

## **Appendix J:**

# **Analysis of Project Economic Impacts**

# The Economic Impact of Coast Seafoods' Expansion Proposal in Humboldt County

## Introduction

The West Coast has a rich history in shellfish aquaculture dating back to the 1860s. Today, this region is home to more than 300 commercial shellfish farms and five private hatcheries with a farm gate value exceeding \$228 million, accounting for two-thirds of all oyster, mussel, and clam aquaculture sales in the U.S. and supporting more than 3,800 direct jobs (Pacific Shellfish Institute).

Humboldt Bay is known as “the oyster capital of California” (California Legislature 2009) and Humboldt-grown oysters are considered to be a “best-choice” seafood (The Monterey Bay Aquarium Seafood Watch) because their harvest has a low impact on the ecosystem and other habitats. Coast Seafoods' (Coast) history in Humboldt Bay dates back to the 1950s when shellfish farmers started cultivating Pacific and Kumamoto oysters in this area. In the mid-1990s, Coast was the largest oyster producer on Humboldt Bay. However, as sustainable management practices have been implemented, Coast has reduced its farmed area to 299 acres and 70 employees from 1,000 acres and 100-120 employees.

Despite this hotspot in Humboldt Bay and considerable progress being made in hatchery and shellfish husbandry practices, shellfish aquaculture production in California has performed poorly when compared to Washington state (e.g. 1.8 million in California vs 19 million pounds in Washington for the period of 2012-13), the rest of the U.S. (mostly northeast and mid-Atlantic states) and the rest of the world in particular (Figures 1 and 2). According to the Food and Agriculture Organization of the United Nations (FAO), the U.S. produced 6.6 percent of total global aquaculture production in 1970 compared to 0.8 percent in 2011 and 0.6 percent in 2013 (Figures 1 and 2). The U.S. and particularly California's comparative disadvantage (i.e. lag in aquaculture production when compared to other countries) is due to high production costs and a multifaceted regulatory environment. In the face of growing seafood demand, the decline in capture fisheries and the nation's \$11 billion seafood trade deficit (more than 90 percent of seafood consumed in the U.S. is imported with 2014 imports valued at \$20.7 billion), shellfish aquaculture is one of the best ways to address sustainable seafood production and the U.S. seafood security challenges.

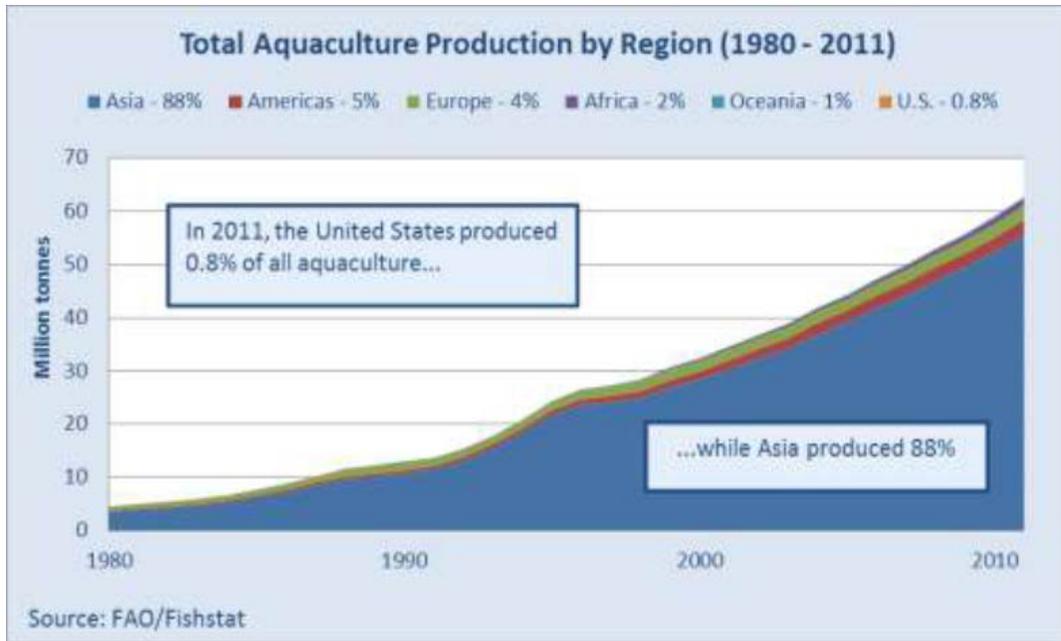


Figure 1. World aquaculture production.

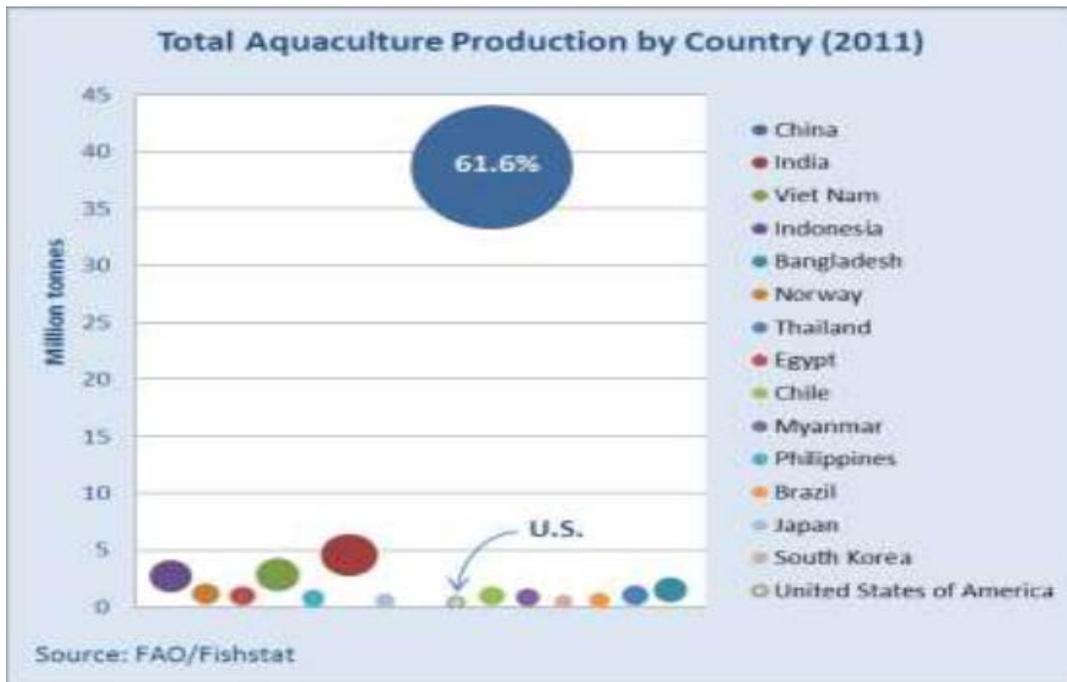


Figure 2. World aquaculture production by country in 2011.

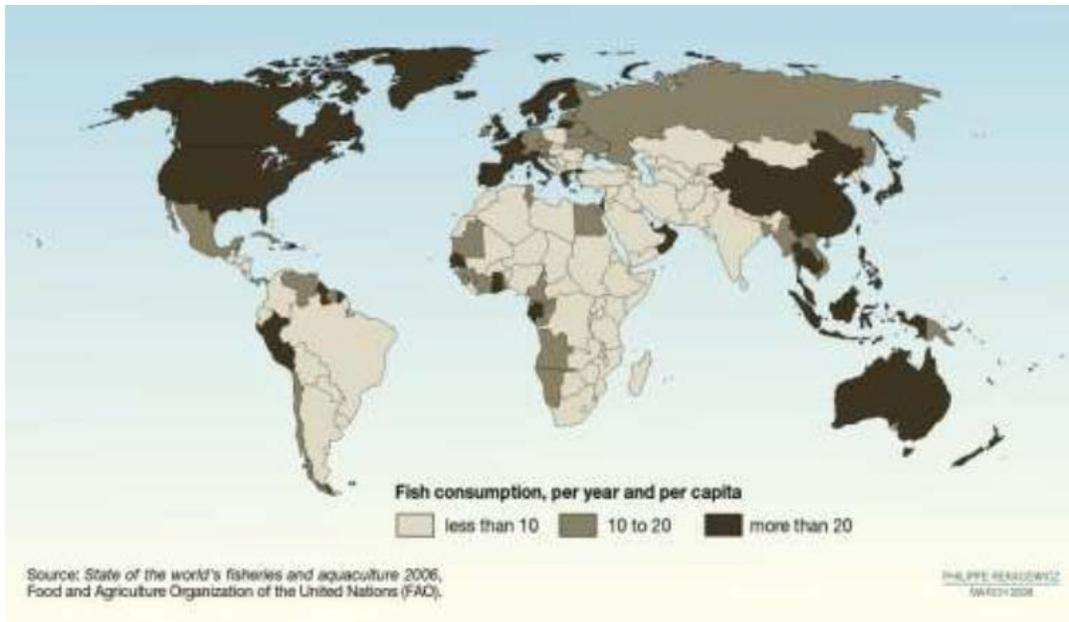


Figure 3. Aquaculture accounts for 50 percent of all seafood consumed in the world and the proportion is growing quickly (FAO 2013). Americans consumed 4.7 billion pounds of seafood in 2011, 91 percent of which was imported.

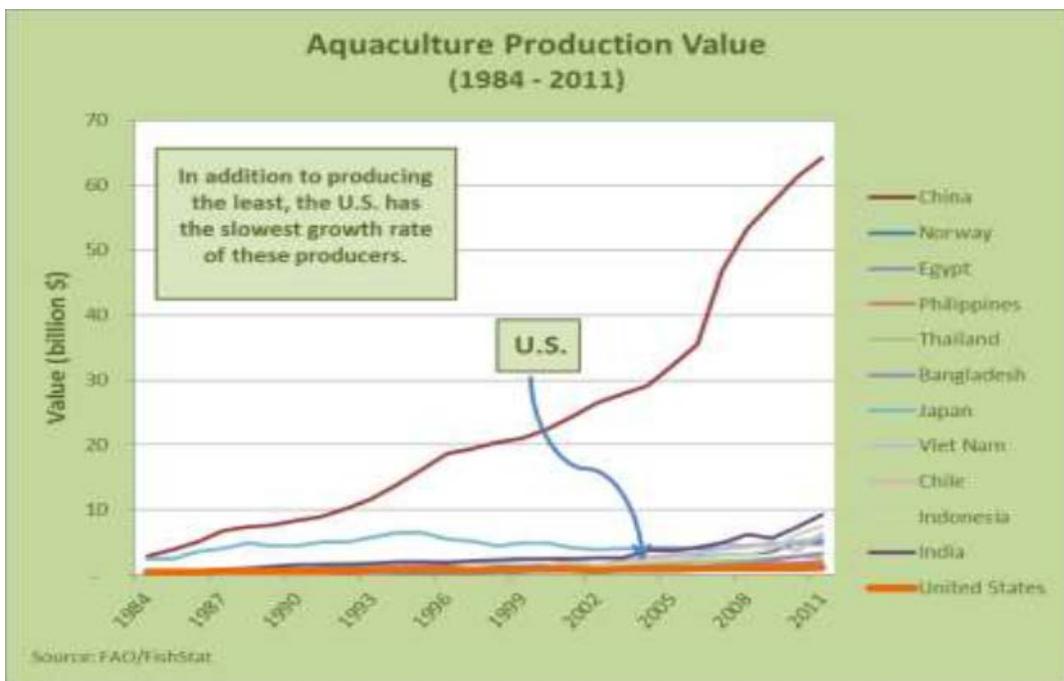


Figure 4. Global aquaculture production is valued at \$100 – 120 billion. The U.S. aquaculture production is currently just under \$1 billion (FAO 2013).

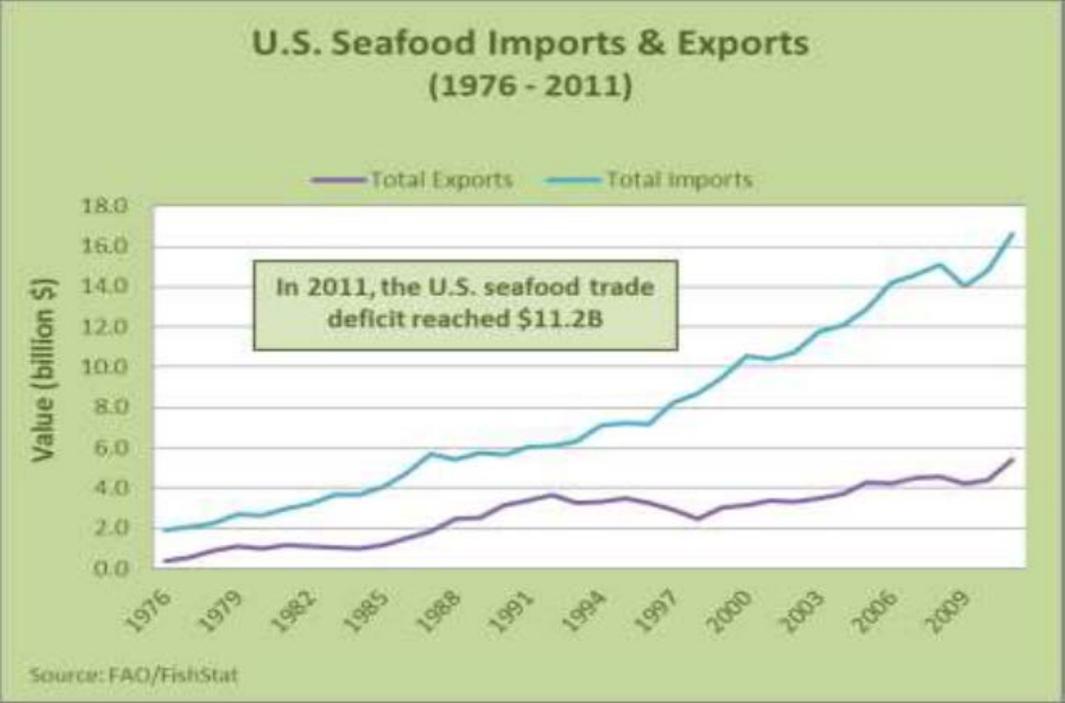


Figure 5. Doubling current U.S. aquaculture production would reduce \$11.2 billion seafood trade deficit and could result in 50,000 jobs and over \$1 billion farm-gate value (FAO 2013).

## Overview of California Commercial Shellfish Aquaculture

According to a survey conducted by Pacific Shellfish Institute (PSI) in 2012, there are 16 commercial shellfish aquaculture growers in the state of California. PSI recently confirmed the industry landscape did not change much in the past five years (phone interview in October 2015).

Oysters account for the majority of aquaculture production in all three coastal states.<sup>1</sup> Washington State has the greatest amount of land dedicated to aquaculture (22,502 acres), of which 62 percent is currently being utilized. This generates over \$90 million a year in revenue and supports 1,266 direct jobs. California, on the other hand, dedicates far less land to aquaculture (6,201 acres), of which only 12 percent is currently being utilized. This generates \$26 million a year in revenue and supports 204 direct jobs (Table 1). Figure 6 depicts seven out of California's 15 counties where commercial shellfish aquaculture takes place.



Figure 6. California Counties with Shellfish Aquaculture Activity (California Secretary of State's Office).

---

<sup>1</sup> Northern Economics, Inc. *The Economic Impact of Shellfish Aquaculture in Washington, Oregon and California*. Prepared for Pacific Shellfish Institute. April 2013. The results of the study conducted by Northern Economics and Pacific Shellfish Institute in 2013 apply specifically to commercial shellfish growers. Wild and tribal harvest and shellfish bed restoration are not included.

Table 1. Commercial shellfish aquaculture summary statistics in Washington, Oregon and California.

	<b>WA</b>	<b>CA</b>	<b>OR</b>
Acres Reported	22,502	6,201	3,043
Farmed Acres Reported (%)	62%	12%	32%
Total State Acres	29,663	6,201	5,011
Employment	1,266	204	n/a
Revenues/Sales (\$)	90,296,206	25,856,668	9,313,300
Expenditures/Acre (\$)	4,880	1,912	n/a
Reported Production (lbs)	19,009,588	1,792,795	n/a

n/a = not available

### **Utilization of Permitted Tidelands**

Whereas 62 percent of tidelands are under shellfish cultivation in Washington State, only 12 percent of the permitted tidelands in California are being utilized for this purpose. In Humboldt County, seven percent of the permitted tidelands are under shellfish cultivation, far lower than in any other shellfish-producing county in California (Table 2). While Coast is utilizing only seven percent of the acreage currently owned or leased by it, we hope to increase our production by employing sustainable farming practices to the level where we can satisfy growing consumer demand, successfully compete against imports and thus boost local seafood production (Table 3).

The United States is presently losing to foreign producers of shellfish, shrimp, salmon, tilapia, catfish and pangasius who supply more than 90 percent of farmed seafood to American consumers. Foreign producers, even on a regional level, far outpace us in aquaculture production, despite having a coastline with large, sustainable opportunities. Coast’s plan is to make this region internationally competitive with a sustainable product while contributing to the local and regional economy. However, constraining legislation and multiple regulatory agencies hamper growth in comparison to other regions where sustainable aquaculture methods are promoted through streamlined regulations and supportive agencies.

Table 2. Reported commercially farmed and not-farmed acreage by California County. Both shellfish growers and seed producers are included.

<b>County</b>	<b>Reported Acres</b>	<b>Not Farmed Acres</b>	<b>Farmed Acres</b>	<b>Farmed Acres (%)</b>
Marin	1,413	1,071	342	24
Santa Barbara	70	35	35	50
San Luis Obispo	135	120	15	11
Humboldt	4,577	4,234	343	7
Other	6	0	6	100
<b>Total</b>	<b>6,201</b>	<b>5,460</b>	<b>740</b>	<b>12</b>

Source: Northern Economics, Inc. April 2013.

Table 3. Coast’s leased and/or owned area in North and Central Bay.

	<b>Leased/Owned Acres</b>	<b>Not Farmed Acres</b>	<b>Farmed Acres</b>	<b>Farmed Acres (%)</b>
Owned by Coast	514	434	80	16
Leased from the Humboldt Harbor District	1,452	1,374	79	5
Leased from the City of Eureka	1,827	1,728	99	5
Leased from Karamu Corporation	515	474	41	8
Leased from Manila Community Services District	5			
<b>Total</b>	<b>4,313</b>	<b>4,010</b>	<b>299</b>	<b>7</b>

**Production and Lease Revenue Generated by Landowners**

California shellfish aquaculture production data are gathered by the California Department of Fish and Wildlife. Total production of oysters in 2014 was estimated at 835,193 pounds in meat weight. Of this, Coast harvested and processed about 316,258 pounds in meat weight, which is about 38 percent of the total annual oyster production for that year in California.<sup>2</sup>

Ideally, farmland prices should reflect the value of expected returns per farmed acre. Permitted oyster farmland may not be worth the premium price tag if only a small portion of it can be used for production. Coast’s annual base rent (independent of the scales of production), to three different entities the company leases from in Humboldt Bay (Humboldt Harbor District, City of Eureka and Karamu Corporation), is \$76,209 or \$255 per farmed acre.

If Coast were allowed to increase the farmed acreage from 299 to 921 acres, it would be a beneficial outcome for both the lessee (Coast) and lessors (Humboldt Harbor District, City of Eureka and Karamu). For example, the annual base lease cost would go down from \$255 to \$83 per farmed acre while the lessors would make additional \$41,735.68 annually from increased production (Tables 4 and 5). The increase in total lease cost for Coast (i.e. the annual base rent of \$76,209 would stay the same while the rent generated from each dozen oysters produced would increase by a total of \$41,735.68 annually) would be more than offset by the value of increased production.

<sup>2</sup> The most recent publicly available data is for 2014. One dozen oysters is assumed to weigh 0.546 pounds (meat weight). One gallon of oyster meat is assumed equivalent to one bushel of shell-on-oysters; both weigh 8.75 pounds in meat weight.

Table 4. The base rent independent of the scale of production (i.e. the minimum rent which needs to be paid regardless of production volume).

Leased from	Annual Base Rent	Monthly Base Rent	Annual rent per farmed acre
Humboldt Harbor District	\$49,200	\$4,100	\$623
City of Eureka	\$15,164	\$1,264	\$153
Karamu Corporation	\$11,845	\$987	\$289
Total	\$76,209	\$6,351	\$255

Table 5. Phase 1 and Phase 2 proposed expansion of oyster production.

Treatment (Culture Type)	Plot Area (acres)	Total Number of Lines	Dozens of oysters per line	Production every two years (in dozens)
<b>PHASE 1</b>				
Rack-and-bag	4	360	50	18,000
Cultch (10ft single)	6	252	40	10,080
Cultch (10ft double)	150	12,600	40	504,000
Basket (9ft)	50	2,000	40	80,000
<b>Total Phase 1</b>	<b>210</b>	<b>16,100</b>	<b>N/A</b>	<b>612,080</b>
<b>PHASE 2</b>				
Cultch (10ft single)	412	17,304	40	692,160
<b>Total Phase 2</b>	<b>412</b>	<b>7,985</b>	<b>N/A</b>	<b>1,304,240*</b>

\*Two-year crop rotation, which means 652,120 dozens of oysters produced every year on new land. The estimated additional annual lease revenue to Humboldt Harbor District, City of Eureka and Karamu is \$41,735.68 (assuming \$0.064 average rent per DZ of oysters).

### Employment and Wages

Employment numbers vary significantly by operation type in both California and Washington (Table 6). There are approximately 204 direct jobs generated by the commercial shellfish growers in California, compared to 1,266 jobs in Washington (Table 1). Coast is the largest employer in California with about 70 workers currently employed in its farming and processing operations in Humboldt Bay. This is equivalent to 35 percent of California's shellfish aquaculture labor force. Assuming Coast expands its production by utilizing 21 percent instead of only seven percent of its permitted tidelands, 60-70 additional direct jobs will be added in California and more jobs will be added in South Bend, WA where some of the additional processing will most likely occur.

Coast paid approximately \$3 million in wages in 2014-15, which is about 40 percent of total wages paid by California shellfish farmers in 2010.<sup>3</sup> Coast also contributed about \$20,000 in local Humboldt Bay donations in the same time period.<sup>4</sup>

<sup>3</sup> The latest available industry data provided by Northern Economics, Inc. It is assumed that overall wages did not increase by much from 2010 to 2015 due to historically low inflation levels.

<sup>4</sup> Recipients of these donations are Humboldt Bay Baykeeper, Cal Poly, Dairy Princess, Humboldt Bay Farm Bureau, Arcata Main Street, and Humboldt Crabs.

Table 6. California shellfish industry firm size as measured by employment.

Size of Business	Count of Firms	Percent of Total
No Employment Reported	1	6
1 to 10 Employees	10	63
11 to 30 Employees	3	19
31 to 50 Employees	1	6
>50 Employees	1	6
<b>Total</b>	<b>16</b>	<b>100</b>

Source: Northern Economics, Inc. April 2013.

### **Economic Impact of Coast’s Proposed Production Expansion in Humboldt Bay**

The total economic impact of Coast’s proposed production expansion was estimated using the economic multipliers developed by Northern Economics in 2013. Northern Economics and PSI implemented a major survey of commercial shellfish growers in the three west coast states in 2012. By using the survey data and conducting an input-output analysis (IMPLAN), they developed economic multipliers specifically for the west coast shellfish industry.

For every dollar spent on shellfish operations in California, a total of \$1.97 worth of economic activity is generated. For every \$1 million worth of spending by the industry, nearly 24 jobs are generated. In addition, every \$1 spent by the industry in California generates \$0.85 in wages in the state (Table 7).

Table 7. California shellfish aquaculture multipliers developed by Northern Economics, Inc. using survey and acreage data provided by PSI and IMPLAN.

	Output (per \$)	Employment (per \$ million)	Labor Income (per \$)
<b>Multiplier</b>	1.97	24	0.85

The estimated cost of Coast’s proposed production expansion is \$11 million, assuming 21 percent utilization of permitted tidelands (921 farmed acres). To put this into perspective, this is roughly equivalent to the total spending of California growers in 2011 (\$12 million). The scale of commercial shellfish operations in California in terms of capital expenditure is illustrated in Figure 7.

Coast’s investment of \$11 million would generate \$22 million or 1.97 times of economic activity, 264 jobs in total (direct and indirect), and additional labor income of \$9 million. If we were to include demand and supply factors (e.g. retail markets, seafood restaurants, tourism industry, etc.) and the effects of spending outside of Humboldt County (South Bend, WA for example), the economic impacts of Coast’s proposed project would be even greater.

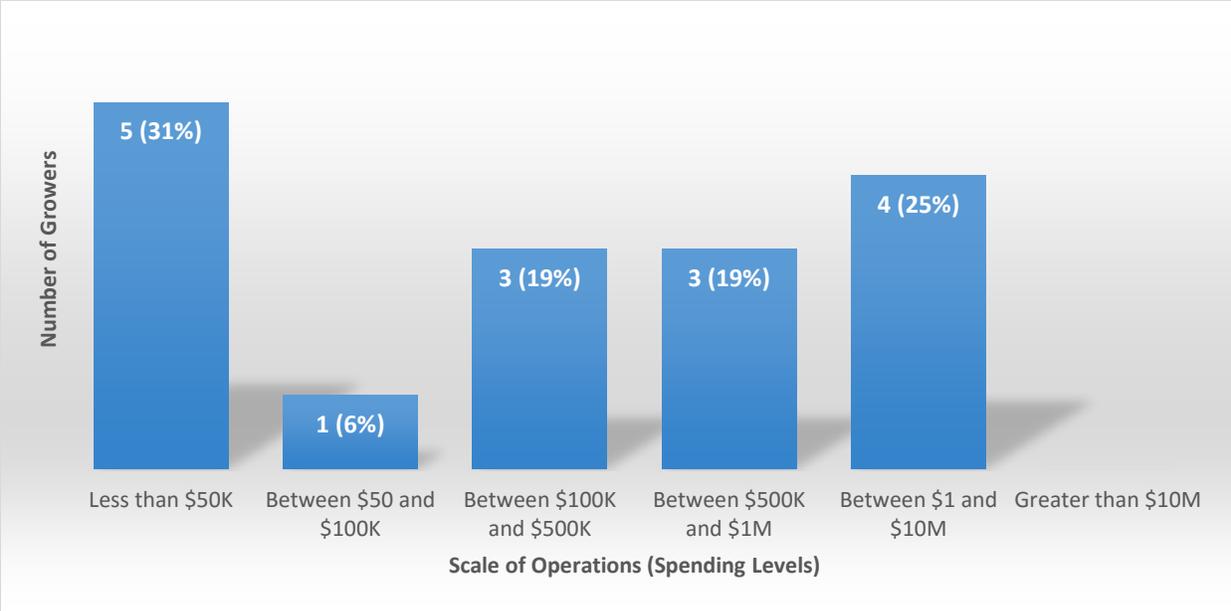


Figure 7. California shellfish growers' capital expenditure in 2011.