



VENTURA
PORT DISTRICT
Established 1952

BOARD OF PORT COMMISSIONERS

FEBRUARY 28, 2018

STANDARD AGENDA ITEM 2

APPROVAL OF 2018

AQUACULTURE SEA GRANT

**VENTURA PORT DISTRICT
BOARD COMMUNICATION**

STANDARD AGENDA ITEM 2
Meeting Date: February 28, 2018

TO: Board of Port Commissioners
FROM: Brian Pendleton, Deputy General Manager
SUBJECT: Approval of 2018 Aquaculture Sea Grant

RECOMMENDATION:

That the Board of Port Commissioners authorize the General Manager to submit the application for NOAA Sea Grant 2018 for two-year funding of approximately \$300,000 with a District and VSE partners match of approximately \$277,210 of in-kind contribution.

SUMMARY:

NOAA National Sea Grant College Program (NOAA Sea Grant) expects to have available a total of \$7,000,000 to \$11,500,000 across fiscal years 2018, 2019 and 2020 as part of the Sea Grant National Aquaculture Initiative (NAI). As part of the NAI, this competition is designed to foster the expansion of a sustainable U.S. ocean, coastal and Great Lakes aquaculture sector by addressing one or more of the following priorities identified below.

This application for grant funds will be for a two year period beginning September 1, 2018 to August 31, 2020 and is competitive in nature. This dovetails with the District's efforts as it relates to the sub-award from a NOAA 2015 Sea Grant Aquaculture Extension and Technology Transfer Grant that provides for strategic permitting and planning initiative to facilitate and substantially increase shellfish farming in the Santa Barbara Channel. The current grant concludes August 31, 2018.

BACKGROUND:

NAI Priorities include:

- (a) supporting the development of emerging systems or technologies that will advance aquaculture in the U.S., including projects that will help stimulate aquaculture production by nascent industries;
- (b) developing and implementing actionable methods of communicating accurate, science based messages and information about the benefits and risks of U.S. marine aquaculture to the public; and
- (c) increasing the resiliency of aquaculture systems to natural hazards and changing conditions.

In 2015, VPD received a Sea Grant Aquaculture Extension sub-award of \$265,000 that provided financial support for: Task 1, preparation of a strategic plan for permitting the project; Task 2, preparation of all required permit and entitlement applications and environmental impact documentation for open federal waters proximate to Ventura Harbor; and Task 3, an educational outreach component, including eight public workshops. Task 1 and 3 are complete. Task 2 will be completed by August 2018 consistent with Sea Grant requirements. Moving the project forward to harvested product, the project objectives and methods (Tasks 4-8) as defined further below.

The objectives of this project proposal are to:

- Develop a technically sound and defensible strategy to successfully obtain all required government entitlements necessary to establish twenty 100-acre aquaculture permits sites in federal waters of the Santa Barbara Channel, proximate to Ventura Harbor;

- Implement this strategy and obtain the necessary permits and entitlements, and complete associated environmental review documents;
- Develop an effective monitoring and reporting program to monitor environmental impacts and evaluate project progress;
- Collaborate with NOAA and the Food and Drug Administration (FDA) to ensure future landed product has a pathway for compliance with the National Shellfish Sanitation Program (NSSP) and Seafood Sanitation Inspection Program (SSIP) guidelines for shellfish grown in federal waters;
- Offer economies of scale to individual grower/producers to facilitate the participation of entities who might otherwise be precluded because of the significant regulatory process and costs associated with obtaining the required government approvals; and,
- Prepare grower/producers for successful farming of the growing areas through business planning, training, and technology transfer.

The specific grant activities planned to achieve these objectives within two years and begin farming Mediterranean mussels through individual grower/producer's permits are outlined in the attached final draft project description and budget justification.

FISCAL IMPACT:

The grant includes a cost-share in the amount of \$277,210 over a two-year period. The cost-share is achieved through in-kind contributions of the Port District as well as VSE partners. The VSE project budget was included in the FY 2017-18 mid-year budget presented on February 14, 2018.

ATTACHMENT:

Attachment 1 - Project Description
Attachment 2 - Budget Justification
Attachment 3 - Collaborators List

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Title: Ventura Shellfish Enterprise: Implementing an Integrative Model for New Shellfish Aquaculture Permitting and Production in California **Grant: 2018 NOAA Sea Grant Proposal**

Increasing the supply of safe, sustainably produced domestic seafood is a priority for NOAA and the Department of Commerce. The Ventura Shellfish Enterprise (VSE) is a multi-stakeholder initiative that seeks to permit and manage a commercial bivalve shellfish aquaculture operation consistent with this objective. Globally, bivalve shellfish culture has been very successful in producing high value seafood with limited environmental impacts. However, the current complexities and costs associated with the aquaculture permitting process represent a significant barrier to expansion of the industry in the US, and in California particularly. VSE seeks to address several regulatory and planning challenges that effectively limit the development of domestic marine shellfish culture.

In 2015, VPD received a Sea Grant Aquaculture Extension sub-award of \$265,000 that provided financial support for: Task 1, preparation of a strategic plan for permitting the project; Task 2, preparation of all required permit and entitlement applications and environmental impact documentation for open federal waters proximate to Ventura Harbor; and Task 3, an educational outreach component, including eight public workshops. Task 1 and 3 are complete. Task 2 will be completed by August 2018 consistent with Sea Grant requirements. Moving the project forward to harvested product, the project objectives and methods (Tasks 4-8) as defined further below.

Project Objectives

The objectives of this project proposal are to:

- Develop a technically sound and defensible strategy to successfully obtain all required government entitlements necessary to establish twenty 100-acre aquaculture permits sites in federal waters of the Santa Barbara Channel, proximate to Ventura Harbor;
- Implement this strategy and obtain the necessary permits and entitlements, and complete associated environmental review documents;
- Develop an effective monitoring and reporting program to monitor environmental impacts and evaluate project progress;
- Collaborate with NOAA and the Food and Drug Administration (FDA) to ensure future landed product has a pathway for compliance with the National Shellfish Sanitation Program (NSSP) and Seafood Sanitation Inspection Program (SSIP) guidelines for shellfish grown in federal waters;
- Offer economies of scale to individual grower/producers to facilitate the participation of entities who might otherwise be precluded because of the significant regulatory process and costs associated with obtaining the required government approvals; and,
- Prepare grower/producers for successful farming of the growing areas through business planning, training, and technology transfer.

The specific grant activities planned to achieve these objectives within two years and begin farming Mediterranean mussels through individual grower/producer's permits are outlined below:

Project Methods

Task 4: Permit Assignment Strategy

This Project is scaled to bolster the working waterfront in Ventura Harbor, providing economic benefits to VPD, its tenants, and the community, thus ensuring the long-term economic viability

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of the Harbor. The scale of the Project also allows the individual grower/producers to benefit from centralized environmental monitoring, product safety testing, and product marketing.

The project will be the first of its kind in California to develop an offshore aquaculture permit with NOAA that authorizes assignment of sub-permits to individual shellfish grower/producers. A key part of the project will be drafting and negotiation of permit terms that contemplate this unique situation, with the goal of developing a template that can be used to support by similar aquaculture projects located in federal waters and hosted future by ports or governmental entities in the future.

To complete the entitlement process and secure all necessary permits, we propose the following subtasks as part of this 2018 Sea Grant application.

Subtask 4.1: Develop Permit Terms

After submission of permit applications and draft master permit, Plauché & Carr LLP and VPD will work with the lead federal agency (e.g. USACE or NOAA) to craft permit terms for the master permit that are acceptable to the parties. As noted above, one goal will be to develop a permit template that can be replicated for other offshore aquaculture projects in federal waters where the permittee is a government agency.

Plauche & Carr LLP will serve as VPD's legal counsel, and the following staff will be involved in this task: Robert Smith Esq., Brian Pendleton, Richard Parsons and Everard Ashworth

Costs for Subtask 4.1: \$25,000 (2018); \$10,000 (2019)

SUBTASK 4.2: Drafting and Approval of Sub-Permits

The Project contemplates that while VPD will hold the master permit, it will separately execute sub-permits with individual shellfish growers/producers who will operate within the project area. The lead federal agency must approve the form of any such sub-permits entered into by VPD; however, NOAA currently does not have a template or precedent for approving sub-permit agreements. Plauché & Carr LLP and VPD will work with the lead federal agency to develop a common sub-permit agreement that can be used to sub-permit individual plots within the project area.

Plauche & Carr LLP will serve as VPD's legal counsel, and the following staff will be involved in this task: Robert Smith Esq., Brian Pendleton, Richard Parsons and Everard Ashworth

Costs for Subtask 4.2: \$5,000 (2018); \$10,000 (2019)

SUBTASK 4.3: Legal Analysis of Supplemental Environmental Review

VPD legal counsel Plauché & Carr LLP will work with VPD, its environmental consultant DUDEK and the lead federal agency and to provide legal analysis of any supplementary environmental documentation (e.g. supplemental studies, reports, surveys, etc.) required during the permitting and entitlement process.

Costs for Subtask 4.3: \$10,000 (2018); \$0 (2019)

**ANNUAL COSTS FOR Task 4: 2018 - \$40,000, 2019 - \$20,000;
COMBINED TOTAL Task 4 COSTS: \$60,000**

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Task 5: Environmental Review

The overall VSE project objectives are for VPD to obtain permits and entitlements for twenty, 100-acre shellfish aquaculture sites in federal waters within the Santa Barbara Channel; assign sites to individual grower producers via sub-permits; establish best management practices for commercial grower/producers; coordinate comprehensive monitoring and reporting for all permits; and leverage existing underutilized onshore facilities at Ventura Harbor for processing and shipping the shellfish product.

Submission of permit applications to the applicable state and federal regulatory agencies will be completed by August 2018 under VSE existing 2015 Sea Grant (Task 2). VPD will submit applications for the following permits and environmental clearances:

- U.S. Army Corps of Engineers Individual Permit (pursuant to Section 10 of the Rivers and Harbors Act);
- National Marine Fisheries Service and U.S. Fish and Wildlife Service Biological Opinions (pursuant to Section 7 of the Endangered Species Act and Magnuson-Stevens Fishery Conservation and Management Act);
- U.S. EPA 401 Water Quality Certification (pursuant to Section 401 of the Clean Water Act);
- U.S. Coast Guard Private Aid to Navigation Permit; and,
- California Coastal Commission Consistency Certification (pursuant to the Coastal Zone Management Act).

To complete the entitlement process and secure all necessary permits, we propose the following subtasks as part of this 2018 Sea Grant application through VSE project collaborators as well as Dudek, the environmental consultant for the VSE project.

Subtask 5.1: Environmental Reports and Studies

Dudek will identify necessary supplemental studies, reports and documentation as required by federal and state regulators prior to permit issuance. This work is being performed in close coordination with Diane Windham, the VSE team's NOAA Aquaculture Coordinator, and NOAA staff. This subtask will include preparation of sampling protocols and study plans and consultation with the agencies to obtain concurrence on the methods and scope of the studies. We anticipate the required studies will include a pre-project benthic survey of the proposed project site to confirm the substrate type and biota, as well as a water quality sampling plan to determine ambient conditions within the project area.

Dudek will serve as VPD's environmental consultant, and the following staff would be involved in this task: Laurie Monarres, John Davis, Andrea Dransfield, Amber Geraghty, Richard Parsons, Brooke Ashworth, Doug Bush, Everard Ashworth.

Costs for Subtask 5.1: \$22,100 (2018); \$0 (2019)

Subtask 5.2: Meetings and Agency Coordination

Recent aquaculture projects in California struggled for several years to obtain permits once applications were filed. Consistent project coordination and guidance throughout the permitting process is extremely important to ensure that permits are issued in a timely manner with appropriate conditions and mitigation measures that balance any environmental concerns with

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the operational needs of the project. In close coordination with Diane Windham, our regional NOAA aquaculture coordinator, Dudek will work with VPD, relevant stakeholder groups, and regulatory agency team members to conduct permit application follow-up in a thorough manner to smooth review and prevent disrupting of the anticipated project schedule. This requires thoughtful and diligent coordination with the agencies from application submittal through permit issuance to obtain permits within an appropriate timeframe. This coordination and continuous feedback from the agencies will be critical to successfully identify the necessary data requirements for timely permitting process completion.

This task will include handling administrative functions (e.g., notification of participants, scheduling, coordination of meeting location), technical functions, such as preparation of meeting materials (e.g., meeting agendas, presentations, hand-outs), and preparation of pre-meeting briefings and meeting minutes. It is critical that the meetings are efficient and productive and have measurable outcomes; Dudek will facilitate and guide discussions to stay on topic. Dudek will also provide technical and policy support for VPD as needed.

Dudek will serve as VPD's environmental consultant, and the following staff would be involved in this task: Laurie Monarres, David Wickens, John Davis, Amber Geraghty, Brian Pendleton, Richard Parsons, Everard Ashworth.

Cost for Subtask 5.2: \$20,000 (2018); \$10,800 (2019)

Subtask 5.3: Finalize List of BMPs

Dudek, with the assistance of VSE collaborators and in close coordination with Diane Windham, our NOAA regional aquaculture coordinator, will develop a list of resource protection measures, including best management practices (BMPs) that will avoid and minimize impacts on the aquatic environment. These BMPs will be an important component of regulatory agency approval of the project, and will include measures related to minimizing impacts on marine mammals and other aquatic wildlife, carrying capacity, seed supply, sediment quality, predator and wildlife interactions, and storage and disposal of aquaculture gear. The BMPs will be incorporated in project permit conditions and/or mitigation measures. The goal of the project is to develop a standardized, predictable list of BMPs that can be used in the future for other shellfish aquaculture projects, thereby facilitating sustainable growth of the aquaculture industry nationally in a manner that minimizes environmental impacts.

Dudek will serve as VPD's environmental consultant, and the following staff would be involved in this task: Laurie Monarres, David Wickens, John Davis, Andrea Dransfield, Amber Geraghty, Melis Okter, Brooke Ashworth, Doug Bush, Dr. Linda Santschi, Dr. Ralph Imondi.

Cost for Subtask 5.3: \$18,450 (2018); \$0 (2019)

Subtask 5.4: Coordinate and Draft Permit Language and Permit Special Conditions

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Often, regulatory agencies are short-staffed and have a backlog of permit applications to evaluate. This, coupled with a lack of experience processing open water aquaculture applications can lead to delays in permit processing and issuance. One way to increase the efficiency of permit review is through providing the agencies with draft permit language and a list of proposed permit special conditions during the permit application review process. In close coordination with Diane Windham, NOAA Regional Aquaculture Coordinator, and VSE team members, Dudek will draft appropriate permit language for submittal to the agencies such as a complete project description, identification of avoidance and minimization measures, and the project's monitoring plan. Dudek will also provide a list of proposed special conditions to the agencies, using pre-established language and requirements as much as possible. We anticipate Subtask 5.4 will begin in September 2018 and have an anticipated completion date of August 2019.

Dudek will serve as VPD's environmental consultant, and the following staff would be involved in this task: Laurie Monarres, David Wickens, John Davis, Andrea Dransfield, Amber Geraghty, Melis Okter, Brian Pendleton, Richard Parsons, Doug Bush, Brooke Ashworth, Everard Ashworth.

Cost for Subtask 5.4: \$24,400 (2018); \$0 (2019)

Subtask 5.5: Draft or Review Monitoring Plans

Given the dearth of offshore shellfish aquaculture on the Pacific coast, there are certain issues where the resource agencies may request monitoring to confirm whether the project has an environmental impact. Dudek together with VSE team members, and in close coordination with Diane Windham, NOAA regional aquaculture coordinator, will assist with developing any required monitoring plan(s) to be carried out during project implementation. The monitoring program(s) and protocols will be vetted with input and coordination among VSE'S NOAA aquaculture coordinator and the appropriate regulatory agencies and will include data sampling requirements and reporting requirements such as timing of annual reports. It is currently anticipated that monitoring will include an evaluation of the project's potential impacts on: (1) the seafloor and benthic environment beneath and in the vicinity of project facilities; (2) wildlife interactions with the project; and (3) impacts of marine debris such as lost and broken fishing gear. We anticipate Subtask 5.5 will begin in September 2018 and have an anticipated completion date of August 2019.

Dudek will serve as VPD's environmental consultant, and the following staff would be involved in this task: Laurie Monarres, David Wickens, John Davis, Andrea Dransfield, Amber Geraghty, Melis Okter, Doug Bush, Brooke Ashworth, Everard Ashworth, Richard Parsons.

Cost for Subtask 5.5: \$23,660 (2018); \$0 (2019)

**TOTAL COST FOR Task 5: 2018 - \$108,610, 2019 - \$10,800;
COMBINED TOTAL: \$119,410**

Task 6: Shellfish Sanitation

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Recognized by the U. S. Food and Drug Administration (FDA) and the Interstate Shellfish Sanitation Conference, the National Shellfish Sanitation Program (NSSP) is the federal/state cooperative program for the sanitary control of all bivalve shellfish that is cultivated, harvested, and processed for human consumption. The NSSP establishes standards and administrative practices necessary to regulate interstate shellfish commerce and to protect consumer public health. These standards are published in the NSSP Guide for the Control of Molluscan Shellfish¹, which articulates both pre- and post-harvest elements of sanitation compliance.

At present, the NSSP Guide does not explicitly cover requirements and standards for the sanitary control of shellfish harvested from federal waters, which has impeded the harvest of shellfish from federal waters. To address this deficiency, the NOAA Seafood Inspection Program (NOAA-SIP), in collaboration with the FDA, is now developing an NSSP sanitation compliance pathway for entities seeking to grow shellfish in federal waters (where there is no state jurisdiction by the California Department of Public Health (CDPH)). This pathway includes the articulation of auditing procedures, testing requirements/protocols, and procedures for product traceability. Given the proposed VSE project's shift in emphasis to a federal siting alternative, VSE team members at Coastal Marine Biolabs (CMB) are now working with NOAA-SIP and FDA representatives to collaboratively develop and adapt these emerging sanitation protocols to meet the goals and needs of the VSE effort. Importantly, this collaborative effort to explicitly articulate standard sanitation protocols for molluscan shellfish cultivated in federal waters will not only advance the overarching goals of the VSE project, but also facilitate the efforts of other groups seeking to establish shellfish aquaculture operations in federal waters.

Coastal Marine Biolabs will provide the lead, the following staff would be involved in this task: Dr. Linda Santschi, Dr. Ralph Imondi, Doug Bush, Everard Ashworth

Subtask 6.1: Coordinating a Growing Area Sanitary Survey with NOAA-SIP Representatives

Our initial discussions with NOAA-SIP representatives have focused primarily on the process underlying the development and implementation of a sanitary survey of proposed VSE mussel growing sites. The survey constitutes a required component of NSSP sanitation compliance and includes a written evaluation of all environmental factors (including actual and potential pollution sources) that may impact water quality within a proposed growing area. Pursuant to the newly proposed protocols for bivalve shellfish cultivated in federal waters, NOAA-SIP inspectors (in consultation with FDA) will oversee the sanitary survey and assure that the number and location of sampling stations is sufficient to effectively evaluate all potential pollution sources within the growing area. Meteorological, hydrodynamic, and geographic attributes of the growing area will influence the location and number of required sampling stations. It bears noting here that the new protocols under joint development by NOAA-SIP and FDA will allow water sampling and microbiological testing associated with the sanitary survey to be initiated and performed in parallel with the project's permit application process. This provision will significantly accelerate the overall progression of the VSE effort.

CMB scientists have already engaged in extensive dialog with NOAA-SIP personnel to discuss water quality testing and sampling plan requirements encompassed by the sanitary survey. Throughout the two-year project performance period, CMB is committed to working collaboratively with representatives of NOAA-SIP, FDA, and any other relevant federal entities, to develop and implement an NSSP-compliant sampling plan for the proposed VSE growing area. The NSSP typically requires that a minimum of 30 water samples be collected for bacteriological analysis from each sample station, and that the samples be collected year-round under various environmental conditions to evaluate adverse pollution conditions (including seasonal variations). Assuming the simplest case scenario where each of the twenty proposed 100-acre growing sites contains a single sampling station, a minimum of 600 samples will be required to complete the sanitary survey. We anticipate that a sampling plan will be developed

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in 2018, and that a sanitary survey will be initiated and conducted during 2019. Given unavoidable uncertainties at the time of this submission, funds requested in the relevant section of the project budget represent a reasonable estimate of the overall sampling and testing costs associated with the survey.

Personnel performing Subtask 6.1 will be VSE members Dr. Ralph Imondi and Dr. Linda Santschi of Coastal Marine Biolabs.

Cost for Subtask 6.1: \$0 (2018); \$39,000 (2019)

Subtask 6.2: Establishing the Administrative and Technical Framework for a Locally Based, FDA-Approved Safety Testing Laboratory

The safety of molluscan shellfish grown and harvested for human consumption is determined through specific microbiological and toxicological tests of shellfish meat and growing waters. These tests are performed by laboratories that receive FDA approval to support the NSSP (after demonstrating conformance with uniform standards and administrative practices during periodic onsite evaluations). It is important to emphasize here that the only laboratory in the state of California that is currently FDA approved to conduct biotoxin testing of shellfish cultivated for human consumption is operated by CDPH (Richmond, CA), which restricts its biotoxin analyses to samples obtained exclusively from state waters.

This subtask seeks to establish the administrative and technical groundwork for a locally based, FDA-approved laboratory that is capable of accommodating the full range of NSSP testing and reporting requirements for mussels cultivated in (and harvested from) federal waters by VSE grower/producers. Representing the first of its kind in the state of California, this proposed commercial laboratory is intended to: (1) eliminate the cost of shipping samples to out-of-state laboratories for biotoxin testing; (2) minimize resulting delays in moving shellfish product through the supply chain; (3) centralize and streamline the reporting of VSE testing results to the relevant federal and state regulatory agencies (*i.e.*, FDA, NOAA-SIP, CDPH); (4) establish a nexus for coordinating sanitation-related communications among VPD representatives, VSE grower/producers, testing lab personnel, regulatory agencies, patrol authorities, and other entities; (5) develop training materials, courses, and programs for new and existing grower/producers (refer to Task 7 below); and (6) perform standardized growing water sample collections and other low-cost ancillary services on behalf of VSE grower/producers. Beyond the VSE project, a laboratory of this kind could also accommodate the testing needs of other emerging shellfish aquaculture operations based in federal waters off the California coast.

For start-up testing laboratories, the key initial steps in the FDA approval pathway include the selection of NSSP-compliant analytical methods that will be performed by lab personnel, the creation of detailed standard operating procedures that cover the day-to-day implementation of these technical methods (along with the performance of various administrative/managerial functions), and the development of a comprehensive quality assurance plan containing pre-specified components (*e.g.* descriptions of laboratory structure/organization, staff qualifications and training programs, analytical methods, quality control measures, record keeping for equipment maintenance and calibration, corrective actions for deficiencies noted during FDA evaluations, etc.). The successful completion of these steps will unfold in 2018 and 2019 through an iterative development process involving the input and guidance of FDA and NOAA-SIP representatives. We anticipate that by the end of the two-year grant performance period, the VSE team will have established the administrative and technical foundation required for FDA-approval of a testing laboratory that is capable of managing the anticipated testing workload of VSE grower/producers (and potentially other aquaculture entities) operating in federal waters off the California coast. The identification of space appropriate for accommodating this workload constitutes a related goal for this subtask that will be initiated in 2019 in consultation with VPD staff.

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REFERENCES CITED IN THIS SECTION

1 National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish, 2015 Revision.

Personnel performing Subtask 6.2 will be VSE members Dr. Ralph Imondi and Dr. Linda Santschi of Coastal Marine Biolabs.

Cost for Subtask 6.2: \$0 (2018); \$0 (2019) (In-Kind Contributions only)

TOTAL COST for Task 6: \$39,000 (2019)

Task 7: Grower/Producer Compliance Training Program and Information Dissemination

To maintain a robust working waterfront and commercial fishing industry based in Ventura, one of the goals of the VSE project is to diversify and stabilize seafood product landed at the port. The VSE project is designed to minimize constraints and barriers for entrepreneurs and existing seafood producers seeking to enter the aquaculture industry or expand current mussel farming operations. By permitting twenty, 100-acre growing parcels the VPD is assuming much of the initial risk associated with the permitting process. VPD, as master permit holder, will require sub-permit holders to adhere to all permit obligations and ensure ongoing compliance with regulatory agency requirements.

To prepare grower/producers for this innovative approach, VSE will engage potential grower/producers to disseminate essential information related to federal permit requirements prior to commencement of commercial aquaculture operations. VSE members will host and facilitate a series of educational workshops intended to summarize permit compliance requirements; including but not limited to topics such as best management practices, shellfish safety and sanitation protocols, ongoing monitoring and reporting processes, insurance/bond requirements, etc. In addition, the VSE will prepare a set of manuals to serve as reference materials and supplement in-person instructional events.

This task will ensure new entrants, and industry veterans alike, have access to information necessary to establish and manage a successful mussel farming operation in compliance with all VSE permit conditions.

Coastal Marine Biolabs will provide the lead, the following staff would be involved in this task: Dr. Linda Santschi, Dr. Ralph Imondi, Scott Lindell, Blake Stok, Brian Pendleton, Brooke Ashworth.

Subtask 7.1: Grower/Producer Outreach and Inclusion

To secure grower/producer tentative commitments, VPD will undertake three main work streams: (1) research and identify prospective local, regional, national, and international grower/producers that are suitable candidates for participation in the VSE project; (2) provide direct engagement with potential grower/producers; (3) develop a VPD approved grower/producer application process. Work will begin in September 2018 with an anticipation completion date of August 2019.

Coastal Marine Biolabs will provide the lead, the following staff would be involved in this task: Dr. Linda Santschi, Dr. Ralph Imondi, Scott Lindell, Blake Stok, Brian Pendleton, Brooke Ashworth.

Cost for Subtask 7.1: \$21,250 (2018); \$0 (2019)

Subtask 7.2: Curriculum and Materials Design

VSE will build curriculum and supplemental materials that align with established objectives and requirements for grower/producers participating in the VSE project. Our team for this task has potential to address the needs of the US ocean aquaculture sector writ large. Training

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resources will be digitized and deployed through a learning management system (LMS) that enables course content to be easily accessed, independent of time and location. The virtual classroom is designed to provide instructors, facilitators, and participants with access to a cost-effective platform which lends the ability to centralize learning materials, streamline communication and feedback mechanisms, and provide opportunities for interactive blended learning instruction that includes both online and in-person elements.

A central component of the VSE training program is a module developed by CMB (see Task 6 reference) dedicated to protocols that cover both pre- and post-harvest elements of the NSSP Model Ordinance for bivalve shellfish cultivated in federal waters. Such a training model could be replicated by other projects nationally.

Designing comprehensive instructional manuals and participant centered training workshops requires a thorough permit review to identify requisite information for inclusion. During this phase of the development process VPD and its VSE partners will host one or more design charrettes with environmental consultants, existing shellfish aquaculture operators, and select representatives from the grower/producer community unfamiliar with production protocols to define the scope and sequence of training activities and materials. The goal of this effort is to establish a cooperative climate for collaboration while selecting methods, materials, and resources for instruction.

Coastal Marine Biolabs will provide the lead, the following staff would be involved in this task: Dr. Linda Santschi, Dr. Ralph Imondi, Scott Lindell, Blake Stok, Brian Pendleton, Brooke Ashworth.

Cost for Subtask 7.2: \$0 (2018); \$24,000 (2019)

Subtask 7.3: Training Video Production

Narrated field demonstrations (five in total) of mussel aquaculture tasks and certification procedures will be produced as supporting instructional resources to accompany written manual resources and used, in preparation of, and during the in-person workshop series. These videos will be digitally produced and housed on the learning management system to provide flexible access to information for VSE participants. In addition to providing training participants with information in an efficient and visually stimulating manner, these videos have the potential to be adopted as resources for offshore aquaculture projects beyond the VSE project. Video subject matter and topic themes will be chosen with reference to both the current VSE project and future federal waters shellfish aquaculture projects.

CAPS Media will produce these assets.

Cost for Subtask 7.3: \$0 (2018); \$3,000 (2019)

Subtask 7.4: Training and Certification

The logistics of the proposed training and certification pathway (e.g., the timing and form of recruitment, program duration, host institution, instructor selection, assessment/performance rubrics/instruments, etc.) will be determined in parallel with the design of major program components, as described above. Implementation of the program is dependent on the timing of issuance of required aquaculture permits. The training and certification described in this task will supplement and support VPD's permitting and sub-permitting efforts to ensure that sub-permittees, where necessary, have significant prior experience with mussel aquaculture operations protocols and access to proper training, logistical support, and technology transfers to maximize their opportunities to develop a successful and compliant aquaculture operation.

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Coastal Marine Biolabs will provide the lead, the following staff would be involved in this task: Dr. Linda Santschi, Dr. Ralph Imondi, Scott Lindell, Blake Stok, Brian Pendleton, Brooke Ashworth.

Synergistic Activities

Separately, VSE team collaborators (Doug Bush, General Manager, The Cultured Abalone) is teaming with the University of Southern California on a 2018 Sea Grant proposal to optimize the development in a hatchery of Mediterranean mussels larvae for use in the Santa Barbara Channel. This parallel effort supports the implementation of Best Management Practices for VSE grower producers. The VSE ongoing efforts also lay the groundwork for science-based educational programming organized around the scientific and technical, and public health aspects of long-line mussel aquaculture.

Cost for Subtask 7.4: \$0 (2018); \$0 (2019) (In-Kind Contributions only)

**TOTAL ANNUAL COSTS for Task 7: 2018 - \$21,250, 2019 - \$28,500;
COMBINED TOTAL COST for Task 7: \$48,250**

Task 8: Project Summary

As a final task, the VSE will provide a concise report to document the practical and strategic decisions that were made to keep the project on a critical path for timely completion of all project tasks (Tasks 1-8) applications. This concise summary will be drafted with input from VSE members, the projects principal investigators, NOAA and California shellfish coordinators, NOAA technical staff, and university/research affiliates. It will focus on key project design elements (including species selection, technical design, project scope and location), recommendations for efficient project management (i.e., role of the Ventura Port District, and VSE participating members) and recommendations to improve project deliverables for (i.e., Task 1 – Task 8). It is intended that this focused summary will provide practical suggestions and lessons learned by VSE members that may be leveraged by others seeking to permit sustainable shellfish aquaculture for commercial purposes in federal waters in the future.

ALG will provide the lead, the following staff would be involved in this task: Dr. Linda Santschi, Dr. Ralph Imondi, Doug Bush, Everard Ashworth, Brooke Ashworth, Brian Pendleton, Richard Parsons, Scott Lindell, Blake Stok.

TOTAL COST for Task 8: \$0 (In-Kind Contribution only)

**TOTAL VPD GRANT REQUEST: \$266,660
TOTAL CA SEA GRANT REQUEST: \$35,000
TOTAL SEA GRANT REQUEST: \$301,660**

Separately, VSE team collaborators (Doug Bush, General Manager, The Cultured Abalone) is teaming with the University of Southern California on a 2018 SeaGrant proposal to optimize the development in a hatchery of Mediterranean mussel larvae for use in the Santa Barbara Channel. This parallel effort supports the implementation of Best Management Practices for VSE grower producers.

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Title: Ventura Shellfish Enterprise: Implementing an Integrative Model for New Shellfish Aquaculture Permitting and Production in California
Grant: 2018 Sea Grant Proposal

Budget Justification:

TOTAL VPD GRANT REQUEST: \$266,660
TOTAL CA SEA GRANT REQUEST: \$35,000
TOTAL SEA GRANT REQUEST: \$301,660

Task 4: Permit Assignment Strategy - The project will be the first of its kind in California to develop an offshore aquaculture permit with NOAA that authorizes assignment of sub-permits to individual shellfish growers. A key part of the project will be drafting and negotiation of permit terms that contemplate this unique situation, with the goal of developing a template that can be used by other aquaculture projects in the future.

Task 5: Environmental Review - To complete the permitting process and secure all necessary permits, we propose that Dudek, environmental consultant for the VSE project, will identify necessary supplemental studies, reports and documentation as required by federal and state regulators prior to permit issuance. Consistent coordination and guidance throughout the permitting process is extremely important to ensure that permits are issued in a timely manner with appropriate conditions and mitigation measures that balance any environmental concerns with the operational needs of the project.

Task 6: Seafood Safety and Quality - VSE team members Coastal Marine Biolabs (CMB) and legal counsel Plauche & Carr are committed to working collaboratively with NOAA-SIP and other relevant federal entities, to align with agency goals to “ensure the safety and quality of sustainably cultured seafood products’ by assisting with the development of a sanitation plan for a federal waters siting alternative and testing facility based in Ventura Harbor.

Task 7: Grower/Producer Compliance Training Program and Information Dissemination – The VSE is committed to continuing the robust outreach program directed at educating prospective grower/producers on all associated permit guidelines and ensuring understanding of regulatory agency compliance requirements. We will also continue to communicate the benefits of this innovative model which facilitates inclusion of grower/producers that might otherwise be precluded due to regulatory barriers and cost constraints.

Task 8: Project Summary

As a final task, the VSE will provide a concise report to document the practical and strategic decisions that were made to keep the project on a critical path for timely completion of all permit applications.

The project utilizes the expertise of a wide array of policy, legal, scientific, and industry representatives from both the private and public sector and a groundswell of in-kind participation. This output will help to create a permitting pathway for subsequent offshore aquaculture projects, develop a permit assignment strategy, complete the environmental review and entitlement processes, develop a sanitation plan and testing facility, and create a grower/producer education and training program.

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Project Personnel: The Ventura Shellfish Enterprise is a collaboration of seasoned technical experts uniquely capable of defining a successful permitting strategy and the legal and technical experts to provide a complete and defensible permit application package for a commercial mussel farm consisting of twenty 100 -acre parcels to be located in open federal waters proximate to Ventura Harbor, California.

Dr. Paul Olin, Principal Investigator with California Sea Grant will provide overall coordination of project components and will be involved in the design and implementation of the grower/producer training program. Dr. Olin will also work with the project team during the environmental review and entitlement processes as well as development of the permitting strategy and sanitation plan.

In-kind services will be provided by the following experts, which total \$272,210 (or \$136,105 per year). All of this work is considered in-kind as these nine experts will receive no remuneration under this grant.

- Mr. Everard Ashworth, a Vice-Chair with the Ventura Port District, and a principal with Ashworth Leininger Group, has direct experience in siting and securing environmental approvals for commercial projects proposing to locate proximate to National Parks, sensitive receptors, and in the coastal waters off Ventura and Santa Barbara Counties. He routinely advises Fortune 500 companies on the selection of expert environmental, legal and technical services to support project development, has worked with scores of legal counsels on environmental permitting matters.
- Ms. Brooke Ashworth is a Senior Planner with Ashworth Leininger Group. She has previously worked as an environmental analyst with international law firms, specializing in hazardous waste management and environmental due diligence. She has served as a County land use planner and holds a B.Sc. in environmental Planning and Management from UC Davis.
- Mr. Doug Bush, General Manager of the Cultured Abalone Farm, a commercial abalone farm in Santa Barbara County, will provide essential technical guidance on the acquisition of seed for the commercial mussel operation, the design and deployment of commercial equipment, and the design and delivery of education and outreach activities.
- Mr. Richard Parsons, an independent consultant under contract with the Ventura Port District to manage special projects, is responsible for securing all environmental entitlements for annual dredging projects that can exceed \$5MM. He will coordinate project requirements with the Ventura Port District, leverage his direct experience with key environmental regulatory staff at the federal, state, and local level, and manage technical consultants.
- Dr. Linda Santschi and Dr. Ralph Imondi, with Coastal Marine Biolabs, will help lead coordinated efforts with federal regulators during the process of developing NSSP-compliant sanitation protocols for bivalve shellfish cultivated in federal waters. Drs. Santschi and Imondi will also partner with other project collaborators in the design, development and presentation of the education and training program.
- Mr. Brian Pendleton, Deputy General Manager of the Ventura Port District, brings 25 years of municipal management experience in commercial revitalization, economic development and real estate. He oversees the District's facilities, marina, property and risk management and is providing project and grant management duties.

ATTACHMENT 2

Diane Windham is NOAA's Aquaculture Coordinator for the Southwestern region. She will participate in all phases of the project, but her contribution is not included in this proposal as an in-kind match.

Position	Name	Standard Billing Rate (per hour)	In-Kind Adjusted Rate, Less Profit	Annual Salary	Level of Effort Months/Yr.	In-Kind Contribution Per Year
Collaborators	E. Ashworth	\$165/hr.	N/A	N/A		\$79,200
	B. Ashworth	\$155/hr.	N/A	N/A		\$18,600
	D. Bush	\$95/hr.	N/A	N/A		\$54,720
	R. Parsons	\$100/hr.	N/A	N/A		\$20,000
	Dr. L Santschi	\$50/hr.	N/A	N/A	12/Yr.	\$25,600
	Dr. R. Imondi	\$50/hr.	N/A	N/A		\$25,600
	B. Pendleton	\$93.25/hr.	N/A	N/A		\$48,490
	Totals					\$272,210

Pricing for expert legal, professional permitting assistance, environmental and industry consultants was obtained from firms currently under contract providing VSE services to complete 2015 NOAA Sea Grant deliverables. All other costs have been estimated based on the collective experience of the team in permitting commercial projects and therefore the budgetary analysis in preparing the budget and in-kind contributions is considered robust.

Task 4: Permit Assignment Strategy - \$60,000

Legal Services (\$60,000)

Robert Smith (Plauché & Carr LLP)

Y1 \$40,000 | Y2 \$20,000

Plauché & Carr LLP is a Seattle-based law firm with a practice focused on environmental, land use, and natural resource-based issues. Plauché & Carr LLP has represented a number of non-profit, private, and governmental entities regarding environmental and regulatory matters ranging from regulatory compliance/permitting, to administrative litigation, to litigation in state and federal courts, to conservation acquisition. Mr. Smith continues to provide consultant services for the Sea Grant Aquaculture Extension 2015 sub-award Task 1 – Strategic Permitting Analysis and Task 2 – Environmental Reports and Permitting.

Subtask 4.1: Negotiation of Permit Terms

Plauche & Carr LLP will serve as VPD's legal counsel, and the following staff will be involved in this task: Robert Smith

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Costs for Subtask 4.1: Negotiation of Permit Format, Terms, and Conditions: \$35,000 (2018 - \$25,000, 2019 - \$10,000).

SUBTASK 4.2: DRAFTING AND APPROVAL OF SUB-PERMITS

Plauche & Carr LLP will serve as VPD's legal counsel, and the following staff will be involved in this task: Robert Smith

Costs for Subtask 4.2: Drafting and Approval of Sub-permits: \$15,000 (2018 - \$5,000, 2019 - \$10,000).

SUBTASK 4.3: LEGAL ANALYSIS OF SUPPLEMENTAL ENVIRONMENTAL REVIEW

Plauché & Carr LLP will work with VPD, DUDEK and the lead federal agency and provide legal analysis of any supplementary environmental review (e.g. supplemental studies, reports, surveys, etc.) required by the permitting process.

Costs for Subtask 4.3: Legal Analysis of Supplemental Environmental Review: \$10,000 (2018)

**TOTAL COST FOR Task 4: 2018 - \$40,000, 2019 - \$20,000;
COMBINED TOTAL: \$60,000**

Task 5: Environmental Review - \$119,410

Consulting Services (\$119,410)

Dudek

Y1 \$108,610 | Y2 \$10,800

Dudek is a California-based environmental consulting firm focusing in water/wastewater, energy, transportation, land and community development, healthcare, and education. They have grown to more than 400 environmental planners, scientists, engineers, technicians, and construction professionals with a portfolio of thousands of successful projects. They understand concerned citizenry, environmental goals and constraints, overlapping political jurisdictions, and unique technical and regulatory challenges. Dudek continues to provide consultant services for the Sea Grant Aquaculture Extension 2015 sub-award Task 1- Strategic Permitting Analysis and Task 2 – Environmental Reports and Permitting.

Subtask 5.1: Environmental Reports and Studies

Dudek will serve as VPD's environmental consultant, and the following staff would be involved in this task: Laurie Monarres, John Davis, Andrea Dransfield, Amber Geraghty.

Costs for Subtask 5.1: Environmental Reports and Studies: \$22,100 (2018)

Subtask 5.2: Meetings and Agency Coordination

Dudek will serve as VPD's environmental consultant, and the following staff would be involved in this task: Laurie Monarres, David Wickens, John Davis, Amber Geraghty.

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Cost for Subtask 5.2: Meetings and Agency Coordination: \$30,800 (2018 - \$20,000, 2019 - \$10,800)

Subtask 5.3: Finalize List of BMPs

Dudek will serve as VPD's environmental consultant, and the following staff would be involved in this task: Laurie Monarres, David Wickens, John Davis, Andrea Dransfield, Amber Geraghty, Melis Okter.

Cost for Subtask 5.3: \$18,450 (2018)

Subtask 5.4: Coordinate and Draft Permit Language and Permit Special Conditions

Dudek will serve as VPD's environmental consultant, and the following staff would be involved in this task: Laurie Monarres, David Wickens, John Davis, Andrea Dransfield, Amber Geraghty, Melis Okter.

Cost for Subtask 5.4: \$24,400 (2018)

Subtask 5.5: Draft or Review Monitoring Plans

Dudek will serve as VPD's environmental consultant, and the following staff would be involved in this task: Laurie Monarres, David Wickens, John Davis, Andrea Dransfield, Amber Geraghty, Melis Okter.

Cost for Subtask 5.5: \$23,660 (2018)

**TOTAL COST FOR Task 5: 2018 - \$108,610, 2019 - \$10,800;
COMBINED TOTAL: \$119,410**

Task 6: Seafood Safety and Quality - \$39,000

Consulting Services (\$39,000)

Coastal Marine Bio Labs

Y1 \$0 | Y2 \$39,000

VSE team members Coastal Marine Biolabs (CMB) and legal counsel Plauche & Carr are committed to working collaboratively with NOAA-SIP and other relevant federal entities, to align with agency goals to "ensure the safety and quality of sustainably cultured seafood products" by assisting with the development of a sanitation plan for a federal waters siting alternative. CMB is also committed to establishing a centralized, federally approved, Ventura Harbor-based testing facility to meet the testing requirements articulated in the sanitation plan. This process can be initiated independently of the sanitation plan and concurrently with the permit application process.

The funds requested for this budget item represent a reasonable estimate of the overall costs associated with conducting a sanitary survey of the proposed mussel farming sites. More specifically, funds are requested to conduct bacteriological testing on 600 water samples obtained from a single sampling station in each of twenty 100-acre sites. Based on industry

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standards, the cost for testing services is estimated at \$50/sample. The cost for sample collection is estimated at \$15/sample.

Subtask 6.1: Coordinating a Growing Area Sanitary Survey with NOAA-SIP Representatives

Cost for Subtask 6.1: \$39,000 (2019)

Subtask 6.2: Establishing the Administrative and Technical Framework for a Locally Based, FDA-Approved Safety Testing Laboratory

Cost for Subtask 6.2: \$0 (In-Kind Contribution)

TOTAL COST for Task 6: \$39,000 (2019)

Task 7: Grower/Producer Compliance Training Program and Information Dissemination – \$48,250

Consulting and Video Production Services (\$48,250)

Mr. Scott Lindell, Blake Stok, CMB, CAPS Media

Y1 \$21,250 | Y2 \$28,500

Subtask 7.1: Grower/Producer Outreach and Inclusion

Mr. Lindell of the Woods Hole Oceanographic Institution has conducted aquaculture research in academic and private enterprise settings for over 25 years and successfully permitted commercial mussel farms in federal and state waters off Massachusetts. He brings a unique perspective to the team through research projects aimed at improving methods for culturing algae, shellfish and finfish in partnership with natural resource management agencies, commercial enterprises and other academic institutions. Recently funded projects include development of partnerships and methods for open-ocean mussel and seaweed farming, and nutrient bioextraction with seaweeds and shellfish. Two current projects involve the design and engineering of new offshore aquaculture gear to prevent the possible entanglement of protected species.

Mr. Lindell will bring his decades of experience to provide an advisory role in assisting the VPD in developing a grower/producer application process and assist with the preparation of curriculum components and supplemental materials that align with established objectives for grower/producers participating in the VSE.

Scott Lindell

Y1 \$10,250 | Y2 \$0

\$7,500 Consulting Expense; \$2,750 Travel Expense

Mr. Blake Stok, special projects consultant, provided consulting services to the Ventura Port District as part of the outreach efforts during the VSE site selection process. He will assist the VSE in researching and identifying prospective local, regional, national, and international grower-producers that are suitable candidates for participation in the VSE, and providing direct engagement with potential grower/producers.

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Blake Stok
Y1 \$11,000 | Y2 \$0

Cost for Subtask 7.1: \$21,250 (2018)

Subtask 7.2: Curriculum and Materials Design

Scott Lindell, Blake Stok and CMB will provide curriculum and educational training materials for in-person and on-line training as further described in Task 7 of the project description.

Scott Lindell
Y1 \$0 | Y2 \$10,250
\$7,500 Consulting Expense; \$2,750 Travel Expense

Blake Stok
Y1 \$0 | Y2 \$13,750

Cost for Subtask 7.2: \$24,000 (2019)

Subtask 7.3: Training Video Production

Narrated field demonstrations (5 in total) of mussel aquaculture tasks and certification procedures will be produced as supporting instructional resources to accompany written manual resources and used, in preparation of, and during the in-person workshop series. These will be digitally produced and housed to on the learning management system to provide flexible access to information for VSE participants.

CAPS Media
Y1 \$0 | Y2 \$3,000

Cost for Subtask 7.3 \$3,000 (2019)

Subtask 7.4: Training and Certification

The logistics of the proposed training and certification pathway (e.g., the timing and form of recruitment, program duration, host institution, instructor selection, assessment/performance rubrics/instruments, etc.) will be determined in parallel with the design of major program components, as described above. It bears noting that implementation of the program is dependent on the timing of issuance of required aquaculture permits.

Cost for Subtask 7.4 \$0 (In-Kind Contribution)

VSE Partners
Y1 \$0 | Y2 \$0

TOTAL COST for Task 7: \$48,250

Task 8: Project Summary - \$0

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As a final task, the VSE will provide a concise report to document the practical and strategic decisions that were made to keep the project on a critical path for timely completion of all permit applications.

VSE Partners
Y1 \$0 | Y2 \$0

TOTAL COST for Task 8: \$0 (In-Kind Contribution)

TOTAL VPD GRANT REQUEST: \$266,660
TOTAL CA SEA GRANT REQUEST: \$35,000
TOTAL SEA GRANT REQUEST: \$301,660

ATTACHMENT 3

Collaborators List:

Competition Title: NOAA National Sea Grant College Program 2018 Ocean, Coastal and Great Lakes National Aquaculture Initiative
PROJECT TITLE: Olin – Ventura Shellfish Enterprise: Implementing an Integrative Model for New Shellfish Aquaculture Permitting and Production in California

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