

Humboldt Bay Oyster Company Shellfish Farm

Initial Study & Proposed Mitigated Negative Declaration

CEQA Lead Agency: Humboldt Bay Harbor, Recreation, and Conservation District



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Final Draft
May 19, 2026

Table of Contents

Section 1.0 Introduction.....	3
1.1 Purpose of this Document.....	3
1.2 Scope of this Document.....	3
1.3 Impact Terminology	4
1.4 General Information	4
Section 2.0 Surrounding Land Uses and Setting	6
Section 3.0 Project Description.....	8
3.1 Project Scope and Objectives	8
3.2 Proposed Culture Species	8
3.3 Floating Upwell System Culture.....	8
3.4 Raft Culture.....	10
3.5 Rack & Bag Culture.....	12
3.6 Intertidal Longline Culture.....	15
3.7 Mitigation Measures and Best Management Practices.....	18
Section 4.0 Checklist and Evaluation of Environmental Impacts.....	20
Section 5.0 Reference List	56
Section 6.0 List of Preparers	58

Attachment A – HBHRCD Inadvertent Discovery Protocol

Attachment B - CDFW Comment Letter Dated March 10, 2026 & Responses Summary

Section 1.0 Introduction

1.1 Purpose of this Document

This California Environmental Quality Act (CEQA) Initial Study (IS) assesses the environmental effects of the Humboldt Bay Oyster Company (HBOC) Shellfish Farm in Humboldt Bay, California. The name of the project is the Humboldt Bay Oyster Company Shellfish Farm (also referred to as the “Project”). This Initial Study is intended to satisfy the requirements of CEQA (Public Resources Code [PRC], Div 13, Sec 21000-21177), and the State CEQA Guidelines (California Code of Regulations, Title 14, Sec 15000-15387).

The Humboldt Bay Harbor, Recreation, and Conservation District (District) is the lead agency under CEQA. The District must evaluate the environmental impacts of the Project when considering whether to approve the Project. CEQA encourages lead agencies and applicants to modify their projects to avoid significant adverse impacts. The IS serves as an informational document to be used in planning and decision-making and does not recommend approval or denial of the Project.

The Draft IS was circulated for public review from February 2, 2026 to March 4, 2026. Comments were received from the California Department of Fish and Wildlife (CDFW) (letter dated March 10, 2026). This IS/MND has been revised to address CDFW’s comments. Additionally, minor administrative revisions have been made. For example, to update dates and revise the numbering of mitigation measures. Revisions are shown in strikethrough and underline format. CDFW’s comment letter is included as Attachment B.

1.2 Scope of this Document

This document evaluates the Project’s potential impacts related to the following topics:

- aesthetics
- agricultural and forestry resources
- air quality
- biological resources
- cultural resources
- energy
- geology and soils
- greenhouse gas emissions
- hazards and hazardous materials
- hydrology and water quality
- land use and planning
- mineral resources
- noise
- population and housing
- public services
- recreation
- transportation
- tribal cultural resources
- utilities and service systems
- wildfire
- mandatory findings of significance

1.3 Impact Terminology

The following general terms are used in this IS to describe the significance of impacts that could result from the Project:

- The Project is considered to have *no impact* if the analysis concludes that the Project could not affect a particular resource topic.
- An impact is considered *less than significant* if the analysis concludes that the Project would cause no substantial adverse change to the environment and that impacts would not require mitigation.
- An impact is considered *less than significant with mitigation* if the analysis concludes that the Project would cause no substantial adverse change to the environment with the inclusion of mitigation measures identified by the lead agency.
- An impact is considered *significant* if the analysis concludes that the Project would cause substantial adverse change to the environment that could not be reduced to less-than significant levels by the inclusion of identified mitigation measures.

1.4 General Information

1. **PROJECT TITLE:** Humboldt Bay Oyster Company Shellfish Farm
2. **LEAD AGENCY/CONTACT NAME AND ADDRESS:** Humboldt Bay Harbor, Recreation and Conservation District, P.O. Box 1030, Eureka, CA 95502-1030. Vanessa Blodgett, District Planner, districtplanner@humboldtby.org
3. **PROJECT LOCATION:** Mad River Slough, Tidelands in Humboldt Bay, and Woodley Island Marina.
4. **PROJECT SPONSOR'S NAME AND ADDRESS:** Todd Van Herpe, 2797 O'Neil Lane, Eureka, CA 95503. (707) 499-2388, toddvanherpe@gmail.com.
5. **GENERAL PLAN DESIGNATION: County of Humboldt:** Agriculture Exclusive / Natural Resources/ Water; **City of Eureka:** Woodley Island / Coastal
6. **ZONING: County of Humboldt:** Agriculture Exclusive / Natural Resources/ Water; **City of Eureka:** Woodley Island / Coastal
7. **SURROUNDING LAND USES AND SETTING:** refer to Section 2.0 below
8. **DESCRIPTION OF THE PROJECT:** refer to Section 3.0 below

9. PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED:

Level	Agency	Type of Approval, Permit or Consultation
Local	Humboldt Bay Harbor, Recreation & Conservation District	Harbor District Permit
State	California Coastal Commission	Coastal Development Permit
State	North Coast Regional Water Quality Control Board	Clean Water Act Section 401 Water Quality Certification
Federal	United States Army Corps of Engineers	Clean Water Act Section 404 and Rivers and Harbors Act Section 10 Permit

10. HAVE CALIFORNIA NATIVE AMERICAN TRIBES TRADITIONALLY AND CULTURALLY AFFILIATED WITH THE PROJECT AREA REQUESTED CONSULTATION PURSUANT TO PUBLIC RESOURCES CODE SECTION 2108.3.1? IF SO, HAS CONSULTATION BEGUN?

On November 25, 2024 letters were sent to the following Tribes to determine if they have concerns regarding the Project and/or would like to be consulted consistent with State Assembly Bill 52.

- Wiyot Tribe
- Bear River Band of the Rohnerville Rancheria
- Blue Lake Rancheria

The Wiyot Tribe responded in a December 3, 2024 email, the consultation is described in Section 4.18. No other Tribe responded within 30 days and have not responded as of ~~January 30~~ May 19, 2026.

Section 2.0 Surrounding Land Uses and Setting

Humboldt Bay is a complex ecosystem and valuable resource for California and the nation because of its natural resources, aesthetic appeal and recreational opportunities, ecological services, economic benefits, and vital transportation links. Visitors and Humboldt County residents value Humboldt Bay for its natural and anthropogenic attributes. The biota that use the bay are diverse and ecologically important locally and globally. The habitat in the bay provides resources for strong commercial fisheries, including crabs, bivalves, and finfish, and habitat for shorebird and waterfowl migrants. The Humboldt Bay area hosts more than 400 plant species, 300 invertebrate species, 100 fish species, and 260 bird species, including those that rely on the bay as they travel the Pacific Flyway. According to the 2020 U.S. Census, the largest nearby urban concentrations are in Arcata to the north (population approximately 18,857) and Eureka to the south (population approximately 26,512) (U.S. Census Bureau. 2020). Smaller towns along the Samoa peninsula, from north to south, include Manila, Samoa, and Fairhaven. Humboldt Bay encompasses roughly 17,759 acres at mean high water (MHW).

The Project is located in Mad River Slough (existing Rafts), Mad River Slough Channel (Intertidal Culture including existing Rack and Bag culture) and at Woodley Island Marina (existing Floating Upwelling System) (Figure 1). Mad River Slough is a tidal channel extending from Humboldt Bay and is surrounded primarily by agricultural uses (livestock grazing and hay production). There is a clam and oyster seed setting facility and oyster nurseries in the slough. Mad River Slough is not connected to a salmonid bearing river as some other sloughs within Humboldt Bay are. Mad River Slough extends into Mad River Slough Channel. The channel has shellfish nursery and grow out operations. Both Mad River Slough and Mad River Slough Channel are used by motorized and non-motorized vessels for commercial and recreational purposes, including hunting, fishing and kayaking. Woodley Island Marina provides berths for permanent and transient vessels used for commercial/recreational fishing, research, sailing and general boating. In addition to the marina, Woodley Island has a restaurant and open-space wildlife area. All project sites have potential for the presence of fish species listed under the Federal and California Endangered Species Acts, including salmonids, green sturgeon (*Acipenser medirostris*) and longfin smelt (*Spirinchus thaleichthys*).



Figure 1. Location of Humboldt Bay Oyster Company’s existing culture rafts, rack-and-bag culture and floating upwelling system.

Section 3.0 Project Description

3.1 Project Scope and Objectives

The project objectives are to:

- Receive approval for the existing FLUPSY, raft culture, and rack and bag culture methods in existing culture areas.
- Expand existing rack & bag culture and/or longline culture methods within two proposed expansion areas.
- Culture Pacific oysters (*Crassostrea gigas*), Kumamoto oysters (*Magallana sikimeia*), and Manila clams (*Venerupis philippinarum*). Manila clams will only be cultured as seed and not grown to adult/market size. These species are abundantly cultured in Humboldt Bay.

3.2 Proposed Culture Species

The Project would culture Pacific oysters (*Crassostrea gigas*), Kumamoto oysters (*Magallana sikimeia*), and Manila clams (*Venerupis philippinarum*). Manila clams will only be cultured as seed and not grown to adult/market size. There are existing shellfish nurseries and grow-out areas in Humboldt Bay that culture these species.

3.3 Floating Upwell System Culture

The FLUPSY is located at Woodley Island Marina (Figures 1 and 2). It consists of a 20' X 30' picture frame flotation raft with tanks suspended through the open center (12' X 24') (Figure 3). It has a 14" profile above the water's surface and 42" below it. The FLUPSY draws water through 1 mm mesh-bottom bins utilizing a 1-horsepower propeller pump. The pump continuously evacuates water from a center trough creating a draft through 10 seed bins (30" L X 30" W X 36" D) arranged "piggybacked" on the trough's outer edge. Water drawn up through the bins and out through the trough delivers a constant supply of clean water and phytoplankton for seed oysters to feed on, contributing to accelerated, uniform growth.



Figure 2. Location of existing floating upwelling system at Woodley Island Marine, Eureka, California.



Figure 3. HBOC's floating upwelling system operated at Woodley Island Marina, Eureka, CA.

FLUPSY bins are lifted and rinsed three times each week to flush silt, stir the seed bed, and assess growth and density. As seed grows it is sorted by hand screens and split volumetrically to keep like-sized groups together and reduce seed densities in each bin. HBOC cycles approximately 2.5 – 3 million seed oysters through the FLUPSY annually. Seed is introduced to the FLUPSY at 1.5 – 2 mm in size. As seed achieves 6 – 10 mm it is graduated and moved to rafts in Mad River Slough as further described below.

3.4 Raft Culture

The raft nursery is in Mad River Slough (Figures 1 and 4). Up to twenty 24' X 12' rafts (Figures 5, 6 and 7) are utilized. Ten are wooden and ten are aluminum. Four of the rafts are used to harvest and sort shellfish. The remaining sixteen are used for shellfish culture. Each of the culture rafts has 2'x2' openings within which trays holding shellfish seed are stacked and submerged up to 4' into the water column. The rafts are used within the 9.2 acre area shown in Figure 4. Water passively flows through the system with tides, feeding the growing shellfish.



Figure 4. Existing raft culture in Mad River Slough.

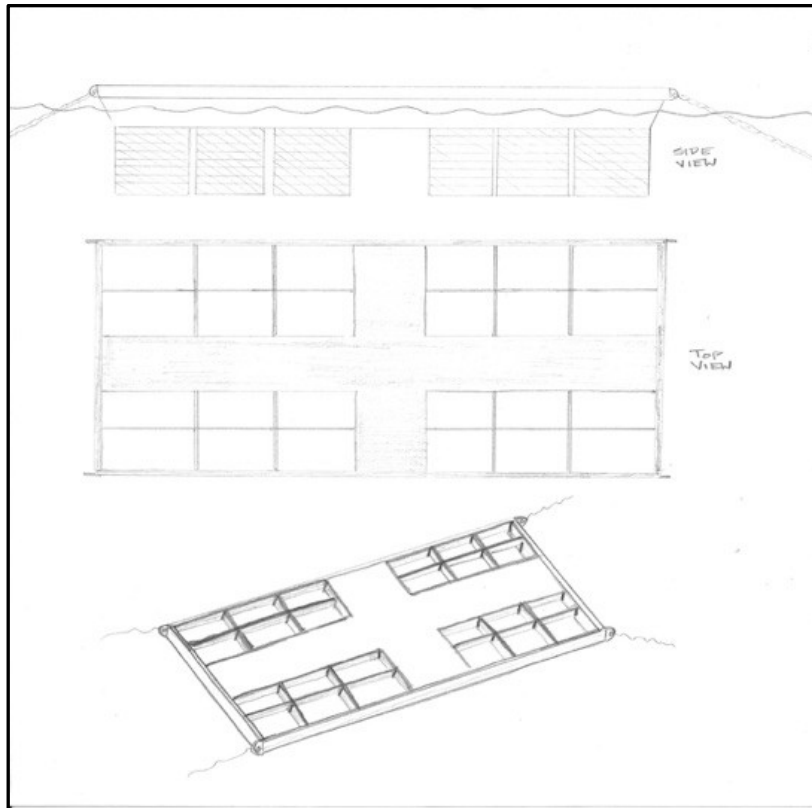


Figure 5. Nursery raft design.

Groups of rafts are connected with rope and anchored on each end. The rafts are held in place by a total of 16 anchors that are 24" diameter and 18" high concrete cylinders attached with $\frac{3}{4}$ " rope, and heavy gauge hardware.



Figure 6. Rafts in Mad River Slough



Figure 7. Plastic Nestier Trays with nursery raft size seed.

The trays are lifted out of the water once a week for inspection and rinsing of accumulated silt (Figure 7). To conduct this regular maintenance a crane barge is pushed from raft to raft with a work skiff. The hydraulic crane lifts the modules from their raft spots and places them on the deck of the raft so they can be disassembled and rinsed with bay water.

If continued oyster seed growth is needed then the modules are retied and placed back in the water until the following week. If the seed has grown enough or exceeded healthy densities, they are dumped out of the trays and loaded into 1/8" mesh polyethylene bags (2'X3') to be planted in the intertidal part of the farm using rack & bag methods as described below.

3.5 Rack & Bag Culture

Figure 8 shows the area in Mad River Slough where oysters are currently farmed and areas where expansion is proposed. HBOC is seeking approval for the existing rack & bag culture method and/or the longline culture method described below within the Existing Rack and Bag Culture area (17.8 acres) and proposed Expansion Area 1 (3.1 acres) and Expansion Area 2 (10.8 acres). The total footprint of shellfish culture within the two expansion areas will not exceed three acres (i.e., 10.9 acres of the expansion areas will not be cultured). Oyster seed leaves the nursery rafts and is loaded at densities of about 1.5 liters per mesh bag for growout. Three oyster bags are strapped onto racks that keep the oysters off the bay bottom. Each rack is 6' long, 32" deep and 18" tall and constructed of 1/2" welded steel rebar (Figures 9 and 10). Elevating the bags off bottom reduces benthic impacts, minimizes oyster siltation and aids in maximizing water flow to the oysters for faster, more uniform growth. Bags are secured with large rubber straps with stainless steel wire hooks. To access the sites, vessels pass over eelgrass at higher tides and are anchored at the sites shown in Figure 8. Use of multiple boat landing sites reduces the extent of mudflat trampling by farm workers.

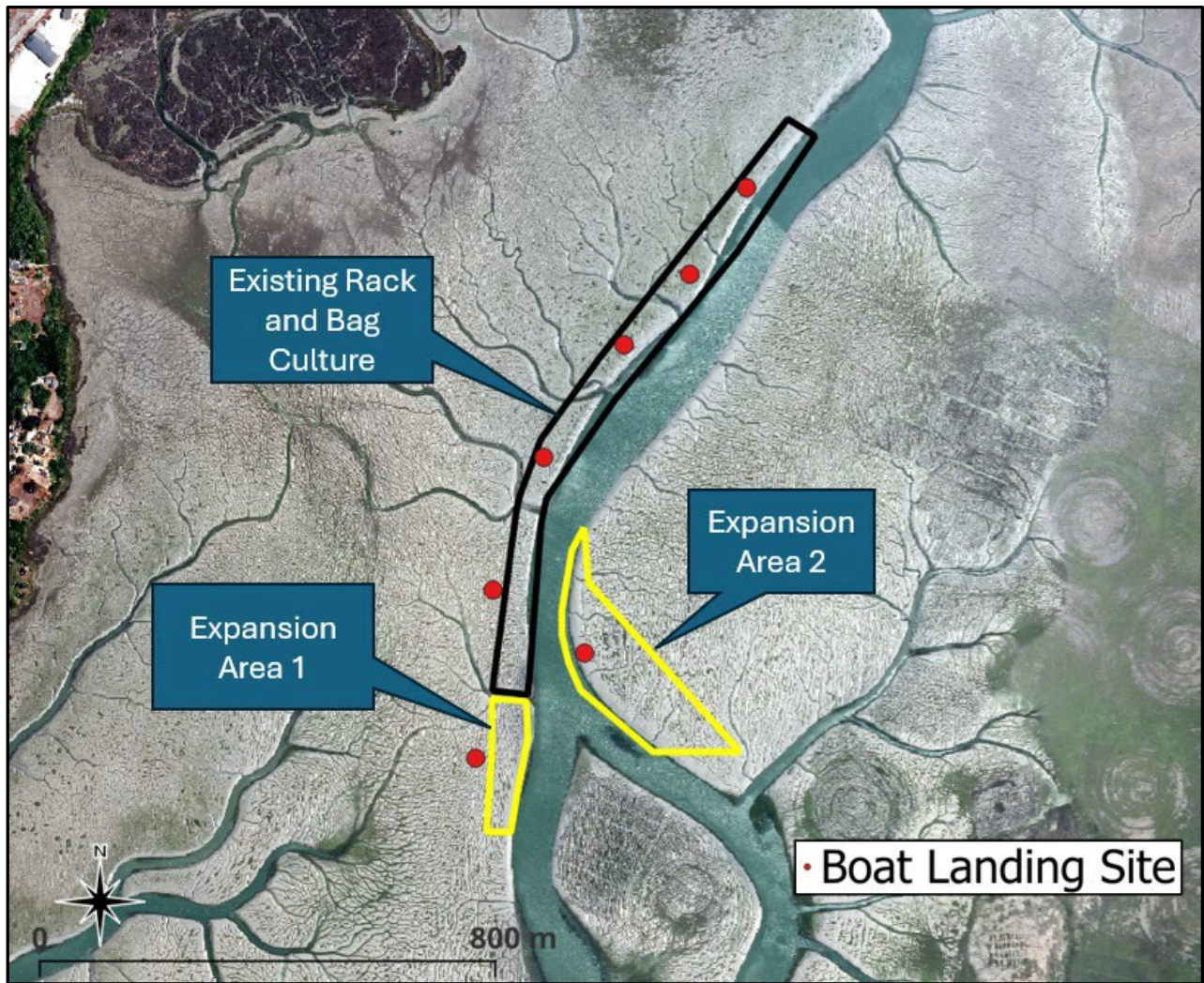


Figure 8. Existing and proposed expansion areas of rack & bag culture and boat landing sites. Longline culture is also proposed as a potential method within these areas.

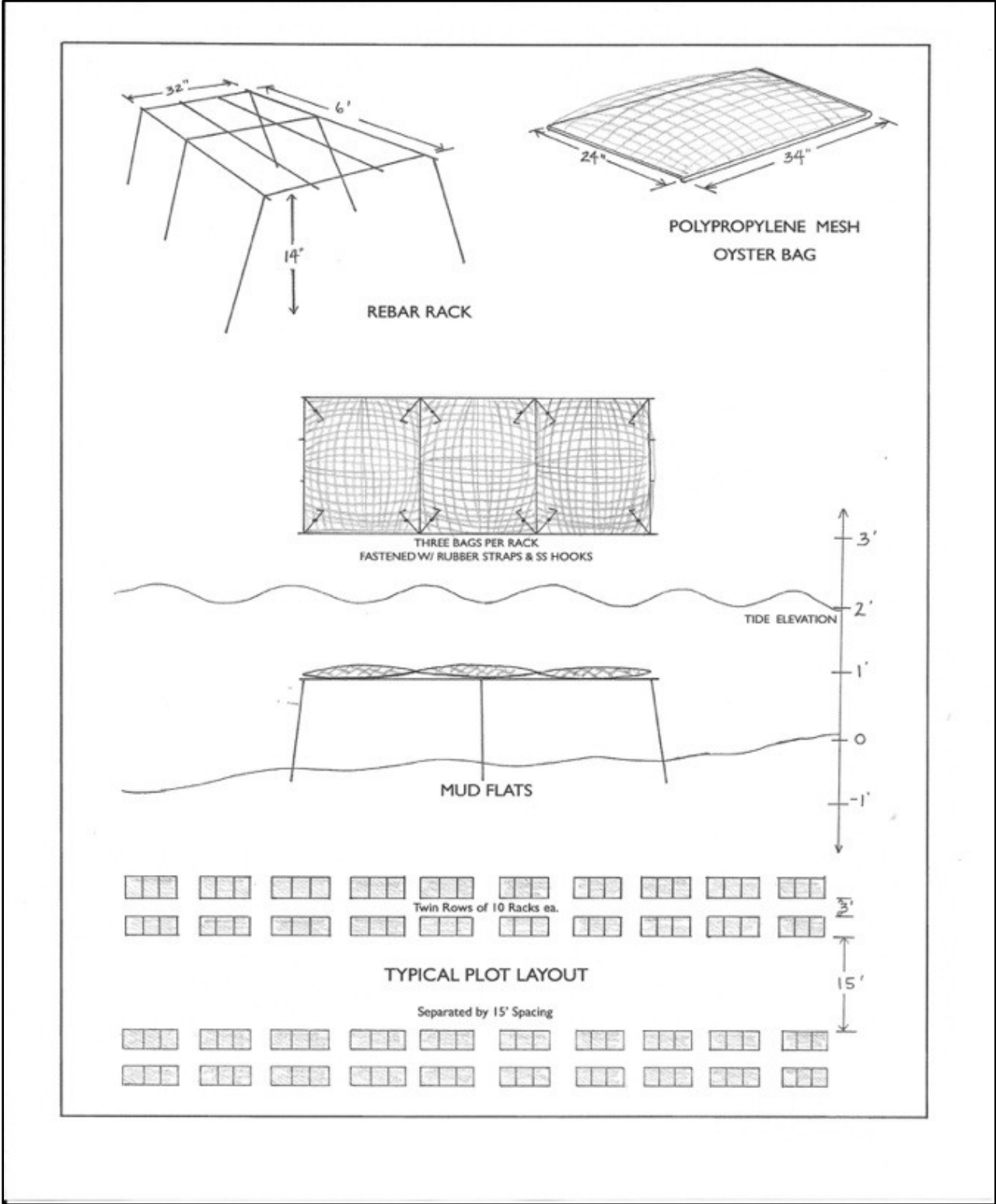


Figure 9. Rack & bag method used to culture oysters to market size on the Humboldt Bay Oyster Company farm.

Oyster harvesting is performed during low tides with a small (approximately 20') flat bottom skiff with a dropping bow door. Bags are transported to an onshore facility three miles up Mad River Slough for rinsing and sorting, packing, icing and shipping. Culled oysters that don't make the grade or are too small are reloaded into bags and returned to the growing area for additional growout. Final packing, icing and shipping/delivery takes place onshore in Arcata. From there the oysters are either delivered by truck to local businesses or taken to a trucking company for distribution to out of area seafood counters, restaurants, and oyster bars. Humboldt Bay Oyster Company currently has 874 rebar racks that at full capacity can hold 2,622 oyster bags to grow $\frac{3}{4}$ " seed oysters and market sized oysters for the half shell market.

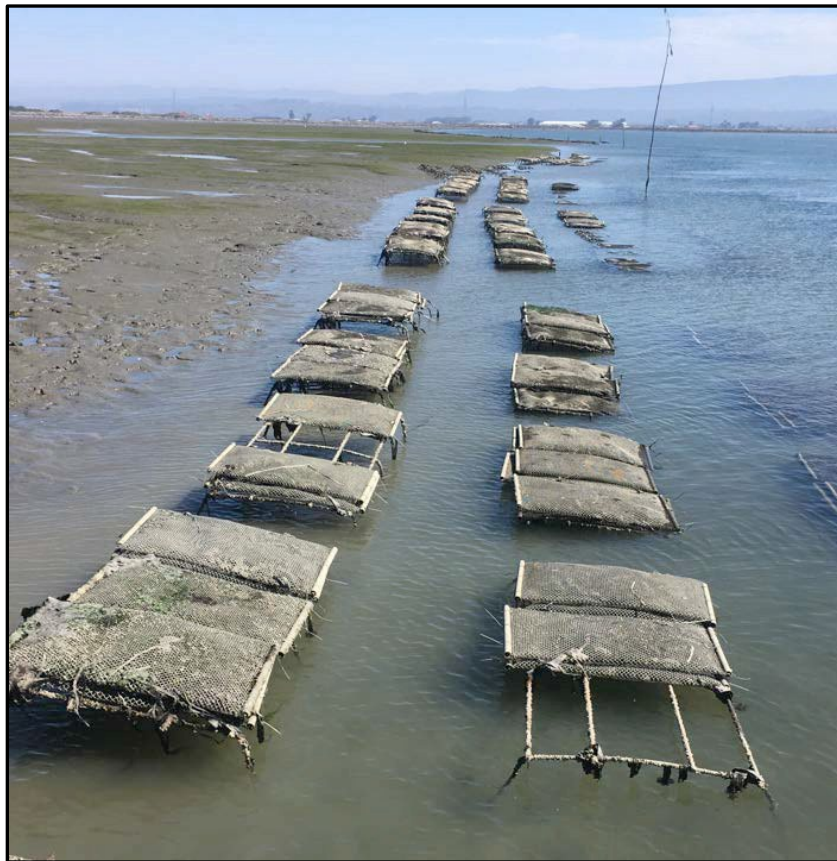


Figure 10. Rack and Bag Culture.

3.6 Intertidal Longline Culture

The proposed intertidal longline method includes either SEAPA-type culture baskets (Figure 11) or tipping bags (Figure 12). These intertidal longline systems may be deployed with or without floats that harness tidal energy to “tumble” the oysters. HBOC proposes the use of intertidal longlines within existing rack & bag culture areas and within the proposed expansion areas (Figure 8).



Figure 11. Intertidal longline systems with SEAPA-style baskets at low tide (photo from Hog Island Oyster Company operations in Tomales Bay, CA).

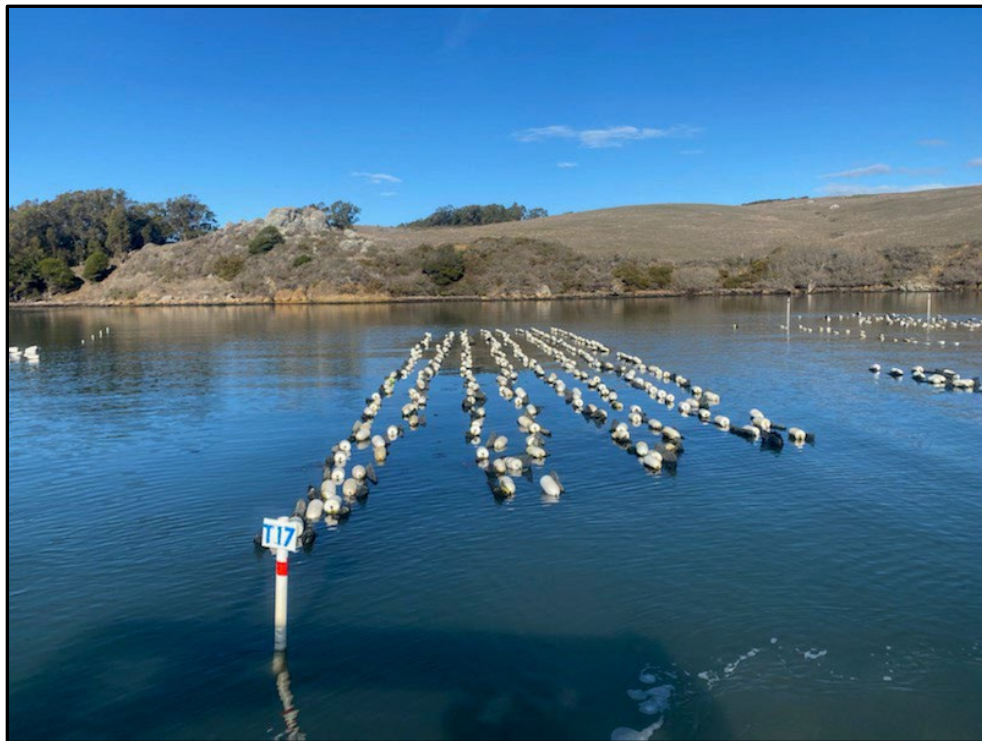


Figure 12. Tipping bags with floats at high tide (photo from Hog Island Oyster Company operations in Tomales Bay, CA).

Intertidal Longline systems will be 100 to 300 feet long, where possible, with anchor posts at both ends and supporting posts typically every 8 feet. Individual lines will be spaced at a minimum of 5 feet ~~approximately 3 feet~~, with an additional space of 15 feet between grouped blocks of 4 lines to provide space for boat access. The anchor posts are proposed to be galvanized steel pipe T-stakes, or other suitable materials, and are used to maintain line tension. The supporting posts in between are proposed to be made of schedule 80, 2-inch PVC. Intertidal longline systems will be 1 foot to 4 feet in elevation above the ground. Lines between the posts will be plastic coated with a steel core. Covering that inner line will be an outer sleeve that reduces wear.

Intertidal longline systems can hold either bags or baskets, with or without floats. Longline support posts and anchors (endposts) are driven using sledgehammers, hand-held post pounders, and/or a gas or pneumatic hand-held post pounder. Posts are removed by first loosening them by twisting with a pipe wrench and then tying a clove hitch around pipes and pulling them out using a boat-mounted crane.

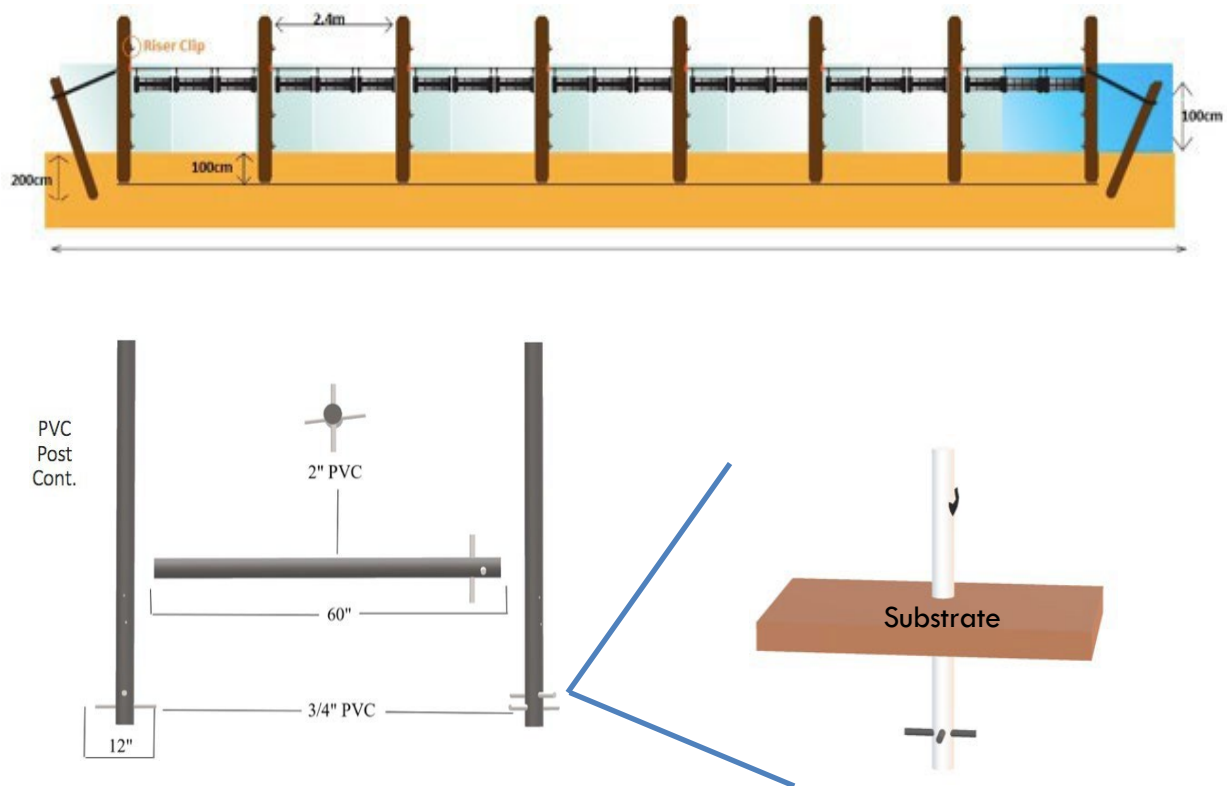


Figure 13: Longline Schematic with Anchor System and Pole Spacing between Anchors

Tipping bags attached on longlines are made of durable VEXAR and are typically 2-foot by 3-foot with ½-inch mesh. These bags are attached to the line using a stainless-steel snap hook or plastic clip that connects to a plastic bearing. Bags attached to long lines may have a small crab float attached to them opposite of the attachment to the long line. Floats are attached to the bag using 3/8-inch poly line. SEAPA baskets are typically tube shaped and approximately 4-foot by 1.5-foot in diameter and are made of HDPE. After stocking the bags or baskets with oysters they are transported to the

growing areas via work vessel. The vessel runs alongside the longlines and bags/baskets are clipped directly onto the line. Additional details of intertidal longline systems can be found in Figure 13.

3.7 Mitigation Measures and Best Management Practices

Mitigation measures and best management practices that will be followed are summarized in Table 1 and discussed in the individual resource category sections where applicable.

Table 1. Proposed Mitigation Measures and Best Management Practices.

#	Topic	Mitigation Measure
<p>Mitigation Measure – 1 (BIO)</p>	<p>Biological Resources - Eelgrass</p>	<p>To minimize and avoid impacts to eelgrass beds the following measures will be followed:</p> <ul style="list-style-type: none"> • New cultivation structures will not be placed within 5-meters of eelgrass habitat. • Existing equipment will not be moved into areas within 5-meters of eelgrass habitat. • Annual eelgrass surveys will be conducted prior to the installation of any new gear in any new area. • Vessel routes will avoid eelgrass beds by using channels or vessel transit will occur at higher tides (<u>with a minimum of two feet of water over eelgrass</u>) to avoid loss or damage of eelgrass vegetation due to propeller contact. • Anchoring will not occur in areas with eelgrass. • <u>Prior to placing or installing shellfish cultivation equipment, eelgrass surveys will be conducted within the most recent eelgrass growing season (May through September) using the methods described in the National Marine Fisheries Service’s October 2014 California Eelgrass Mitigation Policy (CEMP). No installation or placement of shellfish cultivation equipment will occur on, in, or over the mapped eelgrass habitat as defined by the CEMP. While installation of shellfish cultivation equipment shall be prohibited within eelgrass habitat, if eelgrass currently occurs, moves, or expands into areas with existing cultivation, the areas may continue to be used for shellfish cultivation.</u> • <u>The areas within which shellfish culture expansion may occur are a total of 13.9 acres. However, within those 13.9 acres, the total expansion of HBOC’s shellfish culture footprint shall not exceed three acres.</u>

<p>Mitigation Measure – 2 (CUL)</p>	<p>Cultural Resources</p>	<p>The Project will comply with the Harbor District Protocol agreed upon between the Harbor District and the Blue Lake Rancheria, Bear River Band of Rohnerville Rancheria, and Wiyot Tribes regarding the inadvertent discovery of archaeological resources, cultural resources, or human remains or grave goods (Attachment A). In coordination with the Wiyot Tribe THPO, a qualified cultural resource monitor will be present if ground disturbing activities related to this Project occur in areas that are within 100 ft of a recorded site and/or involve ground disturbance beyond what is currently proposed.</p>
<p>Mitigation Measure – 3 (HYD)</p>	<p>Vessel Maintenance and Fueling</p>	<p>Project personnel will maintain all vessels used in culture activities to limit the likelihood of release of fuels, lubricants, or other potentially toxic materials associated with vessels due to accident, upset, or other unplanned events. Project personnel will use marine grade fuel cans that are refilled on land, and personnel will carry oil spill absorption pads for use in the event of a spill.</p>
<p>Mitigation Measure – 4 (TRANS)</p>	<p>Debris Management</p>	<p>During farming operations, loose equipment/debris will be surveyed for and immediately removed or secured. Additionally, as feasible, culture equipment will be marked with Humboldt Bay Oyster Company’s name and phone number to allow for tracking of the source of debris.</p>
<p><u>Best Management Practice - 1</u></p>	<p><u>Green Sturgeon</u></p>	<p><u>For newly placed aquaculture equipment, a 10-foot buffer will be maintained between aquaculture equipment and subtidal channels.</u></p>
<p><u>Best Management Practice - 2</u></p>	<p><u>Pacific Herring</u></p>	<p><u>As part of standard aquaculture operating practices in Humboldt Bay and to avoid disturbance of Pacific herring spawn if present, the following measures will be implemented:</u></p> <ul style="list-style-type: none"> • <u>During the herring spawning season (December through March), all employees supervising work on tidelands shall be trained by a CDFW biologist to identify herring spawn. Trained personnel shall conduct pre-work surveys at each location where planting, harvesting, or maintenance activities are scheduled.</u> • <u>If herring eggs are observed on eelgrass, culture materials, or substrates within or immediately adjacent to the work area, the operator shall: (1) postpone planting, harvesting, or disturbance in the affected area until trained personnel or CDFW staff confirm that eggs have hatched and spawn is no longer present (typically 2 weeks, but may be longer due to successive spawns).</u>
<p><u>Best Management Practice – 3</u></p>	<p><u>Black Brant</u></p>	<p><u>The installation of shellfish culture equipment in previously uncultured areas will occur between May 15 – June 30 to avoid relatively high Humboldt Bay use periods by black brant and other waterfowl.</u></p>

Section 4.0 Checklist and Evaluation of Environmental Impacts

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or "Less than Significant Impact with Mitigation Incorporated" as indicated by the checklist on the following pages.

- | | | |
|---|--|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agricultural and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Energy |
| <input type="checkbox"/> Geology/Soils | <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials |
| <input checked="" type="checkbox"/> Hydrology/Water Quality | <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources |
| <input type="checkbox"/> Noise | <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Recreation | <input checked="" type="checkbox"/> Transportation | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input type="checkbox"/> Utilities/Service System | <input type="checkbox"/> Wildfire | <input type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION: On the basis of this initial evaluation:

- I find that the proposed Project **would not** have any significant effects on the environment, and a **NEGATIVE DECLARATION** will be prepared.
- I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- I find that the proposed Project **may** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT (EIR)** is required.
- I find that the proposed Project **may** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **EIR** is required, but it must analyze only those effects that remain to be addressed.
- I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier **EIR** or **NEGATIVE DECLARATION** pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier **EIR** or **NEGATIVE DECLARATION**, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.



Humboldt Bay Harbor, Recreation
and Conservation District

2/2/2026

Date

4.1 AESTHETICS Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Have a substantial adverse effect on a scenic vista?				X
B) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
C) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point." If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?)				X
D) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?				X

DISCUSSION

Aes-A: Humboldt Bay Oyster Company Shellfish Farm is an existing shellfish farm. The only new structures that will be added by the project are new rack and bag and/or intertidal longline culture in the proposed expansion areas. These would be located in Mad River Slough channel and adjacent to existing rack and bag culture areas. These structures, with the exception of longline floats, would not be visible at mid-to-high tides. At lower tides they would be viewable from passing watercraft. Given that the proposed structures would be located more than ½ mile from shore, it is unlikely that they would be visible from the shoreline, including private residences and public roadways. Furthermore, there are other raft structures in Mad River Slough channel. The structures would add to the working landscape character at the site and would not have a substantial adverse effect on a scenic vista. There will be no impact.

Aes-B: The project site is not located adjacent to a state-designated scenic highway and no scenic resources would be damaged. Therefore, there will be no impact.

Aes-C: The only new structures that will be added by the project are new rack and bag and/or intertidal longline culture in the proposed expansion areas. These would be located in Mad River Slough and adjacent to existing rack and bag culture areas. These structures, with the exception of longline floats, would not be visible at mid to high tides. At lower tides they would be viewable from passing watercraft. Given that the proposed structures would be located more than ½ mile from shore, it is unlikely that they would be visible from the shoreline including private residences and public roadways. The structures add to the working landscape character at the site and would not have a substantial adverse effect on a scenic vista. There will be no impact.

Aes-D: No permanent lighting will be installed as part of the project. Nursery workers may use flashlights and lanterns to conduct work during nighttime. This occurs under existing conditions.

This limited use of light would have a minor (not substantial) impact on nighttime views in the area and no impact on daytime views. There would be no impact.

4.2 AGRICULTURAL AND FORESTRY RESOURCES In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
B) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
C) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
D) Result in the loss of forest land or conversion of forest land to non-forest use?				X
E) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X

DISCUSSION

Ag-A through Ag-E: The Project will have a beneficial effect on agricultural resources by increasing the footprint of shellfish culture in Humboldt Bay and providing seed for other shellfish growers. There would be no negative impacts on agricultural resources, and the proposed land use is consistent with existing zoning designated by the Humboldt County Code (Section 313-5.4). The Project will not convert forest or farmland. Additionally, the Humboldt Bay Management Plan (HBHD 2007) calls for the “continued use of Arcata Bay for aquaculture or mariculture” and notes that it is one of the most promising opportunities within Humboldt Bay. There will be no impact.

4.3 AIR QUALITY Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the Project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Conflict with or obstruct implementation of the applicable air quality plan?			X	
B) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			X	
C) Expose sensitive receptors to substantial pollutant concentrations?			X	
D) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

DISCUSSION

Air-A and Air-B: The Project is located in the North Coast Air Basin and is under the jurisdiction of the North Coast Unified Air Quality Management District (NCUAQMD). The North Coast Air Basin is in “nonattainment” status with respect to particulate matter smaller than 10 microns in diameter (PM10) under California regulations, but is in attainment of all other State and federal ambient air quality standards.

Small vessels associated with shellfish aquaculture operations have combustion engines that generate particulate matter. Humboldt Bay Oyster Company Shellfish Farm is an existing farm, one small vessel is used to support existing operations. In addition, the existing FLUPSY uses a small 1 horsepower submersible pump for water intake. Changes to existing operations that have the potential to generate new emissions include the two expansion areas in Mad River Slough Channel. Expansion Area 1 would be 3.1 acres and Expansion Area 2 would be 10.8 acres. Up to a total of two small vessels would be used to support existing and expanded operations. There would be approximately four boat trips per week and approximately 3 gallons of fuel consumption per trip. All internal combustion engines that will be used have a power rating of 150 horsepower or less. The vessels use ultra-low emission, 3-star California Air Resources Board rated engines. The vessel engines and pump would contribute to a minor and negligible increase in emissions of particulate matter. The construction of the rack and bag and/or intertidal longline culture structures in the two expansion areas would be completed using hand tools that would have negligible impact on air quality.

The District lacks direct regulatory jurisdiction over air quality, and thus lacks direct authority to require mitigation for potential air quality impacts. However, the NCUAQMD regulates vessel engine emissions pursuant to several air quality plans. CEQA addresses circumstances such as this through reliance by lead agencies on the regulatory oversight of responsible agencies carrying out statewide policy. Specifically, State CEQA Guidelines Section 15064(h) establishes a procedure that allows lead agencies, including the District, to rely on the environmental standards promulgated by

other regulatory agencies, such as the NCUAQMD, with respect to pollutant regulation. The NCUAQMD has adopted several air quality management plan elements, including a *PM10 Attainment Plan* (NCUAQMD 1995).

The Project will comply with the *PM10 Attainment Plan* adopted by the NCUAQMD and all attendant regulations. Vessel trips associated with operation and maintenance of the existing and proposed expansion areas would not result in substantial long-term operational emissions of criteria air pollutants. Therefore, project-generated operational emissions would not result in a cumulatively considerable net increase of any criteria pollutant for which the region is in non-attainment. Hence, the impact will be less than significant.

Air-C and Air-D: The Project will not create any substantial pollution concentrations or objectionable odors. Additionally, there are no sensitive receptors or a substantial number of people in the immediate vicinity of the Project area. Therefore, the impact will be less than significant.

4.4 BIOLOGICAL RESOURCES	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
A) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X	
B) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		
C) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
D) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
E) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
F) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?				X

DISCUSSION

Bio-A-1: Direct Effects on Candidate, Sensitive, or Special-status Species. The following species may occur in the Project vicinity and are identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, by the California Department of Fish and Wildlife (CDFW) as state-listed species, or are listed under the Endangered Species Act (ESA).

Common Name	Scientific Name	Status¹
Fish		
Pacific lamprey	<i>Entosphenus tridentatus</i>	SSC
Green sturgeon, southern DPS	<i>Acipenser medirostris</i>	FT/CSSC. Designated critical habitat in Humboldt Bay.
White sturgeon	<i>A. transmontanus</i>	SSC
Coho salmon, southern Oregon, northern California ESU	<i>Oncorhynchus kisutch</i>	FT/ST
Chinook salmon, California coastal ESU	<i>Oncorhynchus tshawytscha</i>	FT
Steelhead, Northern California DPS	<i>Oncorhynchus mykiss</i>	FT
Coastal cutthroat trout	<i>Oncorhynchus clarki</i>	CSSC
Tidewater goby	<i>Eucyclogobius newberryi</i>	FE
Longfin smelt	<i>Spirinchus thaleichthys</i>	ST
Birds		
California brown pelican	<i>Pelecanus occidentalis californicus</i>	FP

Marine Mammals		
Harbor seal	<i>Phoca vitulina</i>	Protected under the Marine Mammal Protection Act (MMPA)
California sea lion	<i>Zalophus californicus</i>	Protected under the MMPA
Notes: DPS = Distinct Population Segment; ESU = Evolutionarily Significant Unit. ¹ Status abbreviations: FE = Federally listed as endangered; FT = Federally listed as threatened; ST = State-listed as threatened; CSSC = California Species of Special Concern; FP = Fully protected in California.		

Bio-A1. Direct Effects.

Following is a description of species identified above and certain potential Project effects. Other potential effects are described in Bio-A2 through Bio-A4.

Fish

Pacific Lamprey. Pacific lamprey spend most of their life in fresh or marine water, rather than estuaries. Estuaries are important to Pacific lamprey for foraging, holding, and transitioning from freshwater to marine waters. There are numerous tributaries to Humboldt Bay which Pacific lamprey may use to spawn. However, Project activities will not occur in these tributaries. Pacific lamprey would not be significantly impacted by the Project. They could swim around or under culture equipment.

Green Sturgeon. Moser and Lindley (2007) indicated that green sturgeon may use coastal bays as foraging habitat due to their high productivity. Based on acoustic tagging data conducted in 2007 and 2008 (USFWS unpublished data), green sturgeon move in channels, as would be expected for larger fish. ~~However, 97% of observations occurred at two detection locations: Arcata Channel and North Bay Main Channel near the Samoa Bridge. Relatively few observations occurred in the Mad River Slough Channel which extends to Mad River Slough.~~ A follow-up survey of sturgeon use of Humboldt Bay by National Marine Fisheries Service (NMFS) and US Fish and Wildlife Service (USFWS) (Goldsworthy et al. 2016) indicated that green sturgeon primarily use the Arcata Channel and the Mad River Slough area and were observed feeding on northern anchovy (*Engraulis mordax*). Sturgeon were also observed in the intertidal zone for short forays, potentially following anchovies into shallower habitat. These fish were originally tagged in the Sacramento River in 2011, and are considered part of the Southern Distinct Population Segment.

The project is located in Mad River Slough, Mad River Slough channel and at Woodley Island Marina. The Project does not occur in Arcata Channel or the North Bay Main Channel. ~~where green sturgeon have been primarily documented to occur. Given existing sighting data, there is a low potential for green sturgeon to occur in substantial numbers in the area foraging. Regardless, g~~ Green sturgeon would not be significantly impacted by the Project. They could swim around or under culture equipment without risk of entanglement. As such, the impact would be less than significant without mitigation. However, CDFW's comments regarding the Draft Initial Study recommended that shellfish culture not be placed within 10 feet of subtidal channels to reduce impacts to green sturgeon. HBOC will implement this recommended buffer, and it is included in this Initial Study as Best Management Practice (BMP) 1 to further reduce potential impacts.

White Sturgeon. The only known self-sustaining spawning population of white sturgeon in California is in the Sacramento River, although spawning is believed to also occur in the San Joaquin, Klamath, and Eel rivers (Israel et al. 2009). While white sturgeon are not expected to spawn in any

of the Humboldt Bay tributaries, adults and sub-adults likely use the bay for foraging habitat. The species may use the area for foraging. However, white sturgeon would not be significantly impacted by the Project. They could swim around or under culture equipment without risk of entanglement.

Coho and Chinook Salmon, Steelhead, and Coastal Cutthroat Trout (Salmonids). 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 rearing. Adult salmonids are primarily in Humboldt Bay from November to April, and juveniles can be present year-round. There are smaller spawning streams in Humboldt Bay, and a critical salmonid spawning area located in the Eel River, which is south of Humboldt Bay along the coast. There are no river mouths near the Project area.

Salmonids use Humboldt Bay for foraging and migration. The Project is primarily located in Mad River Slough and Mad River Slough channel which would be a “detour” from migratory paths between spawning habitat (rivers) and the Pacific Ocean. However, the species could swim around or under culture equipment without risk of entanglement.

In water bodies other than Humboldt Bay, placement of overwater structures can attract predatory fish such as striped bass (*Morone saxatilis*), which predate on juvenile salmonids and other species. However, fish species such as striped bass, that have this predatory behavior and are attracted to overwater structure, are not known to be present in Humboldt Bay and if they are present then they are not abundant. Hence, there would be a less than significant impact to salmonids.

Longfin Smelt. Longfin smelt are known to occur in Humboldt Bay, but little is known regarding their distribution, abundance, or life history. Longfin smelt forage on small organisms in the water column (e.g., phytoplankton, barnacle larvae, euphausiids) and other small crustaceans (Gustafson et al. 2010), and are primarily pelagic fish.

Threats to longfin smelt include: reductions in freshwater inflow to the estuaries they inhabit; loss of larval, juvenile and adult fish at agricultural, urban, industrial, and local water diversions (usually located in freshwater areas of estuaries used by the species for spawning); direct and indirect impacts of non-native species on the longfin smelt food supply and habitat; lethal and sub-lethal effects of toxic chemicals; physical disruption of their spawning substrates and the habitat of their prey species (e.g., by dredging); and warming of estuary waters resulting from global climate change. The project site does not contain areas of freshwater inflow nor will the project contribute to any of the identified threats to longfin smelt.

The Project area may be used by longfin smelt. However, larval longfin smelt would not occur in the Project area because they cannot survive the high salinities at the site or between the site and spawning habitat (i.e., larval longfin smelt occur in water with low salinities and gradually move into areas with higher salinity as they grow).

In water bodies other than Humboldt Bay, placement of overwater structures can attract predatory fish such as striped bass, which predate on longfin smelt and other species. However, fish species such as striped bass, that have this predatory behavior and are attracted to overwater structure, are

not know to be present in Humboldt Bay and if they are present then they are not abundant. Hence, the impact would be less than significant.

Tidewater Goby. Tidewater goby rarely exceed two inches in length. They inhabit the freshwater/saltwater interface where salinity is less than 12 parts per thousand. Tidewater goby are known to occur in Humboldt Bay, but the Project area is not habitat for Tidewater goby as it is too saline with too strong currents. There would be no impact to tidewater goby.

Pacific Herring. Pacific herring (*Clupea pallasii*) are not a special status species but are commercially important. Pacific herring spawn on a variety of substrates in Humboldt Bay including aquaculture gear and shellfish. In Humboldt Bay, Pacific herring spawning is typically between December and March, with peak spawning activity most often occurring in January and February. Spawning events are episodic and can occur in successive waves over several weeks within a given season. Eggs typically hatch within approximately two weeks of deposition, though successive spawns may extend the period during which viable eggs are present. The Project would incrementally increase availability of artificial substrate that could be spawned upon; however, this would not result in a substantial adverse effect on Pacific herring because (1) the Project would not remove or degrade eelgrass or other natural spawning habitat; (2) any disturbance would be temporary, and (3) the aquaculture activities would occur at a small spatial scale and would not substantially affect spawning success or population dynamics within Humboldt Bay. In some cases, increased substrate may provide additional spawning opportunity, while in other cases localized disturbance of eggs could occur during routine aquaculture activities.

Impacts to Pacific herring would be less than significant without mitigation. However, CDFW has established a herring egg monitoring and consultation framework for aquaculture operations in Humboldt Bay to avoid impacts to spawning herring. Consistent with this framework and CDFW's comments on the Draft IS/MND, HBOC will follow BMP-2 under which employee training regarding Pacific herring will occur, along with pre-work spawn surveys, and postponement of work activities when herring eggs are present.

Birds

California Brown Pelican. The California Brown Pelican feeds in estuaries and nearshore ocean waters, plunge-diving to capture small schooling fishes near the water's surface. Pelicans roost on sandbars, pilings, jetties, breakwaters, and offshore rocks, sometimes in large communal roosts that can number in the thousands. In Humboldt Bay, roosting has been reported on Sand Island, oyster racks, jetties, mudflats, and manmade structures (Jaques et al. 2008).

Project personnel will not undertake any activity that would be defined as take or harassment of any protected species, including brown pelicans. The impact would be less than significant.

Marine Mammals

Harbor Seal and California Sea Lion. Harbor seals are widely distributed throughout the northern Atlantic and Pacific oceans. They occur along coastal waters, river mouths, and estuaries. Harbor seals consume a variety of prey, but small fishes are predominate in their diet (Tallman and Sullivan 2004). Foraging occurs in a variety of habitats, from streams to bays/estuaries to the open ocean (Eguchi and Harvey 2005). Harbor seals breed along the Humboldt County coast and inhabit the

area throughout the year (Sullivan 1980). Harbor seals use Humboldt Bay as a pupping and haul-out area (Ougzin 2013). There are no haul outs near the Project site.

California sea lions feed on fish and cephalopods, some of which are commercially important species such as salmonids, Pacific sardines (*Sardinops sagax*), northern anchovy, Pacific mackerel (*Scomber japonicus*), Pacific whiting (*Merluccius productus*), rockfish, and market squid (*Loligo opalescens*). California sea lions do not breed along the Humboldt County coast. However, non-breeding or migrating adults may occur in Humboldt Bay year-round.

No seal haul out or pupping areas exist in the vicinity of the Project site. Project personnel will not undertake any activity that would be defined as take or harassment of any protected species, including marine mammals.

Based on the above analysis, the Project would have a less than significant impact on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Bio-A2: Fouling Organisms and Nonnative Species. Fouling and non-indigenous species (NIS) concerns are associated with either the introduction of new NIS organisms to Humboldt Bay or providing habitat for and supporting the continuing expansion for NIS that are established in Humboldt Bay. There is also a concern that the cultured species themselves are non-native and could lead to naturalization into the bay.

During a previous survey in Humboldt Bay (Boyd et al. 2002), the nonnative species identified were from nine different groups: (1) marine algae, (2) sponges, (3) anemones, (4) limpets, (5) Pacific oysters (cultured), (6) copepods, (7) amphipods, (8) bryozoans, and (9) tunicates. The majority of introductions in Humboldt Bay were from the long history of maritime commerce, including both commercial shipping and shellfish aquaculture (e.g., introductions from ballast water or in marine algae historically used as packing material for oysters). Boyd et al. (2002) indicated that most organisms were likely present in Humboldt Bay for over 100 years, except for more recent introductions of some tunicates. This is consistent with the more recent introductions reported from Ruiz and Geller (2018). New introductions that were identified are primarily associated with commercial shipping activity, especially from vessels that transit between San Francisco Bay and Humboldt Bay.

One of the main ways in which historic oyster operations contributed to NIS in Humboldt Bay was from the shells of oyster spat imported from Japan. Beginning in the 1930's, the California Department of Fish and Game (now CDFW) helped to introduce Pacific oysters from Japan to revive the oyster industry in Humboldt Bay (Barrett 1963). Legacy introductions from this activity are evident from the pattern of exotic marine algae species found in Humboldt Bay.

While there are legacy introductions from oyster operations in Humboldt Bay, current operations involve several stringent management measures to avoid introductions. The hatcheries that export shellfish seed which will be used by the Project submit inspection reports on a regular basis to CDFW, and the importation of seed from established hatcheries is allowed only if the hatchery has a minimum 2-year history of documented absence of disease. The Project will only use new

equipment or equipment that has only been used in Humboldt Bay. Given these management measures to control for disease and NIS, it is unlikely that current oyster operations would result in new NIS introductions.

In terms of naturalization of the cultured species into Humboldt Bay, the proposed Project only involves culture of species that are already cultured in abundance in Humboldt Bay and would not increase the risk of naturalization beyond what already exists.

Therefore, the Project would have a less than significant impact related to NIS.

Bio-A3: Effects to Carrying Capacity. Carrying capacity, also termed “ecological carrying capacity,” is defined by Ocean Studies Board and NRC (2010) as:

The stocking or farm density above which ‘unacceptable ecological impacts’ begin to manifest. From a practical standpoint, this process begins with the level of culture that can be supported without leading to significant changes to ecological processes, species, populations or communities in the growing environment.

The most robust carrying capacity analysis conducted in Humboldt Bay was created for the Humboldt Bay Mariculture Pre-Permitting Project (District and SHN 2015). This included an analysis of up to 1,202 acres of shellfish aquaculture operations in Arcata Bay (or 55.02 metric tons dry tissue weight), which were all modeled as adults to maximize potential filtration pressure. According to the analysis, filtration pressure was shown to range between 5% and 9%, which indicates that the “vast majority of carbon fixed by phytoplankton remains available to non-cultured species.” In addition, the phytoplankton turnover rate was calculated to replace itself several times per day. Overall, the analysis concluded that the existing and proposed culture would have some cumulative effect on Humboldt Bay food resources, but there is an abundance of food available and cultured species will not significantly affect the food resources in the bay. This was considered a conservative result, given that the analysis only calculated change to phytoplankton and did not account for other sources of carbon productivity (e.g., detritus, benthic microalgae, biodeposits). Note that this analysis was based on significantly more shellfish aquaculture operations than currently exist or are proposed in Humboldt Bay.

Other indicators of ecological carrying capacity include poor growth and high mortality of cultured shellfish. There have been no reports of poor growing conditions for the existing cultured oysters in Arcata Bay. Impacts associated with carrying capacity reduction are less than significant.

Bio-A4: Effects to Water Quality. No additions (e.g., antibiotics) will be added to bay water used by the facility. Cultured shellfish will remove a small portion of the organic material and detritus in the water. The effect is less than significant.

Bio-B: Effects to Habitats. Humboldt Bay Oyster Company Shellfish Farm is an existing shellfish farm. The only new structures that will be added by the project are new rack and bag and/or intertidal longline culture in the proposed expansion areas, with a maximum expansion footprint of three acres. These would be located in Mad River Slough channel and adjacent to existing rack and bag culture areas. The existing structures and proposed structures in the expansion area provide in-

water and overwater structure which may serve as habitat for some aquatic species (e.g., perch).

Benthic disturbance would be limited to the placement of steel rebar racks and the installation of an anchoring/post system for the intertidal culture. Each rack is 6' long, 32" deep and 18" tall and constructed of 1/2" welded steel rebar. The longline culture will consist of anchor posts at both ends and supporting posts that would be placed every 8 feet. The anchor posts are proposed to be galvanized steel pipe T-stakes, or other suitable materials, and are used to maintain line tension. The supporting posts in between are proposed to be made of schedule 80, 2-inch PVC.

Eelgrass (*Zostera marina*) occurs in the existing intertidal culture area as well as the proposed expansion areas (Figure 14). In accordance with the CEMP, eelgrass habitat is defined as areas of vegetated eelgrass cover (any eelgrass within 1 m² quadrat and within 1 m of another shoot) bounded by a 5 m wide perimeter of unvegetated area (NOAA 2014). An eelgrass survey will be conducted during the growing season (May through September) prior to the installation of any new gear. Eelgrass surveys will be conducted in accordance with the methodology and protocols in the CEMP (NOAA 2014). Existing rack and bag culture equipment may remain in its existing location, but additional equipment will not be added except as described below for Mitigation Measure-1a. Operational activities will be planned to avoid impacts to eelgrass beds. Vessel routes will avoid eelgrass beds by using channels or vessel transit will occur at higher tides to avoid loss or damage of eelgrass vegetation due to propeller contact. Anchoring will also not occur in eelgrass areas. Additionally, to reduce potential impacts to eelgrass and mudflats, the total expansion of HBOC's shellfish culture footprint shall not exceed three acres. With implementation of Mitigation Measure-1a, the impact to habitat would be less than significant.

Bio-C: Effect on state or federally protected wetlands. Wetlands, including in Humboldt Bay, provide numerous functions including primary production, flood protection, nutrient removal/transformation, wildlife habitat and recreational opportunities. With the addition of shellfish culture, all these functions continue. Cultured shellfish can contribute to water quality by removing/converting nutrients and other matter in the water column. However, this is most beneficial in systems other than Humboldt Bay that are experience eutrophication. As stated by the US Army Corps of Engineers (2020; 85 FR 57336), "Oyster mariculture [aquaculture] activities may not provide identical ecological functions and services and functions as natural oyster reefs, but cultivated oysters do provide some of these functions and services without substantial investment of public funds that may be needed for restoration activities." Additionally, as described in other sections of this Initial Study document, certain wildlife species benefit from the habitat provided by shellfish culture equipment and cultured shellfish. The HBOC Project does not include the removal of any wetlands, placement of fill, or any other interruption or impact to wetland areas. Therefore, the HBOC Project will have a less than significant impact on wetlands.

Bio-D: Interfere substantially with the movement of native species. The movement of native aquatic and terrestrial species would not be significantly impacted. All species will be able to easily move through, under and/or over the aquaculture facilities with a less than significant impact.



Figure 14. Existing Eelgrass Beds, Existing Culture Areas, and Proposed Intertidal Expansion.

Shorebirds. Studies have found that bird responses to the presence of shellfish aquaculture gear have been variable, with the abundance and density of some species being higher while other species numbers are lower. For example, Connolly and Colwell (2005) observed 17 different bird species using the intertidal habitat in Humboldt Bay associated with oyster cultch-on-longline culture. Most species (7 shorebirds and 4 wading birds) were shown to be more abundant on oyster longline plots compared to adjacent mudflat habitat not containing culture, and three species (marbled godwit [*Limosa fedoa*], long-billed curlew [*Numenius americanus*] and dunlin) showed mixed results depending on location. A consistent observation by shellfish growers on the West Coast for a variety of culture gear types is that dunlin often roost on top of shellfish aquaculture gear. Connolly and Colwell (2005) concluded their study by indicating: “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.”

The only shorebird from the Connolly and Colwell (2005) study that showed lower abundance in longline plots was the black bellied plover. The authors concluded that the greater bird abundances on longline plots were likely in response to increased foraging opportunities or greater prey diversity present because shorebird densities are commonly correlated with the densities of their principal prey. Based on findings that shorebirds and shellfish culture readily co-exist and shorebirds can benefit from shellfish culture activities, the Project’s impact to shorebirds is less than significant.

Black Brant. Black brant (*Branta bernicla*) feed primarily on eelgrass. The HBOC Project will avoid eelgrass. While there may be portions of the mudflat that would be unavailable to black brant during low tides, these areas are not considered optimal foraging habitat for black brant.

This is supported by studies of black brant and shellfish aquaculture interactions in Humboldt Bay which evaluated shellfish farming activities within dense eelgrass cover. HT Harvey & Associates (HTH) conducted a survey in April 2015 (HTH 2015) within oyster longline aquaculture (aquaculture plots) and adjacent reference plots. The oyster longline aquaculture gear studied extends up to 3 feet above the sediment surface and occurs in eelgrass cover.

The HTH (2015) survey indicated that tidal height is the most influential driver in black brant use of an area. During high tides, black brant were observed at similar densities in aquaculture plots (mean density=1.0 birds/acre) and reference plots (mean density=1.3 birds/acre). During low tides, black brant were consistently observed at higher densities in reference plots (mean density=2.6 birds/acre) compared to aquaculture plots (mean density=0.1 birds/acre). Supplemental time-lapse recordings demonstrated that black brant forage in both aquaculture and reference plots when water is sufficiently high to swim but are less abundant in plots with oyster longlines at lower tides when the gear is exposed. The study authors postulated that the presence of lines during low tide interfered with black brant movement and led to the birds preferentially using areas with eelgrass cover that were adjacent to near-bottom culture plots.

Monitoring in Humboldt Bay during the 2017-2018 wintering and migratory period found no significant difference in black brant usage in culture and adjacent reference plots (HTH 2018), suggesting that earlier observations may be the result of eelgrass abundance within culture areas

rather than the presence of culture gear. HTH (2018) found that black brant use is comparable or higher within culture areas compared to adjacent areas, particularly during higher tides when feeding in eelgrass beds may not be available to black brant. It appears that brant may occur at higher concentrations in areas with aquaculture gear where feeding opportunities may exist during higher water levels.

The study was conducted again in 2020 (HTH 2021). This study's results suggest that "three seasons of sampling [show] that optimal combinations of tide direction and water depth are the primary drivers of brant activity patterns, with newly exposed moderate and low water conditions optimal for foraging. Existing narrow cultch aquaculture plots often appear to attract brant as much or more than similar, nearby plots that lack aquaculture gear, and all three culture plot types [narrow cultch, wide cultch and wide baskets] have attracted more brant than the Control plots at high water depths." The authors suggest that brant use aquaculture areas at similar rates to non-aquaculture areas, and that at high tide aquaculture areas provide dual foraging opportunities where brant may forage on eelgrass wrack or fouling communities associated with culture gear in addition to rooted eelgrass resources.

Collectively, this evidence suggests that black brant's preferred method of foraging is in shallow water when tidal height provides sufficient access to rooted eelgrass. The presence of shellfish gear can affect their foraging only during relatively short periods when the gear impedes their ability to easily swim through aquaculture plots (i.e., when the gear starts to be exposed). All other times, feeding can occur in and around shellfish gear. The effect to feeding from the presence of shellfish culture is less than significant, in fact, the culture may increase feeding.

Schmidt (1999) found that brant in Humboldt Bay spend less than 2% of time on alert or flying behaviors compared to 36% of time spent feeding. Schmidt (1999) noted that "there were many times when large slow-moving boats elicited no apparent response from brant." Schmidt (1999) also noted that "Habituation was apparent at the mid-channel, where people digging clams often approached to within 20 m while brant continued to feed." These observations clearly suggest that there is a degree of habituation to boat traffic by brant in Humboldt Bay.

HBOC will only be using two vessels, a minor increase in existing boat traffic by bay recreational and commercial users. Brant are utilizing portions of North Bay near aquaculture gear and near channels with significant existing vessel traffic. This is evidence that brant have become habituated to these conditions in a manner where a slight increase in vessel activity is unlikely to result in significant additional flushing or create additional energetic demands for brant. Impacts to black brant and other waterfowl would be less than significant without mitigation. However, to further minimize potential impacts and in response to CDFW's comments on the Draft Initial Study, HBOC will implement Best Management Practice 3 which stipulates that installation of equipment in previously uncultured areas will occur between May 15 – June 30 to avoid relatively high Humboldt Bay use periods by black brant.

Bio-E: Local Policies. There are numerous riparian habitats and other sensitive natural communities that have been identified by local governments, CDFW, and USFWS in the vicinity of the Project area. These natural communities provide habitat for year-round and migrant species, recreation,

environmental interpretation, and preservation of aesthetic resources. The City of Arcata's Marsh and Wildlife Sanctuary also provides wastewater treatment. Specific areas managed by local, state or federal entities protecting riparian habitats and other sensitive natural communities include:

- The Humboldt Bay National Wildlife Refuge Complex, owned and managed by the USFWS. https://www.fws.gov/refuge/humboldt_bay/
- The Arcata Marsh and Wildlife Sanctuary, owned and managed by the City of Arcata. <https://www.cityofarcata.org/340/Arcata-Marsh-Wildlife-Sanctuary>
- CDFW Ecological Reserves and Wildlife Areas: <https://wildlife.ca.gov/Lands/Places-to-Visit>: Including the following areas in Humboldt County: Big Lagoon Wildlife Area, Eel River Wildlife Area, Elk River Wildlife Area, Fay Slough Wildlife Area, Headwaters Forest Ecological Reserve, Mad River Slough Wildlife Area, and South Spit Wildlife Area

Plans protecting biological resources in the vicinity of the Project include the Local Coastal Programs, the Open Space Element of the *Humboldt County General Plan*, comprehensive conservation plans (CCPs), and recovery plans for listed species.

Local Coastal Programs and other relevant documents include:

- Humboldt Bay Management Plan, HBHRCD
http://humboldtbay.org/sites/humboldtbay2.org/files/documents/hbmp2007/HumBayMgmtPLAN_print.pdf
- California Coastal Commission Sea Level Rise Policy Guidance, <https://www.coastal.ca.gov/climate/slrguidance.html>
- Humboldt Bay Sea Level Rise Adaptation Planning Project, HBHRCD
<http://humboldtbay.org/humboldt-bay-sea-level-rise-adaptation-planning-project>
- Humboldt County Humboldt Bay Area Plan Sea Level Rise Vulnerability Assessment, <https://humboldt.gov/DocumentCenter/View/62872/Humboldt-Bay-Area-Plan-Sea-Level-Rise-Vulnerability-Assessment-Report-PDF>
- Humboldt Bay Area Plan of the Humboldt County Local Coastal Program, <https://humboldt.gov/1678/Local-Coastal-Plan-Update>
- Humboldt Bay National Wildlife Refuge Comprehensive Conservation Plan, https://www.fws.gov/refuge/Humboldt_Bay/what_we_do/planning.html
- California Eelgrass Mitigation Policy (CEMP), https://www.cakex.org/sites/default/files/documents/cemp_oct_2014_final.pdf
- Humboldt Bay Eelgrass Comprehensive Management Plan, <http://humboldtbay.org/eelgrass-management-plan>

These plans and policies call for providing maximum public access and recreational use of the coast; protecting wetlands, rare and endangered habitats, environmentally sensitive areas, tidepools, and stream channels; maintaining productive coastal agricultural lands; directing new development to already urbanized areas; protecting scenic beauty; and locating coastal energy facilities such that they have the least impact. The District's Humboldt Bay Management Plan includes objectives to expand the amount of sustainable aquaculture within Humboldt Bay (District 2007).

The *Humboldt County General Plan* was adopted October 23, 2017. The Biological Resources section of the Conservation and Open Space Elements describes the policies for preservation of natural

resources, management of production of resources, outdoor recreation, and public health and safety. The Project would not conflict with these plans and policies. Therefore, there would be no impact.

Bio-F: Conservation Plans. There are no habitat conservation plans (HCPs) or other community plans in the Project vicinity and the Project would not conflict with any such plan. Therefore, there would be no impact.

Mitigation Measure 1. Biological Resources - Eelgrass: To minimize and avoid impacts to eelgrass beds the following measures will be followed:

- ~~New cultivation structures will not be placed within 5 meters of eelgrass habitat.~~
- ~~Existing equipment will not be moved into areas within 5 meters of eelgrass habitat.~~
- ~~Annual eelgrass surveys will be conducted prior to the installation of any new gear in any new area.~~
- Vessel routes will avoid eelgrass beds by using channels or vessel transit will occur at higher tides (with a minimum of two feet of water over eelgrass) to avoid loss or damage of eelgrass vegetation due to propeller contact.
- Anchoring will not occur in eelgrass areas.
- Prior to placing or installing shellfish cultivation equipment, eelgrass surveys will be conducted within the most recent eelgrass growing season (May through September) using the methods described in the National Marine Fisheries Service's October 2014 California Eelgrass Mitigation Policy (CEMP). No installation or placement of shellfish cultivation equipment will occur on, in, or over the mapped eelgrass habitat as defined by the CEMP. While installation of shellfish cultivation equipment shall be prohibited within eelgrass habitat, if eelgrass currently occurs, moves or expands into areas with existing cultivation, the areas may continue to be used for shellfish cultivation.
- The areas within which shellfish culture expansion may occur are a total of 13.9 acres. However, within those 13.9 acres, the total expansion of HBOC's shellfish culture footprint shall not exceed three acres.

4.5 CULTURAL RESOURCES Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?			X	
B) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		X		
C) Disturb any human remains, including those interred outside of formal cemeteries?		X		

DISCUSSION

CR-A through CR-C: The Project would be implemented in an intertidal and subtidal area where no cultural or historic resources are known to be present. No excavation would occur as part of the Project. Soil disturbance would be limited to the placement of steel rebar racks on top of the mudflats, and the installation of an anchoring/post system for the intertidal longline culture. Each rack is 6’ long, 32” deep and 18” tall and constructed of 1/2” welded steel rebar. The longline culture will consist of anchor posts at both ends and supporting posts that would be placed typically every 8 feet. The anchor posts are proposed to be galvanized steel pipe/T-stakes (up to 2-inch diameter), or other suitable materials, and are used to maintain line tension. The supporting posts in between are proposed to be made of schedule 80, 2-inch PVC. Although cultural and historic resources are not expected to occur, there are measures in place to provide an inadvertent discovery plan in the event that a resource is discovered. Specifically, the Project would comply with the following mitigation measure:

Mitigation Measure 2. Cultural Resources: The Project will comply with the Harbor District Protocol agreed upon between the Harbor District and the Blue Lake Rancheria, Bear River Band of Rohnerville Rancheria, and Wiyot Tribes regarding the inadvertent discovery of archaeological resources, cultural resources, or human remains or grave goods (Attachment A). In coordination with the Wiyot Tribe THPO, a qualified cultural resource monitor will be present if ground disturbing activities related to this Project occur in areas that are within 100 ft of a recorded site and/or involve ground disturbance beyond what is currently proposed.

Potential impacts to cultural resources would be less than significant with Mitigation Measure 2 incorporated.

4.6 ENERGY Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?				X
B) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?				X

DISCUSSION

Energy-A and Energy-B:

Humboldt Bay Oyster Company Shellfish Farm is an existing farm and one small vessel is used to support existing operations. In addition, the FLUPSY uses a small 1 horsepower submersible pump for water intake. Changes to existing operations that have the potential to require additional energy include the two expansion areas in Mad River Slough channel. The same small vessel would be used to support these expansion areas. Up to a total of two small vessels would be used to support existing and expanded operations. There would be approximately four boat trips per week and approximately 3 gallons of fuel consumption per trip. The vessels use ultra-low emission, 3-star California Air Resources Board rated engines. Additionally, the construction of rack and bag and intertidal longline culture structures will be completed using hand tools. The use of hand tools for these short-term construction activities would have a negligible impact on energy use. The amount of fuel required for existing operations as well as the fuel required to support the proposed expansion is a negligible increase in regional demand. This fuel use will not result in the need for new or expanded sources of energy or infrastructure to meet the energy demands of the Project. Energy use by the Project will not be wasteful or inefficient and it is necessary to produce food. The use also will not conflict or obstruct any state or local plan for renewable energy or energy efficiency. Therefore, the Project will have no impact.

4.7 GEOLOGY AND SOILS Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?				X
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?				X
B) Result in substantial soil erosion or the loss of topsoil?				X
C) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?				X
D) Be located on expansive soil, as defined by the California Building Code (2007), creating substantial direct or indirect risks to life or property?				X
E) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X
F) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?				X

DISCUSSION

Geo-A i – iv: Risks to People or Structures. The Project is located in Humboldt Bay and Mad River Slough. The project area is relatively flat with regional geology likely influenced by seismic activity as a result of the relatively close proximity of the Mendocino Triple Junction to the Project. A spur of the Mad River Fault Zone is located approximately 3.5 miles northeast of the Project, and a spur of the Little Salmon Fault Zone is located approximately five miles south of the Project as mapped by the California Geological Survey. As such, the area is highly susceptible to seismic activity. However, the Project would not add any fixed structures to the landscape that would be susceptible to seismic damage, nor would it put existing structures at greater risk. The Project is located in a mapped liquefaction hazard zone (Humboldt County Web GIS). Implementation of the Project would not exacerbate potential liquefaction, rather the potential for liquefaction would remain unchanged following Project implementation. The sediment could be subject to liquefaction, which would pose a minor risk to workers. With the exception of the rack and bag and intertidal longline culture areas, the area is subtidal and workers or equipment would not be standing on the bay floor (they would be on boats, or rafts). The project area does not include steep slopes or hillsides and thus, does not have the potential for landslides. Impacts related to seismic risks are less than significant.

Geo-B: Erosion. The Project by its nature will not result in any erosion or loss of topsoil. Therefore, there will be no impact.

Geo-C: Instability. The Project will not involve the construction of any permanent structures, and will not affect the potential for onsite or offsite landslides, lateral spreading, subsidence, liquefaction, or collapse. Therefore, there will be no impact.

Geo-D: Expansive Soils. There may be expansive soils in the Project area; however, the project will not add enclosed or habitable structures (buildings) to the landscape. There will also be no substantial risk to life or property from Project development. Therefore, there will be no impact.

Geo-E: Wastewater Disposal. The Project does not involve the development of new wastewater disposal systems. Workers employed through the Project would use existing facilities (restrooms). Therefore, there will be no impact.

Geo-F: Unique Paleontological Resource. The Project is located in intertidal and subtidal areas. While there may be paleontological resources, soil disturbance would be limited to the placement of steel rebar racks and the installation of an anchoring/post system for the intertidal longline culture (if proposed). Therefore, there will be no impact.

4.8 GREEN HOUSE GAS EMISSIONS	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project: A) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
B) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?				X

DISCUSSION

GHG-A: Greenhouse Gas Emissions. Humboldt Bay Oyster Company Shellfish Farm is an existing farm and one small vessel is used to support existing operations. In addition, the FLUPSY uses a small 1 horsepower submersible pump for water intake. Changes to existing operations that have the potential to generate new emissions include the two expansion areas in Mad River Slough. Expansion Area 1 would be 3.1 acres and Expansion Area 2 would be 10.8 acres. Up to a total of two small vessels would be used to support existing and expanded operations. There would be approximately four boat trips per week and approximately 3 gallons of fuel consumption per trip. The vessels use ultra-low emission, 3-star California Air Resources Board rated engines. The vessel engines would contribute to a minor and negligible increase in GHG emissions. The construction of the rack and bag and/or intertidal longline culture structures in the two expansion areas would be completed using hand tools that would have negligible impact on GHG emissions. The amount of greenhouse gases generated to support existing conditions as well as the greenhouse gases generated to operate and construct the two expansion areas would be less than significant.

GHG-B: Plans, Policies, or Regulations Regarding Greenhouse Gases. State of California legislation (Senate Bill 375 and Assembly Bill 32) seeks to reduce greenhouse gas emissions through the practice of smart-growth or mixed-use development. The California Air Resource Board (CARB) 2022 Scoping Plan identifies a path to meet the SB 32 GHG emission reduction goals, as well as reducing anthropogenic GHG emissions to 85 percent below 1990 levels by 2045, and achieving carbon neutrality by 2045 or earlier, consistent with Assembly Bill 1279 (AB 1279). The 2022 Scoping Plan includes measures to move to a zero-emissions (decarbonized) transportation sector and phasing out the use of natural gas in residential and commercial buildings. The measures are statewide and programmatic in nature. The 2022 Scoping Plan is largely advisory, as CARB does not directly regulate many of the sectors identified by the plan’s measures. The Project does not include any upland construction or mobile sources (other than the vessels and pumps described above) that could be a potentially significant source of greenhouse gas emissions. The Project would not conflict with plans, policies, or regulations on greenhouse gas emissions including SB 32, AB 1279, or the 2022 Scoping Plan. Therefore, there will be no impact.

4.9 HAZARDS AND HAZARDOUS MATERIALS	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
A) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
B) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
C) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
D) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			X	
E) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?				X
F) Impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
G) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				X

DISCUSSION

Haz-A through Haz-C: The only hazardous materials that would be associated with the Project are fuel and lubricants for small vessels, handtools, and pumps. Use of these materials is common in Humboldt Bay and does not represent a significant hazard to the environment or people. Project personnel would follow all current and standard safety and cleanup protocols for fueling and lubricating engines.

Impacts from hazardous materials used by the Project will be less than significant. There will be no impact for *Haz-C* because the Project area is not within one-quarter mile of an existing or proposed school.

Haz-D: The Project will occur in intertidal and subtidal areas. Soil disturbance would be limited to the placement of steel rebar racks and the installation of an anchoring/post system for the intertidal longline culture. As such, it will not mobilize any hazardous materials, if they are present. The Project does not pose a significant threat to the public or environment and the impact will be less than significant.

Haz-E: The only nearby airport is Murray Field, which is a public airport approximately 2 miles from the FLUPSY in Woodley Island Marina, 3.5 miles from the existing rack and bag culture and proposed expansion areas in Mad River Slough, and 6 miles from the existing raft culture area in Mad River Slough. Airplanes landing and departing from this airport are not expected to be a hazard for Project workers. Therefore, there will be no impact.

Haz-F and Haz-G: The Project will not have any effect on an adopted emergency response plan or emergency evacuation plan because it will not impede emergency response or evacuation routes or procedures. Also, the Project nature (farming shellfish) does not create any risk of wildfires. Therefore, there will be no impact.

4.10 HYDROLOGY AND WATER QUALITY		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:					
A)	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?		X		
B)	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				X
C)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner, which would:				X
	i) Result in substantial erosion or siltation on- or off-site;				X
	ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;				X
	iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or				X
	iv) Impede or redirect flood flows?				X
D)	In flood hazard, tsunamic, or seiche zones, risk release of pollutants due to project inundation?			X	
E)	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

DISCUSSION

Hyd-A: Water Quality and Discharge Standards. The Project involves existing and expanded shellfish aquaculture operations in Humboldt Bay. The proposed expansion areas are in Mad River Slough channel, adjacent to existing shellfish operations. No additives, feed, or chemicals will be used in shellfish aquaculture operations (other than fuel for the work vessels). Mitigation Measure 3 will further reduce the risk of fuel spills. With this mitigation, the potential impact is less than significant.

Mitigation Measure - 3. Vessel Maintenance and Fueling: Project personnel will maintain all vessels used in culture activities to limit the likelihood of release of fuels, lubricants, or other potentially toxic materials associated with vessels due to accident, upset, or other unplanned events.

Project personnel will use marine grade fuel cans that are refilled on land, and personnel will carry oil spill absorption pads for use in the event of a spill.

Hyd-B: The Project would not involve the use of groundwater or interfere with groundwater recharge. Therefore, there will be no impact.

Hyd-C i-iv: The placement of steel rebar racks and the installation of an anchoring/post system for the intertidal longline culture will not substantially alter drainage patterns or result in erosion or siltation. There will be no impact.

Hyd-D: The project site is within Mad River Slough, Mad River Slough channel and at Woodley Island Marina. These sites are in a tsunami hazard area. The Project will follow current standards for storage and use of potential pollutants, including hazardous material (i.e., fuel and lubricants) to minimize the risk release of pollutants due to project inundation. Hence, the potential impact will be less than significant.

Hyd-E: The nature of the Project will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Hence, there will be no impact.

4.11 LAND USE AND PLANNING	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
A) Physically divide an established community?				X
B) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?				X

DISCUSSION

Land-A: The Project involves existing and expanded shellfish aquaculture operations in Humboldt Bay. The proposed expansion areas are in Mad River Slough Channel. There is no construction that would create a physical barrier to movement dividing an established community. Therefore, there will be no impact.

Land-B: The Humboldt County General Plan states: “At the present time the North Bay is the heart of the local aquaculture industry, and the resource protection policies in this section and elsewhere in this plan are designed to foster the expected growth of this industry” (Humboldt County 2017). The Project is consistent with the *Agricultural Exclusive, Natural Resources/Water* zoning of the site, as the Project is a form of agriculture. The Project is also consistent with the Humboldt Bay Management Plan’s goal of supporting commercial aquaculture and the plan’s policy to identify additional aquaculture activities (Policy HFA-5). Therefore, there will be no impact.

4.12 MINERAL RESOURCES	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
A) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?				X
B) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

DISCUSSION

Min-A and Min-B: The Project will authorize and expand existing shellfish aquaculture operations in Humboldt Bay. It will have no effect on mineral resources. Therefore, there will be no impact.

4.13 NOISE	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
A) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?				X
B) Generation of excessive groundborne vibration or groundborne noise levels?				X
C) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

DISCUSSION

Noise-A through Noise-C: The Project involves existing and expanded shellfish aquaculture operations in Humboldt Bay. Its primary noise effect would be caused by additional boat trips with an internal combustion engine. This would generate noise similar to that generated by other small vessels on the bay. The Project vessels would not be heard from sensitive receptors as there are no nearby sensitive receptors. The short-term use of handheld construction tools would have negligible impacts. There is not an airstrip or airport within two miles that would expose people working in the project area to excessive noise levels. There will be no impact.

4.14 POPULATION AND HOUSING	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
A) Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and/or businesses) or indirectly (e.g., through extension of roads or other infrastructure)?				X
B) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

DISCUSSION

Pop-A through Pop-B: The Project will increase shellfish aquaculture operations in Humboldt Bay. Two full time employees support existing operations. Up to one additional full time new employee may be employed to support the proposed expansion. No housing currently exists within the project area; therefore, no people or housing units would be displaced necessitating the construction of

replacement housing. The effect on population and housing would not be substantial. Therefore, there will be no impact.

4.15 PUBLIC SERVICES				
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Fire protection?				X
B) Police protection?				X
C) Schools?				X
D) Parks?				X
E) Other public facilities?				X

DISCUSSION

Pub-A through Pub-E: The Project would not create increased demand for public services. Two full time employees support existing operations and up to one additional full time new employees may be employed to support the proposed expansion. They would likely already live in the local community and so would not represent a new burden on public services. The effect would not be substantial. Therefore, there will be no impact.

4.16 RECREATION				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Would the project 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?				X
B) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

DISCUSSION

Rec-A: The Project will not increase use of existing neighborhood and regional parks or other recreational facilities. Two full time employees support existing operations. Up to one additional

full-time new employee may be employed to support the proposed expansion. Individuals that are employed for operation would likely already live in the local community and so would not represent a new burden on recreational facilities. There would be no impact to existing neighborhood and regional parks or other recreational facilities from the Project.

Rec-B: Recreational Facilities. The Project does not include recreational facilities. Up to 3 people would be employed by the Project, but they would likely already live in the local community and so would not represent a new burden on recreational facilities. The additional people employed by the Project would not result in an expansion of a recreational facility. Hence, there will be no impact.

4.17 TRANSPORTATION	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
A) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?				X
B) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?				X
C) Substantially increase hazards due to a geometric design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		X		
D) Result in inadequate emergency access?				X

DISCUSSION

Trans-A, Trans-B, and Trans-D: The Project would likely not increase the local population. Two full time employees support existing operations. Up to one additional full time new employees may be employed to support the proposed expansion. The Project is not expected to increase vehicle traffic on local streets and would not conflict with effective circulation system performance. Pursuant to SB 743 and the current CEQA Guidelines, evaluation of a project's potential transportation impact requires consideration of vehicle miles traveled (VMT), which refers to the amount and distance of automobile travel attributable to a project. Projects that reduce or have no impact on VMT are presumed to cause a less than significant transportation impact (OPR 2018). The Project would not add additional motor vehicle capacity to the roadway network and would not lead to additional vehicle travel. There would not be a conflict with circulation system, transit, roadways, pedestrian facilities, CEQA guidelines, or emergency access. Therefore, there will be no impact.

Trans-C: The Project does not change roadway features (e.g. sharp curves or dangerous intersections), but does add aquaculture gear to the intertidal and subtidal environment in Humboldt Bay and there is potential for interaction with vessels. In intertidal areas this interference would only occur when the tides are high enough for vessels to move through the intertidal areas, but so low that that the vessels couldn't move readily over the gear. When the intertidal area is

inundated, shallow-draft vessels could access the Project area and empty space among the gear would allow smaller watercraft (e.g., kayaks) to move about. Vessel movement in Mad River Slough would be minimally affected because the channel is substantially wider than the rafts, allowing vessels to readily move past.

The Project may also result in accidental loss of shellfish aquaculture gear or other debris into Humboldt Bay. The equipment is subject to various natural forces including tide, wind, waves and ultraviolet radiation. As a result, there is potential for equipment to become loose, wash away or otherwise escape into the environment. Escaped aquaculture gear may pose a hazard to users of the bay, including boaters (motorboaters, kayakers, stand-up paddle boarders, canoers, wind surfers). When encountered, marine debris associated with shellfish gear may damage boat bottoms or engines, snag on trailing lines or otherwise impair navigation. Recreational users of the bay may encounter escaped gear in shallow intertidal areas, which may then make transit of these areas more hazardous, particularly if escaped gear is wholly or partially buried in the substrate and thus hidden from view. As described in Mitigation Measure 4, loose equipment will be immediately removed from the bay or secured and all equipment will be marked with Humboldt Bay Oyster Company's name and phone number. The impact will be less than significant with mitigation.

Mitigation Measure 4. Debris Management: During farming operations, loose equipment/debris will be surveyed for and immediately removed or secured. Additionally, as feasible, culture equipment will be marked with Humboldt Bay Oyster Company's name and phone number to allow for tracking of the source of debris.

4.18 TRIBAL CULTURAL RESOURCES	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project: A) Would the project cause substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in Public Resources Code Section 5020.1(k), or				X
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		

DISCUSSION

CEQA requires lead agencies to determine if a proposed Project would have a significant effect on tribal cultural resources. The CEQA Guidelines define tribal cultural resources as: (1) a site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American Tribe that is listed or eligible for listing on the California Register of Historical Resources, or on a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or (2) a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant according to the historical register criteria in Public Resources Code Section 5024.1(c), and considering the significance of the resource to a California Native American tribe.

Tribe-Ai: The Project sites are not listed or eligible for listing in the California Register of Historic Resource. There would no impact.

Tribe-Aii: The Project would be implemented in intertidal and subtidal areas where no cultural or historic resources are known to be present. No excavation would occur as part of the Project. Soil disturbance would be limited to the placement of steel rebar racks on top of the mudflats, and the installation of an anchoring/post system for the intertidal longline culture. Each rack is 6’ long, 32” deep and 18” tall and constructed of 1/2” welded steel rebar. The longline culture will consist of anchor posts at both ends and supporting posts that would be placed typically every 8 feet. The anchor posts are proposed to be galvanized steel pipe/T-stakes (up to 2-inch diameter), or other suitable materials, and are used to maintain line tension. The supporting posts in between are

proposed to be made of schedule 80, 2-inch PVC. These same methods are currently used on adjacent sites by another oyster company.

Part of the Project would be implemented in intertidal areas (mudflats). While there is very little soil disturbance that would occur (i.e., the only soil disturbance would involve the installation of stakes and posts to support shellfish gear), there is the potential that placement of gear could disturb unknown cultural or archeological resources.

Under Assembly Bill (AB) 52, notification letters were sent to the Wiyot Tribe, Blue Lake Rancheria, and the Bear River Band of the Rohnerville Rancheria on November 25, 2024. The Wiyot Tribe THPO responded on December 3, 2024, no other responses were received. No specific tribal cultural resources were identified within the Project sites, however the area is known to be culturally sensitive and the Wiyot THPO noted the Project site is near cultural sites. In addition to standard inadvertent archaeological discovery protocols, a tribal monitor for ground disturbing activities was requested. The Harbor District requested clarification from the Wiyot Tribe THPO on the types of ground distributing activities where a tribal monitor would be recommended. Emails were sent on Dec. 15, 2025 and Jan. 9, 2026; acknowledgement of receipt was received, however no additional clarification has been provided to date.

Given existing adjacent uses are the same as the proposed project; no excavation or grading will occur and the Project involves very limited soil disturbance (i.e. installation of up to 2-inch diameter stakes and posts to support shellfish gear); and because no specific tribal cultural resources have been identified within the Project sites, implementation of Mitigation Measure 2 Cultural Resources will reduce potential impacts to less than significant.

Mitigation Measure 2. Cultural Resources: The Project will comply with the Harbor District Protocol agreed upon between the Harbor District and the Blue Lake Rancheria, Bear River Band of Rohnerville Rancheria, and Wiyot Tribes regarding the inadvertent discovery of archaeological resources, cultural resources, or human remains or grave goods. In coordination with the Wiyot Tribe THPO, a qualified cultural resource monitor will be present if ground disturbing activities related to this Project occur in areas that are within 100 ft of a recorded site and/or involve ground disturbance beyond what is currently proposed.

4.19 UTILITIES AND SERVICE SYSTEMS Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas facilities, the construction or relocation of which could cause significant environmental effects?				X
B) Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?				X
C) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?				X
D) Generate solid waste in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?				X
E) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				X

DISCUSSION

Util-A through Util-C: The proposed Project does not involve the use or construction of any facilities that would require new water, wastewater, electrical, natural gas, or telecommunications utilities. Project employees would use existing land based restrooms. The Project would not discharge wastewater or stormwater or involve consumption of water. Therefore, no impact is expected.

Util-D and Util-E: The Project would not generate any substantial amount of solid waste. The only waste would be items used in the process of farming shellfish such as rags and rope. Local landfills would have the capacity to accept this relatively small amount of waste. The Project would maintain compliance with federal, state, and local statutes and regulations related to solid waste. Therefore, there will be no impact.

4.20 WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Substantially impair an adopted emergency response plan or emergency evacuation plan?				X
B) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?				X
C) require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				X
D) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

DISCUSSION

Wildfire-A through Wildfire-D: The Project area is not located in or near a State Responsibility Area (SRA) or on lands classified as very high fire severity zones. The proposed Project occurs in intertidal and subtidal areas. The nature of the Project (farming shellfish) does not pose a risk of creating wildfires. The proposed Project would not impair emergency response activities nor established evacuation routes; is not anticipated to exacerbate wildfire risks; and would not expose people or structures to significant wildfire risks. There will be no impact.

4.21 MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
A) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
B) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects).		X		
C) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?				X

DISCUSSION

Findings-A: No. With the mitigation measures described above, the Project would not degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

Findings-B: No. As generally described above, shellfish aquaculture activities do not intrinsically have significant environmental effects. The assessment above is applicable within the context of current and other planned activities in Humboldt Bay. The impacts associated with the proposed Project analyzed in this IS would not add appreciably to any existing or foreseeable future significant cumulative impact. Incremental impacts, if any, would be negligible and undetectable. Improvements to water quality by having an industry that is dependent on excellent water quality conditions is a benefit to the bay overall. Additionally, shellfish farming removes carbon from the environment and can reduce eutrophication. With the mitigation measures described throughout this IS document, the potential cumulative impacts will be less than significant.

Findings-C: No. The Project would increase the amount of shellfish aquaculture in Arcata Bay and no aspect of the project is expected to cause substantial adverse effects on human beings, either directly or indirectly.

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Section 6.0 List of Preparers

Adam Wagschal, GHD

Vanessa Blodgett, Humboldt Bay Harbor, Recreation and Conservation District

Taylor Myers, Moffatt & Nichol

Attachment A

HBHRCD Inadvertent Discovery Protocol

**PROTOCOLS FOR INADVERTENT ARCHAEOLOGICAL DISCOVERIES
FOR GROUND DISTURBING PROJECT PERMITS, LEASES AND FRANCHISES
ISSUED BY THE HUMBOLDT BAY HARBOR, RECREATION AND CONSERVATION
DISTRICT, HUMBOLDT BAY, CALIFORNIA**

**April 22, 2015 (adopted 4/23/15 by Harbor District Commission)
(Contact Information Updated 2024)**

Background

Humboldt Bay is the ancestral heartland of the Wiyot Indians, whose native language is affiliated with the Algonquian language family and who had occupied the bay area for at least 2000 years by the time the first recorded European maritime explorers entered the Bay in 1806 and the first American towns were established in 1850. There are hundreds of known and undiscovered archaeological sites around Humboldt Bay that evidence Wiyot history and prehistory. Today, citizens of Wiyot ancestry are affiliated with three federally-recognized tribes located in the ancestral homeland: Blue Lake Rancheria; Bear River Band of the Rohnerville Rancheria; and the Wiyot Table at Table Bluff Reservation.

Applicable Laws

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.

- California Environmental Quality Act (CEQA) – Requires analysis by the Lead Agency under CEQA, to determine if a proposed project will cause a significant impact to “historical 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 (NHPA) – Requires analysis by the Lead Federal Agency and consultation with the California State Historic Preservation Officer (SHPO), Advisory Council on Historic Preservation (ACHP), 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.

Several laws and their implementing regulations spell out evaluation criteria to determine what constitutes a significant ‘site’ or a significant ‘discovery’:

- California Register of Historical Resources criteria (California Code of Regulations, Title 14, Chapter 3, Section 15064.5), for archaeological and Native American resources qualifying for consideration under CEQA;
- National Register of Historic Places criteria (36 CFR 63), qualifying for consideration under Section 106 review and NEPA;

State laws call for specific procedures and timelines to be followed in cases when human remains are discovered on private or non-Federal public land in California. It includes penalties (felony) for violating the rules for reporting discoveries, or for possessing or receiving Native American remains or grave goods:

- Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the Public Resources Code (PRC) outline requirements for handling inadvertent discoveries of human remains, including those determined to be Native American with or without associated grave goods, found on private or non-Federal public lands. PRC 5097.99 (as amended by SB 447) specifies penalties for illegally possessing or obtaining Native American remains or associated grave goods.

Another California law imposes strong civil penalties for maliciously digging, destroying or defacing a California Indian cultural or sacred site:

- California Native American Historic Resource Protection Act of 2002 (SB 1816, adding Chapter 1.76 to Division 5 of the PRC), imposes civil penalties including imprisonment and fines up to \$50,000 per violation, for persons who unlawfully and maliciously excavate upon, remove, destroy, injure, or deface a Native American historic, cultural, or sacred site that is listed or may be listed in the California Register of Historic Resources.

Standard Mitigation Language for CEQA Initial Studies

The following language may be employed by the Humboldt Bay Harbor, Recreation and Conservation District (Harbor District) when cultural resources screening (e.g., comment by Wiyot area Tribal Historic Preservation Officers (THPOs), formal record searches, current cultural resources studies) indicates a particular permit, leasehold or franchise area under its jurisdiction does not have known archaeological sites, however, unknown buried artifacts and archaeological deposits may exist and be impacted by the proposed action.

- CR-1 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 shall be immediately notified and a qualified archaeologist with local experience retained to consult with the Harbor District, the three THPOs, the Permittee 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 (SOP, below).

CR-2 Should human remains be inadvertently discovered during ground-disturbing activities, work at the discovery locale shall be halted immediately, the Harbor District and County Coroner contacted, and the Harbor District's SOP shall be followed, consistent with state law.

Standard Operating Procedures

The following standard operating procedures for addressing inadvertent archaeological discoveries shall apply to all phases and aspects of work carried out under the authority of the Harbor District for those parties that obtain a permit, lease or franchise for projects that involve ground-disturbing activities within its jurisdiction. It shall apply as well to the Harbor District's activities involving ground disturbances. In all cases, these SOPs shall apply to their respective employees, officers and agents, including contractors whose activities may potentially expose and impact significant or sensitive resources.

The intent is to avoid or minimize direct or indirect impacts to significant archaeological or Native American discoveries that may qualify for inclusion in the California Register of Historical Resources and/or the National Register of Historic Places.

These Protocols are intended to serve as standard guidelines to the Harbor District for compliance with CEQA and NHPA Section 106 requirements for considering inadvertent archaeological discoveries.

Responsibility for Retaining Services of As-Needed Professional Archaeologist

If an inadvertent discovery of archeological resources, human remains and/or grave goods occurs, the Harbor District or those parties that obtain a permit, lease or franchise shall be responsible for retaining as-needed services of a qualified Archaeologist, meaning the individual meets the Secretary of the Interior's Professional Standards for an Archaeological Principal Investigator and/or is listed as Registered Professional Archaeologist (see website at www.rpanet.org). The professional will provide as-needed services to conduct rapid assessments of potentially significant archaeological finds discovered during the Project implementation.

Designated Points of Contact (POC) for Notification of Discoveries

The Harbor District, those entities that obtain a permit, lease or franchise from the Harbor District, their construction contractor(s), and other applicable local, state or federal agencies shall each designate a representative who shall act as its official Point of Contact (POC) and who shall be notified immediately upon the inadvertent discovery of an archaeological find or the inadvertent discovery of human remains and /or grave goods during Project implementation.

The federally-recognized Blue Lake Rancheria, Bear River Band of the Rohnerville Rancheria and Wiyot Tribe each has citizens that recognize Wiyot ancestry. Each Tribe's appointed Tribal Historic Preservation Officer (THPO) is designated as the POC (below) and shall be immediately notified by the Harbor District's POC should an archaeological site (with or without human remains) be inadvertently discovered. The Harbor District POC is also listed below.

Designated Tribal and Harbor District Points-of-Contact (*updated 2024)

Tribe	Address	Office Telephone	Contact Staff*
Blue Lake Rancheria	428 Chartin Road P.O. Box 428 Blue Lake, CA 95525	(707) 668-5101 x1037	THPO@bluelakerancheria-nsn.gov
Bear River Band of the Rohnerville Rancheria	266 Keisner Road Loleta, CA 95551	(707) 733-1900 x233 Fax (707) 733-1972	THPO@brb-nsn.gov ;
Wiyot Tribe	1000 Wiyot Drive Loleta, CA 95551	(707) 733-5055 Fax (707) 733-5601 Cell (707) 499-3943	Ted Hernandez, THPO ted@wiyot.us
Harbor District	601 Startare Drive, Eureka, CA 95501	RH: (707) 443-0801 Fax (707) 443-0800 VB: (707) 825-8260	Rob Holmlund, Development Director rholmlund@humboldt看bay.org Vanessa Blodgett, Planner (Planwest) districtplanner@humboldt看bay.org

Interested Tribal Representatives shall be invited to inspect a discovery site and meet with the Harbor District’s and other applicable delegated POCs and Consulting Professional Archaeologist, as appropriate, to make a rapid assessment of the potential significance of a find and participate in the development and implementation of a Treatment Plan, as appropriate.

Note: In the event that Native American skeletal remains are discovered, State law specifies that the “Most Likely Descendent (MLD)” appointed by the NAHC has the authority to make recommendations for the final treatment and disposition of said remains and associated grave goods – see below.

A. SOP for Inadvertent Archaeological Discovery (General)

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 Contractor Foreman or authorized representative, or party who made the discovery and initiated these SOP.

3. The discovery locale shall be secured (e.g., 24-hour surveillance) as directed by the Harbor District if considered prudent to avoid further disturbances.
4. The Contractor Foreman or authorized representative, or party who made the discovery and initiated these SOP, shall be responsible for immediately contacting by telephone the parties listed below to report the find:
 - (a) the Harbor District's authorized POC and
 - (b) the Applicant's (District's permittee, lease or franchise holder) authorized POC, and it's General Contractor's POC if applicable.
5. Upon learning about a discovery, the Harbor 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 Other applicable agencies involved in Project permitting (e.g., US Army Corps of Engineers, US Fish & Wildlife Service, California Department of Fish & Wildlife, etc.).
6. Ground-disturbing project work at the find locality shall be suspended temporarily while Harbor District, the three THPOs, 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 Native American remains be encountered, the provisions of State laws shall apply (see below). 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.
7. The Harbor District's officers, employees and agents, including contractors, permittees, holders of leases or franchises, and applicable property owners shall be obligated to protect significant cultural resource discoveries and may be subject to prosecution if applicable State or Federal laws are violated. In no event shall unauthorized persons collect artifacts.
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 Harbor District's authorized representative shall be responsible for coordinating with any requests by or contacts to the media about a discovery.
9. These SOPs shall be communicated to the field work force (including contractors, employees, officers and agents) of those entities that obtain a permit, lease or franchise

from the Harbor District, and such communications may be made and documented at weekly tailgate safety briefings.

10. Ground-disturbing work at a discovery locale may not be resumed until authorized in writing by the Harbor District.
11. In cases where a known or suspected Native American burial or human remains are uncovered:
 - (a) The following contacts shall be notified immediately: Humboldt County Coroner (707-445-7242) and the property owner of the discovery site, and
 - (b) The SOP for Inadvertent Discovery of Native American Remains and Grave Goods (B below) shall be followed.

B. SOP for Inadvertent Discovery of Native American Remains and Grave Goods

In the event that known or suspected Native American remains are encountered, the above procedures of SOP paragraph A for Inadvertent Archaeological Discovery (General) shall be followed, as well as:

1. If human remains are encountered, they shall be treated with dignity and respect. Discovery of Native American remains is a very sensitive issue and serious concern of affiliated Native Americans. Information about such a discovery shall be held in confidence by all project personnel on a need-to-know basis. The rights of Native Americans to practice ceremonial observances on sites, in labs and around artifacts shall be upheld.
2. Violators of Section 7050.5 of the California Health and Safety Code may be subject to prosecution to the full extent of applicable law (felony offense).

In addition, the provisions of California law (Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code) will be followed:

1. The Coroner has two working days to examine the remains after being notified of the discovery. If the remains are Native American, the Coroner has 24 hours to notify the Native American Heritage Commission (NAHC) in Sacramento at (916) 653-4082.
2. The NAHC is responsible for identifying and immediately notifying the Most Likely Descendant (MLD) of the deceased Native American. (Note: NAHC policy holds that the Native American Monitor will not be designated the MLD.)
3. Within 48 hours of their notification by the NAHC, the MLD will be granted permission by the property owner of the discovery locale to inspect the discovery site if they so choose.
4. Within 48 hours of their notification by the NAHC, the MLD may recommend to the owner of the property (discovery site) the means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The

recommendation may include the scientific removal and non-destructive or destructive analysis of human remains and items associated with Native American burials. Only those osteological analyses (if any) recommended by the MLD may be considered and carried out.

5. Whenever the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the property owner rejects the recommendation of the MLD and mediation between the parties by NAHC fails to provide measures acceptable to the property owner, he/she shall cause the re-burial of the human remains and associated grave offerings with appropriate dignity on the property in a location not subject to further subsurface disturbance.

C. SOP for Documenting Inadvertent Archaeological Discoveries

1. The Contractor Foreman or authorized representative, or party who made the discovery and initiated these SOP, 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.
2. The Harbor District POC shall prepare or authorize the preparation of a summary report which shall include: the time and nature of the discovery; who and when parties were notified; outcome of consultations with appropriate agencies and Native American representatives; how, when and by whom the approved Treatment Plan was carried out; and final disposition of any collected archaeological specimens.
3. The Contractor Foreman or authorized representative shall record how the discovery downtime affected the immediate and near-term contracted work schedule, for purposes of negotiating contract changes where applicable.
4. If applicable, Monitoring Archaeologists and Tribal Representatives shall maintain daily fieldnotes, and upon completion, submit a written report to the Harbor District and the three Wiyot area THPOs.
5. 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 FR 44734-44737).
6. Final disposition of all collected archaeological materials shall be documented in the final Data Recovery Report and its disposition decided in consultation with Tribal representatives.
7. 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 and the Harbor District, with report copies provided to the three Wiyot area THPOs.

8. Confidential information concerning the discovery location, treatment and final disposition of Native American remains shall be prepared by the THPOs and forwarded to the Sacred Sites Inventory maintained by the NAHC.

Attachment B

CDFW Comment Letter & Responses Summary



STATE OF CALIFORNIA
DEPARTMENT OF FISH AND WILDLIFE

GAVIN NEWSOM, Governor
MEGHAN HERTEL, Director

1700 9th Street
Sacramento, CA 95811
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March 10, 2026

Vanessa Blodgett
District Planner
Humboldt Bay Harbor, Recreation and Conservation District
P.O. Box 1030
Eureka, CA 95502-1030

HUMBOLDT BAY OYSTER COMPANY SHELLFISH FARM PROJECT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION SCH # 2026020306

Dear Mrs. Blodgett,

The California Department of Fish and Wildlife (Department) received an Initial Study/Mitigated Negative Declaration (IS/MND) from the Humboldt Bay Harbor, Recreation and Conservation District (Harbor District) for the Humboldt Bay Oyster Company Shellfish Farm Project (Project), pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹ Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that the Department, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

DEPARTMENT ROLE

The Department is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the state (Fish & G. Code section 711.7, subd. (a) and section 1802; Pub. Resources Code section 21070; CEQA Guidelines section 15386, subd. (a)). The Department, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Id., section 1802). The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act in coastal marine waters of California and ensuring fisheries are sustainably managed under the Marine Life Management

¹ CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Act. The Department has the additional role of working toward the objectives of state policy declared in Fish & G. Code section 1700, which includes, among others, the development of commercial aquaculture.

PROJECT DESCRIPTION SUMMARY

Proponent: Humboldt Bay Harbor, Recreation and Conservation District (Harbor District)

Objective: Primary Project objective is to receive approval to continue culturing Pacific oysters (*Crassostrea gigas*), Kumamoto oysters (*Magallana sikamea*), and Manila clams (*Venerupis philippinarum*) using the current Floating Upweller System Culture (FLUPSY), raft culture, and rack and bag culture methods in existing culture areas in Humboldt Bay. In addition, expanding rack & bag culture and/or longline culture methods are proposed within 2 expansion areas. Proposed Expansion Area 1 (3.1 acres) and Expansion Area 2 (10.8 acres) would add a total of 13.9 acres of intertidal culture, increasing the total cumulative area to 31.7 acres.

Location: The Project is in Humboldt Bay, at 3 sites: (1) the FLUPSY is located at Woodley Island Marina, (2) the raft culture is in the Mad River Slough, north of the slough bridge in North Arcata Bay, and (3) the rack and bag culture is in the Mad River Slough Channel, south of the slough bridge in North Arcata Bay. The proposed expansion areas are immediately adjacent to the existing rack-and-bag culture in the Mad River Slough Channel.

Timeframe: Not specified

BIOLOGICAL SIGNIFICANCE

Humboldt Bay is California's second largest bay, and the largest estuary on the Pacific coast between San Francisco Bay and Oregon's Coos Bay. Its marine and estuarine habitats provide refuge and nursery habitat for more than 300 fish and invertebrate species, many with important associated commercial and recreational fisheries value. Notably, Humboldt Bay contains approximately 31–37% of the state's mapped eelgrass, highlighting its significance within California's coastal habitats (Merkel & Associates 2017, CDFW Marine Bios). It is also internationally recognized for its importance to overwintering and migratory shorebirds (Colwell 1994; Hickey et al. 2003; Page et al. 2003), supporting up to 100,000 birds seasonally and designated both an Important Bird Area by the Audubon Society and an International Site within the Western Hemisphere Shorebird Reserve Network (Schlosser and Eicher 2012). At least 24 shorebird species utilize the mudflats for feeding, resting, and roosting (Danufsky and Colwell 2003; Dodd and Colwell 1998; Evans and Harris 1994; Long and Ralph 2001), and approximately two-thirds of these species are identified as shorebirds of conservation concern or are included on the U.S. Fish and Wildlife Service's Birds of Conservation Concern list (USFWS 2008; U.S. Shorebird Conservation Plan Partnership 2015).

SPECIAL STATUS SPECIES

Numerous species listed under the California Endangered Species Act (CESA) and/or Federal Endangered Species Act (ESA) and species designated as Sensitive Natural Communities (SNC) or California Species of Special Concern (SSC), occur within or adjacent to the Project area and may be subject to direct and indirect Project impacts. These include:

- Coastal cutthroat trout (*Oncorhynchus clarki clarki*), state SSC;
- Coho salmon (*Oncorhynchus kisutch*), state and federally threatened (Southern Oregon/Northern California Evolutionarily Significant Unit (ESU));
- Green sturgeon (*Acipenser medirostris*), federally threatened (southern DPS), state SSC (northern and southern DPS);
- Longfin smelt (*Spirinchus thaleichthys*), state-threatened;
- Pacific lamprey (*Entosphenus tridentatus*), state SSC;
- Steelhead (*Oncorhynchus mykiss*), federally threatened (Northern California Distinct Population Segment (DPS)), state-endangered candidate (Northern California Summer Steelhead);
- Western river lamprey (*Lampetra ayresii*), state SSC;
- White sturgeon (*Acipenser transmontanus*), state SSC and state-threatened candidate;
- Black brant (*Branta bernicla nigricans*), state SSC;
- Native eelgrass (*Zostera marina*), State-ranked (S3) SNC

In addition, several species with commercial, recreational, and cultural importance also exist within and adjacent to the proposed Project area and could be impacted by Project activities, including:

- Dungeness crab (*Cancer magister*);
- Pacific herring (*Clupea pallasii*);
- Northern anchovy (*Engraulis mordax*);
- Rockfish (*Sebastes* sp.);
- California halibut (*Paralichthys californicus*);
- Bat rays (*Myliobatis californica*); and
- Leopard sharks (*Triakis semifasciata*).

COMMENTS AND RECOMMENDATIONS

The Department offers the comments and recommendations below to assist the Harbor District in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct, and indirect impacts on fish and wildlife resources.

Native Eelgrass Beds

General Comments: Native eelgrass (*Z. marina*) plays a vital role in Humboldt Bay and is recognized by state and federal regulations as a highly valuable and sensitive habitat. It contributes to primary production, nutrient cycling, and provides essential spawning, foraging, and nursery habitats for numerous fish and invertebrate species. Protections exist under state and federal “no-net-loss” policies for wetland habitats, emphasizing its conservation priority (California Eelgrass Mitigation Policy (CEMP), NMFS 2014). In California, eelgrass habitats are listed as Sensitive Natural Communities with a vulnerable *State Rank S3*, indicating their limited distribution and susceptibility to environmental impacts, which must be addressed during CEQA reviews (California Sensitive Natural Communities List, 2026). The importance of eelgrass protection and restoration, as well as the ecological benefits of eelgrass, are also identified in the California Public Resources Code (PRC section 35630).

Under the federal Magnuson-Stevens Fishery Conservation and Management Act, eelgrass is designated as Essential Fish Habitat (EFH) for various federally managed species within the Pacific Coast Groundfish and Pacific Coast Salmon Fishery Management Plans. It is also classified by NOAA Fisheries as a Habitat Area of Particular Concern (HAPC) due to its ecological importance. Its designation as EFH and HAPC underscores its critical role in supporting thriving marine ecosystems in Humboldt Bay, providing essential services that sustain both biodiversity and fisheries. Given its ecological value, eelgrass habitat remains a high-priority focus for conservation management in Humboldt Bay.

Eelgrass habitat occurs within the Project site in both proposed expansion areas. The Department is concerned with potential direct and indirect effects to eelgrass due to proposed expansion activities, which will add 13.9 acres of culture area within or near to native eelgrass beds. To ensure no net loss of eelgrass habitat within the Project area, the Department offers the following comments and recommends the following mitigation measures:

Eelgrass Comment 1 - Surveys: The IS/MND (Bio-A4) states that eelgrass surveys will be conducted during the growing season (May through September) prior to the installation of any new gear and does not propose to conduct post-installation eelgrass monitoring or mitigation. Following the CEMP guidelines, pre-installation eelgrass surveys should be completed within 60 days of gear installation and post-installation surveys should be completed within 30 days of completion (NOAA, 2014). Additionally, the IS/MND does not provide any information regarding the proposed methods to conduct eelgrass surveys.

Recommendations: The Department recommends the Final IS/MND include details on pre- and post-installation eelgrass surveys. Surveys should include reference sites that can be used to account for natural fluctuations in eelgrass distribution and should be conducted by a qualified biologist following the standards of the CEMP. If unexpected impacts to eelgrass occur, mitigation should be required for such impacts following the standards of the CEMP.

If eelgrass harvest and transplanting is required for mitigation, a Scientific Collecting Permit (SCP) from the Department will be required prior to harvest and transplanting activities. The SCP may include permit conditions such as donor eelgrass surveys, submittal of an eelgrass harvest and transplant plan, limits on number of turions collected, methods for collection and transplanting, notification of activities, and reporting requirements. Please visit the Department SCP webpage for more information: <https://wildlife.ca.gov/Licensing/Scientific-Collecting>

Eelgrass Comment 2 - Buffers: The Project proposes to avoid impacts to eelgrass habitat when installing new gear or moving old gear by incorporating a 5-meter (m) unvegetated perimeter from existing vegetated eelgrass cover (Mitigation Measure 1). A map of current existing eelgrass beds (Figure 14) provided in the IS/MND shows dense eelgrass cover within Expansion Area 1, and patchy eelgrass distribution in Expansion Area 2. The 5-m perimeter recommended in the CEMP is considered an extension of potential eelgrass habitat, allowing for natural interannual fluctuations in spatial distribution, and is not considered a “buffer” from eelgrass habitat. Previous aquaculture projects in Humboldt North Bay have included at least a 10-foot buffer between eelgrass and culture gear in addition to the 5-m perimeter. The Intertidal Pre-Permitting Project proposed to include a 30-foot buffer (5-m unvegetated perimeter plus a 15-foot buffer) to avoid impacts to eelgrass habitat and the Coast Seafoods Expansion Project included a 25-foot buffer between rack-and bag culture and eelgrass beds.

Recommendations: To avoid impacts associated with, but not limited to, trampling, shading, and changes in hydrodynamics and sedimentation, the Department recommends that the Final IS/MND be revised to include a buffer where feasible between eelgrass habitat and aquaculture gear in addition to the 5-m unvegetated perimeter. The Department also recommends detailed maps of eelgrass habitat for each culture site are included, that delineate the unvegetated perimeter and buffer.

Eelgrass Comment 3 - Vessel Operations: The IS/MND states that vessels will access the sites by passing over eelgrass at higher tides. However, it also states that oyster harvesting is performed during low tides. The document does not analyze the potential for vessel transit over eelgrass when tidal elevations are insufficient to provide adequate water depth and clearance. In Humboldt Bay, tidal elevations and seasonal water levels vary substantially, and high tides may not consistently coincide with operational demands. Consequently, vessels operating

“at high tide” and/or during oyster harvesting may transit through shallow areas where submerged components, including propellers could contact eelgrass beds reducing shoot density, altering bed structure, and impairing habitat functions that support spawning, refuge, and foraging for numerous species.

Additionally, the IS/MND proposes the use of a second vessel to support activities in the expansion areas in addition to the vessel currently used for operations. Eelgrass is widely distributed within and adjacent to the proposed expansion areas, including along likely access routes. Available survey data indicate that eelgrass distribution in the Bay is dynamic, and modeling studies project continued shoreward expansion of eelgrass into intertidal areas in response to sea level rise. If not carefully managed, vessel operations may constrain this natural landward migration and reduce the resilience of eelgrass habitat over time.

Recommendations: To reduce the potential for vessel-related eelgrass impacts, the Department recommends the Final IS/MND incorporate the following measures: (1) establish and enforce minimum tidal elevation criteria (e.g., a defined water depth buffer above mapped eelgrass canopy height) for vessel transit across eelgrass areas, and (2) designate and GPS-mark specific access corridors that avoid dense eelgrass beds to the maximum extent feasible, based on the most recent eelgrass mapping

Eelgrass Comment 4 - Longline Culture: Longline culture may adversely affect eelgrass where line spacing and gear density limit light availability or alter near-bottom hydrodynamics. Eelgrass is highly sensitive to light reduction and physical disturbance, which can reduce growth, survival, and reproductive output (Orth et al. 2006; Waycott et al. 2009). Closely spaced long lines and associated gear can alter localized sediment patterns and reduce water circulation (Tallis et al. 2009; Skinner et al. 2014; Coston-Guarini et al. 2017). These changes have been shown to reduce eelgrass shoot density, percent cover, biomass, and recruitment where culture density is high or flushing is limited (McKindsey et al. 2011; Skinner et al. 2014; Coston-Guarini et al. 2017; Merkel & Associates 2023).

The IS/MND proposes spacing long lines approximately 3 feet apart. However, more recent studies indicate that increasing spacing and reducing gear density can measurably improve light penetration, maintain water circulation, and support greater eelgrass persistence beneath and adjacent to culture plots (Skinner et al. 2014; McKindsey et al. 2011; Gagnon et al. 2020). In Humboldt Bay, long-term monitoring following culture removal at 2.5-foot line spacing demonstrated rapid and measurable increases in eelgrass cover and density within 1–3 years, providing clear evidence of the capacity of eelgrass to recover and expand once culture pressure is reduced (Merkel & Associates 2023). This suggests that denser longline configurations can suppress eelgrass, and that increasing spacing or reducing gear density can help promote persistence and recovery. Adoption of wider spacing (5 to

10 feet) is consistent with ecosystem-based and precautionary aquaculture management approaches intended to balance shellfish production with protection of submerged aquatic vegetation (McKindsey et al. 2011; Gagnon et al. 2020).

Recommendations: Given the documented sensitivity of eelgrass to light reduction and gear density, the Department recommends that the Harbor District consider increasing line spacing to at least 5 feet, and preferably up to 10 feet where feasible, and reducing overall gear density. Increasing spacing and minimizing gear footprint would reduce cumulative shading and other effects of longline culture methods, support eelgrass recruitment and lateral expansion, and minimize impacts to eelgrass habitat and associated species.

Black Brant, Waterfowl, and Shorebirds

Comments: Black Brant - Black brant occur in Humboldt Bay as spring and fall migrants and winter visitors. The Bay is the fourth most utilized staging area along the Pacific Flyway and has historically been the most important site in California for this species due to the extent and condition of eelgrass habitat. Because brant rely heavily on eelgrass as a food source and adjacent habitats during migration and wintering, reductions in eelgrass extent, quality, or accessibility may adversely affect their foraging efficiency and energetic condition. The IS/MND states that “The HBOC Project will avoid eelgrass” in its Black Brant analysis; however, Figure 14 clearly shows eelgrass present within both proposed expansion areas. The IS/MND also cites Connolly and Colwell (2005) to suggest that oyster longline plots do not reduce bird use. While birds were observed on longline plots in that study, the gear spacing allowed access between lines, and the study did not evaluate denser or more closely spaced configurations. Therefore, it cannot be relied upon to conclude that all long line arrangements avoid impacts to brant or other birds.

Recent monitoring in Humboldt Bay supports the importance of line spacing and impacts on brant. The Coast Seafoods Humboldt Bay Black Brant Report (2024) found that wider spacing, such as 10-foot intervals for double-hung cultch-on-longlines and alternating 9 and 16-foot spacing for basket-on-longlines, improved water circulation, facilitated accumulations of eelgrass wrack, algae (e.g., *Ulva spp.*), and invertebrates, and enhanced brant foraging access compared to 2.5-foot spacing. Narrower spacing restricted movement corridors and reduced foraging efficiency.

Waterfowl - In addition to brant, Humboldt Bay supports large numbers of overwintering and migrating waterfowl that depend on eelgrass beds, intertidal mudflats, and nearby grit sites for feeding, resting, and roosting. Habitat use is closely tied to tidal cycles and seasonal food availability. Aquaculture structures placed across mudflat–eelgrass transition zones may reduce habitat accessibility, fragment foraging areas, and increase energetic costs associated with avoidance

behavior. Because many waterfowl concentrate in limited areas during migration and winter, even localized habitat modification or repeated disturbance may have disproportionate population-level effects.

Shorebirds - Humboldt Bay is internationally recognized for its importance to migratory shorebirds. Recent surveys estimate that more than one million shorebirds representing 52 species use the Bay annually (Colwell et al. 2020), and approximately two-thirds are identified as species of conservation concern. Shorebirds rely on open intertidal mudflats for foraging and roosting. Extensive or densely configured long line arrays may convert open flats into structurally complex areas that are less accessible to species adapted to unobstructed habitats. Many shorebirds avoid areas with dense aquaculture gear. Of particular concern is the Long-billed Curlew, a territorial species known to forage extensively in mudflat areas adjacent to wet storage sites (Mathis et al. 2006). Impacts to eelgrass and mudflats, combined with operational disturbance, may reduce available foraging habitat and the time birds can effectively use these areas.

The Department is concerned that the Project may result in significant impacts to black brant, waterfowl, and shorebirds due to degradation or loss of foraging habitat, including eelgrass, intertidal mudflats, and nearby grit sites, and increased disturbance associated with installation, maintenance, and harvesting activities, consistent with CEQA Guidelines section 15065(a)(1) and (3).

Recommendations: To reduce potential impacts to less than significant, the Department recommends the Final IS/MND include avoidance, minimization, and mitigation measures, including, but not limited to:

- Seasonal Timing Restrictions: Limit high-disturbance activities (gear installation, removal, and major maintenance) to the seasonal low-use window for brant, waterfowl, and shorebirds, generally mid-May through June in Humboldt Bay.
- Operational Practices: Minimize vessel speeds in high-use areas, consolidate maintenance trips, and conduct operations during mid-tide periods where feasible to avoid peak low tides (shorebird foraging) and peak high tides (brant and waterfowl use of eelgrass beds).
- Longline Configuration: Avoid continuous, densely configured gear arrays that fragment eelgrass or mudflat habitat. Increase spacing between longlines to at least 5 feet, and preferably up to 10 feet where feasible, and reduce overall gear density to maintain open movement corridors and reduce habitat obstruction.

Green Sturgeon

Comments: The IS/MND states that observations by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service during a 2016 field visit confirmed that green sturgeon feeding did not extend into the Mad River Slough area. The Department previously submitted comments to the Harbor District regarding similar

statements in the Hog Island Oyster Company Shellfish Farm in Arcata Bay Recirculated Initial Study/Mitigated Negative Declaration (SCH# 2021020128), dated April 12, 2021. As stated in our prior comment letter, this conclusion is not substantially supported by evidence in the record. Accordingly, the Department reiterates the comment provided in its April 12, 2021, correspondence regarding this issue:

“The IS/MND inaccurately states that observations by the National Marine Fisheries Service and U.S. Fish and Wildlife Service during a field visit in 2016 confirmed green sturgeon feeding did not extend into the Mad River Slough area. However, aside from Sand Island, the Mad River Slough area had the most activity on the acoustic receiver during the 2016 field visit, but due to equipment difficulties, this location was not fully surveyed (Goldsworthy, pers. comm., 2021). The 2016 field visit also confirms that green sturgeon frequents the higher elevation areas of the intertidal zone to feed (Goldsworthy et al. 2016). In 2007-2008, approximately 200 sturgeon detections were recorded near the Mad River Slough area and breaching in this area has been repeatedly observed (Goldsworthy, pers. comm, 2021). Previous intertidal longline operations, including the Coast Seafoods Expansion Project, implemented a 10-foot buffer between culture plots and subtidal channels to minimize risks to sturgeon and other species foraging on intertidal mudflats.”

Recommendations: To reduce impacts on green sturgeon, the Department continues to recommend a buffer distance of at least 10 feet between culture gear and subtidal channels. This buffer would also provide benefits to eelgrass and other fish species, foraging along the subtidal and mudflat interface.

Pacific Herring

Comments: The IS/MND does not address potential impacts to Pacific herring or describe monitoring measures to protect spawning activity within the Project area. Humboldt Bay supports spawning Pacific herring, which deposit eggs on eelgrass and other substrates, including aquaculture gear. Spawning typically occurs between December and March, with peak spawning activity most often occurring in January and February, and may overlap with planting, harvesting, or maintenance activities.

The Department has established a herring egg monitoring and consultation framework for aquaculture operations in Humboldt Bay. This framework provides clear procedures for detecting spawn, coordinating with the Department, and avoiding impacts to eggs during active spawning periods. Similar measures are not described in the IS/MND and should be incorporated to ensure consistency with existing management practices in Humboldt Bay.

Recommendations: The Final IS/MND should include a formal herring monitoring and consultation program to ensure that Project activities avoid take or disturbance of herring spawn and remain consistent with established aquaculture oversight in Humboldt Bay. At a minimum, the following measures should be incorporated:

- Pre-Work Herring Spawn Surveys: During the herring spawning season (December through March), all employees supervising work on tidelands should be trained by a Department biologist to identify herring spawn. Trained personnel should conduct pre-work surveys at each location where planting, harvesting, or maintenance activities are scheduled.
- Work Restrictions if Spawn is Present: If herring eggs are observed on eelgrass, culture materials, or adjacent substrates within or immediately adjacent to the work area, the operator shall: (1) postpone planting, harvesting, or disturbance in the affected area until trained personnel or Department staff confirm that eggs have hatched and spawn is no longer present (typically 2 weeks, but may be longer due to successive spawns), and (2) notify the Department's Eureka Marine Region staff within 24 hours of detection.
- Documentation and Coordination: The operator shall maintain records of spawning observations, notification dates, and Department coordination, and provide these records upon request.

Intertidal Mudflats

Comments: Humboldt Bay's intertidal mudflats provide habitat and foraging opportunities for numerous shorebird and waterfowl species, and fish such as longfin smelt, sturgeon, bat rays and leopard sharks. Several species important to commercial and recreational fisheries also exist within and adjacent to intertidal mudflat habitat in the proposed Project area, and could potentially be impacted by the Project, including Dungeness crab, rockfish spp., Northern anchovy, Pacific herring, and California halibut. Intertidal mudflats are protected under the State's 'no-net-loss' for wetlands policy, and all impacts should be avoided, minimized, and mitigated, with mitigation occurring prior to the implementation of the Project. The IS/MND does not describe the acreage of intertidal mudflat habitat that will be lost from Project development or propose mitigation to offset impacts.

Recommendations: The Department recommends the Final IS/MND include a comprehensive analysis of impacts to intertidal mudflat habitat which includes the following: (1) an evaluation of impacts to mudflat habitat from Project expansion activities, including impacts to adjacent mudflats caused by altered currents, erosion, and depositional processes; (2) an analysis of the reduction in foraging areas for shorebirds, waterfowl and fish species, such as salmonids, bat rays, green and white sturgeon, leopard sharks, and longfin smelt; and (3) a comprehensive mitigation plan to offset loss of intertidal mudflat habitat.

Water Quality

Comments: The IS/MND concludes that the Project would have no impact on water quality (Bio-A4). However, an increase in culture acreage within the Mad River Slough Channel warrants closer monitoring given the hydrodynamic characteristics of that system, and the already existing culture footprint. While NOAA tidal exchange tools show North Bay overall experiences substantial tidal exchange, regional planning and monitoring efforts recognize Mad River Slough as a distinct tidal and hydrologic unit (Humboldt Bay Sea Level Rise Regional Planning Feasibility Study, 2023). Shellfish aquaculture in relatively constrained tidal channels has the potential to increase organic matter deposition, alter circulation, residence time, and flushing rates. These changes have been documented to affect sediment oxygen, nutrient dynamics, turbidity, and water quality parameters such as dissolved oxygen and chlorophyll-a (Newell 2004; McKindsey et al. 2011, Xie et al. 2024). The Department is concerned that the Project's expansion could result in localized or cumulative effects on water quality, benthic habitat conditions, and eelgrass persistence if assimilative capacity is exceeded.

Recommendations: The magnitude and significance of potential water quality effects are highly dependent on site-specific conditions. The Department recommends that the Final IS/MND include a monitoring program with clear performance standards. Monitoring should inform adaptive management measures, such as adjusting stocking density or cultivation acreage, if water quality degradation is observed.

Cumulative Impacts

Comments and Recommendations: Humboldt Bay currently supports approximately 301 acres of intertidal aquaculture. The Project proposes adding 13.9 acres in the Mad River Slough Channel, a relatively constrained tidal channel. The Department recommends the Final IS/MND evaluate cumulative impacts. This evaluation should consider all existing intertidal and subtidal aquaculture leases, as well as other foreseeable projects in Humboldt Bay, such as the Offshore Wind Multipurpose Marine Terminal Project, and their combined effects on protected and sensitive species, habitats, water quality, and recreationally and commercially important species.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, section 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDDB). The CNDDDB field survey form can be filled out and submitted

Vanessa Blodgett
Humboldt Bay Harbor, Recreation and Conservation District
March 10, 2026
Page 12 of 15

online at the following link: <https://wildlife.ca.gov/Data/CNDDDB/Submitting-Data>. The types of information reported to CNDDDB can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

ENVIRONMENTAL DOCUMENT FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by the Department. Payment of the environmental document filing fee is required for the underlying Project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, section 753.5; Fish & G. Code, section 711.4; Pub. Resources Code, section 21089.)

CONCLUSION

The Department appreciates the opportunity to comment on the IS/MND to assist the Harbor District in identifying and mitigating Project impacts on biological resources. Questions regarding this letter or further coordination should be directed to Heidi Carpenter, Environmental Scientist at R7CEQA@wildlife.ca.gov.

Sincerely,



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Vanessa Blodgett
Humboldt Bay Harbor, Recreation and Conservation District
March 10, 2026
Page 13 of 15

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Vanessa Blodgett
Humboldt Bay Harbor, Recreation and Conservation District
March 10, 2026
Page 14 of 15

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Vanessa Blodgett
Humboldt Bay Harbor, Recreation and Conservation District
March 10, 2026
Page 15 of 15

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Humboldt Bay Oyster Co. Shellfish Farm

Following is a summary of Initial Study revisions and considerations relative to CDFW's recommendations in the March 10, 2026 letter.

1. **Eelgrass Surveys.** CDFW recommended eelgrass surveys before and after shellfish culture equipment installation. Pre-installation surveys will be conducted consistent with the California Eelgrass Mitigation Policy and new culture equipment will avoid eelgrass habitat. Given the buffer distance between shellfish culture equipment and eelgrass, no impacts to eelgrass are expected and therefore post-installation surveys are not proposed. It is notable that even for projects with nearly certain direct impacts to eelgrass (e.g., new piles installed in areas with eelgrass) it is difficult (and often impossible) to design surveys with adequate statistical power to attribute any reduction in eelgrass cover to the project rather than temporal variation and other impact mechanisms such as clamming.
2. **Eelgrass Buffers.** The mitigation measure related to eelgrass buffers has been revised. Based on our email correspondence (attached), we understand that this meets the intent of CDFW's request.
3. **Vessel Passage and Routes.** Per CDFW's recommendation, mitigation now requires a minimum of two feet of water over eelgrass for a vessel to travel over it. Initial Study Figure 8 shows the vessel landing locations to avoid eelgrass impacts.
4. **Longline Spacing.** Per CDFW's recommendation, the minimum spacing between longlines has been increased from 3 feet to 5 feet.
5. **Waterfowl and Shorebird Protection.** Per CDFW's recommendation, high disturbance activities will be limited to May through June and the minimum spacing between longlines will be 5 feet. Minimization of vessel speeds and consolidation of maintenance trips are best management practices followed by HBOC, no specific change to the Initial Study was made to reflect these practices.
6. **Subtidal Channel Buffer.** Per CDFW's recommendation, there will be a 10-foot buffer between newly placed culture equipment and subtidal channels.
7. **Herring Protection.** Per CDFW's recommendation, surveys for herring eggs and avoidance of the eggs will be implemented.
8. **Mudflat Mitigation.** CDFW recommended a "comprehensive mitigation plan to offset loss of intertidal habitat". This is not currently being considered. Addition of shellfish culture on mudflats does not result in a loss of intertidal habitat. The habitat remains intertidal and provides substantial ecological and wetland functions. To our knowledge, there has never been compensatory mitigation for developing shellfish culture on mudflats in Humboldt Bay.
9. **Water Quality.** CDFW recommended a water quality monitoring plan with performance standards. This is not currently being considered. Shellfish culture has documented

water quality benefits, including reduction of eutrophication risk. Additionally, it would not be possible for water quality monitoring to link any water quality changes directly to Humboldt Bay Oyster Company's relatively small shellfish farm (approximately 21 acres), that is near approximately 300 acres of existing shellfish culture.

Also, as a result of our conversations, Humboldt Bay Oyster Company has agreed to a maximum culture footprint of three acres (within the 13.9 acre expansion area).