a product of not being able to detect the transmitters within eelgrass habitat. The results from this study emphasize the importance of edge habitat and the need for structural heterogeneity during salmonid residency and migration through Humboldt Bay. This also suggests that eelgrass abundance/biomass is important for the creation of floating cover in the bay.

- D. Section 6.5.1.7, Commercially Important Marine Aquatic Species Potentially Affected – Pacific Herring, page 6.5-28, the second paragraph of that section is revised as follows:

Rabin and Barnhart (1986) reported that Pacific herring spawn in both North and South bays, but most spawning occurs in the northern end of the bay. The authors indicated that this is

possibly due to an interaction between herring and freshwater inflows where low-salinity conditions may stimulate herring spawning. ~~Although eelgrass is the principal substrate used for spawning in Humboldt Bay, the densest beds did not have spawn deposition during the most recent surveys (Mello 2007, Ray, pers. comm., 2015).~~ A typical spawning event involves the deposition of herring eggs on approximately 300 acres of eelgrass in North Bay (Mello and Ramsay 2004). This represents less than 10% of available eelgrass used in each spawning event. Spratt (1981) characterizes the herring population as “very small in relation to the spawning area available” suggesting that herring spawning in Humboldt Bay is unlikely to be limited by availability of suitable substrate.

- E. Section 6.5.4, Impact Analysis of the Project, Impact BIO-2, page 6.5-46, paragraph three, is revised as follows:

The amount of fish that use oyster longlines was studied in Humboldt Bay by Pinnix et al. (2005), which compared eelgrass, oyster longlines, and open mudflat habitat. The study reported more fish in oyster longlines and eelgrass compared to mudflats. While there were similar abundances between oyster longlines and eelgrass habitats, the community composition was slightly different between the two habitats. This agrees with more recent studies, which indicate that oyster longlines will typically have more bottom-oriented species such as sculpin and rockfish, and eelgrass will have smaller species such as bay pipefish (Hudson 2016). In contrast, Dumbauld et al. (2009) reported that a more common result is that community-level indices (abundance and diversity) are equivalent across habitats, reporting that: “few statistically significant differences in density were found among the >20 species of fish and crabs collected at intertidal locations in Willapa Bay, Washington where eelgrass, oyster bottom culture and open mudflat habitats were surveyed (Dumbauld et al., 2005; Hosack et al., 2006).”

Based on the amount of unstructured habitat present in North Bay (Table 6.5.10), the amount of habitat affected is a small portion of what is available (0.7%). That does not mean that there is no change to these habitats, only that the change is limited to a relatively small component of North Bay and the changed area will be used in a similar manner to other habitat types present (i.e., a transitional area from unstructured to structured habitat). Similarly, the net change for the entire Project in terms of added gear within the water column is also a small proportion of the volume of water within the culture plots (0.06% at MHW and 0.8% at MLLW). The majority of where gear will occur is already structured habitat (eelgrass), which means that there would be little measurable effect to how species interact with this type of change to North Bay. The species that may avoid these areas are not limited by food availability (discussed within individual species sections below). Additionally, the potential to increase food resources within culture areas, especially culture areas within unstructured habitat, may be a benefit to many of the higher trophic organisms using North Bay. However, this benefit only occurs in a small proportion of North Bay habitat, based on the above discussion. Therefore, changes to unstructured habitat and the addition of shellfish aquaculture gear are considered less than significant under CEQA.

- F. Section 6.5.4, Impact Analysis of the Project, Impact BIO-4, page 6.5-54, the second paragraph of that section is revised as follows:

Several additional articles are often cited regarding the potential effects of trampling, including Alexandre et al. (2005), Milazzo et al. (2002), Skilleter et al. (2006), and Travaille et al. (2015), although these articles have little relation to oyster longline operations. These articles discuss

effects from high levels of trampling which would not occur as part of the proposed aquaculture project. For example, Milazzo et al. (2002) was a review article that cited the earlier Eckrich and Holmquist (2000) discussed above, but provided no new or original data. Although a study of the effects of trampling on *Z. marina*, the Travaille et al. (2015) article also has little relation to the relatively infrequent activities of the Project in that the mechanism of effect studied was high levels of visitor use on eelgrass in a Marine Protected Area in New Zealand. Similar in frequency, Alexandre et al. (2005) documented trampling of dwarf eelgrass (*Zostera noltii*) in Portugal from daily use by clam harvesters who dig up intertidal sediments in search of clams. The Alexandre et al. (2005) study also reported that the clam harvest increased higher seed production (by 2-fold), which resulted in recovery from the harvest event within a year. A more relevant study on effects of clam harvesting on the West Coast is from Boese (2002 as cited in Dumbauld et al. 2009), which indicated that reduced eelgrass cover and biomass recovered within months of the harvest activity in Yaquina Bay. Overall, the literature supports the understanding that human disturbance, at lower frequencies, can enhance sexual reproduction in seagrass and allow for relatively rapid recovery periods (<1 year).

The proposed Project will require much less frequent access and all culture will be off-bottom; sediments will not be disturbed other than during a portion of the culture cycle. ~~Skilleter et al. (2006) discusses the effects of polychaete worm harvest on seagrass in Queensland, Australia, and is dissimilar to the culture of the Project.~~ While all culture areas have to be visited at least once per month to ensure that aquaculture gear is properly maintained (Conservation Measure BIO-4), this visit often occurs when the area is inundated and no physical disturbance of the substrate is required. Even planting and harvest events that result in higher levels of disturbance occur infrequently (once every 18 to 36 months), which allows for full recovery prior to the next disturbance event, as discussed below.

- G. Section 6.5.4, Impact Analysis of the Project, Impact BIO-5, page 6.5-55, the first paragraph of that section is revised as follows:

The placement of longline aquaculture (i.e., basket-on-longline and cultch-on-longline) within patchy and continuous eelgrass beds is not expected to contribute to habitat fragmentation. Habitat fragmentation is a common concern, and well documented, for terrestrial systems (e.g., Harrison and Bruna 1999, Wilcove et al. 1986, Wilcox and Murphy 1985). Reed and Hovel (2006) studied small (4m²) and large (16m²) experimental gaps in eelgrass beds to evaluate the potential effects of small and large scale fragmentation on epifauna. They found no effect to epifaunal species richness, total epifauna density or diversity in small plots, and, in large plots, effects were not observed until eelgrass losses exceeded 90%. The impacts of gaps and edge effects on eelgrass community structure remains poorly understood and responses may be specific to the type of community and invertebrate species.

Two of the key reasons there is risk to species from habitat fragmentation are that movement between habitats may be impacted and that species may have insufficient habitat to survive in the same environment. As Boström et al. (2006) summarized from a review of 33 papers on habitat fragmentation, effects of spatial patterns/fragmentation on organisms are not likely to be important if habitat patches are abundant ... and well connected, edge effects are not central to the process/species under study, and movement between suitable habitats is relatively unlimited. The Project's potential impacts are related to eelgrass density reduction, but the vast majority of habitat in North Bay would remain unchanged. Further, Conservation Measure BIO-

2 indicates that shellfish aquaculture expansion would occur at 10-ft spacing (cultch) and alternating 9-ft and 16-ft spacing (basket), which means that migration through the expansion areas by fish and wildlife would not be affected.

- H. Section 6.5.4, Impact Analysis of the Project, Impact BIO-12, page 6.5-67, paragraph four, is revised as follows:

In terms of studies more directly related to oyster longlines, Rumrill and Poulton (2004) investigated differences in the benthic invertebrate community between cultch-on-longline plots, the eelgrass control plot, and eelgrass reference sites in Humboldt Bay. Results of the study showed that invertebrate biomass was highest in the experimental oyster longline plots and lowest in some of the eelgrass reference sites. It was also noted, although not reported in Figure 6.5.19 below, that invertebrate biomass was lowest in oyster ground culture sites that had been suction dredge harvested. In addition to biomass, the composition of the invertebrate communities was not significantly different between the longline plot and eelgrass control plot (Figure 6.5.19). This study provides evidence that oyster longline aquaculture in eelgrass habitat does not significantly change the species composition to benthic invertebrate communities compared to eelgrass habitat. This same conclusion was also noted in Dumbauld et al. (2009), which concluded that the results of the Rumrill and Poulton (2004) work related to the similarity of benthic infaunal abundance in the culture plots compared to eelgrass plots, “may have arisen not simply due to flow dispersing biodeposits, but because both aquaculture and control areas included eelgrass, which has characteristic effects on sediment.” In other words, the presence of eelgrass was the primary determinant in benthic infaunal abundance and not the added structure related to the longline gear.

- I. Section 6.5.4, Impact Analysis of the Project, Impact BIO-13, pages 6.5-68 and 6.5-69, the section is revised as follows:

There is some literature indicating that trampling effects can impact the benthic community, both in unvegetated areas and in areas with eelgrass, but these studies are unlikely to represent conditions associated with Coast operations. Rossi et al (2007) researched trampling in an intertidal mudflat of Paulina Polder (the Netherlands) at a rate of 2 visits per month by 5 people over an 8-month period within a 0.15-acre study area. The authors reported that trampling at this rate indirectly enhanced the recruitment rate of the macoma clam (*Macoma balthica*), while the smaller cockle (*Cerastoderma edule*) did not react to the trampling. The authors concluded that trampling at this rate may eventually lead to the dominance of the macoma clam. The Eckrich and Holmquist (2000) study discussed above in IMPACT BIO-4 (associated with turtle grass in Puerto Rico) looked at impacts to invertebrates and fish at different trampling intensities. They found that, at a trampling rate of 20 events per month and greater, abundances of shrimp decreased while fish did not change. A more applicable, although not exact, comparison would be a meta-analysis conducted by Kaiser et al. (2006), including 6 examples of benthic invertebrate recovery from intertidal raking. This study indicated that initial impacts to biota were relatively small, and harvested areas were recovered within 50 days.

Two main factors are relevant to how applicable the above studies are at predicting potential changes to Humboldt Bay habitat: (1) habitat type, and (2) frequency and intensity of human presence. As discussed above, turtle grass is a climax seagrass species with relatively slow rates of growth and resilience compared to eelgrass, thus it is unlikely that results similar to those

observed by Eckrich and Holmquist (2000) would be observed in Humboldt Bay. More importantly, the trampling frequency and intensity in Coast shellfish aquaculture plots would be much lower. For example, for cultch-on-longline (which is the majority of proposed culture methods), activity occurs about 2 days per acre every 18 to 36 months for planting and harvesting and 4 hours per 10-acre area once each month. Frequency and intensity for basket-on-longline is about 12 days per acre with the same line in rotation about every 4 months.

Aside from the low frequency of access for longlines, a portion of the access is conducted when the beds are inundated (approximately 44% for cultch-on-longline and 80% for basket-on-longline/rack-and-bag). Therefore, potential trampling does not occur at the rates discussed above in the cited literature even though human presence occurs more frequently. The most intensive culture method proposed, in terms of trampling potential, is rack-and-bag. This culture method is proposed in 4 acres of unstructured habitat outside of eelgrass, and would require daily activity (staff accessing aquaculture gear on foot) for maintenance. Within Coast’s current culture footprint, they have converted all rack-and-bag culture to basket-on-longline culture. The main reason that Coast has transitioned to longline methods is to reduce its ecological footprint in the bay. Longlines (both cultch-on-longline and basket-on-longline) require less maintenance than rack-and-bag culture, result in better gear retention and maintenance, and allow culture sites to be accessed more easily when the plots are inundated. However, even with the higher level of activity associated with rack-and-bag culture, sites can only be accessed an average of 34% of the year when the plots are exposed during a low tide (Table 6.5.12), which naturally reduces trampling potential associated with shellfish aquaculture operations.

Project Phase	Culture Method	Height above Bottom (ft)	Average Height of Culture Area (ft MLLW)	Percent of Time Out of Water
Phase I	cultch 10-ft single	1.4	0.1	14%
	cultch 10-ft double (bottom line)	0.9	-0.1	10%
	cultch 10-ft double (top line)	1.6	-0.1	16%
	basket (9 ft)	1.7	0.4	17%
	rack-and-bag	3.1	1.9	34%
Weighted Phase I Average				13%
Phase II	cultch 10-ft single	1.7	0.4	18%

Overall, the culture methods proposed by Coast have a lower frequency of activity within specific areas of the bay than those studied by either Rossi et al (2007) or Eckrich and Holmquist (2000). Further, these studies do not support a major shift in species composition due to trampling effects, especially within higher trophic levels such as fish. The studies reported by Kaiser et al. (2006) were more analogous to the proposed action, which showed a recovery

rate of 50 days from intertidal raking, which can be considered more similar to a planting or harvest event than the studies on recreational activities discussed above. Based on the more frequent access rate for basket-on-longline culture (4 months), full recovery of the benthic community would be expected between access events. Overall, disturbance associated with shellfish aquaculture in Humboldt Bay is infrequent and of short duration within any one location. Therefore, trampling effects to the benthic community are considered to be less than significant under CEQA.

- J. Section 6.5.4, Impact Analysis of the Project, Impact BIO-19, page 6.5-81, the fifth paragraph of that section is revised as follows:

Studies that have looked at salmon and shellfish aquaculture interactions indicate that, “salmon are distributed broadly across habitat types, and the amount of aquaculture in an estuary does not appear to influence salmon returns” (Dumbauld et al. 2009). For example, Magnusson and Hilborn (2003) assessed the survival of coho and fall Chinook salmon released from West Coast hatcheries with respect to three characteristics: (1) size of the estuary, (2) percentage of the estuary that is in natural condition, and (3) presence of oyster culture in the estuary. While Humboldt Bay was not one of the estuaries assessed, the results suggested that the presence of oyster culture was not having an adverse impact on salmon survival in estuaries where there were substantial runs. Willapa Bay, which has a 150+ year history of extensive oyster culture in dense eelgrass beds, had the highest coho salmon survival. Grays Harbor, also an important oyster farming estuary, had the third highest coho survival of the twenty estuaries included in the study. Despite the large number of oyster cultivation operations in Willapa Bay and Grays Harbor (over 25% of the oysters consumed in the U.S. are grown in these estuaries), these Washington estuaries have some of the best hatchery-released coho salmon survival among the areas examined. A recent article by David et al. (2016) indicated that the results of the Magnusson and Hilborn (2003) study may have been related to intact wetlands in the upper estuary (e.g., salt marsh habitat) that reduced density-dependent effects to salmonid foraging behavior.

- K. Section 6.5.4, Impact Analysis of the Project, Impact BIO-21, pages 6.5-84 and 6.5-85, the first paragraph of that section is revised as follows:

Pacific herring typically spawn adhesive eggs onto eelgrass, marine algae, and hard substrates at depths of less than 30 ft MLLW (CDFG 2008, Stick 2005). Predation, temperature and salinity variability, and turbidity are the most common threats to juvenile Pacific herring (CDFG 2008). A commercial fishery for herring occurred in Humboldt Bay until 2005. Between 1975 and 2007, the Pacific herring spawner biomass was an average of 489 ± 293 tons and then showed a significant decline after 2002 to an average of 173 ± 167 tons (Mello 2007). While survey methods significantly improved by the 2004/2005 spawning season, the data indicate a significant decline in the spawner biomass for Humboldt Bay.

After poor returns in 2005, the fishery was effectively closed due to insufficient biomass. A commercial fishery for herring occurred in Humboldt Bay until 2005. The current quota for Humboldt Bay is 60 tons; however, there has not been any commercial fishing for herring since 2005. There are three commercial fisheries with current permits for harvest in Humboldt Bay. Annual fishing quotas are intended to provide for a sustainable fishery and have historically been limited to a total catch not to exceed 20% (harvest percentage) of the previous seasons’

estimated spawner biomass (CDFW 2015). Actual exploitation rates (catch percentages) by the commercial fishery in California has equaled an average of approximately 4% of the total spawner biomass since the 2003-2004 season. Monitoring of the Pacific herring population in Humboldt Bay was suspended after the 2007 spawning event. More recent surveys have indicated that spawner biomass is increasing again with renewed monitoring of the population starting in 2015 (Ray, pers. comm., 2016).

- L. Section 6.5.4, Impact Analysis of the Project, Impact BIO-21, pages 6.5-88 and 6.5-89, paragraph three, is revised as follows:

There is also evidence that the presence of gear or aquaculture activities is not correlated to Pacific herring spawning biomass. Eelgrass has been stable or expanding since the 1960's (Schlosser and Eicher 2012). Despite the high abundance of eelgrass in the bay, herring populations suffered a precipitous decline from 950 tons to 7 tons in a five-year period (2002 to 2007) before monitoring was suspended in 2007 (Figure 6.5.26). New trend data suggests that Pacific herring are again increasing in numbers (Ray, pers. comm., 2016), while there is evidence that eelgrass is receding from at least higher elevations (see discussion in Section 6.5.1.3). While observations of herring spawning suggest Humboldt Bay continues to be used by herring, herring populations cannot be quantitatively confirmed because no biomass estimates have occurred since 2007 (Ray, pers. comm., 2016). Significant population reductions of Pacific herring occurred during a period when Coast reduced its aquaculture footprint in the bay, including areas within the EBMA where herring egg deposition was historically dominant (Rabin and Barnhart 1986, Mello 2007), and where the majority of deposition was identified during the 2015 spawn survey (see Figure 6.5.25). The 2016 spawning season was unique in that it showed a shift in distribution to favor the west side of North Bay close to Freshwater Creek. This pattern has only been observed one other time in 13 years of survey observations. Herring spawn surveys are not conducted within existing culture areas. However, several areas that were active in 2004, but no longer have gear were sampled during the 2015 and 2016 season. There were successful detections of herring egg deposition in historical culture areas and areas directly adjacent to actively farmed oyster plots. While this does not provide information on spawning potential in culture areas, it does indicate that culture operations are not preventing spawning behavior.

- M. Section 6.5.4, Impact Analysis of the Project, Impact BIO-33, page 6.5-109, paragraph two, is revised as follows:

The wintering population of curlews in Humboldt Bay has been estimated to be approximately 200-600 ~~300~~ individuals (Danuksy and Colwell 2003, Leeman and Colwell 2005) and the long-billed curlew range-wide population has been estimated to be ~~over~~ 140,000 to 161,000 individuals (Jones et al. 2008, Andres et al. 2012). Black-bellied plovers are relatively common in Humboldt Bay: observations (based on high counts conducted November 1998-January 1999) totaled 1,752 birds (Danufsky and Colwell 2003). The population of black-bellied plovers (*P. s. squatarola*; those breeding in Alaska) has been estimated 262,733 individuals (considered a conservative estimate) and is considered a stable population, although the Atlantic population (*P. s. cynosurae*), estimated at 100,000 individuals, is thought to be declining (Andres et al. 2012). Both species demonstrate territoriality in wintering habitats that can make them more susceptible to human disturbance and habitat exclusion than non-territorial shorebirds.

- N. Section 6.5.4, Impact Analysis of the Project, Impact BIO-33, pages 6.5-109 and 6.5-110, paragraph three, is revised as follows:

Curlews have been observed in intertidal habitats in densities ranging from 0.05 to 0.09 birds per hectare (or 0.02 to 0.04 birds per acre; Mathis et al. 2006). Density was estimated at 0.36 birds per hectare (0.15 birds per acre) in the Elk River estuary, where density of curlews was highest. Within the Project footprint, areas located on the southwest side of Bird Island and south of Sand Island include areas of high-density curlew use (>20 birds in an approximately 61 acre-area) along with other areas of lower curlew densities; however, it should be noted that longlines already occur (and occurred during the study period) within those high-density grid-cells mapped by Mathis et al. (as well as other areas with curlew use). While the coexistence of high-density curlew sites and Coast's existing aquaculture gear provides some evidence that curlews may not be adversely affected by the gear and culture activities, the resolution of the Mathis et al. study does not lend itself to any definitive conclusions regarding whether curlews are affected by longline gear. However, it should be noted that Mathis et al. also found that curlews were generally absent from low intertidal habitats in the center of Humboldt Bay exposed for shorter intervals than higher elevations, suggesting that curlews are less likely to rely on dense eelgrass beds for foraging. Therefore, curlews may not regularly forage in the majority of the Project area, given that it is mostly characterized by dense eelgrass at low intertidal elevations that is unlikely to be used frequently (if much at all) due to regular tidal inundation and low potential as foraging habitat. While curlews have been identified in a variety of habitats in Humboldt Bay, there is a general preference to forage near the edges of tidal channels. Conservation Measure ~~BIO-9~~ ~~BIO-10~~ and BIO-12 will further reduce impacts to curlew habitat near subtidal channels through requiring that Coast maintain a 10-foot buffer from subtidal channels for shellfish plots within the expansion area and will not intentionally harass migratory birds from foraging locations.

- O. Section 6.5.7, Mitigation Measures, Mitigation Measure BIO-1, page 6.5-113, paragraph 2 through 6.5-114, paragraph 4, is revised as follows:

In terms of recovery potential, Ruesink et al. (2012) indicated that 4 square meter (m²) gaps in eelgrass beds recovered in 2 years in Willapa Bay. Comparatively, Boese et al. (2009) reported up to 4 years of recovery time in Yaquina Bay within 4 m² plots and Tallis et al. (2009) reported more than a 4-year recovery period in drag dredge plots within areas that had finer grained sediments (e.g., silt and mud). Based on a review of the aerial imagery between 2003 and 2011, and aerial imagery from the 2009 mapping effort (NOAA 2012, Schlosser and Eicher 2012), there was approximately a 6-year recovery period from historical suction dredge harvesting events. However, compared to total removal of rhizomes, as in the studies identified above, there is considerable revegetation of eelgrass within 1 year when patches of eelgrass are retained in the disturbed recovery area (Neckles et al. 2005). A similar recovery potential (<1 year) was also reported by Boese (2002 as cited in Dumbauld et al. 2009) and Alexandre et al. (2005) in areas associated with recreational clam harvest where patches of eelgrass were maintained in the plots. ~~This last example is likely the~~ These last examples are most similar to the Project, which proposes to remove oyster longlines in areas that already containing eelgrass. Therefore, mitigation was assumed to occur at the same rate as impacts, within a 1- to 2-year period.

Mitigation for natural resources is guided by numerous state and federal policies, including a Presidential Memorandum (Federal Register 2015) that directs federal agencies to “establish a

net benefit goal or, at minimum, a no net loss goal for natural resources the agency manages.” The California Eelgrass Mitigation Policy and Implementing Guidelines (NMFS 2014) enunciates policy and approaches to mitigate for impacts to eelgrass in California. Consistent with the Presidential Memorandum, this guidance includes a goal of “no net loss of eelgrass habitat function in California” (NMFS 2014). The CEMP recognizes the potential for mitigation through a variety of mechanisms, but identifies in-kind mitigation as preferred. The CEMP is based around a scenario where mitigation and impacts occur contemporaneously or mitigation occurs after impacts occur. The CEMP applies a discount rate to the value of eelgrass mitigation sites pre-project to account for the development of eelgrass habitat function over a period of up to three years. This offset between when eelgrass mitigation is presumed to be functional and when impacts are presumed to occur creates a target mitigation ratio of 1.2:1 (NMFS 2014). However, the 1.2:1 ratio is specifically for impacts to eelgrass area (e.g., areal extent), with respect to mitigation ratios for impacts to density of eelgrass beds, the CEMP calls for “mitigation ... on a one-for-one basis (NMFS 2014).”

The eelgrass impact analysis identifies five scenarios that result in an accumulated reduction in eelgrass density with mitigation ratios ranging from 1.9:1 to 1.0:1 (Table 6.5.15). These calculated mitigation ratios illustrate that eelgrass densities are anticipated to be mitigated at a rate that exceeds the CEMP target of 1:1 for impacts to turion density. Impacts to areal extent are not anticipated, even though (for simplicity) the eelgrass impact analysis calculates density reduction within a 1.5-ft width. Based on simple observation, entire widths of bare ground are not associated with oyster longline aquaculture in North Bay.

Table 6.5.15 Mitigation Ratios by Eelgrass Impact Scenario.

Impact Scenario	Total Impact without Mitigation	Mitigation Lift	Mitigation Ratio
	Acre	Acre	
New Growth	-4.7	+6.0	1.3:1
Average Growth	-6.3	+10.0	1.6:1
Maximum Growth	-8.7	+16.1	1.9:1
Medium Footprint	-27.4	+30.9	1.1:1
Maximum Footprint	-35.9	+36.8	1.0:1

The CEMP describes further adjustments to the target mitigation ratio based on likelihood of mitigation success. These likelihoods of success were calculated from past mitigation efforts in four regions of California ranging from 100% (Central California) to 25% (Northern California). These likelihoods of success were based on small sample sizes (four sites in Northern California) and are related to the transplantation of eelgrass to unvegetated habitat, which is not comparable to natural recovery. Comparatively, eelgrass in Humboldt Bay has been shown to recover within 2 years in previously vegetated areas after stressors suppressing eelgrass growth were removed (e.g., suction dredge harvest events), even in the presence of oyster longlines (Rumrill and Poulton 2004).

As described above, eelgrass recovery may take 2 to 6 years following disturbances that remove both above- and below-ground plant material (Ruesink et al. 2012, Boese et al. 2009, Tallis et al. 2009). However, when patches of eelgrass are retained within a disturbed area there is considerable revegetation within 1 year (Boese 2002, Alexandre et al. 2005, Neckles et al. 2005, Dumbauld et al. 2009). This suggests that eelgrass recovery in areas where eelgrass suppression is

removed by increasing line spacing is likely to be rapid and exceed the recovery rates implied in the CEMP. Field reconnaissance also suggests that most, if not all, longline plots contain eelgrass between and under existing longlines. Therefore, recovery will be through both seeding and rhizomal expansion of mature eelgrass that are present throughout the culture plots. Since rhizomal expansion is the main mechanism for eelgrass shoots that are produced (Duarte and Sand-Jensen 1990), this infilling process is expected to be rapid.

P. Section 6.5.7, Mitigation Measures, Mitigation Measure BIO-1, page 6.5-116, Figure 6.5.30, is revised as follows:

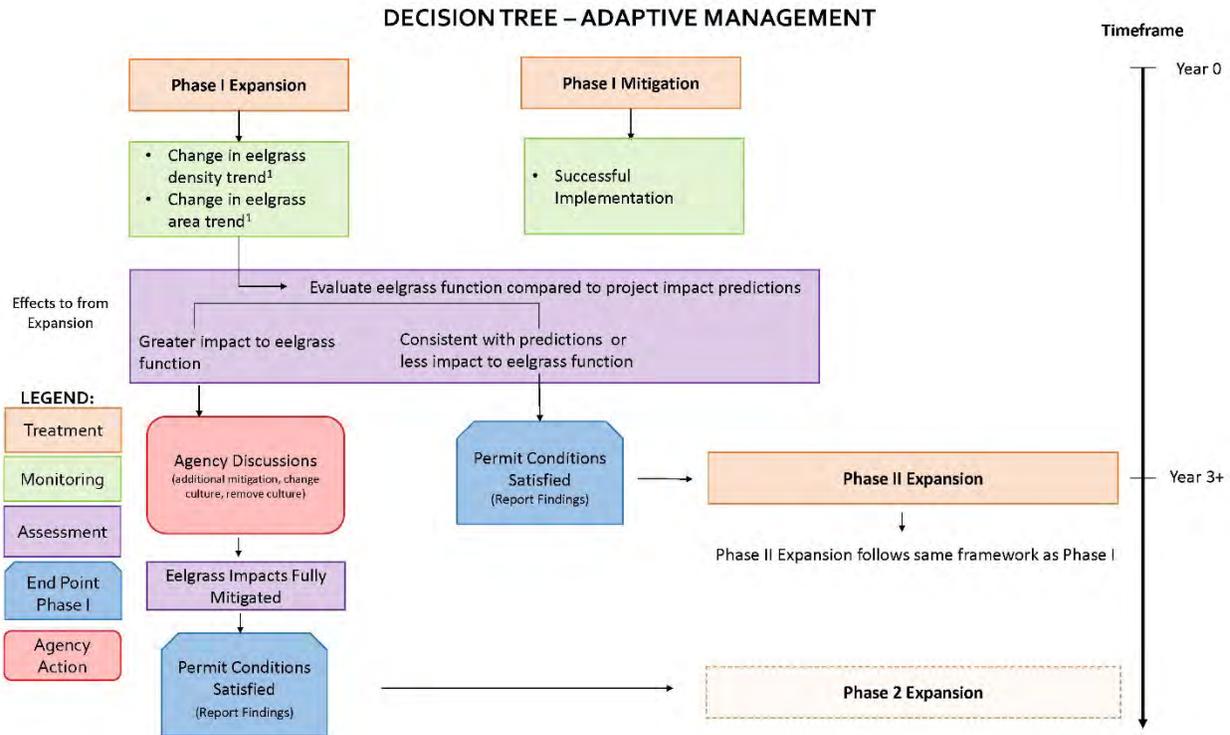


Figure 6.5.30 Proposed Adaptive Management Practices for the Proposed Coast Expansion Project

Q. Section 6.5.9, Effects Analysis of the Alternatives – Marine Habitat, Benthic Communities, and Aquatic Marine Species, pages 6.5-119 and 6.5-120, is revised as follows:

As described in Section 5.0, ~~four~~ five alternatives are considered in the DEIR:

- **Alternative 1 (10-ft Spacing):** continue current shellfish culture activities in Humboldt Bay and increase intertidal oyster culture by 622 acres using 10-ft single-hung cultch-on-longline methods.
- **Alternative 2 (Reduced Footprint):** continue current shellfish culture activities in Humboldt Bay and implement only Phase I of project development – a 210-acre expansion.

- **Alternative 3 (Existing Footprint):** continue current shellfish culture activities in Humboldt Bay without expanding intertidal oyster culture.
- **Alternative 4 (No Project):** discontinue the existing shellfish culture operations in Humboldt Bay and remove associated infrastructure.
- **Alternative 5 (EBMA Avoidance):** continue current shellfish culture activities in Humboldt Bay and increase intertidal oyster culture by 256 acres using a phased approach.

The effects to marine habitat, benthic communities, and aquatic marine species will be discussed below. As with the impact analysis for the Preferred Alternative, this analysis will focus on overlap with habitat as well as frequency and intensity of activities. Table 6.5.16 provides the general habitat categories for the Project and each alternative.

R. Section 6.5.9.1, Impacts to Marine Habitat, pages 6.5-120 through 6.5-125, is revised as follows:

Table 6.5.16 General Habitat Categories by Alternative.

Alternative		Existing Culture (acres)					Expansion Area (acres)				
		Subtidal	Non-Eelgrass	Patchy Eelgrass	Continuous Eelgrass	Total	Subtidal	Non-Eelgrass	Patchy Eelgrass	Continuous Eelgrass	Total
Project	Other ¹	1.0		4.8		5.8	<u>0</u>	3.6			<u>3.6</u>
	Cultch		8.5	249.8	24.5	282.8		19.3	168.6	380.5	<u>568.4</u>
	Basket			10.4	0.8	11.2		5.0	15.8	29.2	50.0
	Total	1.0	8.5	265.0	25.3	299.8	0	27.9	184.4	409.7	622.0
Alt. #1	Other	1.0		4.8		5.8					
	Cultch		8.5	249.8	24.5	282.8	<u>0</u>	<u>27.9</u>	184.4	409.7	622.0
	Basket			10.4	0.8	11.2					
	Total	1.0	8.5	265.0	25.3	299.8	0	27.9	184.4	409.7	622.0
Alt. #2	Other	1.0		4.8		5.8	0	3.6			3.6
	Cultch		8.5	249.8	24.5	282.8		3.2	16.8	136.4	156.4
	Basket			10.4	0.8	11.2		5.0	15.8	29.2	50.0
	Total	1.0	8.5	265.0	25.3	299.8	0	11.8	32.6	165.6	210.0
Alt. #3	Other	1.0		4.8		5.8	No expansion				
	Cultch		8.5	249.8	24.5	282.8					
	Basket			10.4	0.8	11.2					
	Total	1.0	8.5	265.0	25.3	299.8					
Alt. #4	Other	1.0		4.8		5.8	No expansion				
	Cultch		8.5	249.8	24.5	282.8					
	Basket			10.4	0.8	11.2					
	Total	1.0	8.5	265.0	25.3	299.8					
Alt. #5	Other	<u>1.0</u>		<u>4.8</u>		<u>5.8</u>	<u>0</u>	<u>4</u>	<u>0</u>	<u>0</u>	<u>4</u>
	Cultch ³		<u>8.5</u>	<u>249.8</u>	<u>24.5</u>	<u>282.8</u>	<u>0</u>	<u>10.8 (8.1)</u>	<u>62.8 (32.6)</u>	<u>106.4 (50.1)</u>	<u>180 (90.8)</u>
	Basket ³			<u>10.4</u>	<u>0.8</u>	<u>11.2</u>	<u>0</u>	<u>1.2</u>	<u>48.9</u>	<u>20.6</u>	<u>71.9</u>
	Total	1.0	8.5	265.0	25.3	299.8	0	17.4	111.7 (47.0)⁴	127.0	256.0 (191.3)⁴

¹Other culture types include culture areas occupied by Coast’s intertidal nursery (4.8 acres), FLUPSY (0.04 acres), wet storage floats (0.04 acres) and clam rafts (0.93 acres). These culture methods are not separately identified in this table.

²All existing culture would be removed.

Table 6.5.16 General Habitat Categories by Alternative.

Alternative	Existing Culture (acres)					Expansion Area (acres)				
	Subtidal	Non-Eelgrass	Patchy Eelgrass	Continuous Eelgrass	Total	Subtidal	Non-Eelgrass	Patchy Eelgrass	Continuous Eelgrass	Total
<p>³ Phase II expansion (90.8 acres) may occur as cultch-on-longline or basket-on-longline. For simplicity, totals are shown in the cultch total with the fraction occurring in Phase II identified in parenthesis. In addition, the up to 4-acre area with rack-and-bag could be basket-on-longline culture instead.</p> <p>⁴ Alternative 5 includes a removal of existing culture as compensatory mitigation for expansion. Numbers in parenthesis indicate net change in acreage.</p>										

Changes to Unstructured Habitat

As noted above, aquatic marine species (especially mobile species), depend on a mosaic of habitat that includes edges or transitional zones between two habitat types. Unstructured habitat provides locations where the habitat transitions to subtidal channel habitat or eelgrass habitat in North Bay. Alternative 3 (Existing Footprint) and Alternative 4 (No Action) do not have expansion areas, and effects to unstructured habitat from these alternatives would be less than significant. Alternative 1 (10-Foot Single-Hung), ~~and~~ Alternative 2 (Reduced Acreage), ~~and~~ Alternative 5 (EBMA Avoidance) would overlap with unstructured habitat, patchy eelgrass habitat, and continuous eelgrass habitat according to the values presented in Table 6.5.16. Alternative 2 overlaps with ~~half~~ 58% as much less unstructured habitat (or non-eelgrass habitat), ~~and~~ Alternative 5 with 38% less, compared to the Project or Alternative 1. The following is a discussion of the difference between ~~the~~ Alternatives 1, ~~and~~ 2, and 5 to unstructured habitat.

As discussed above, the main change associated with adding structure to sandflat or mudflat habitat includes the potential to change species composition. Effects would be similar as the Project effects, but would partially scale with the acreage and/or culture methods associated with the Alternatives. For example, the amount of unstructured habitat potentially affected in Alternative 1 is the same as in the Project (~~23.8~~ 27.9 acres) and represents approximately ~~0.7~~ 0.8% of the unstructured habitat available in North Bay. The amount of unstructured habitat potentially affected in Alternative 2 (11.8 acres) represents 0.3% of unstructured habitat in North Bay. The amount of unstructured habitat potentially affected in Alternative 5 (17.4 acres) represents 0.5% of unstructured habitat in North Bay. In both all cases, only a fraction of the project acreage that will be planted in unstructured habitat will actually have aquaculture equipment. Further, with both Alternatives 1, and 2, and 5, the potential change to unstructured habitat in North Bay would be a small fraction of the total unstructured habitat available. However, while both these Alternatives would provide suitable nursery habitat for smaller organisms, neither Alternative none of the Alternatives would provide as much structured habitat as the Project. In addition, both the Project and Alternative 5 include a substantial amount of existing culture modification (increased line spacing) or total removal (fallowing), including in areas without eelgrass. One of the areas prioritized for culture removal is Sand Island, which is heavily used by green sturgeon, and considered a priority area by resource agencies in terms of the available unstructured habitat (Goldsworthy, pers. comm., 2016). Overall, while there were no few significant differences identified between the various alternatives and their potential changes to unstructured habitat, Alternative 5 provides some additional ecological benefit through removal of existing structure from Sand Island.

Changes to Eelgrass Areal Extent

There is no predicted net change to eelgrass areal extent under the proposed Project, and because of the similarity (or reduction) in proposed culture methods, a neutral impact is also predicted for Alternatives 1, ~~and~~ Alternative 2, and Alternative 5. As described for the Project, potential changes to areal extent will be verified through pre- and post- project eelgrass monitoring for ~~both~~ Alternatives 1, ~~and~~ 2, and 5. If changes to the areal extent are observed, Coast will implement adaptive management to ensure eelgrass impacts remain less than significant.

Alternative 3 would have no additional impacts to eelgrass because there is no proposed expansion of oyster culture. Comparatively, construction impacts associated with Alternative 4

(No Project) would likely result in a temporary loss of areal extent from the removal of shellfish gear if Coast is required to immediately remove all shellfish gear without the implementation of conservation measures. If phasing would occur for removal, then the effect to eelgrass would be similar in duration and intensity to a planting or harvest event, which would have a short-term disturbance, with recovery anticipated within a month. Phasing of gear removal would have to incorporate both phasing in terms of timing and location so as not to disturb adjacent areas prior to recovery. In addition, in order to avoid long-term eelgrass impacts, the number of acres where removal occurs at any one time under Alternative 4 would have to be consistent with the acreages typically worked in Coast's existing operation. In existing culture, Coast typically works no more than 10 acres per week, assuming approximately 2 weeks per month of sufficiently low tides. At this rate, it would take approximately two years to remove the shellfish culture in Humboldt Bay in a manner that would ensure limited, short-term impacts to eelgrass habitat. If, however, permits could not be secured for this time period, and immediate large-scale removal was required, effects to eelgrass could be more significant. However, as long as areal extent is not affected and plenty of plants are within the area to provide seedling for recovery, this perturbation can be considered a short-term impact. Large-scale impacts would likely require monitoring to ensure that the duration of the impact to eelgrass is short-term.

Changes to Eelgrass Density

Gear and shellfish products associated with longline aquaculture can lead to shading, abrasion, and desiccation of eelgrass blades. The type and concentration of gear can influence the level of this effect. The primary differences in terms of potential impacts to eelgrass density between the proposed alternatives is the size of the expansion area and type of culture methods proposed for expansion (see Table 6.5.16).

According to the best available science, expanding oyster culture using 10-ft spacing and a single-hung design likely results in a long-term neutral effect to eelgrass (see discussion in IMPACT BIO-3). Therefore, Alternative 1 is predicted to have no impact on eelgrass density. Alternative 2 is predicted to have the same impacts to eelgrass density as the Project, with a potential predicted reduction in eelgrass density between 2.2% to 17.1%. ~~Phase Alternative 3~~ would have no impact on eelgrass density because there is no expansion proposed. ~~Finally,~~ Alternative 4, if culture removal is performed with a frequency and intensity that is consistent with typical planting and harvesting activities, would only have short-term impacts to eelgrass density. ~~Finally, Alternative 5 would have similar impacts as that proposed for the Project, although mitigation would be incorporated for both Phase I and Phase II of Alternative 5. Recovery from these typical culture activities would be is expected to be within a month, and either the type of culture methods (i.e., 10-ft single-hung) or proposed mitigation is anticipated to result in a net neutral impact to eelgrass density.~~

Changes to Other Habitat Concerns

As discussed for the Project, the three other habitat parameters associated with shellfish aquaculture in Humboldt Bay include: (1) sediment distribution and tidal circulation, (2) water quality, and (3) sediment quality. Changes to these other habitat parameters, by alternative, are summarized in Table 6.5.17.

Table 6.5.17 Summary of Impacts to Other Habitat Concerns by Alternative.

Alternative	Sediment Distribution and Tidal Circulation	Water Quality	Sediment Quality
Project	<ul style="list-style-type: none"> Some evidence of increased sedimentation associated with gear but, overall, changes do not appear to result in seabed elevation changes. Lack of evidence that longlines significantly change sediment distribution, especially for culture within eelgrass habitat which already alters circulation and flows. 	<ul style="list-style-type: none"> Potential to reduce turbidity/sequester nutrients, but likely small compared to input into the system. Potential increase in oil spills or engine failures if the number of boats increases with operations, but Conservation Measures in place to avoid potential release of contaminants. 	<ul style="list-style-type: none"> Some changes to sediment nutrients but not to the level that results in significant changes to sediment quality. Circulation and energy in the system provides circulation of sediments.
Alt. 1 (10-Foot Single-Hung)	<ul style="list-style-type: none"> Rack-and-bag changes would be the same in areas without eelgrass. Similar to changes above, although a single-hung design would have less influence on the bottom boundary layer. 	<ul style="list-style-type: none"> Less potential to improve water quality with a lower density of organisms, but effect is still considered small compared to the input into the system. The same potential for oil spills would exist. 	<ul style="list-style-type: none"> A reduction in the density of organisms would reduce the potential for any one area to accumulate organics.
Alt. 2 (Reduced Acreage)	<ul style="list-style-type: none"> Same as Phase I of the Project. Reduced effects from reduced presence of gear overall. 	<ul style="list-style-type: none"> Same as Phase I of the Project. Reduced effects from reduced presence of gear overall. Reduced potential for oil spills. 	<ul style="list-style-type: none"> Same as Phase I of the Project. Reduced effects from reduced presence of gear overall.
Alt. 3 (Existing Footprint)	No change beyond baseline conditions.		
Alt. 4 (No Action)	<ul style="list-style-type: none"> Removal of gear would reduce the amount of structure in North Bay that could potentially affect sediment distribution and circulation. Some areas may be more subject to sediment distribution without the structure in place because of the loss of wave dampening from the longlines. 	<ul style="list-style-type: none"> Removal of existing culture would remove the potential filtration capacity in the system and presence of an industry that is dependent on good water quality in the bay. Removal of existing culture would eliminate potential hazardous material spills by removing vessels associated with the culture operations. 	<ul style="list-style-type: none"> There would not be as many nutrients being deposited into the sediment, which could affect benthic-pelagic coupling, but would likely not result in significant changes.
Alt 5 (EBMA Avoidance)	<ul style="list-style-type: none"> <u>Same as Phase I of the Project.</u> <u>Reduced effects from reduced presence of gear overall.</u> 	<ul style="list-style-type: none"> <u>Same as Phase I of the Project.</u> <u>Reduced effects from reduced presence of gear overall.</u> <u>Reduced potential for oil spills.</u> 	<ul style="list-style-type: none"> <u>Same as Phase I of the Project.</u> <u>Reduced effects from reduced presence of gear overall.</u>

In general, there are very few differences between the Project, Alternative 1, ~~and~~ Alternative 2, and Alternative 5 in terms of potential impacts to other habitat parameters. Alternative 3 would have the least impact as no change is proposed from existing operations. Alternative 4 would generally have a greater magnitude but shorter duration impact (depending on permit restrictions and timing of removal). The primary difference between Alternative 4 (No Project) and other Alternatives, would be the potential impact on nutrient loading and availability, particularly on nitrogen and phosphorus from existing non-point sources of pollution (e.g., cattle ranches and stormwater runoff) within the watershed. Nitrogen removal is one of the main ecosystem services provided by cultured shellfish. Cultured shellfish mitigate for non-point pollution sources through filtration, nitrogen sequestration, and total removal of nutrients from the system during harvest of the shell and tissue where the nutrients are sequestered (Newell et al. 2002, Newell 2004, Kellogg et al. 2013). For example, based on nitrogen sequestration values presented in Higgins et al. (2011), the harvest of approximately 2,700 tons of oysters annually by Coast results in the direct removal of approximately 219 tons nitrogen⁴. However, it should be noted that a harvest represents oysters that have been growing in the bay for 18 to 36 months, so this amount of nitrogen sequestration is based on the sequencing of harvest operations over a 300-acre area and roughly 2-yr grow-out cycle.

Potentially, these values may be even greater. A recent paper by Kellogg et al. (2013) partially quantified the removal of nutrients from the water column at a subtidal oyster reef restoration site compared to an adjacent control site in the Choptank River within Chesapeake Bay, Maryland. The authors indicated that denitrification rates at the oyster reef in August were “among the highest ever recorded for an aquatic system.” In addition, a significant portion of the available nitrogen and phosphorous (47% and 48% of total standing stock, respectively) were sequestered in the shells of live oysters and mussels. Newell (2004) commented that bioextraction (e.g., shellfish harvest or macroalgae harvest) represents the only method of nitrogen removal once it has entered the system, which can then make that system more resilient to nutrient loading. Loss of the nutrient removal function performed by cultivated shellfish, especially in relation to the mitigation of upland sources of nutrients, could lead to eutrophication in parts of Humboldt Bay. Notably, Humboldt Bay isn’t currently eutrophied, which may be at least partly due to existing cultured shellfish in the bay. Certainly, one of the major benefits of having a shellfish aquaculture industry within a water body is the reliance of an industry on clean water (Dewey et al. 2011). There are multiple examples from the past where Coast has improved water quality conditions to provide a safe and healthy product, as described more below. However, this the full effects of water quality from these actions has not been studied, and so there is only anecdotal evidence of the influence from the shellfish aquaculture operation.

Many researchers have identified water clarity as the most important factor limiting eelgrass distribution and abundance (Fonseca and Bell 1998, Cho and Poirrier 2005, Fonseca and Malhotra 2006). Similarly, Burkholder et al. (2007), have documented nutrient enrichment (eutrophication) as a major cause of degradation of water clarity and loss of seagrass (including eelgrass) habitat in estuaries. By consuming phytoplankton and particulate organic matter, shellfish increase the amount of light reaching the sediment surface that is available for photosynthesis (Koch and Beer 1996). The loss of shellfish under the No Project Alternative could affect the spatial distribution of eelgrass habitat. However, the potential for cultured

⁴ This conclusion is based on 7.9% nitrogen in oyster tissue and 0.2% nitrogen in oyster shell (Higgins et al. 2011).

shellfish to improve conditions in West Coast estuaries may be limited (e.g., Dumbauld et al. 2009), and the benefits provided by shellfish in Humboldt Bay have not been studied. Moreover, while the presence of bivalves can result in positive changes to water quality, this impact is likely small compared to the inputs in the system.

Alternative 4 may also negatively impact water quality because it would mean the loss of a substantial advocate for clean water in Humboldt Bay. Coast and other shellfish growers rely on good water quality to produce a safe, high-quality product and are strongly incentivized to take action to improve water quality and minimize threats to water quality posed by anthropogenic activities (Dewey et al. 2011). For example, Coast has done the following to advocate for and improve water quality:

- Work with local jurisdictions and regulators to identify and eliminate point and non-point source pollution, including agricultural, industrial, and municipal discharges.
- Participate and provide input on regulatory updates to ensure that high water quality standards are included in local, state, and federal policies.
- Lobby state and federal legislatures for improvements to water quality and to develop water quality standards.
- Maintain ownership or leases of large aquatic areas, thereby eliminating the risk of development or other environmentally deleterious uses.
- Participate in and collect water quality samples as part of monitoring programs with federal and state agencies (e.g., National Shellfish Sanitation Program) to track water quality trends and identify areas targeted for improvement. These efforts have directly resulted in numerous areas being determined suitable for shellfish harvesting and have provided data for other target areas with opportunities for improvement.
- Donate to local and state organizations (e.g., Humboldt Baykeeper) to improve water quality conditions within the estuaries where shellfish aquaculture occurs.
- Active engagement in efforts to quickly remediate and clean up oil spills and other hazardous waste sites to protect water quality and the health of shellfish (e.g., Coast Seafood's partnership with the Humboldt Bay Harbor, Recreation, and Conservation District and the Environmental Protection Agency to remediate and remove toxic hazardous wastes from a former pulp mill site).

S. Section 6.5.9.2, Impacts to Benthic Communities, Table 6.5.18, page 6.5-127, is revised as follows:

Table 6.5.18 Summary of Impacts to Benthic Communities by Alternative.				
Alternative	Species Composition	Trampling	Introduction of NIS and Fouling	Establishment of Non-native Bivalves
Project	<ul style="list-style-type: none"> According to food-web modeling (e.g., Leguerrier et al. 2004), the system remained stable even when rack-and-bag culture was doubled (up to 1,265 acres). Slight changes in species composition, but not likely to result in population shifts of species. 	<ul style="list-style-type: none"> The frequency and intensity of disturbance is minor and a fraction of the amount of activity in one area compared to locations where effects are reported in the literature. 	<ul style="list-style-type: none"> Given management conditions, minimal likelihood for introduction of NIS. Fouling can be a benefit to fish and wildlife species foraging from the organisms that colonize aquaculture gear. 	<ul style="list-style-type: none"> Water temperature conditions naturally limit conditions for establishment. Hydrology and lack of suitable substrate further reduces the likelihood of establishment.
Alt. 1 (10-Foot Single-Hung)	<ul style="list-style-type: none"> A similar amount of structured habitat would be provided, although with a lower density of organisms. 	<ul style="list-style-type: none"> Intensity within one area would be similar to the Project. 	<ul style="list-style-type: none"> Similar to the Project, although with fewer attachment points for colonization. 	<ul style="list-style-type: none"> Same as Project.
Alt. 2 (Reduced Acreage)	<ul style="list-style-type: none"> The overall acreage would decrease from the Project, as would the potential to alter species composition <u>in areas that are proposed for new expansion.</u> 	<ul style="list-style-type: none"> Intensity within one area same as the Project, and frequency within subtidal channels would decrease. <u>Overall acreage would decrease, as would the potential to trample eelgrass or access sites.</u> 	<ul style="list-style-type: none"> Lower amount of gear in the water would mean fewer places to colonize. 	<ul style="list-style-type: none"> Same as Project.
Alt. 3 (Existing Footprint)	No change beyond baseline conditions.			
Alt. 4 (No Action)	<ul style="list-style-type: none"> Removal of gear would create a new equilibrium in the system. Species that benefit from the habitat provided by shellfish culture would be impacted. 	<ul style="list-style-type: none"> Effects of trampling likely temporary, but intensity and frequency could be greater than typical operations. 	<ul style="list-style-type: none"> Decreased risk of NIS introductions, even though management makes this risk unlikely. NIS would continue to be introduced via shipping operations associated with the marina, which is 	<ul style="list-style-type: none"> The removal of non-native oysters would eliminate the potential for populations to naturalize in Humboldt Bay, even

Table 6.5.18 Summary of Impacts to Benthic Communities by Alternative.

Alternative	Species Composition	Trampling	Introduction of NIS and Fouling	Establishment of Non-native Bivalves
	<ul style="list-style-type: none"> Species impacted by shellfish culture would benefit. 		the dominant form of introduction into bays and estuaries.	though this is considered unlikely.
<u>Alt. 5 (EBMA Avoidance)</u>	<ul style="list-style-type: none"> <u>The overall acreage would decrease from the Project, as would the potential to alter species composition in areas that are proposed for new expansion.</u> 	<ul style="list-style-type: none"> <u>Intensity within one area same as the Project, and frequency within subtidal channels would decrease.</u> <u>Overall acreage would decrease, as would the potential to trample eelgrass or access sites.</u> 	<ul style="list-style-type: none"> <u>Lower amount of gear in the water would mean fewer places to colonize.</u> 	<ul style="list-style-type: none"> <u>Same as Project.</u>

- T. Section 6.5.9.3, Impacts to Special Status Marine Aquatic Species, page 6.5-126 and page 6.5-128 (Table 6.5.19), is revised as follows:

Aquaculture has the ability to affect biological resources in both negative and positive ways, with effects having the capacity to influence primary and secondary productivity and community structure (Simenstad and Fresh 1995). Manipulation of estuarine habitats to support aquaculture can disturb endemic communities (Pillay 1992). However, disturbances associated with shellfish aquaculture are typically infrequent and low intensity, which allows organisms to recover from or adapt to the changes associated with aquaculture activities. More importantly, species within the intertidal zone are adapted to a high degree of habitat variation and disturbance events (e.g., wind-wave action, storms). Most importantly, a no-net-loss standard in eelgrass habitat will not change species use of these habitats.

The metrics used to estimate potential impacts to special status marine aquatic species was spatial overlap with habitat types present in North Bay and potential human presence/frequency of disturbance. Potential impacts, by alternative, are summarized for special status marine aquatic species in Table 6.5.19.

In general, conditions are generally similar between the Project, Alternative 1, ~~and~~ Alternative 2, and Alternative 5, although Alternative 5 would include a potential benefit of removing structure from Sand Island, which is an area that has been identified in comments as an important area for sturgeon. The majority of short-term impacts to special status species would be in Alternative 4 during gear removal activities. As above, this is due to the intensity and frequency of disturbance, which could be alleviated with phasing. After gear removal, the system would be allowed to return to a new equilibrium.

A major potential long-term change would be from removal of structured habitat. Coen et al. (2007) reported that oyster reefs provided more interstitial spaces for predator refugia and increased fitness due to the presence of suitable prey items. Dealteris et al. (2004) reported that shellfish gear supported native species of recreationally and commercially important fish and invertebrates in their early life history stages. Food-web modeling of intertidal oyster culture at much higher densities than is proposed for the Project (e.g., Leguerrier et al. 2004) also support the conclusion that off-bottom culture could benefit fish due to an enhanced food supply. Finally, Castel et al. (1989) indicated that the presence of oysters on rack-and-bag structures augmented meiofauna biomass. The authors also reported a reduction in macrofaunal abundance associated with the racks, but indicated that this may have been a product of increased predation, which benefited the slightly larger organisms (e.g., fish and birds) rather than the benthic invertebrates present in the sediment. Removal of shellfish aquaculture gear would remove this additional provision of prey resources that support fish and wildlife in Humboldt Bay. While there is no indication that food resources are limited in the bay, and the system would find a new equilibrium, the loss of structured habitat would result in at least an initial reduction.

Table 6.5.19 Summary of Impacts to Special Status Marine Aquatic Species by Alternative.

Alternative	Pacific Lamprey	Sturgeon	Salmonids	Longfin Smelt	Marine Mammals
Project	<ul style="list-style-type: none"> • Aquaculture overlaps with 8.4% of all habitat types. • 33.9% increase in boat hours* (+74 hours). • LTS impacts to habitat, prey resources, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture overlaps with 0.7% of unstructured habitat. • 33.9% increase in boat hours* (+74 hours). • LTS impacts to habitat, prey resources, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture overlaps with 8.4% of all habitat types. • 33.9% increase in boat hours* (+74 hours). • LTS impacts to habitat, prey resources, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture overlaps with 8.4% of all habitat types. • 33.9% increase in boat hours* (+74 hours). • LTS impacts to habitat, prey resources, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture overlaps with minor increase in overwater structure and use of channels for transit. • 33.9% increase in boat hours* (+74 hours). • LTS impacts to habitat, prey resources, or migration corridor.
Alt. 1 (10-Foot Single-Hung)	<ul style="list-style-type: none"> • Same amount of overlap and boat use. • Reduction in amount of gear in the water column. • <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • Same amount of overlap and boat use. • Reduction in amount of gear in the water column. • <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • Same amount of overlap and boat use. • Reduction in amount of gear in the water column. • <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • Same amount of overlap and boat use. • Reduction in amount of gear in the water column. • <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • Same amount of overlap and boat use. • Reduction in amount of gear in the water column. • <u>LTS impacts to habitat, prey resources, or migration corridor.</u>
Alt. 2 (Reduced Acreage)	<ul style="list-style-type: none"> • Aquaculture overlaps with 2.9% of all habitat types. • 31.2% increase in boat hours* (+68 hours). • <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • Aquaculture overlaps with 0.3% of unstructured habitat. • 31.2% increase in boat hours* (+68 hours). • <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • Aquaculture overlaps with 2.9% of all habitat types. • 31.2% increase in boat hours* (+68 hours). • <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • Aquaculture overlaps with 2.9% of all habitat types. • 31.2% increase in boat hours* (+68 hours). • <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • Same amount of overwater habitat. • 31.2% increase in boat hours* (+68 hours). • <u>LTS impacts to habitat, prey resources, or migration corridor.</u>
Alt. 3 (Existing Footprint)	No change beyond baseline conditions.				

Table 6.5.19 Summary of Impacts to Special Status Marine Aquatic Species by Alternative.

Alternative	Pacific Lamprey	Sturgeon	Salmonids	Longfin Smelt	Marine Mammals
Alt. 4 (No Action)	<ul style="list-style-type: none"> No overlap of potential habitat. No human presence associated with aquaculture activities following removal of gear. 	<ul style="list-style-type: none"> No overlap of potential habitat. No human presence associated with aquaculture activities following removal of gear. 	<ul style="list-style-type: none"> No overlap of potential habitat. No human presence associated with aquaculture activities following removal of gear. 	<ul style="list-style-type: none"> No overlap of potential habitat. No human presence associated with aquaculture activities following removal of gear. 	<ul style="list-style-type: none"> No overlap of potential habitat. No human presence associated with aquaculture activities following removal of gear.
Alt. 5 (EBMA Avoidance)	<ul style="list-style-type: none"> <u>Aquaculture overlaps with 2.6% of all habitat types. **</u> <u>31.2% increase in boat hours* (+68 hours).</u> <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> <u>Aquaculture overlaps with 0.5% of unstructured habitat.</u> <u>31.2% increase in boat hours* (+68 hours).</u> <u>LTS impacts to habitat, prey resources, or migration corridor.</u> <u>Potential benefit of removal of existing gear from Sand Island.</u> 	<ul style="list-style-type: none"> <u>Aquaculture overlaps with 2.6% of all habitat types. **</u> <u>31.2% increase in boat hours* (+68 hours).</u> <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> <u>Aquaculture overlaps with 2.6% of all habitat types. **</u> <u>31.2% increase in boat hours* (+68 hours).</u> <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> <u>Same amount of overwater habitat.</u> <u>31.2% increase in boat hours* (+68 hours).</u> <u>LTS impacts to habitat, prey resources, or migration corridor.</u>

LTS = less than significant

*Activity may be vary depending on weather conditions, crew availability, and other factors.

** Evaluated considering the net change in acreage of overlap due to aquaculture resulting from expansion and removal.

U. Section 6.5.9.4, Impacts to Commercially Important Aquatic Marine Species, Table 6.5.20, page 6.5-130, is revised as follows:

Table 6.5.20 Summary of Impacts to Commercially Important Marine Aquatic Species by Alternative.			
Alternative	Dungeness Crab	Pacific Herring	Groundfish
Project	Aquaculture overlaps with 8.4% of all habitat types. 33.9% increase in boat hours* (+74 hours). LTS impacts to habitat, prey resources, or migration corridor.	Aquaculture overlaps with 15.6% of eelgrass habitat. No spawning habitat limitation. 33.9% increase in boat hours* (+74 hours). LTS impacts to habitat, prey resources, or migration corridor.	Aquaculture overlaps with 8.4% of all habitat types. 33.9% increase in boat hours* (+74 hours). LTS impacts to habitat, prey resources, or migration corridor.
Alt. 1 (10-Foot Single-Hung)	Same amount of overlap and boat use. Reduction in amount of gear in the water column. <u>LTS impacts to habitat, prey resources, or migration corridor.</u>	Same amount of overlap and boat use. Reduction in amount of gear in the water column. <u>LTS impacts to habitat, prey resources, or migration corridor.</u>	Same amount of overlap and boat use. Reduction in amount of gear in the water column. <u>LTS impacts to habitat, prey resources, or migration corridor.</u>
Alt. 2 (Reduced Acreage)	Aquaculture overlaps with 2.9% of all habitat types. 31.2% increase in boat hours* (+68 hours). <u>LTS impacts to habitat, prey resources, or migration corridor.</u>	Aquaculture overlaps with 5.2% of eelgrass habitat, although more along the margins and in patchy eelgrass. 31.2% increase in boat hours* (+68 hours). <u>LTS impacts to habitat, prey resources, or migration corridor.</u>	Aquaculture overlaps with 2.9% of all habitat types. 31.2% increase in boat hours* (+68 hours). <u>LTS impacts to habitat, prey resources, or migration corridor.</u>
Alt. 3 (Existing Footprint)	No change beyond baseline conditions.		
Alt. 4 (No Action)	No overlap of aquaculture with potential habitat. No human presence associated with aquaculture activities following removal of gear.	No overlap of aquaculture with potential habitat. No human presence associated with aquaculture activities following removal of gear.	No overlap of aquaculture with potential habitat. No human presence associated with aquaculture activities following removal of gear.

Table 6.5.20 Summary of Impacts to Commercially Important Marine Aquatic Species by Alternative.

Alternative	Dungeness Crab	Pacific Herring	Groundfish
Alt. 5 (EBMA Avoidance)	<p><u>Aquaculture overlaps with 2.6% of all habitat types.</u> <u>31.2% increase in boat hours*</u> <u>(+68 hours).</u> <u>LTS impacts to habitat, prey resources, or migration corridor.</u></p>	<p><u>Aquaculture overlaps with 4.5% of eelgrass habitat, although more along the margins and in patchy eelgrass. **</u> <u>31.2% increase in boat hours*</u> <u>(+68 hours).</u> <u>Avoidance of primary documented herring spawning areas within EBMA.</u> <u>Reduction of aquaculture within EBMA.</u> <u>LTS impacts to habitat, prey resources, or migration corridor.</u></p>	<p><u>Aquaculture overlaps with 2.6% of all habitat types. **</u> <u>31.2% increase in boat hours*</u> <u>(+68 hours).</u> <u>LTS impacts to habitat, prey resources, or migration corridor.</u></p>

LTS = less than significant

*Activity may be vary depending on weather conditions, crew availability, and other factors.

** Evaluated considering the net change in acreage of overlap due to aquaculture resulting from expansion and removal.

V. Section 6.5.10.1, Impacts to Special-Status Bird Species, Table 6.5.21, page 6.5-131, is revised as follows:

Table 6.5.21 Summary of Impacts to Special Status Bird Species by Alternative.

Alternative	Marbled Murrelet	Western Snowy Plover	California Brown Pelican	Black Brant
Project	<ul style="list-style-type: none"> • Aquaculture does not overlap potential habitat (channels). • 33.9% increase in boat hours* (+74 hours). • LTS impacts from human disturbance (with avoidance). • LTS impacts to habitat, prey resources, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture does not overlap potential habitat (open, sandy beaches). • LTS impacts from human disturbance (with avoidance). • LTS impacts to habitat, prey resources, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture overlaps with 8.4% of potential habitat (all habitat types). • 33.9% increase in boat hours* (+74 hours). • LTS impacts from human disturbance (w/ avoidance). • LTS impacts to habitat, prey resources, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture overlaps with 15.6% of potential foraging habitat (all habitat with patchy or continuous eelgrass). • Potential 3% eelgrass biomass reduction. • 33.9% increase in boat hours* (+74 hours). • LTS impacts from human disturbance (with avoidance). • LTS impacts to habitat, prey resources, or migration corridor.

Table 6.5.21 Summary of Impacts to Special Status Bird Species by Alternative.

Alternative	Marbled Murrelet	Western Snowy Plover	California Brown Pelican	Black Brant
Alt. 1 (10-Foot Single-Hung)	<ul style="list-style-type: none"> • Same amount of overlap and boat use. 	<ul style="list-style-type: none"> • Same amount of overlap and boat use. 	<ul style="list-style-type: none"> • Same amount of overlap and boat use. • Reduction in amount of gear in the water column. 	<ul style="list-style-type: none"> • Same amount of overlap and boat use. • Reduction in amount of gear in the water column.
Alt. 2 (Reduced Acreage)	<ul style="list-style-type: none"> • Aquaculture does not overlap potential habitat (channels). • 31.2% increase in boat hours* (+68 hours). • LTS impacts from human disturbance. • LTS impacts to habitat, prey, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture does not overlap potential habitat (open, sandy beaches). • LTS impacts from human disturbance (with avoidance). • LTS impacts to habitat, prey resources, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture overlaps with 2.9% of all habitat types. • 31.2% increase in boat hours* (+68 hours). 	<ul style="list-style-type: none"> • Aquaculture overlaps with 5.2% of potential foraging habitat (all habitat with patchy or continuous eelgrass). • 31.2% increase in boat hours* (+68 hours).
Alt. 3 (Existing Footprint)	No change beyond baseline conditions.			
Alt. 4 (No Action)	<ul style="list-style-type: none"> • No overlap of potential habitat. • No human presence associated with aquaculture activities after gear removal. 	<ul style="list-style-type: none"> • No overlap of potential habitat. • No human presence associated with aquaculture activities after gear removal. 	<ul style="list-style-type: none"> • No overlap of potential habitat. • No human presence associated with aquaculture activities after gear removal. 	<ul style="list-style-type: none"> • No overlap of potential habitat. • No human presence associated with aquaculture activities after gear removal.
Alt. 5 (EBMA Avoidance)	<ul style="list-style-type: none"> • <u>Aquaculture does not overlap potential habitat (channels).</u> • <u>31.2% increase in boat hours* (+68 hours).</u> • <u>LTS impacts from human disturbance.</u> • <u>LTS impacts to habitat, prey, or migration corridor.</u> 	<ul style="list-style-type: none"> • <u>Aquaculture does not overlap potential habitat (open, sandy beaches).</u> • <u>LTS impacts from human disturbance (with avoidance).</u> • <u>LTS impacts to habitat, prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • <u>Aquaculture overlaps with 2.6% of all habitat types. **</u> • <u>31.2% increase in boat hours* (+68 hours).</u> 	<ul style="list-style-type: none"> • <u>Aquaculture overlaps with 4.5% of potential foraging habitat (all habitat with patchy or continuous eelgrass).</u> • <u>31.2% increase in boat hours* (+68 hours).</u>
<p>LTS = less than significant *Activity may be vary depending on weather conditions, crew availability, and other factors. ** Evaluated considering the net change in acreage of overlap due to aquaculture resulting from expansion and removal.</p>				

W. Section 6.5.10.2, Impacts to Other Birds, Table 6.5.22, page 6.5-132, is revised as follows:

Table 6.5.22 Summary of Impacts to Other Birds by Alternative.				
Alternative	Roosting Birds	Nesting Birds	American Wigeon and Other Waterfowl	Migratory Shorebirds
Project	<ul style="list-style-type: none"> • Aquaculture overlaps with 8.4% of potential habitat (all habitat types) • 33.9% increase in boat hours* (+74 hours). • Beneficial increase in roosting structures. • LTS impacts from human disturbance. • LTS impacts to prey resources, or migration corridor. 	<ul style="list-style-type: none"> • No overlap of potential habitat. • LTS impacts from human disturbance (with avoidance). • LTS impacts to habitat, prey resources, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture overlaps with 8.4% of potential habitat (all habitat types). • 33.9% increase in boat hours* (+74 hours). • LTS impacts from human disturbance. • LTS impacts to habitat, prey resources, or migration corridor. 	<ul style="list-style-type: none"> • Aquaculture overlaps with 8.4% of potential habitat (all habitat types) • 33.9% increase in boat hours* (+74 hours). • LTS impacts from human disturbance (with avoidance). • LTS impacts to habitat, prey resources, or migration corridor.
Alt. 1 (10-Foot Single-Hung)	<ul style="list-style-type: none"> • Same amount of overlap and boat use. 	<ul style="list-style-type: none"> • Same amount of overlap and boat use. 	<ul style="list-style-type: none"> • Same amount of overlap and boat use. • Reduction in amount of gear in the water column. 	<ul style="list-style-type: none"> • Same amount of overlap and boat use. • Reduction in amount of gear in the water column.
Alt. 2 (Reduced Acreage)	<ul style="list-style-type: none"> • Aquaculture overlaps with 2.9% of potential habitat (all habitat types) • 31.2% increase in boat hours* (+68 hours). • <u>LTS impacts from human disturbance.</u> • <u>LTS impacts to prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • No overlap of potential habitat. • 31.2% increase in boat hours* (+68 hours). • <u>LTS impacts from human disturbance.</u> • <u>LTS impacts to prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • Aquaculture overlaps with 2.9% of all habitat types. • 31.2% increase in boat hours* (+68 hours). • <u>LTS impacts from human disturbance.</u> • <u>LTS impacts to prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> • Aquaculture overlaps with 2.9% of all habitat types. • 31.2% increase in boat hours* (+68 hours). • <u>LTS impacts from human disturbance.</u> • <u>LTS impacts to prey resources, or migration corridor.</u>
Alt. 3 (Existing Footprint)	No change beyond baseline conditions.			

Table 6.5.22 Summary of Impacts to Other Birds by Alternative.

Alternative	Roosting Birds	Nesting Birds	American Wigeon and Other Waterfowl	Migratory Shorebirds
Alt. 4 (No Action)	<ul style="list-style-type: none"> No overlap of potential habitat. No human presence associated with aquaculture activities following removal of gear. 	<ul style="list-style-type: none"> No overlap of potential habitat. No human presence associated with aquaculture activities following removal of gear. 	<ul style="list-style-type: none"> No overlap of potential habitat. No human presence associated with aquaculture activities following removal of gear. 	<ul style="list-style-type: none"> No overlap of potential habitat. No human presence associated with aquaculture activities following removal of gear.
Alt. 5 (EBMA Avoidance)	<ul style="list-style-type: none"> <u>Aquaculture overlaps with 2.6% of potential habitat (all habitat types) **</u> <u>31.2% increase in boat hours* (+68 hours).</u> <u>LTS impacts from human disturbance.</u> <u>LTS impacts to prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> <u>No overlap of potential habitat.</u> <u>31.2% increase in boat hours* (+68 hours).</u> <u>LTS impacts from human disturbance.</u> <u>LTS impacts to prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> <u>Aquaculture overlaps with 2.6% of all habitat types. **</u> <u>31.2% increase in boat hours* (+68 hours).</u> <u>LTS impacts from human disturbance.</u> <u>LTS impacts to prey resources, or migration corridor.</u> 	<ul style="list-style-type: none"> <u>Aquaculture overlaps with 2.6% of all habitat types. **</u> <u>31.2% increase in boat hours* (+68 hours).</u> <u>LTS impacts from human disturbance.</u> <u>LTS impacts to prey resources, or migration corridor.</u>

LTS = less than significant

*Activity may be vary depending on weather conditions, crew availability, and other factors.

** Evaluated considering the net change in acreage of overlap due to aquaculture resulting from expansion and removal.

6.6 Aesthetics

- A. Section 6.6.9, Effects Analysis of Alternatives, page 6.6-11, is revised as follows:

Alternative 5: EBMA Avoidance Alternative

Alternative 5 would be less likely to impact visual resources than the Preferred Alternative due to the smaller proposed expansion area footprint (191.3 net new acres for Alternative 5 compared to 622 acres for the proposed Project). Potential impacts associated with increases in culture equipment, worker presence, and lighting would thus be very similar to those described above, but smaller in scale due to the reduced project footprint. Therefore, the overall potential impact to visual resources would be less than under the Preferred Alternative and, as with the Preferred Alternative, IMPACTS AV-1, AV-2, and AV-3 are considered less than significant under Alternative 5.

6.7 Air Quality

- A. Section 6.7.9, Effects Analysis of Alternatives, page 6.7-3, is revised as follows:

Alternative 5: EBMA Avoidance Alternative

Because the new net cultivated footprint of the expansion area would be reduced to 191.3 acres (from 622) under Alternative 5, fewer boat trips would be required throughout the bay in order to maintain and operate culture equipment. As with the Preferred Alternative, Coast would increase the number of small vessels in its operation by two boats under Alternative 5. However, the number of boat trips throughout the bay per week would be increased by only 17 trips or 68 boat hours per week over existing conditions—slightly less than under the Preferred Alternative. Given the reduced expansion, the additional vehicle trips associated with truck traffic and employee trips would also be slightly reduced. As with the proposed Project, Coast would implement Mitigation Measure AQ-1 under Alternative 5. With incorporation of Mitigation Measure AQ-1, IMPACT AQ-1 would be less than significant under Alternative 5.

6.8 Greenhouse Gas Emissions

- A. Section 6.8.9, Effects Analysis of Alternatives, page 6.8-4, is revised as follows:

Alternative 5: EBMA Avoidance Alternative

Direct GHG emissions under Alternative 5 would decrease as compared to the Project. Like the Project, Alternative 5 would require two additional small watercraft (1 scow and 1 skiff) operating a total of 15 additional 4-hour trips per week. However, the frequency of harvest vessel operation would be slightly reduced—Alternative 5 would require only two additional 4-hour trips per week (rather than one 6-hour and two 4-hour trips). Because Alternative 5 would generate less GHG emissions than the Project due to a reduction in boat trips and operating hours, IMPACT GHG-1 is considered less than significant without mitigation. As with the Project, Alternative 5 would not conflict with any known plan, policy or regulation, including AB 32 and SB 97, and thus no IMPACT GHG-2 is expected.

6.9 Hydrology and Water Quality

- A. Section 6.9.2, Pertinent Laws and Regulations, pages 6.9-1 to 6.9-2, is revised as follows:

There are a variety of state and federal laws pertinent to water quality and hydrology in Humboldt Bay. The Water Quality Control Plan for the North Coast Region (Basin Plan) establishes multiple objectives for Humboldt Bay in order to ensure that beneficial uses and existing water quality parameters are maintained (RWQCB ~~2014~~2014). There are 18 beneficial uses identified for Humboldt Bay, including water contact recreation, navigation and aquaculture. The Basin Plan also includes numerical criteria for a number of pollutants, including fecal coliform, and narrative criteria for water quality parameters such as temperature and pH. The narrative criteria, together with the basic antidegradation policy and the required maintenance of beneficial uses, constitute the overarching state mandate for water quality in Humboldt Bay (HBMP 2007).

The Humboldt County General Plan (County of Humboldt 1984), City of Arcata General Plan (City of Arcata 2008), and City of Eureka General Plan (City of Eureka 1997) contain additional goals and policies related to water quality. Further, Section 303(d) of the Federal Clean Water Act (CWA) includes requirements for water bodies that are “impaired,” and that, consequently, do not meet adopted state and/or federal water quality requirements. Such impaired water bodies or segments of water bodies are subject to the development of total maximum daily load (TMDL) waste allocations pursuant to requirements in the CWA and the State Porter-Cologne Water Quality Control Act.² Humboldt Bay is included in the U.S. Environmental Protection Agency-approved 303(d) list of impaired waters in California. Humboldt Bay is listed as impaired for polychlorinated biphenyls (PCBs) and dioxin toxic equivalents.

Although the source(s) of PCBs in Humboldt Bay is/are unknown, PCBs are known to be associated with a number of adverse health and environmental effects. Dioxins were historically generated primarily by timber and pulp mill operations, through wood preservatives that have active ingredients consisting of cyclic (aromatic) hydrocarbon molecules with multiple substituted chlorine atoms. Such chemicals were used in many wood product manufacturing facilities or mills in the 1950s and 1960s as anti-fungal or preservative agents. The most widely known of these compounds (or mixtures of chemically similar compounds) was pentachlorophenol (also known as penta or PCP). PCP is itself a toxic material that is now banned from use in the United States. Dioxin is a component of contaminated PCP, and is known to have been used at several lumber-processing mills in the Humboldt Bay region until the 1980s (HBMP DEIR 2006, Zalewski 2011).

However, neither the State Water Resources Control Board nor the U.S. Environmental Protection Agency identified apparent adverse effects on any of the beneficial uses identified for Humboldt Bay (including shellfish harvesting); ~~and the priority for developing a TMDL for the impaired bay was determined to be low~~ (HBMP DEIR 2006). In updates to the Basin Plan, the RWQCB (2014) indicated that staff resources were not assigned to the development of a TMDL for dioxins toxic equivalents, although this has been listed as a medium priority for the 2014 triennium review. The current 2010 303(d) list shows an expected TMDL completion date of 2019.

- B. Section 6.9.9, Effects Analysis of Alternatives, page 6.9-4, is revised as follows:

Alternative 5: EBMA Avoidance Alternative

Although impacts would be similar, Alternative 5 would be slightly less likely to create sedimentation than the proposed Project due to the reduced acreage of cultivation (191.3 net

new acres for Alternative 5 compared to 622 acres for the proposed Project). IMPACTS WQ-1 and WQ-2 would be less than significant under Alternative 5.

6.10 Hazards and Hazardous Materials

A. Section 6.10.1, Existing Conditions, page 6.10-1, is revised as follows:

There are relatively few hazards or hazardous materials in Humboldt Bay, which is dominated by natural landscapes. However, Humboldt Bay has historically been used for industrial processes such as bleaching of paper pulp, pesticide and herbicide manufacturing and waste incineration; ~~which likely contributed chemicals such as dioxins to the bay~~ (Pacific Shellfish Institute 2007). The main source of dioxin toxic equivalents in Humboldt Bay is from fungicides used as wood preservation treatments (pentachlorophenol) used at lumber mills around Humboldt Bay until the 1980s (Zalewski 2011). In addition, Humboldt Bay is frequently transited by recreational and commercial watercraft with internal combustion engines, which pose a hazard associated with the potential release of fuel and lubricants into the bay.

B. Section 6.10.4, Effects Analyses of the Proposed Project, page 6.10-3 to 6.10-4, paragraph 2, Impact HAZ-3, is revised as follows:

A dioxin is one of a number of chemical compounds that are created as byproducts or contaminants when chemically complex hydrocarbon structures are reacted commercially to add chlorine to one or more of the constituents. That is, dioxin is not a formulated product, but it occurs as a constituent in a variety of commercial grade products containing chlorine, including herbicides and pesticides, as well as compounds used to inhibit biological activity in other contexts. One of the categories of compounds in which dioxin has been found is wood preservatives that have active ingredients consisting of cyclic (aromatic) hydrocarbon molecules with multiple substituted chlorine atoms. Such chemicals were used in many wood product manufacturing facilities or mills ~~in the 1950s and 1960s~~ until the 1980s as anti-fungal or preservative agents. The most widely known of these compounds (or mixtures of chemically similar compounds) was PCP. PCP is itself a toxic material that is now banned from use in the United States. ~~Dioxin-contaminated PCP is known to have been used at several lumber processing mills in the Humboldt Bay region (HBMP DEIR 2006).~~

C. Section 6.10.9, Effects Analysis of Alternatives, page 6.10-7, is revised as follows:

Alternative 5: EBMA Avoidance Alternative

Because Alternative 5 would involve approximately 286 hours of watercraft use per week compared to 292 hours per week with the Project, it would have approximately the same risk of release of fuel and lubricants from watercraft. Given the implementation of Conservation Measures HAZ-1, HAZ-2 and HAZ-3 and adherence to all current and standard safety and cleanup protocols for fueling and lubricating engines, IMPACT HAZ-1 is less than significant under Alternative 5.

Because Alternative 5 would involve the addition of up to 10,440 new longlines compared to 32,156 new longlines with the proposed Project, there would be less risk of hazard from the abandonment or loss of gear or other debris into Humboldt Bay. Regardless, any such gear or debris encountered during operations will be retrieved for proper disposal. With the

implementation of Mitigation Measures HAZ-1 through HAZ-5, IMPACT HAZ-2 is therefore less than significant under Alternative 5. Given the documented lack of dioxin risk to people from consuming shellfish grown in Humboldt Bay, IMPACT HAZ-3 is also less than significant under Alternative 5.

6.11 Recreation

- A. Section 6.11.3, Definition of Significance and Baseline Conditions, page 6.11-1, is revised as follows:

Significance criteria are those listed in the CEQA checklist and additional considerations based on local conditions, a project's effects on recreation would be significant if the project would:

1. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
2. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.
3. Significantly reduce the acreage in Humboldt Bay available for recreational boating or hunting.

- B. Section 6.11.5, Conservation Measures, Conservation Measure REC-2, page 6.11-5, is revised as follows:

Conservation Measure REC-2: By December 1 of each year, Coast will submit a current bed map to the Harbor District for posting on the Harbor District's website; Coast will also post the current bed map on its website and at known kayak and boat launching sites in North Bay. The map will describe the locations of all of Coast's subtidal and intertidal culture in North Bay. Coast will provide electronic copies of the bed map upon request. The maps posted at known kayak and boat launching sites must be clear and highly visible to help inform recreational users, wildlife refuge managers, and local regulatory agencies.

- C. Section 6.11.9, Effects Analysis of Alternatives, pages 6.11-7, is revised as follows:

Alternative 5: EBMA Avoidance Alternative

Although impacts would be similar, Alternative 5 would be slightly less likely to impact recreation than the Preferred Alternative due to the reduced acreage of cultivation. The smaller cultivated footprint also translates into fewer boat trips and boat hours on the bay as compared to the Preferred Alternative. As compared to existing conditions, Alternative 5 would require an additional 17 boat trips through the bay per week, or 68 additional boat hours. Because these increases are less than but very close to the increases required under the Preferred Alternative, the above analysis applies equally to Alternative 5. Impacts to recreational hunting would also be slightly lessened, given that there would be less potential overlap with preferred recreational hunting areas. Alternative 5 would specifically avoid placement of additional culture in the EBMA, which has been noted as a primary area for hunting in Humboldt Bay. Under Alternative 5, Coast would continue to implement Conservation Measures REC-1 and REC-2.

As with the Preferred Alternative, IMPACTS REC-1 and REC-2 to be less than significant under Alternative 5.

6.12 Noise

A. Section 6.12.9, Effects Analysis of Alternatives, pages 6.12-8, is revised as follows:

Alternative 5: EBMA Avoidance Alternative

Alternative 5 would require the use of up to two additional small watercraft (the same as for the proposed Project) (Table 5.2, Project Alternatives). Alternative 5 would involve approximately 286 hours per week of watercraft run time, including harvesting operations (compared to approximately 292 hours per week for the proposed Project). The frequency of noise generating boat trips through the bay per week would increase by 17 trips under Alternative 5 rather than the 18 trips proposed under the Project. IMPACTS NOISE-1 and NOISE-2 are therefore considered less than significant for Alternative 5.

6.13 Transportation/Traffic

A. Section 6.13.9, Effects Analysis of Alternatives, pages 6.13-3, is revised as follows:

Alternative 5: EBMA Avoidance Alternative

Although impacts would be similar, Alternative 5 would be slightly less likely to impact transportation/traffic than the Project due to the reduced acreage of cultivation (191.3 net new acres for Alternative 5 compared to 622 acres for the proposed Project). Alternative 5 would require fewer additional workers and result in fewer boat trips than the Project. IMPACT TRANS-1 would be less than significant under Alternative 5.

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