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STRATEGY | REAL ESTATE | URBAN ECONOMICS

Memorandum

To: Brian Pendleton, General Manager
From: Michael Wright
Date: November 13, 2020
Subject: Economic and Fiscal Impacts of the Ventura Shellfish Enterprise Project

Introduction

The Ventura Port District (the District) is currently seeking permits for the Ventura Shellfish Enterprise project (VSE), a multi-party initiative to permit twenty 100-acre plots for growing the Mediterranean mussel (*Mytilus galloprovincialis*) via submerged long lines in waters within the Santa Barbara Channel northwest of Ventura Harbor. Project implementation will be phased such that a maximum of 500 acres of growing are will be installed per year, provided that the project meets certain identified thresholds and standards established by regulatory agencies as part of their approval of project permits and monitoring plans. The analysis contained herein is based upon the project descriptions submitted with the District's applications, as clarified based upon further discussions with the District.

The District has been the recipient of two NOAA California Sea Grant sub-awards that provide financial support for the VSE project. The first Sea Grant issued in 2015 provided funding for preparation of a strategic permitting plan, preparation of all required permit and entitlement applications, and an educational outreach program, including eight public workshops. The second Sea Grant issued in 2018 is providing funding for coordination of a permit assignment strategy with the regulatory agencies, environmental review, a seafood safety and quality assurance plan, and a grower/producer compliance training program and information dissemination. As the District works to complete these 2018 Sea Grant tasks, the District has simultaneously engaged Illuminas Consulting to estimate the local fiscal and economic impacts associated with the VSE project.

As the shellfish aquaculture industry grows on the west coast of the United States and around the world, growers and policymakers strive for a better appreciation of the industry's economic impact on local regions. Assessing an industry's economic impact is a way to gain a deeper understanding of the role that industry plays in the local economy, thereby helping industry representatives and local policy makers to make informed decisions.

Summary of Results

Economic Impact of VSE Project

Economic impact measures the effects on the local economy by the introduction of new business operations to be located within the 2,000-acre VSE project area. Effects are measured as new economic output, jobs and overall growth in area wages due to this new activity.

By buildout of all four phases of the VSE project, the 20 onsite growers are projected to spend \$10.4 million annually in Ventura County to purchase supplies and services necessary to run the aquaculture farms¹. This spending will support approximately 40 onsite jobs with a collective wage impact of \$2.5 million per year.

Exhibit 1

Total Ongoing Impacts of VSE Farm Operations in Ventura County Stabilized Annual Values after All 4 Phases are Fully Operational

From Onsite Operations and Vendor Spending

Indirect and Induced Totals Represent Average of High and Low Estimates

\$18.4M

Total Economic Output Generated



\$4.2M

Total Compensation Generated



53

Total Jobs Supported



¹ All costs are in current year 2020 dollars.

The grower business-to-business spending as well as farm employee consumer purchases will support an additional \$8.0 million in indirect (business-to-business) and induced (consumer spending) impacts throughout the Ventura County area. This spending will support an average of 13 jobs with an associated wage impact of \$1.7 million².

In addition to the ongoing effects of annual grower expense spending, each grower will invest in startup equipment necessary to operate their business. For all four phases, one-time equipment purchases are estimated to be \$23.6 million. Equipment purchases will support an additional \$13.3 million in indirect (business-to-business) and induced (consumer spending) impacts throughout the Ventura County area at the start of each of the four project phases.

Exhibit 2

Total One-Time Impacts of VSE Farm Capital Purchases in Ventura County (All Phases)

$$\mathbf{\$23.6M + \$13.3M = \$36.9M}$$

One-Time Spending for Startup Equipment	Indirect and Induced Output in Ventura County	Total Impact in Ventura County
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Fiscal Impact of VSE Project

In addition to the economic output and job impacts associated with the VSE project, there are fiscal impacts associated with direct revenues and costs to the District as well as some indirect tax revenues that are likely to be captured by city jurisdictions located within Ventura County.

Over the first 10 years of operation, it is anticipated that all four phases of the VSE will be operational and will generate a cumulative net positive impact to the District of \$9.5 million or \$1.4 million annually by year 7. The District will collect revenues from slip and landing fees as well as payments by growers for compliance, monitoring and enforcement activities. District costs to run the VSE project include biological compliance, monitoring and enforcement; information management services; shellfish sanitation services; dedicated staff time for operations and monitoring of VSE businesses; and planning costs associated with the pre-harvest period of the VSE project.

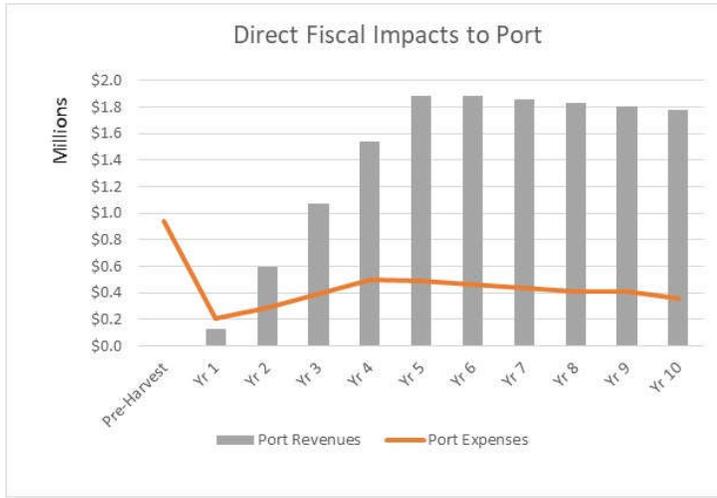
There will be tax revenues generated for cities located in Ventura County as well³. At the beginning of each phase when VSE operators invest in startup equipment, there will be a one-time local sales tax revenue generation of \$58,930 to the city where the purchase of equipment is made⁴. Ongoing tax revenue impacts include sales tax and utility user’s tax revenues from business supply purchases as well as consumer purchases from VSE employees. This will total \$49,100 annually by year 5. Over the first 10 years of operation, the VSE project will generate a cumulative net positive impact to surrounding cities of \$653,000.

² Indirect and induced totals represent an average of high and low range estimates.

³ The fiscal impact analysis focuses on impacts to cities in the County of Ventura where much of the vendor spending and employee consumer purchases are projected to take place. It does not project impacts accruing to the state or federal jurisdictions.

⁴ Totals reflect point of purchase returns to the city where the sale takes place. This totals to 1.0 percent of the retail sales price.

**Exhibit 3
Direct Fiscal Impact to District**



\$9.5M
Net Impact to Port
Over Ten Years

**Exhibit 4
Tax Revenue Impact to Local Cities**



\$653,000
Tax Revenue to Local
Cities Over Ten Years

Downstream Economic Impacts

While the main focus of this analysis are the impacts directly associated with VSE grower businesses, they are only the first step in a multi-level production chain that includes seafood processors, distributors, restaurants and grocery stores.

Mussels harvested in VSE plots will be transported to Ventura Harbor for sale and distribution. Growers will individually decide how their catch will be distributed. However as seen in other areas of California as well as other states with established shellfish operations, a portion of the catch

typically winds up in local restaurants and grocery stores with the remaining portion going to local processing facilities for local or export sales.

For purposes of providing an illustration of the relative importance of capturing the downstream impacts locally, an analysis was developed to show the impacts associated with the chain of product distribution once the harvested mussels leave the Port property. Keeping production, distribution, processing and consumption “local” makes for a more sustainable system, less food miles traveled and more work for local employees.

Annual grower revenues for the VSE product are estimated to be \$29.3 million by full buildout⁵. Even assuming that a significant portion of economic activity in processing and wholesale operations as well as restaurant and retail market sales occur at locations outside of Ventura County, the result is that for every VSE grower job, an additional 1.4 jobs could be supported in local businesses that process, distribute and sell the resulting shellfish product⁶. Accounting for the full effect of downstream business activity and all resulting economic multiplier activity, **the VSE project could support 97 jobs total within the greater Ventura County economy if there is a concerted effort to develop a local infrastructure to process, distribute and sell the shellfish product locally.**

Exhibit 5
Total Impact Including Downstream Economic Effects

Direct Grower Jobs	40	<i>Jobs associated with 20 farms by build out</i>
Up/Downstream Jobs	57	<i>Projected upstream and downstream jobs not including grower jobs</i>
Total Job Impact	97	<i>Direct VSE Jobs + all additional direct, indirect and induced jobs</i>
MULTIPLIER	2.4	<i>For every direct grower job, 1.4 additional jobs would be supported.</i>

⁵ Estimated gross annual revenues of \$1,462,500 per grower x 20 growers = \$29.3 million.

⁶ For this analysis, it is assumed that approximately 51 percent VSE shellfish product would remain within Ventura County for processing, distribution and consumption.

Overview of the Shellfish Aquaculture Economy in California

California has a rich history in shellfish aquaculture dating back to the 1860s. Currently, aquaculture facilities that produce food products are located up and down the coast, and in ponds and tanks inland. Although the majority of operations are within coastal waters, there are three active land-based facilities growing shellfish and/or seaweed for commercial sale and consumption, with a fourth longstanding operation in Cayucos near Morro Bay recently closed. Currently, a total of 4,960 acres of California public tidelands are utilized for marine aquaculture.⁷

Additionally, the California Department of Fish and Wildlife manages 17 active state water bottom leases for marine aquaculture totaling 907 acres, of which 267 acres are currently used. Aquaculture facilities without state water bottom leases include operations within Humboldt Bay, Monterey Bay, Agua Hedionda Lagoon, and San Diego Bay. These facilities account for an additional 4,053 acres set aside for marine aquaculture in California waters. Total shellfish production reported to California Department of Fish and Wildlife in 2018 was 495.2 metric tons for all species combined. In all, the total value of commercial production in 2018 was \$15.3 million.⁸



Public demand for local shellfish has risen dramatically in recent decades. Worldwide, demand for farmed seafood has never been greater, as global farmed aquaculture exceeded beef production for the first time in 2012.⁹ However, shellfish cultivation in the state has lagged far behind. While California is the third largest shellfish consuming state in the United States, state production meets less than half of this demand, contributing to a state and national seafood trade deficit and a lost opportunity for economic growth.¹⁰

California aquaculture development continues to face many challenges and opportunities, influenced by factors including rapid scientific and technical advances, global and local market forces, competing

⁷ *The Status of Commercial Marine Aquaculture in California* - California Department of Fish and Wildlife, March 2020. The map on this page indicates locations of commercial marine aquaculture facilities in California. Open circles show locations with facilities in state waters and closed circles show land-based facilities. Many facilities within state waters also have associated land-based facilities.

⁸ These totals cover commercial production of mussels, Manila Clams, Red Abalone, Kumamoto Oysters, Pacific Oysters, Olympia Oysters, European Flat Oysters, and Eastern Oysters.

⁹ National Geographic Ocean Views, "Farmed Fish Now More Popular Than Beef Worldwide", 6/19/13.

¹⁰ California Shellfish Initiative - *A Position Paper of the Pacific Coast Shellfish Growers Association*, August 2013

stakeholder and land-use priorities, and the expense and complexity of environmental and regulatory review and administration.

One solution to the high cost and specialized expertise now needed to successfully navigate environmental review and permitting has been proposed through a number of creative, collective solutions. Various port and harbor districts have undertaken efforts to secure entitlements for aquaculture activity within their jurisdictions, by pre-permitting and business incubation initiatives. If successful, such efforts would enable aquaculture partners and sub-lessees to get started producing sooner, with a lower cost of entry, and with repayment to the districts over time. The cost savings of quicker startup and predictable permitting can provide the needed catalyst to build local aquaculture industries, benefiting surrounding economies (from local to state and federal levels), through added jobs and business activity, tax and license revenues, and the decrease of both carbon-footprint and trade deficit provided by locally-produced seafood.

The District's VSE project is an example of a special district-initiated program to facilitate the expansion of aquaculture farms that can help to boost local supplier networks for home-grown seafood in California. An additional benefit is that, if successful, the businesses started under the VSE project will contribute to ongoing economic growth in the greater Ventura County region.

Estimated Economic Impact of Ventura's VSE Project

Economic Impact Process

As the shellfish aquaculture industry grows on the west coast of the United States and around the world, growers and policymakers strive for a deeper understanding of the industry's economic impact on local regions. Assessing this impact is a way to gain a deeper understanding of the role that the industry plays in the local economy, thereby helping industry representatives and local policy makers to make informed decisions.

Economic impact measures the effects on the local economy by the introduction of new the business operations to be located within the 2,000-acre VSE project area. Effects are measured as new economic output, jobs and overall growth in area wages due to this new activity.

For this analysis, there are two stages of economic impact that are measured:

1. **The impact of aquaculture farming operations.** This encompasses one-time startup investment purchases as well as ongoing economic activity for the growers that will occupy the plots constituting the VSE project area.

The ongoing economic activity encompasses direct business-to-business spending on supplies, utilities, fuel for vessels, repairs and maintenance, marketing, slip, landing fees and other lease fees and compliance, monitoring, enforcement costs. This business-to-business (and business-to-government) spending will largely occur within the local economy. Additionally, each operator is assumed to have full time as well as possibly part-time employees that will be paid wage incomes. It is assumed that these employees will in-turn spend a portion of their incomes at local businesses located within the County.

2. **Downstream impacts associated with the sale and distribution of harvested product -** Residents and tourists of West Coast communities all enjoy and benefit from the supply of

fresh shellfish provided by the aquaculture industry. People purchase shellfish through retail markets, consume shellfish in restaurants, and enjoy local seafood fare at fundraisers and events.

Mussels harvested in VSE plots will be transported to Ventura Harbor for sale and distribution. Growers will individually decide how their catch will be distributed. However as seen in some other areas of California as well as other states with established shellfish operations, a portion of the catch typically winds up in local restaurants and grocery stores with the remaining portion going to local processing facilities for local or export sales.¹¹ This distribution process creates its own economic impact process as the wholesale sales by shellfish growers move down the food chain, create additional value and involve the activity of additional business and as well as associated job impacts.

Impacts Associated with VSE Project

According to the VSE Operations Plan, the project will consist of twenty 100-acre plots (total of 2,000 acres) to be used for growing Mediterranean mussel. Each of the 20 plots are approximately 100 acres in size. The installation of the 2,000 acres will be phased such that 500 acres per year will be installed, provided that the project meets certain identified thresholds and standards established by regulatory agencies as part of approval of project permits and monitoring plans.

The mussels will be grown and harvested by growers who operate the plots pursuant to an agreement with the District. Initial plantings of juvenile seed mussels, commonly referred to as spat, will be purchased from onshore hatcheries certified by the California Department of Fish and Wildlife (CDFW).

Once fully matured mussels have been harvested, they will be size-graded and bagged for landing as market-ready product. All mussels will be required to be landed at Ventura Harbor where they will be transported for offloading, sale, and distribution. All husbandry activities related to harvesting, grading, and restocking of mussels to cultivation lines will occur onboard the servicing vessel using specialized equipment for that purpose. Watercraft used for planting, inspections, and harvesting would likely be home ported at Ventura Harbor.

The process to estimate economic impacts from the VSE Grower project involves two generalized steps:

1. Estimating the direct economic output, employment and wages levels for the VSE project; and
2. Applying economic multipliers to each of these estimates to project the effect of new business-to-business and consumer spending on the local area.

Direct output, or business spending by a VSE grower has been estimated using information supplied by District staff. A detailed proforma was developed for the District to illustrate projected grower

¹¹ *Morro Bay Commercial Fisheries – 2015 Economic Impact Report* by Lisa Wise Consulting; *Maine Aquaculture – 2017 Economic Impact Report* by the University of Maine Aquaculture Research Institute; and *Massachusetts Shellfish Aquaculture Economic Impact Study (2015)* by The University of Massachusetts Dartmouth and the Charlton College of Business, Center for Marketing Research

costs and revenues associated with operating a 100-acre plot in the VSE area¹². A summarized copy of this proforma is attached at the back of this memorandum as Exhibit A1.

Using the details from the grower proforma, it is assumed that by a stabilized year 5, each grower will spend approximately \$600,000 in annual business expenses¹³. Of this amount, it is estimated that 85 percent will be spent locally within Ventura County (total of \$510,000)¹⁴. In addition to ongoing annual expenses, each grower will purchase \$877,800 in startup equipment¹⁵ and will contribute to the purchase of a support vessel valued at \$1.5 million¹⁶. Exhibit 6 below summarizes these impacts.

Exhibit 6
Summary of Direct Business Impacts – VSE Project by Phase

	Impacts are Cumulative by Phase /1			
	Phase 1	Phase 2	Phase 3	Phase 4
One-time Capital Purchases 2/	\$ 5,893,360	\$ 5,893,360	\$ 5,893,360	\$ 5,893,360
Economic Output 3/ (e.g. Local Spending by Growers)	\$ 2,597,412	\$ 5,194,824	\$ 7,792,236	\$ 10,389,648
Direct Employment (e.g. Onsite Jobs)	10	20	30	40
Direct Wage Income (e.g. Wages for Onsite Jobs)	\$ 633,750	\$ 1,267,500	\$ 1,901,250	\$ 2,535,000

Notes

1/ Each phase consists of five plots, each occupied by one grower

2/ Startup investment for each grower includes longlines, seeding and harvesting equipment. Investment also includes the purchase of 1 Harvest Vessel for every 5 growers.

3/ Purchases shown are assumed to occur within Ventura County. Seed purchases are assumed to occur outside of the area.

It is estimated that each grower will employ nearly 2.0 full-time equivalent employees with a combined annual wage of \$126,800 (rounded). Exhibit A2 at the back of this memorandum provides a detailed estimate of the direct grower impacts by project phase.

Multiplier Impacts Associated with the VSE Project

Aquaculture farming is a highly specialized business operation. In order to best project the local economic impacts of this type of business, it was decided to use industry specific economic multipliers developed for a research project sponsored by the Pacific Shellfish Institute (PSI) in

¹² Proforma developed by Scott Lindell, Research Specialist – APOE, Woods Hole Oceanographic Institution.

¹³ Note, all costs are shown in current year 2020 dollars with no inflation assumptions applied.

¹⁴ At this point in time, it is conservatively assumed that seed purchases by growers will occur at outlets located outside of Ventura County such as the nursery facilities located in Humboldt Bay. Should seed purchases be made within Ventura County, startup and ongoing investment in Ventura County from VSE growers would be greater than estimated here.

¹⁵ Longlines, seeding and harvesting equipment and a service vessel.

¹⁶ One support vessel is assumed to be shared by five growers.

2013¹⁷. Since the publication of this report, the PSI aquaculture grower multipliers have been referenced in conference materials and a Final Environmental Impact Report document¹⁸.

The goal of the PSI study was to collect information needed to understand the economic impacts of the west coast shellfish aquaculture industry by gathering data directly from shellfish aquaculture growers. To that end, the study team surveyed growers in Washington, Oregon and California in order to assess industry levels of spending and associated multiplier impacts in each state.

To assess the economic impact of shellfish aquaculture in the three states, the researchers used the grower survey research to develop a detailed understanding of grower business operating costs. They then conducted an input-output analysis using IMPLAN™ software to estimate economic impacts to each state's economy¹⁹. Input-output analysis is a modeling tool developed to measure the economic effects of a project or industry using a matrix that tracks the flow of money between industries within a specified economic region of interest. Monetary flows include business-to-business spending as well as consumer spending generated by employee households.

An impact model measures how many times a dollar is respent in, or “ripples” through, an area's economy before it leaks out. The level of respending is captured in a multiplier number. A number greater than 1 indicates that there are a significant number of local businesses present to capture the needs of the industry in question. For example, in order to operate a shellfish farming business, the owner of the business will be need to hire employees, purchase start-up equipment and pay for ongoing supplies such as seed, gasoline for boats, repair and maintenance services, etc. Multiplier numbers that are approaching 1.7 to 2.0 in scale indicate that after the initial spending on wages and business supplies, more of that money is able to circulate among other local businesses before it “leaks” out of the area when purchases are made at businesses located in other regions.

Based on the survey data from shellfish growers and the input-output analysis of spending impacts on other local businesses, the PSI study derived the following industry-specific multipliers for California.

- Output multiplier – 1.97. Example, for every \$1 in expenditures by a shellfish grower, the local economy generates \$1.97 in total economic output. (e.g., \$1 in direct spending + \$0.97 in indirect and induced spending at other businesses within the area)²⁰.
- Job multiplier – 1.40. Example, for every 10 direct jobs created by a shellfish grower, there are a total of 14 jobs generated in the local economy. (10 direct jobs + 4 indirect and induced jobs).

¹⁷ *The Economic Impact of Shellfish Aquaculture in Washington, Oregon and California* – Pacific Shellfish Institute April 2013, prepared by Northern Economics.

¹⁸ *Economic Impact of West Coast Shellfish Aquaculture* - Pacific Northwest Waterways Association Summer Conference (June 2013) and *Analysis of Project Economic Impacts* - Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project - Recirculated Draft EIR Appendices - Humboldt Bay Harbor District (July 2016).

¹⁹ IMPLAN is a widely accepted economic model that many public agencies use to estimate the consequences of new investments or changes in an area economy.

²⁰ Direct spending in this case is by a shellfish grower for all inputs needed to run a business. Indirect spending are cost impacts associated with the grower's supply chain and induced effects are those created by the consumer spending of the directly and indirectly affected workers.

- Wage Multiplier – 1.85. Example, for \$1 in wages paid by a shellfish grower, this economic activity generates \$1.85 in total wage output. (\$1 in direct wages + \$0.85 indirect and induced income for a total of \$1.85 in overall wage growth in the region).

Note, these multipliers assume that all purchases associated with VSE operator business expenses occur within the local economy. Because it is assumed that seed purchases will occur outside of Ventura County, the multipliers have been adjusted downward to account for this. Exhibit 7 combines the direct spending and job estimates from the District's proforma analysis with the PSI impact multipliers, discussed above.

Exhibit 7
Ongoing Economic Impact of VSE Project

	Ongoing Impacts - All Phases 1/					
	OUTPUT		EMPLOYMENT		WAGE INCOME 2/	
	Low 3/	High	Low 3/	High	Low 3/	High
Direct	\$ 10,389,648	\$ 10,389,648	40.0	40.0	\$ 2,535,000	\$ 2,535,000
Indirect	\$ 2,368,797	\$ 2,661,570	4.5	5.1	\$ 771,249	\$ 866,572
Induced	\$ 5,195,215	\$ 5,837,320	7.5	8.5	\$ 845,228	\$ 949,695
Total	\$ 17,953,660	\$ 18,888,538	52.1	53.6	\$ 4,151,477	\$ 4,351,266
Full Multiplier	1.73	1.82	1.30	1.34	1.64	1.72

Notes

1/ Source for multipliers: "The Economic Impact of Shellfish Aquaculture in Washington, Oregon and California" – Pacific Shellfish Institute April 2013. PSI multipliers have been adjusted to account for some out of area purchases by growers.

2/ Wage income is a subset of Output.

3/ A deflator value of 0.89 was applied to the low end estimates to reflect the differences in purchasing power between 2013 and 2020.

Due to the age of the multipliers derived for the PSI study, it was decided to employ range estimates for the indirect and induced impacts. The high end of the range is the result of directly applying the PSI multipliers (adjusted for out-of-area seed purchases) to the direct output, job and wage projections. A low-end estimate was derived by using a deflator value of 0.89 to represent the difference in purchasing power between 2013 and 2020²¹.

By buildout of all four phases, the 20 onsite growers are projected to spend \$12.3 million annually to run their businesses, with \$10.4 million of this total spent locally within Ventura County.²² This spending will support approximately 40 onsite jobs with a collective wage impact of \$2.5 million per year. The grower spending will support an additional average indirect (business-to-business) and induced (consumer spending) impact of \$8.0 million throughout the Ventura County area. This

²¹ Bureau of Labor Statistics - CPI Inflation Calculator

²² All costs are shown in year 2020 dollars and are not inflated. Seed cost assumed to be spent outside County.

spending will support approximately 13 ongoing jobs with an associated average wage impact of \$1.7 million.²³

In addition to the ongoing effects of annual grower expense spending, each grower will invest in startup equipment necessary to operate their business. Exhibit 8 illustrates this impact. For all four phases, one-time equipment purchases are estimated to be \$23.6 million. Equipment purchases will support an additional \$13.3 million in indirect (business-to-business) and induced (consumer spending) impacts throughout the Ventura County area.

Exhibit 8
One-Time Impacts for Startup Equipment Purchases by VSE Project

	Onetime Investments - All Phases		
	Support Vessels	Long Lines and Seed/Harvest Equipment	Total Output Impacts
Direct	\$ 12,000,000	\$ 11,573,440	\$ 23,573,440
Indirect	\$ 4,440,000	\$ 3,356,300	\$ 7,796,300
Induced	\$ 2,880,000	\$ 2,661,890	\$ 5,541,890
Total	\$ 19,320,000	\$ 17,591,630	\$ 36,911,630
Full Multiplier	1.61	1.52	1.57

Notes

1/ Multipliers for capital investment are derived from IMPLAN. Support vessel purchases use multipliers for Boat Building. Long lines and Seeding/Harvesting Equipment use multipliers for Commercial Service Industrial Machinery Manufacturing.

Fiscal Impacts of Ventura’s VSE Project

In addition to the economic output and job impacts associated with the VSE project, there are fiscal impacts associated with direct revenues and costs to the District as well as some indirect tax revenues that are likely to be captured by city jurisdictions located within Ventura County.

District Related Costs and Revenues

Based on information derived from the illustrative grower proforma²⁴, the District will collect revenues from VSE growers for slip and landing fees as well as payments associated with compliance, monitoring, enforcement. In turn, the District will incur a number of costs associated with VSE startup activities as well as ongoing operations. These include biological monitoring and information management services, as well as staff time dedicated to operations and monitoring of VSE

²³ Economic output, jobs and wage impacts represents the averages of indirect and induced range values shown in Exhibit 7.

²⁴ See Exhibit A1.

businesses²⁵. Finally, District planning and development costs not otherwise covered by grant awards have been allocated as a cost item as well.

Over the first 10 years of operation, it is anticipated that all four phases of the VSE project will be operational and will generate a cumulative net positive impact to the District of \$9.5 million or \$1.4 million annually by year 7 (see Exhibit 9).

Tax Revenue Impact in Surrounding Jurisdictions

For this analysis the focus of tax revenues impacts are at the local city-level and constitute taxes collected by cities for activities involved in running a business operation as well as sales and use taxes associated with business and consumer purchases.

The purchase of startup equipment as well as ongoing purchases of supplies will generate retail sales in the local area. These sales will be subject to local sales taxes²⁶, of which 1.0 percent of the retail sales value is reimbursed to the location where the sale occurs. Retail purchases by employee households will also generate sales tax revenues for local cities such as Ventura and Oxnard.

Over the first 10 years of operation, it is anticipated that all four phases of the VSE will be operational and will generate a cumulative net positive impact to surrounding cities of \$653,000. At the beginning of each phase when VSE operators invest in startup equipment, there will be a one-time local sales tax revenue generation of \$58,934 to the city where the purchase of equipment is made. Ongoing tax revenue impacts include sales tax and utility user's tax revenues from business supply purchases as well as consumer purchases from VSE employees. This will total \$49,100 annually by year 5.

²⁵ This includes staff time for the following job classifications: Business Operations Manager, Marina Manager, Harbor Patrol II, Courtesy Patrol and Accounting Manager.

²⁶ Ventura County sales tax rate is currently at 7.75 percent.

Exhibit 9
Fiscal Impacts from VSE Operations
Captured within Ventura County
Year 2020 dollars (no inflation)

Year	Phase 1											
	Pre-Harvest Period	Phase 2			Phase 3			Phase 4				
Cumulative Acres Farmed		Yr 1 500 ac	Yr 2 1,000 ac	Yr 3 1,500 ac	Yr 4 2,000 ac	Yr 5 2,000 ac	Yr 6 2,000 ac	Yr 7 2,000 ac	Yr 8 2,000 ac	Yr 9 2,000 ac	Yr 10 2,000 ac	
DIRECT IMPACTS TO PORT DISTRICT												
<u>Direct Revenues to Port District 1/</u>												
Slip Fees	\$ -	\$ 30,385	\$ 72,164	\$ 113,943	\$ 155,722	\$ 167,116	\$ 167,116	\$ 167,116	\$ 167,116	\$ 167,116	\$ 167,116	\$ 167,116
Landing Fees	-	-	365,625	731,250	1,096,875	1,462,500	1,462,500	1,462,500	1,462,500	1,462,500	1,462,500	1,462,500
Compliance, Monitoring, Enforcement	-	99,800	162,470	225,140	287,810	250,680	250,680	225,510	200,340	175,170	150,000	150,000
Total Revenues - Port District	\$ -	\$ 130,185	\$ 600,259	\$ 1,070,333	\$ 1,540,407	\$ 1,880,296	\$ 1,880,296	\$ 1,855,126	\$ 1,829,956	\$ 1,804,786	\$ 1,779,616	
<u>Direct Costs to Port District</u>												
Compliance, Monitoring, Enforcement	\$ -	\$ (99,800)	\$ (162,470)	\$ (225,140)	\$ (287,810)	\$ (250,680)	\$ (250,680)	\$ (225,510)	\$ (200,340)	\$ (175,170)	\$ (150,000)	\$ (150,000)
Biological Monitoring Services 2/	(28,940)	(28,940)	(28,940)	(28,940)	(28,940)	(28,940)	(28,940)	(28,940)	(28,940)	(28,940)	(28,940)	(28,940)
Information Management Services 3/	(47,430)	(9,620)	(9,620)	(9,620)	(9,620)	(9,620)	(9,620)	(9,620)	(9,620)	(9,620)	(9,620)	(9,620)
Shellfish Sanitation Services 4/	(150,800)	(26,800)	-	-	-	(26,800)	-	-	-	(26,800)	-	-
Staff Time Dedicated to VSE Activities 5/	-	(42,483)	(84,965)	(127,448)	(169,931)	(169,931)	(169,931)	(169,931)	(169,931)	(169,931)	(169,931)	(169,931)
Pre-Harvest Direct Costs to District 6/	(715,793)	-	-	-	-	-	-	-	-	-	-	-
Total Costs - Port District	\$ (942,963)	\$ (207,643)	\$ (285,995)	\$ (391,148)	\$ (496,301)	\$ (485,971)	\$ (459,171)	\$ (434,001)	\$ (408,831)	\$ (410,461)	\$ (358,491)	
Net Revenue to Port District / (Net Cost)	\$ (942,963)	\$ (77,458)	\$ 314,264	\$ 679,185	\$ 1,044,106	\$ 1,394,325	\$ 1,421,125	\$ 1,421,125	\$ 1,421,125	\$ 1,394,325	\$ 1,421,125	
CUMULATIVE 10-YEAR IMPACT	\$ 9,490,000	(rounded)										
IMPACTS TO LOCAL JURISDICTIONS												
<u>Tax Revenue to Local Jurisdictions</u>												
Based on Ongoing Revenues 7/	\$ -	\$ 12,270	\$ 24,540	\$ 36,810	\$ 49,080	\$ 49,080	\$ 49,080	\$ 49,080	\$ 49,080	\$ 49,080	\$ 49,080	\$ 49,080
Based on One-Time Capital Purchases 8/	-	58,934	58,934	58,934	58,934	-	-	-	-	-	-	-
Total Tax Revenue to Local Jurisdictions	\$ -	\$ 71,204	\$ 83,474	\$ 95,744	\$ 108,014	\$ 49,080	\$ 49,080					
CUMULATIVE 10-YEAR IMPACT	\$ 653,000	(rounded)										

Notes

1/ Revenue estimates for slip and landing fees as well as payments to cover compliance, monitoring and enforcement activities are from the VSE proforma dated November 10, 2020. Excludes cost of Start-up Construction Wildlife Monitoring

2/ Source: Proposal for Biological Monitoring Services for the Ventura Shellfish Enterprise Project, Dudek - 8/21/2020

3/ Information Management Services for the Ventura Shellfish Enterprise Project, Dudek - November 2020

4/ Shellfish Sanitation Services for the Ventura Shellfish Enterprise: Supporting Company/Harvester Compliance with Regulatory Guidelines for Shellfish Sanitation and Public Health Safety, Integrative Biosciences Program at Coastal Marine Biolabs - July 2020

5/ Based on information detailed in Section 9 of the Ventura Shellfish Enterprise Operations Plan and information regarding annual wages for Port District staff (Source: Ventura Port District)

6/ Source: Ventura Port District

7/ Includes sales tax on business supplies and employee retail spending captured in area. Assumes that the City of Ventura would assess utility users tax to VSE businesses.

8/ Sales tax on purchases of capital equipment

Potential Downstream Impacts

While the main focus of this analysis are the impacts directly associated with VSE grower businesses, they are only the first step in a multi-level production chain that includes seafood processors, distributors, restaurants and grocery stores.

As previously noted, mussels harvested in VSE plots will be transported to Ventura Harbor for sale and distribution. Growers will individually decide how their catch will be distributed. However as seen in other areas of California as well as other states with established shellfish operations, a portion of the catch typically winds up in local restaurants and grocery stores with the remaining portion going to local processing facilities for local or export sales. For example, a large percentage of the oysters harvested in Morro Bay are shipped directly to the Santa Monica Seafood's processing plant in Atascadero (San Luis Obispo County)²⁷.

This distribution process creates its own economic impact activity as the wholesale sales by shellfish growers move down the food chain, create additional value and involve the activity of additional business and as well as associated job impacts. This process is illustrated in Exhibit 10 on the next page.

The relative shares of final VSE product that will ultimately be distributed among processing facilities and other associated sales outlets have yet to be determined. However, for purposes of providing an illustration of the relative importance of capturing the downstream impacts locally, information from a recent NOAA Technical Memorandum²⁸ has been used to provide a reasonable estimate of the chain of product distribution once the harvested mussels leave the Port property. Keeping production, distribution, processing and consumption "local" makes for a more sustainable system, less food miles traveled and more work for local employees.

Product Flow

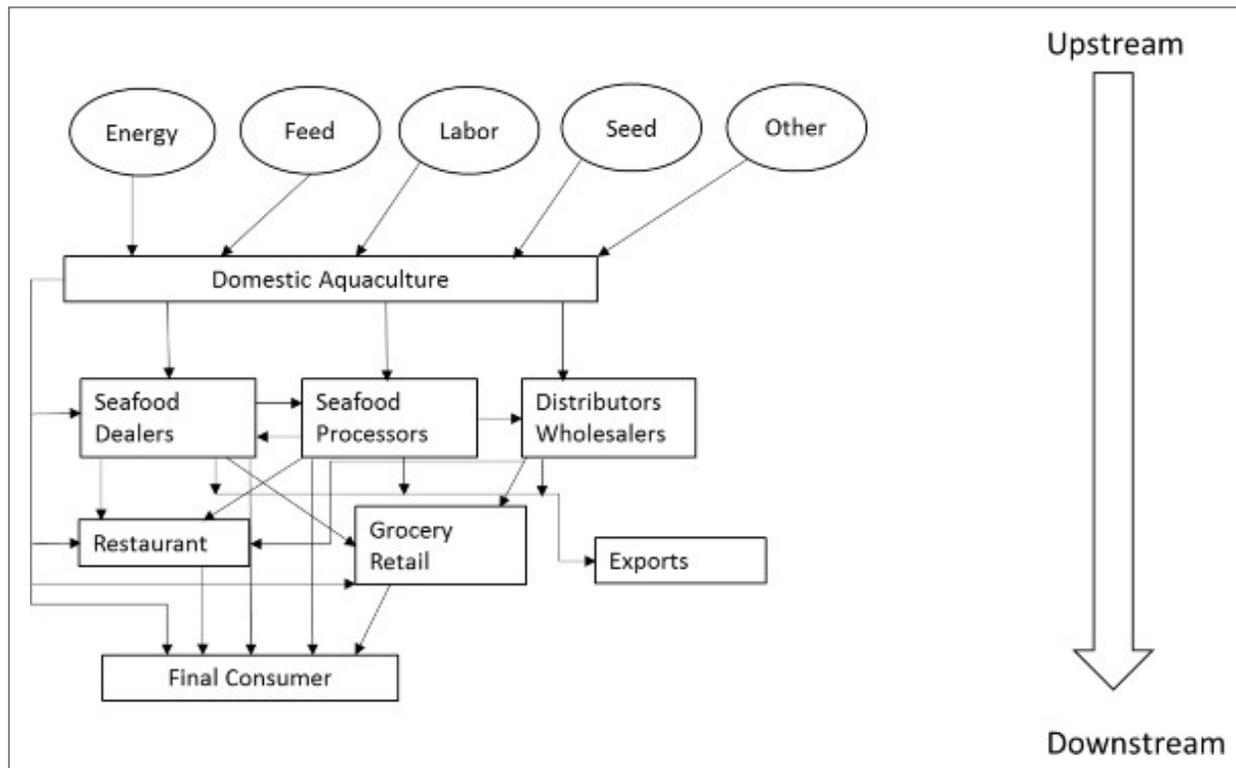
Product flow refers to the sale of fish and seafood products by harvesters, processors, and wholesalers/distributors. If fish or seafood products are sold to final consumers in the U.S. or exported, the opportunity for adding value and thereby creating new economic impacts ends.

Alternatively, when seafood products are sold to businesses that then add value, economic impacts are created. Product flow starts with harvesters who may sell to processors, wholesalers, grocers, restaurants, or directly to final consumers or exporters. Processors may sell to wholesalers, grocers, restaurants, or directly to final consumers or exporters.

²⁷ *Morro Bay Commercial Fisheries – 2015 Economic Impact Report* by Lisa Wise Consulting

²⁸ *An Approach to Determining Economic Impacts of U.S. Aquaculture* - U.S. Department of Commerce, National Oceanic and Atmospheric Administration and the National Marine Fisheries Service. September 2019.
Authors - Doug Lipton, Matt Parker, John DuBerg, and Michael Rubino.

Exhibit 10

Schematic of the Domestic Aquaculture Seafood Market for Estimating Economic Impacts.

Source: *An Approach to Determining Economic Impacts of U.S. Aquaculture* - U.S. Department of Commerce, National Oceanic and Atmospheric Administration and the National Marine Fisheries Service. September 2019.

The NOAA Technical Memorandum references a study of seafood product flows for various types of products based on case studies in a number of regional markets²⁹. In reality, flow of products is more complicated with product moving between processors or from processors to wholesalers to processors and so on. However, in the absence of other data, they represent the best picture of product flow currently available.

Potential Job Impacts of Downstream Activity

Exhibit 11 provides an illustration of the potential local employment impacts associated with downstream activity. The initial proformas developed to illustrate grower business plans assume that on average, each grower is expected to generate nearly \$1.5 million in annual sales of product (all values are in year 2020 dollars). Collectively, all 20 plots should generate \$29.3 million in annual sales.

²⁹ *The NMFS Commercial Fishing & Seafood Industry Input/Output Model* - Prepared for the National Marine Fisheries Service - August 2009. Author - James Kirkley, Virginia Institute of Marine Science.

Growers will likely sell their shellfish product to a number of sources including processors, wholesalers, direct sales to restaurants and retail markets and possibly directly to final consumers. Estimated shares for each of these segments follows the allocations suggested by the industry research reviewed in the NOAA Technical Memorandum. Note that these distributions are illustrative only and may not reflect the actual distribution pattern once the VSE project is operational.

The wholesale value allocated to each industry segment is adjusted by value markups typical for each type of business. For example, businesses involved in seafood wholesaling and distribution will typically mark up their purchases by 15 to 20 percent. In turn, if they sell product to restaurants, the restaurant will mark up their final sale price by 30 to 35 percent. On average for all segments, the value of the VSE shellfish product will increase by nearly 20 percent as it moves through processing and distribution to final consumption.

Finally, in order to provide a relatively conservative employment projection for the County, it is estimated 50 percent of the final shellfish product processing, 30 percent of wholesale and distribution activity and 25 percent restaurant, retail and final customer activity remain within Ventura. In total, it is assumed that 51 percent of direct economic impact associated with downstream activities remains within Ventura and 49 percent is exported outside the County either domestically or internationally.

The result, shown at the bottom of Exhibit 11, is that for every VSE grower job, an additional 1.4 jobs could be supported in local businesses that process, distribute and sell the resulting shellfish product. **Accounting for the effect of downstream business activity, grower vendor spending and farm employee consumer purchases, and all resulting economic multiplier activity, the VSE project could support approximately 97 jobs in total within the greater Ventura County economy if there is a concerted effort to develop a local infrastructure to process, distribute and sell the shellfish product locally.**

Exhibit 11

Illustrative Employment Impact of Up and Downstream Activity

Totals Represent All Phases in Operation

Year 2020 dollars (no inflation)

	Distribution of Product Value		Price Margins - Final Sale	
	Share	Total	Est Margin % 1/	Value
Grower Gross Revenues		\$ 29,250,000		
		↓		
<u>Distribution of Product 2/</u>				
Processors	40.0%	\$ 11,700,000	10%	\$ 13,000,000
Wholesale / Distributors	45.0%	\$ 13,162,500	15%	\$ 15,485,294
Restaurants / Food Service	2.5%	\$ 731,250	35%	\$ 1,125,000
Groceries / Retail Markets	7.0%	\$ 2,047,500	45%	\$ 3,722,727
Final Customers	5.5%	\$ 1,608,750	---	\$ 1,608,750
Total	100.0%	\$ 29,250,000	19.5%	\$ 34,941,771

	Economic Impact - Output (Grower impacts + downstream impacts)			
	Direct	Indirect	Induced	Total
Growers 3/	\$ 10,389,648	\$ 2,661,570	\$ 5,837,320	\$ 18,888,538
Processors	\$ 13,000,000	\$ 4,035,653	\$ 2,272,137	\$ 19,307,790
Wholesale / Distributors	\$ 15,485,294	\$ 5,586,397	\$ 4,687,350	\$ 25,759,040
Restaurants / Food Service	\$ 1,125,000	\$ 378,795	\$ 445,959	\$ 1,949,754
Groceries / Retail Markets	\$ 3,722,727	\$ 1,122,419	\$ 1,491,497	\$ 6,336,644
Final Customers	\$ 1,608,750			\$ 1,608,750
	\$ 45,331,419	\$ 13,784,834	\$ 14,734,263	\$ 73,850,516

<u>Employment</u>	Employment Impact			
	Direct 3/	Indirect 4/	Induced 4/	Total
Growers (spending)	40.0	4.8	8.0	52.8
Processors	15.2	9.1	7.4	31.7
Wholesale / Distributors	3.6	2.1	1.6	7.2
Restaurants / Food Service	3.2	0.6	0.5	4.3
Groceries / Retail Markets	0.7	0.4	0.3	1.5
Final Customers	---	---	---	---
Total	62.7	16.9	17.9	97.5

Calculated Ratio

Direct Grower Jobs	40	Jobs associated with 20 farms by build out
Downstream Jobs	57	Projected upstream + downstream jobs not including grower jobs
Full Multiplier	2.4	For every direct grower job, 1.4 additional jobs could be supported.

Notes

1/ Margin percentages represent the typical markup of prices for each business that purchases from the VSE growers. Restaurant margins include the final markup value from wholesale/distributors + an additional 20% to represent final restaurant prices. Grocery store margins include the final markup value from wholesale/distributors + an additional 30% to represent final grocery store prices.

2/ Source for illustrative distribution of wholesale aquaculture products - *The NMFS Commercial Fishing & Seafood Industry Input/Output Model* - Prepared for the National Marine Fisheries Service - August 2009

3/ Grower direct, indirect and induced impacts are from Exhibit 7.

4/ Indirect and induced impacts estimated using IMPLAN multipliers.

Appendix Exhibits

Exhibit A1 - Business Proforma for a 100-acre Site

Exhibit A2 - Direct Impacts from VSE - All Phases - Ventura County

Exhibit A1

Business Proforma for a 100-acre Site

Year 2020 dollars (no inflation)

Key Assumptions		Startup Investments (one-time purchases)	
Number of Market Longlines harvested	24	Longlines	\$ 408,672
Number of Nursery Longlines cycles	4	Seeding and harvesting equipment	\$ 170,000
Total Long Lines installed	24	Service Vessel	\$ 300,000
Annual Production	585,000 lbs	Harvest Vessel	\$ 1,500,000
Wholesale price (\$ /lbs.)	\$2.50 per lb	Escrow account	\$ 80,000
Employees (FTE)	2.0		\$ 2,458,672
Direct Wages	\$ 126,750		

Operations	Estimate	Year 5 Expenses	
Farming Expenses			
Wages, salaries, benefits	Stablized Yr	\$	(126,750)
Administration	Stablized Yr	\$	(15,000)
Seed costs	Stablized Yr	\$	(93,600)
Property insurance - stock mortality	Stablized Yr	\$	(73,125)
Property insurance - land based equipment	tbd	\$	-
Boat and vehicle insurance	Avg of 10 Yrs	\$	(18,627)
Utilities	Stablized Yr	\$	(18,250)
Fuel	Stablized Yr	\$	(72,000)
Repairs & maintenance	Stablized Yr	\$	(100,694)
Marketing	tbd	\$	-
Slip Fees	Stablized Yr	\$	(8,356)
Landing Fees	Stablized Yr	\$	(73,125)
Sub-Total		\$	(599,526)
Compliance, monitoring, enforcement			
Start-up Education and Training (1)	Avg of 10 Yrs	\$	(66)
Start-up Construction Wildlife Monitoring (2)	Avg of 10 Yrs	\$	(1,050)
Baseline Substrate Sampling (+ coord, report)	Avg of 10 Yrs	\$	(676)
Laboratory testing (shellfish bio-toxin*)	Avg of 10 Yrs	\$	(7,500)
Monitoring	Avg of 10 Yrs	\$	(3,020)
Sub-Total		\$	(12,313)
Lease Fees			
ACOE Lease Fee		\$	-
CDFW Aquaculture Registration	Stablized Yr	\$	(1,243)
Sub-Total		\$	(1,243)
Total Operations Expense		\$	(613,082)
Annual Debt Service	1st 10 Years	\$	(140,006)
Annual Operating Costs		\$	(753,089)

Resource Sharing	
Longlines	per grower
Seeding and harvesting equipment	per grower
Service Vessel	per grower
Harvest Vessel	1 per 5 growers
Escrow account	per grower

Proforma Summary (Stabilized Operations)	
Operating Costs	\$ (753,089)
Revenues	\$ 1,462,500
Net Profit (after debt service)	\$ 709,411

Purchases Assumed Outside of Ventura County	
Seed costs	\$ 93,600
Other	\$ -
Total Outside Area Purchases	\$ 93,600

Notes

Source: Scott Lindell, Research Specialist - AOPE. Woods Hole Oceanographic Institution. 10 Year Business Plan for 100 Acre Lease site, assuming a 1-year build out with a service vessel purchased capable of managing seeding and maintenance. Separate boat is contracted for installing all anchors and gear, and/or part owned for servicing and harvesting 500 acres. Total startup loan of \$1,100,000 at 5% paid off at 10 years. Use 4 Nursery Longlines stocked once a year (in Q1, then each feeds 5 longlines beginning in Q2, 10 in Q3, 5 in Q4).

