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STAFF REPORT: REGULAR CALENDAR

Application No.:	**9-16-0033**
Applicant:	**Coast Seafoods Company**
Agents:	Plauché and Carr, LLP
Location:	Samoa Peninsula, Samoa, Humboldt County.
Project Description:	Construct and operate an onshore shellfish hatchery, including seed setting, seed washing, storage, broodstock and larvae facilities, a seawater intake and return system, and a microalgae greenhouse, at an existing pier and warehouse.
Staff Recommendation:	Approval with conditions.

SUMMARY OF STAFF RECOMMENDATION

Coast Seafoods Company (Coast) proposes to establish an onshore shellfish hatchery at an existing pier, berth facility and warehouse owned by the Humboldt Bay Harbor, Recreation, and Conservation District at the site of a former pulp mill. The project site is located north of the Eureka Municipal Airport near the town of Samoa on the west side of the entrance channel of Arcata Bay (the northern arm of Humboldt Bay).

The proposed hatchery would be used for the spawning, feeding, and growing of juvenile shellfish seed, including Pacific oyster, Kumamoto oyster, Manila clam, Pacific geoduck, and Gallo mussel, providing Coast with a local source of seed for use in its Humboldt Bay grow-out operations and for possible sale to other growers. The proposed hatchery would consist of seven primary elements, to be constructed in two phases. Phase I projects would include: (1) a seed setting facility; (2) a seed wash system; (3) a seawater intake and return system; and (4) parking and storage facilities. Phase II projects would include: (5) a broodstock and larvae facility; (6) a microalgae greenhouse; and (7) a storage area for cultch, which are the shells used for seed setting.

The proposed project has the potential to adversely affect marine resources through the intake of seawater to support hatchery operations, and the discharge of pollutants to coastal waters during project construction and operations. Phase I development would require a relatively small 75,000 gallons of seawater per day, consistent with previous Commission approvals of upland shellfish hatcheries. Phase II development would require an additional 950,000 gallons of seawater per day, for a total of up to 1 million gallons per day. Seawater intake at this level has the potential to result in the entrainment or impingement, and the eventual mortality, of marine organisms, including plankton, larvae and adult and juvenile fish. Project-related contaminant discharges, stormwater runoff and erosion have the potential to affect water quality in Humboldt Bay. In addition, project construction could result in the disturbance of known osprey nests near the project site.

Staff recommends the Commission find that with implementation of **Special Conditions 1-6**, the project can be carried out consistent with the marine resource, water quality, and environmentally sensitive habitat area (ESHA) policies of the Coastal Act. **Special Condition 1** would establish a permit term limit consistent with the current lease term for the project site, giving the Commission the opportunity to re-assess the coastal resource impacts of the operation after it has been functioning for approximately 10 years. **Special Conditions 2-6** would further reduce potential marine resource and ESHA impacts by: (a) requiring the design of the seawater intake system to reflect current standards established to minimize the entrainment and impingement of adult and juvenile fish; (b) requiring Coast to compensate for entrainment and impingement impacts to the biological productivity of Arcata Bay by paying a mitigation fee to fund a wetland enhancement project consisting of the removal of invasive cordgrass (*Spartina densiflora*) and restoration of native vegetation at an Arcata Bay marsh; (c) requiring submittal of a Stormwater Pollution Protection and Erosion Control Plan and evidence of project authorization by the North Coast Regional Water Quality Control Board; and (d) requiring that protective measures be carried out for nesting osprey that have been observed in close proximity to the project site.

Commission staff recommends **approval** of coastal development permit application 9-16-0033, as conditioned.

TABLE OF CONTENTS

APPENDICES

EXHIBITS

I. MOTION AND RESOLUTION

Motion:

*I move that the Commission **approve** Coastal Development Permit 9-16-0033 subject to conditions set forth in the staff recommendation.*

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in approval of the permit amendment as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of Commissioners present.

Resolution:

The Commission hereby approves the Coastal Development Permit 9-16-0033 and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the amended development on the environment.

II. STANDARD CONDITIONS

This permit is granted subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment**. The permit is not valid and development shall not commence until a copy of the permit, signed by SCE or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration**. If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. **Interpretation**. Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **Assignment**. The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land**. These terms and conditions shall be perpetual, and it is the intention of the Commission and SCE to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. **Permit Term Limit.** The permit shall expire on August 15, 2025, which is the date on which the current Humboldt Bay Harbor, Recreation, and Conservation District Lease expires. If this lease is extended or a new lease is issued by the Humboldt Bay Harbor, Recreation, and Conservation District, Coast may apply to the Commission for a permit amendment to extend the term of this permit.

2. **Intake System Design.** All intake systems shall be designed with a screened intake with (a) round or square openings of no more than 3/32 inches or slotted/wedge wire openings of no more than 1.75 millimeters, a screen area of at least 5 square feet per cubic foot per second water volume intake, a minimum open area of 27%, and a maximum intake water approach velocity of 0.2 feet per second if a self-cleaning device is installed that clears the entire screen face at least once every five minutes; or (b) round or square openings of no more than 3/32 inches or slotted/wedge wire openings of no more than 1.75 millimeters, a screen area of at least 20 square feet per cubic foot per second water volume intake, a minimum open area of 27%, and a maximum intake water approach velocity of 0.05 feet per second if a self-cleaning device is not installed.

3. **Entrainment Impacts Mitigation**. PRIOR TO COMMENCEMENT OF CONSTRUCTION of Phase II of the project (i.e., broodstock and larvae facility, microalgae greenhouse), Coast shall provide (or submit evidence that such measures have been provided) the following:

   A. Mitigation Fee: Coast shall compensate for project-related entrainment and impingement impacts to the biological productivity of Humboldt Bay through enhancement and restoration of at least 0.5 acres of tidal wetlands in the Arcata and/or Entrance Bay watershed through the eradication of *Spartina densifolia*. This work is estimated to cost $21,000 ("Mitigation Fee"), therefore Coast is required to deposit the Mitigation Fee in an interest-bearing account, to be established and managed by the Humboldt Bay Harbor, Recreation and Conservation District ("Harbor District"), or other entity approved by the Executive Director. The entity receiving these funds shall enter into a Memorandum of Agreement ("Agreement") with the Executive Director, on behalf of the Commission, specifying that the funds deposited in this account, and any accrued interest, shall only be used to fund the enhancement and restoration of at least 0.5 acres of tidal wetlands in the Arcata and/or Entrance Bay watershed through the eradication of *Spartina densifolia*. If the Executive Director determines that the entity receiving these funds is not carrying out the entrainment impact mitigation project in accordance with the terms and conditions of the Agreement, the Executive Director shall require transfer of any Mitigation Fee funds remaining at the time of such determination to an alternative entity to implement an alternative entrainment impact mitigation project acceptable to the Executive Director. If the Mitigation Fee is insufficient to complete the work required in the *Spartina* Removal and Marsh Restoration Plan required by subsection

(C) of this condition, Coast shall provide the additional funds necessary to ensure full compliance with such plan.

B. Coastal Development Permit Authorization: All development funded by this account will require coastal development permit review and approval unless the area proposed for restoration has been previously approved by the Commission for *Spartina* eradication under CDP 1-14-0249 and is included in the "List of Lands Covered Under CDP Application No. 1-14-0249" associated with that permit (Appendix C to the May 22, 2015 Staff Recommendation), in which case Coast and/or the entity receiving Mitigation Fee funds shall carry out eradication activities in compliance with the special conditions of CDP 1-14-0249.

C. *Spartina* Removal and Marsh Restoration Plan: Coast and/or the entity receiving the Mitigation Fee funds shall submit, for the Executive Director's review and approval, a *Spartina* Removal and Marsh Restoration Plan for the proposed mitigation work. The plan shall include, at a minimum, the following components:

(i) A description of the treatment area location, size, and access routes;

(ii) A site evaluation that describes the size and density of the *Spartina* infestation in the treatment area, vegetation composition, substrate characteristics, topography, tidal circulation and elevations, and other factors relevant to the proposed treatments;

(iii) A site plan depicting the primary treatment area, designated ingress/egress routes, staging/stockpiling areas, buffer areas (from channels, nesting bird habitat, sensitive plants, etc., as applicable), etc.

(iv) A detailed work plan, including proposed methods for *Spartina* removal and a description of the treatments which would occur during each year of a five-year project period, and a description of the timing of work. The proposed treatment methods shall be consistent with the Humboldt Bay Regional *Spartina* Eradication Plan (H.T. Harvey & Assoc. 2012), as approved by the Commission under CDP 1-14-0249.

(v) A description of the specific implementation of performance standards consistent with the restoration goals and objectives set forth in the Humboldt Bay Regional *Spartina* Eradication Plan (H.T. Harvey & Assoc. 2012) including, but not limited to (a) Less than 5% cover by *Spartina* within the project area within five years of implementation of primary treatment; (b) the restoration of native tidal marsh plant species in the treatment area to a level of coverage and diversity similar to surrounding natural marshlands, (c) achievement of fully restored (to "maintenance" stage) marsh habitats within the treatment area within five years of implementation of primary treatment, and (d) maintenance of fully restored marsh habitats and less than 5% cover by *Spartina* through the 2025 expiration date of the subject coastal development permit;

(vi) A monitoring plan that includes provisions for (a) monitoring the treatment area through the end of the permit term on August 15, 2025; (b) photo-documenting the restoration/recovery of the treatment area; and (c) performing quantitative sampling in the treatment area to track native plant recovery and *Spartina*

presence/cover in the area throughout the monitoring period. The monitoring plan shall include a schedule of proposed monitoring activities; and

(vii) A reporting plan that includes provisions for submittal to the Executive Director of (a) an "as built" report demonstrating that the initial restoration work has been completed in accordance with the approved site-specific *Spartina* removal plan, within 30 days of completion of primary treatment; (b) annual reports of monitoring results by December 31st each year for the duration of the required monitoring period, beginning the first year after submittal of the "as-built" assessment. Each annual report shall include a "Performance Evaluation" section where information and results from the monitoring are used to evaluate the status of the restoration project and to recommend follow-up treatment methods as well as any necessary revegetation; and (c) a final monitoring report at the end of the permit term (after August 15, 2025), evaluating whether the mitigation site conforms to the goals, objectives and performance standards set forth in the approved final *Spartina* Removal and Marsh Restoration Plan.

For a mitigation site included in the Humboldt Bay Regional Eradication Plan previously authorized by the Commission (CDP 1-14-0249), this requirement may be satisfied through the submittal of a site-specific *Spartina* Removal Plan pursuant to Special Condition 4 of CDP 1-14-0249.

D. PRIOR TO COMMENCEMENT OF PHASE II DEVELOPMENT, Coast shall provide, in a form acceptable to the Executive Director, an "as built" report demonstrating that the initial restoration work has been completed in accordance with the approved *Spartina* Removal and Marsh Restoration Plan.

E. If the final monitoring report indicates that the *Spartina* Removal and Marsh Restoration Project has been unsuccessful, in part or in whole, based on the approved performance standards, Coast shall submit a revised or supplemental plan to compensate for those portions of the original plan that did not meet the approved performance standards. The revised plan shall be processed as an amendment to this coastal development permit, unless the Executive Director determines that no amendment is legally required.

F. Coast shall undertake development in accordance with the approved final plans. Any proposed changes to the approved final plans shall be reported to the Executive Director. No changes to the approved final plans shall occur without a Commission amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.

4. **RWQCB Review and Approval.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, Coast shall submit to the Executive Director written evidence that all necessary permits, permissions, approvals, and/or authorizations for the approved project have been granted by the North Coast Regional Water Quality Control Board (RWQCB). Any changes to the approved project required by the RWQCB shall be reported to the Executive Director. No changes to the approved project shall occur without an amendment to this CDP unless the Executive Director determines that no amendment is legally necessary.

5. **Storm Water Pollution Prevention and Erosion Control Program**. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, Coast shall submit a project-specific Storm Water Pollution Prevention and Erosion Control Plan ("Plan") to the Executive Director for review and approval, for any excavation, trenching or other ground-disturbing activities, including but not limited to the installation of the saltwater intake and discharge pipes (during Phase I of the project) and the construction of the microalgae greenhouse (during Phase II). The Plan shall identify and implement measures that prevent adverse impacts to Humboldt Bay related to runoff and erosion during construction activities, and shall include Best Management Practices such as temporary berms, barriers and sedimentation traps, silt fencing, straw bales, sand bags, storm drain inlet protection, seeding and mulching, and dust control measures. In addition, the plan shall specify the site restoration activities that will be undertaken following ground-disturbing construction activities. The Plan shall also include a hazardous substance management section that identifies handling, storage, disposal and emergency response procedures related to any hazardous waste that may be generated or identified during project activities. Coast shall implement the Plan as approved by the Executive Director.

6. **Protection of Nesting Ospreys**. Coast shall implement the following nesting osprey protection measures for all outdoor trenching, excavation or other ground-disturbing construction activities occurring within 300 feet of an osprey nest during the osprey nesting season, defined here as March 15 through August 15.

   A. Biological Monitor: PRIOR TO COMMENCEMENT OF CONSTRUCTION, Coast shall retain the services of one or more qualified biologists approved by the Executive Director to ensure compliance with all relevant osprey protection measures. The approved biologist(s) shall conduct the required preconstruction surveys and monitoring during construction, keep required records, and notify Commission staff and staff of other agencies as necessary regarding project conformity to these measures. The approved biologist(s) shall be present during all listed construction activities. The biologist(s) shall have authority to halt work activities, if the potential for impacts to nesting ospreys is identified, until the issue can be resolved. The biologist(s) shall immediately report any observations of significant adverse effects on nesting ospreys to the Executive Director.

   B. Pre-construction Surveys: NO MORE THAN 14 DAYS BEFORE COMMENCEMENT OF CONSTRUCTION the biologist(s) shall conduct a field survey of osprey nesting activity at the former pulp mill site, and shall identify osprey nests (active or inactive) within 300 feet of the location of any proposed outdoor trenching, excavation, or other ground-disturbing construction activity.

   C. Limitations on Construction Activity:

      (i) Between March 15 and August 15, outdoor trenching, excavation, or other ground-disturbing construction activities shall be avoided within 300 feet of an osprey nest unless the nest is determined to be inactive by the approved biologist(s).

(ii) If outdoor trenching, excavation, or other ground-disturbing construction activities within the 300-foot disturbance-free buffer cannot be postponed until after osprey chicks have fledged, such activities may proceed only under the oversight of the approved biological monitor(s), who shall have the authority to halt construction activities if potential impacts to the nesting osprey are identified, such as when the ospreys occupying a nest show signs of disturbance, agitation, or abnormal behavior.

(iii) All excavation, trenching, heavy equipment use or other outdoor construction within 300 feet of an active osprey nest shall cease if the biological monitor(s) documents behavioral signs of nest disturbance, and shall remain suspended until the approved biologist(s) has determined that chicks have fledged or the issue is otherwise resolved.

IV. FINDINGS AND DECLARATIONS

A. PROJECT DESCRIPTION

Coast Seafoods Company (Coast) proposes to construct and operate an upland saltwater shellfish hatchery on property leased from the Humboldt Bay Harbor, Recreation and Conservation District (Harbor District) at the existing Redwood Terminal Berth 2 pier facility (RWT2), formerly associated with the former Louisiana-Pacific Samoa pulp mill. The Berth 2 facility is located on the Samoa Peninsula, north of the Eureka Municipal Airport and on the west side of the entrance channel to Arcata Bay (**Exhibit 1**). The proposed hatchery facilities would be installed in and around an existing warehouse that is already used by Taylor Mariculture LLC (Taylor) for a similar shellfish hatchery pursuant to CDP Nos. E-11-029 and E-11-029-A1. Coast also proposes to install saltwater intake and discharge pipes along the existing pier and dock facility in order to serve the upland hatchery (**Exhibits 2**, **3**). The Harbor District has issued a ten-year lease to Coast for the use of a portion of the land and existing structures on-site; the lease expires in August 2025. As a part of the lease, Coast also holds an option to expand its use of the existing warehouse and surrounding area in order to accommodate later development (Phase II, see below).

The proposed hatchery will provide Coast with a local source of juvenile shellfish seed for use in its existing and future grow-out operations in Humboldt Bay, and as a possible seed source for sale to other growers. Coast states that it requires an inventory of juvenile seed at specific times throughout the year to ensure a steady supply of future marketable-size shellfish for distribution and sale. At present, Coast does not operate a shellfish hatchery in the Humboldt Bay region, and depends on seed grown at a Coast hatchery in Washington State. Coast proposes to use the hatchery to cultivate seed of several non-native shellfish species common to shellfish aquaculture, including Pacific oyster (*Crassostrea gigas)*, Kumamoto oyster (*C. sikamea*), Manila clam (*Venerupis philippinarum*), Pacific geoduck (*Panopea generosa*), and Gallo (Mediterranean) mussel (*Mytilus galloprovincialis*), depending on future market demand.

Coast's proposed shellfish hatchery would be an integrated upland facility for the purpose of spawning, feeding, and growing juvenile shellfish seed to a size suitable for transfer to the company's existing nurseries. The proposed shellfish hatchery development would include two phases. In Phase I, Coast proposes to construct: (1) a seed setting facility; (2) a seed wash

system; (3) a seawater intake and return system; and (4) parking and storage facilities. In Phase II, Coast proposes to construct (5) a broodstock and larvae facility; (6) a microalgae growing area (greenhouse); and (7) a cultch storage area. The proposed locations of major project components are shown in **Exhibit 2**.

Seed Setting Facility
Coast proposes to convert approximately 10,000 square feet of the existing warehouse into a seed setting facility. The purpose of the seed setting facility is to produce shellfish seed from larvae hatched either on site or elsewhere. Seed is "set" when free-swimming larvae, spawned in a hatchery, attach themselves to a surface, a small piece of shell or half shell. Once they are settled they are called "spat." The seed setting facility would require the installation of holding tanks and water intake, filtration, heating and water discharge systems. Retrofit activities would be limited to the interior of the warehouse, and no changes to the warehouse structure are proposed. The seed setting facility would require a continuous source of seawater at a rate of up to 300 gallons per minute (*see* seawater intake system, below).

Seed Wash System
A seed wash facility, consisting of a concrete pad area with a catchment system and pump, along with a 396-gallon freshwater storage tank, is proposed to be constructed inside the existing warehouse. The seed wash system will allow the juvenile shellfish to be cleaned to the level necessary for transport out of state. A storage tank would be used to prepare a freshwater and sodium hypochlorite (bleach) wash solution. Within the concrete catchment area, totes containing shellfish seed would be filled with the wash solution, and the seed would be left to soak for at least one hour. After the wash treatment, the seed would be removed, and the wash solution would be neutralized using sodium thiosulfate, in accordance with industry standards. The concrete pad/catchment system would be designed with sufficient excess capacity to contain the maximum possible spill from the storage tank and totes (20% excess capacity) in order to minimize the chance of spillage of the chlorinate wash solution due to overflow.

The treated wash solution used in Coast's proposed seed wash system would be pumped to an existing on-site septic system and leach field used by Taylor for the same purpose. During peak seed production season (March through November), Coast's seed wash system would discharge approximately 396 gallons of treated wash solution to the existing leach field an average of two times per week (approximately 800 gallons per week). Coast will use the same piping as Taylor to convey discharge water to the leach field. Taylor also discharges to the leach field at a maximum rate of 10,080 gallons per week. The leach field has a capacity of 16,000 gallons and a maximum flow of 102,900 gallons per week. The cumulative discharge to the existing septic system between Taylor's use and Coast's proposed use would be within the system's capacity.

Saltwater Intake and Return System
In order to provide a continuous source of seawater for the seed setting facility and, eventually, the broodstock and larvae facilities and the microalgae greenhouse, Coast proposes to install intake and discharge pipes running from the existing warehouse to Humboldt Bay as a part of Phase I (**Exhibits 2**, **3**). The intake system would consist of four six-inch diameter PVC pipes, while the discharge system would use two six-inch PVC pipes. The pipes would be installed beneath the existing roadway, along the underside of the existing pier, and down to the water

along one of the pier support pilings. The intake pipes would extend to approximately six feet above the seafloor; discharge pipes would terminate approximately five feet above the seafloor. An elbow bend in the discharge pipes would direct the outflow parallel to rather than down toward the seafloor. A small amount of excavation (≤ 50 cubic yards) would be necessary to install the pipes underneath the roadway.

The seawater intake and discharge system would be driven by two, 20-horsepower variable-speed electric pumps, each capable of pumping up to 300 gallons per minute (gpm) (600 gpm total). The intake water would be passed through a sand filtration system to control turbidity, and collected in a centralized area within the warehouse to be distributed to the various hatchery facilities. The intakes would be enclosed by stainless steel screens designed to meet National Marine Fisheries Service (NMFS) and California Department of Fish and Wildlife (CDFW) fish screening standards. Return water would be drained to a central sump, passed through sand filters and run through a heat exchanger prior to being discharged back into the Bay.

Following the completion of the Phase II projects, Coast estimates that the maximum total seawater intake from and discharge to Humboldt Bay could reach 1,025,314 gallons per day, with the highest volumes of seawater intake typically occurring between March and November.[1]

Storage and Parking
During Phase I of the project, Coast proposes to refurbish an existing 93-foot x 41-foot shed to serve as an equipment storage space. Refurbishment would include replacement of worn siding to provide adequate weather protection, but would not require ground disturbing activities. During Phase II of the project, Coast would begin to use a 12,000 square-foot area adjacent to the warehouse to store bags of cultch (shell). No construction would be associated with the cultch storage area. Parking for the proposed hatchery facility would occur in an existing asphalt and gravel area adjacent to the warehouse.

Broodstock and Larvae Facility
During Phase II of the project, Coast proposes to convert an additional 10,000 square feet of the existing warehouse into a broodstock and larvae facility. Broodstock are mature shellfish used for the breeding and production of larvae. The broodstock to be used at this facility would be sourced from both within Humboldt Bay and other areas (e.g., Washington State). The broodstock would be held in large [insert capacity] culture tanks. The proposed larvae culture area would consist of several culture tanks used to store larvae prior to seed settling. Retrofitting activities associated with the broodstock and larvae facilities would include the installation of the holding tanks and the necessary plumbing, and would be limited to the interior of the warehouse (no external or structural modifications are proposed). The broodstock and larvae facilities would use seawater provided by the intake/discharge system installed during Phase I and described above.

Microalgae Greenhouse
In Phase II, Coast also proposes to construct a greenhouse for the culturing of microalgae (i.e., phytoplankton) to provide a supplemental food source for the hatchery larvae and broodstock.

[1] Total includes approximately 75,000 g/d for the seed setting facility, 900,000 g/d for the broodstock and larvae facilities, 50,000 gal/d for the microalgae greenhouse, and 314 g/d for facility wash water.

Species proposed for cultivation include *Thalassiosira pseudonana, Skeletonema menzellii, Tisochrysis lutea, Pavlova lutheri, Tetraselmis sp*., and *Chaetoceros calcitrans*. The microalgae greenhouse would occupy approximately 15,000 square feet along the southern exterior wall of the existing warehouse (**Exhibit 2**), and would be 15 feet in height. The greenhouse would house multiple culture tanks containing a total of 100,000 gallons of water. The water to support the microalgae cultures would be supplied from Humboldt Bay via the seawater intake system described above.

Before beginning construction of the greenhouse facility, Coast would apply for and obtain all necessary permits from the County of Humboldt and would develop and implement an erosion control and soil loss prevention plan that incorporates County-approved construction best management practices such as use of silt fencing and fiber rolls around areas of ground disturbance.

B. Other Agency Approvals

Humboldt Bay Harbor, Recreation, and Conservation District

On August 11, 2015, the Humboldt Bay Harbor, Recreation and Conservation District (Harbor District) issued to Coast a ten-year lease for the use of portions of the land and warehouse at the project site. The lease includes 9,990 square feet of the existing warehouse and an additional 12,600 square feet of outdoor area that would be used for storage, parking, and construction of the seawater intake and discharge pipes. The lease expires on August 10, 2025. The lease agreement also includes an option for Coast to expand into an additional 10,560 square feet of warehouse space and 26,000 square feet of outdoor area at a later date to accommodate Phase II development.

The Harbor District issued a use permit to Coast for installation of the project's saltwater intake and discharge pipes on March 10, 2016. At this time, the Harbor District determined that the operation and construction of the saltwater intake and discharge system was categorically exempt from review under the California Environmental Quality Act (CEQA).

County of Humboldt

Portions of the proposed project are located within the local coastal program (LCP) jurisdiction of Humboldt County, while the remainder is located within the retained jurisdiction of the Coastal Commission. In a letter dated February 4, 2016, the County requested that the Commission review the project as a consolidated permit pursuant to Section 30601.3 of the Coastal Act. The Acting Executive Director agreed to this request on March 4, 2016.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (ACOE) has regulatory authority over the proposed project under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 1344). Section 10 of the Rivers and Harbors Act regulates structures or work in navigable waters of the United States. On March 29, 2016, the ACOE authorized the proposed project pursuant to Nationwide Permit 7 (for installation of intake and outfall structures).

Pursuant to Section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), any applicant for a required federal permit to conduct an activity affecting any land or water use or natural

resource in the coastal zone must obtain the Commission's concurrence in a certification to the permitting agency that the project will be conducted consistent with California's approved coastal management program. The subject coastal development permit (9-16-0033) will serve as Commission review of the project under the CZMA.

North Coast Regional Water Quality Control Board
The North Coast Regional Water Quality Control Board (RWQCB) is considering Coast's December 3, 2015 application for a Report of Waste Discharge and its request for a waiver of waste discharge requirements. The RWQCB would need to complete its review prior to the Coast's use of the proposed onshore facility.

C. MARINE RESOURCES AND WATER QUALITY

Section 30230 of the Coastal Act states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30231 of the Coastal Act states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

The proposed installation and operation of an upland shellfish hatchery, including seawater intake and discharge pipes, a seed setting facility, an onshore seed washing facility, broodstock and larvae facilities, and a microalgae greenhouse, has the potential to adversely affect marine resources, biological productivity, special status species and water quality of coastal waters in Humboldt Bay due to the entrainment and impingement of marine organisms during seawater intake, and through the discharge of pollutants related to the construction and operation of the proposed hatchery.

Marine Resources of Humboldt Bay
Humboldt Bay supports an array of marine and estuarine ecosystems, including wetlands, mudflats, eelgrass beds, tidal channels and open water, and provides habitat for a wide variety of marine organisms, including several fish species protected under state or federal law. Three species of salmonids that inhabit Humboldt Bay and its tributaries are listed as threatened under the federal Endangered Species Act of 1973. Two of these species are also listed as threatened

under the California Endangered Species Act. Coho salmon (*Oncorhynchus kisutch*) is federally and state listed for the Southern Oregon/Northern California Coasts Evolutionarily Significant Unit (ESU), Chinook salmon (*O. tshawytscha*) is federally and state listed for the California Coastal ESU, and steelhead (*O. mykiss*) is federally listed for the Northern California ESU. These salmon species are present in Humboldt Bay both as adults during their migration from the sea into spawning rivers in the fall and winter and as juveniles as they move downstream into the ocean in the spring and early summer. Due to the anadromous salmonid life-cycles, the earliest and smallest life stages (eggs, larvae (alevins) and fry) would not be present near the project site or elsewhere in Humboldt Bay.

In addition, longfin smelt (*Spirinchus thaleichthys*) is listed as a threatened species under the California Endangered Species Act. Longfin smelt generally spawn in freshwater and move downstream to estuarine conditions to grow. Although once among the most abundant fish species in Humboldt Bay, present in larval, juvenile, and adult life stages, longfin smelt were considered to be possibly extinct there by 1996 (Eldridge and Bryan 1972, USFWS 1996). In recent years, however, longfin smelt have again been observed in Humboldt Bay and are thought to be present year-round (Pinnix et al 2005; CDFW 2009). Surveys conducted by CDFW biologists during the winter of 2015-2016 have confirmed that that longfin smelt are still present in at least three tributaries to Humboldt Bay (Freshwater, Elk River and Salmon Creek), and are spawning in at least two of the three (R. Garwood, CDFW, pers. comm.). Adult, juvenile and larval longfin smelt have the potential to occur in the North Channel near the project's seawater intakes.

The Bay is also home to a number of marine mammals, which are protected under the federal Marine Mammal Protection Act, and protected bird species, including the California brown pelican, the California least tern, osprey, and others (Barnhart et al. 1992). The project's seawater intake is not expected to cause substantial adverse effects to large marine organisms, however, due to the system's small size, relatively low flows and velocities, and the presence of intake screens to prevent large organisms from being caught or injured. The potential for project activities to disturb nesting osprey on the project site is discussed in more detail below.

Seawater Intakes

The removal of seawater through intake structures results in the impingement and entrainment of marine life. Impingement occurs when fish or other organisms are killed or injured by being caught on an intake's screening system. The rate of impingement at an intake is largely related to the velocity of the water being pulled into the intake. Entrainment occurs when small organisms, such as plankton, fish eggs, larvae, etc., are pulled into an open-water intake and killed when exposed to stressors such as high pressure, turbulence, and being pulled into filters. Entrainment rates are related primarily to the density of organisms within the source water and the amount of water being pulled into the intake. The type and quantity of marine life that may be adversely affected in this way is related to the size and velocity of the intake structures. Larger, high-velocity structures can cause the impingement and entrainment of larger organisms that can include adult fish while smaller low-velocity structures can typically only impinge and entrain smaller larval and juvenile organisms. Impingement (capture of fish and other marine organisms against an intake screen due to suction) can result in the injury or mortality of some of the affected organisms, entrainment (capture of fish and other marine organisms in the intake stream) is generally considered to result in 100% mortality of the captured organisms due to the

multiple stressors they encounter when passing through pipes and filters, being subjected to changes in pressure and temperature, or being exposed to chemical changes in the water.

As part of its proposed operations, Coast would carry out a variety of activities that would require the use of seawater extracted from Humboldt Bay. These activities include the operation of the following: (1) the seed setting facility, requiring up to 75,000 gallons of seawater intake per day (27 million gallons per year); (2) the broodstock and larvae facility, requiring up to 900,000 gallons per day (329 million gallons per year); (3) the microalgae greenhouse, requiring up to 50,000 gallons per day (18 million gallons per year); and (4) facility washing and cleaning, requiring up to 314 gallons per day (115,000 gallons per year). Coast proposes to use the North Channel leading to Arcata Bay as the water source for these facilities and activities, with a maximum combined seawater use of up to 374 million gallons per year.

In reviewing previous aquaculture-related permit applications in Humboldt Bay, notably the Taylor Mariculture (CDP #E-11-029) and Hog Island Oyster Company (CDP # 9-13-0500) shellfish facilities, and the Harbor District/Hag Fish Inc. hag fish holding facility (CDP # 1-15-0604), the Commission has found that entrainment and impingement impacts associated with upland cultivation facilities would not result in significant adverse impacts to marine resources, in part due to the relatively modest volumes of seawater intake proposed for those facilities. The Taylor facility is permitted to take in approximately 60 million gallons of seawater per year, the Hog Island facility is permitted to take in 37 million gallons per year, and the hag fish facility could use up to approximately 70 million gallons per year. In contrast, the proposed Coast hatchery would require the intake of up to 374 million gallons per year, with over 90% of this seawater demand associated with Phase II project components (i.e., broodstock and larvae facility, microalgae greenhouse). In light of the much larger proposed use of seawater at the Coast facility, a more detailed evaluation of the potential environmental effects is warranted.

Impacts to Adult and Juvenile Fish

Due to the presence of endangered and threatened fish species in the project area, specific intake limits and criteria that are relevant to these species are necessary to minimize the potential for entrainment and impingement of adult and juvenile fish. Intake system standards developed by NMFS for salmonid species limit approach velocities[2] at the intake screen to 0.4 feet per second for actively-cleaned systems, and 0.2 feet per second for systems without self-cleaning capabilities (NMFS 2011).[3] To further minimize impingement risk, the NMFS standards also specify a minimum effective screen size[4] for passive and active intake screens based on the proposed rate of water withdrawal. For each cubic foot per second of water withdrawal, the effective screen size should be increased by 2.5 square feet with an active screen, and 5 square feet with a passive screen (NMFS 2011). The NMFS standards also include screen pore size criteria to minimize entrainment risk. While these criteria vary slightly based on the shape of the screen pores and the screen design, in general the criteria establish a maximum pore size of 3/32

[2] Defined by NMFS (2011) as the calculated water velocity component perpendicular to the screen face.

[3] Self-cleaning helps ensure that the velocity of water through the screen stays consistent since partial blockage of the screen face will increase the velocity of water through the remaining open screen pores.

[4] Defined by NMFS (2011) as the total submerged screen area, excluding major structural members, but including the screen face material.

inch in areas where juvenile fish are present and require a minimum open screen area of 27% (NMFS 1997).

The presence of state-listed, threatened longfin smelt in the project area (Cole 2004, Pinnix et al. 2005, CDFW 2009, Merz et al. 2012) means that specific intake limits and criteria that are relevant to this species must also be considered. Because of the more limited swimming abilities of smelt in comparison to salmon, as well as their smaller size, CDFW technical staff has determined that a lower approach velocity of 0.2 feet-per-second is warranted with active intake screen systems and 0.05 feet-per-second is appropriate for passive systems in areas in which longfin or delta smelt are present. In addition, CDFW fish screening criteria establish a minimum screen size of five square feet per cubic foot per second of intake for active systems, and 20 square feet per cubic foot of intake for passive systems. The Commission has previously found that these screening criteria reduce the potential impingement and entrainment of juvenile and adult fish, because an intake velocity of 0.2 feet per second is not likely to exceed a fish's swimming ability and most juvenile and adult fish exceed 3/32 inch in size.

Coast committed in its project description to use an intake system designed according to NMFS and CDFW criteria to reduce the entrainment and impingement of adult and juvenile fish, including salmonids and longfin smelt. Specifically, Coast proposes to limit intake screen openings to 3/32 inches (2.4 mm) or slotted/wedge wire openings of no more than 1.75 millimeters, and intake velocities to a maximum 0.2 feet per second if self-cleaning screens are used, and 0.05 feet per second if the screens are not self-cleaning. In order to incorporate this commitment into Coast's Coastal Development Permit and, further, to ensure that all relevant NMFS and CDFW criteria for intake screens are met, the Commission is requiring in **Special Condition 2** that Coast use a screened intake system designed to meet either of the following sets of criteria: (a) round or square openings of no more than 3/32 inches or slotted/wedge wire openings of no more than 1.75 millimeters, a screen area of at least 5 square feet per cubic foot per second water volume intake, a minimum open area of 27%, and a maximum intake water approach velocity of 0.2 feet per second if a self-cleaning device is installed that clears the entire screen face at least once every five minutes; or (b) round or square openings of no more than 3/32 inches or slotted/wedge wire openings of no more than 1.75 millimeters, a screen area of at least 20 square feet per cubic foot per second water volume intake, a minimum open area of 27%, and a maximum intake water approach velocity of 0.05 feet per second if a self-cleaning device is not installed.

With the implementation of this special condition, the Commission finds that the proposed project would protect against significant adverse effects from impingement and entrainment of adult and juvenile fish, including special status species (Coho and Chinook salmon, steelhead trout and longfin smelt) known to inhabit Humboldt Bay.

Impacts to Planktonic Organisms & Biological Productivity

While the screening and intake standards discussed in the previous section would protect against the entrainment and impingement of larger, mobile organisms, including adult and juvenile fish, they would not prevent the entrainment of marine organisms smaller than the screen openings (1.75 to 2.4 millimeters), nor the impingement of organisms unable to overcome the system's intake velocity. These organisms include phytoplankton and zooplankton, as well as free-floating

fish eggs and larvae which may be present in the water column. The maximum combined seawater use by all the proposed facilities (Phases I and II) would be slightly more than 1 million gallons per day (374 million gallons per year). The combined effects of mechanical stress, heating, filter-feeding by the cultured shellfish, and filtration prior to discharge would cause essentially 100% mortality of any organisms, eggs, or larvae entrained in the intake system. Moreover, organisms (including some larvae) too large to pass through the intake screens but lacking the ability or strength to overcome the intake stream may suffer mortality due to impingement against the screens.

In reviewing previous projects involving seawater intakes, such as power plant cooling systems and desalination facilities, the Commission has required applicants to evaluate alternatives, such as the use of sub-surface intakes, which have the potential to avoid or reduce significant impacts to marine organisms from entrainment. In the present case, the proposed hatchery would depend on the presence of naturally-occurring planktonic organisms in seawater, some of which would provide food for juvenile and adult shellfish, so there is no other feasible alternative that would meet the project objectives. The seawater is specifically needed, in part, because of the planktonic organisms that would be entrained and ingested; however, the remaining organisms not ingested would likely be killed during discharge to the facility's sand filter and heat exchanger.

Where entrainment impacts are unavoidable, the Commission usually requires an applicant to conduct an entrainment study prior to the proposed new or expanded use of an open water intake. These site-specific studies help determine the magnitude of entrainment impacts and may help assess whether there are feasible measures to avoid or reduce these impacts. Determining the scale and the extent of entrainment (and impingement) impacts to planktonic organisms generally requires a study that includes obtaining at least one year's worth of regular sampling data and application of any of several modeling approaches. The samples are taken from waters near the intake and from nearby source waters. Organisms captured are identified to the lowest possible taxon. In most cases, all organisms cannot be identified or enumerated, so the known taxa serve as indicators or surrogates for the total biological productivity lost to entrainment. Of the several available methods for quantifying entrainment impacts, the Commission and other state agencies have used for the past 15 years the "Empirical Transport Model" (ETM) to identify the proportion of organisms within a source water area that are lost to entrainment, and then used these estimated entrainment losses to calculate the "Area of Production Foregone" (APF), which represents the area of habitat needed to produce the fish larvae and invertebrates of each species lost due to entrainment.[5] It is based on the extent of habitat in which entrainable larvae are subject to being pulled in to the intake (the "source water population") multiplied by the percentage of larvae from that area actually pulled in. For example, if the source water area for a particular species covers 10,000 acres and the intake pulls in 1% of the larvae within that area, the Area of Production Foregone for that species would be 10,000 acres X 0.01 = 100 acres.

Due to the cost and extensive effort required to conduct a full entrainment study, the Commission has sometimes accepted other types of data or studies for evaluating the entrainment effects of projects with smaller intake volumes, such as the proposed Coast project.

[5] A more detailed review of the methods and assumptions of the Empirical Transport Model, which underlies the APF approach, can be found in the staff reports to CDP #E-06-013 (Poseidon Resources) and consistency certification CC-079-06 (BHP Billiton LNG International).

Coast's proposed maximum seawater intake rate of about 1 million gallons per day, though significantly larger than in previously-approved upland aquaculture projects in Humboldt Bay, is still small relative to the large energy, industrial and desalination projects for which the Commission and other state agencies have previously required entrainment studies. Consequently, the resulting entrainment impacts are likely to be modest in comparison to those much larger intakes. In lieu of conducting the standard study, Coast provided several existing studies and sources of information (*see* Appendix A) that allow for reasonable estimates of the likely entrainment effects of its project and an approximate Area of Production Foregone.

Entrainment/Impingement of Fish Larvae:
The most comprehensive existing information on the abundance, distribution and diversity of larval fish in Humboldt Bay is provided by a 35-year old study conducted in 1969 (Eldridge and Bryan 1972). Samples collected over a one-year period resulted in larval densities at five stations in different parts of the Bay ranging from 0.03 to 0.3 larvae per cubic meter of water, and representing 37 different fish species known to inhabit a variety of different habitats. The five most common species accounted for 95% of the larvae sampled: bay goby (43%), Pacific herring (39%), longfin smelt (8%), arrow goby (3%) and Pacific staghorn sculpin (3%). Larval abundance was markedly greater at sampling sites within the open, shallow areas of Arcata Bay, and lowest at sites near the mouth of the Bay and in the North Channel. This pattern of distribution is likely due to the different hydrodynamics at each station and due to the different habitat types within each station's source water area, and is broadly consistent with more recent research demonstrating that populations of many fish species inhabiting Humboldt Bay tend to be concentrated in the shallow-water estuarine, eelgrass, and emergent wetland habitat areas of Arcata Bay rather than the deeper, more energetic water nearer the mouth of the Bay (Cole 2004; Pinnix et al. 2005).

The hydrodynamics of Humboldt Bay (e.g., Costa 1982; Barnhard et al. 1992; Costa and Glatzel 2002) suggest that the larvae exposed to entrainment at Coast's intakes would not be contributed equally from the source water areas of the five sampling stations in the Eldridge and Bryan (1972) study. The Bay's net tidal currents flow northward from the Bay entrance along the west side of the North Channel (location of the proposed intake) to Arcata Bay and southward from Arcata Bay along the east side of the North Channel, which suggests that sampling from Station 2, near the Bay entrance, and Station 3, within the North Channel, may represent entrainment potential during the incoming tide. During the outgoing tide, entrainment potential may be represented by the sampling data from Stations 3, 4, and 5. Averaging the larval densities from the stations representing potential entrainment during both incoming and outgoing tides results in a rough estimate of total larval entrainment of about 150,000 larvae per year. However, it is important to note that Eldridge and Bryan (1972) used sampling nets with a mesh-size of 0.5 millimeters, which is approximately ten times larger than the mesh typically used in modern larval studies. As a result, the study likely under-sampled larvae in smaller size classes, and the estimate of total larval entrainment of 150,000 larvae per year is likely an underestimate.[6]

[6] Larval densities detected by Eldridge and Bryan (1972) ranged from approximately 0.03 to 0.1 larvae per cubic meter of water; for comparison, larval densities detected in entrainment studies conducted at other California coastal embayments, including San Francisco Bay, Elkhorn Slough, Morro Bay, and South San Diego Bay, ranged from 0.6 to 2.7 larvae per cubic meter (Ferry-Graham et al. 2008).

Loss of Productivity

Based on the analysis contained in the *Humboldt Bay Berth II Mariculture Facility Initial Study* (Confluence Environmental, December 21, 2015) submitted in support of Coast's application, the combined maximum daily seawater intake proposed for the hatchery facilities of just over one million gallons (3880 cubic meters) per day would equate to approximately 0.002% of the estimated volume of Humboldt Bay at high tide (166.5 million cubic meters). Considering just Arcata Bay, the project's daily seawater intake would represent approximately 0.005% of the estimated total volume (85.1 million cubic meters) and 0.01% of the average tidal prism (the volume of water exchanged between Arcata Bay and the nearshore Pacific Ocean each tidal cycle).[7] A recent study of phytoplankton diversity and abundance in Humboldt Bay measured a total phytoplankton biovolume of 3 to 8 cubic micrometers per liter ($\mu m^3/L$) at a North Channel dock not far from the proposed project site (O'Connell 2013); if these measures of phytoplankton density are extrapolated to the whole of Arcata Bay, a rough estimate is that the project would consume on the order of 0.005% of the total phytoplankton stock of Arcata Bay on a daily and annual basis.[8] On a volumetric basis, the seawater intake of the proposed project would be small relative to Arcata Bay as a whole; nonetheless, the entrained biological productivity would no longer be available to consumers within the Bay ecosystem, having instead been diverted to the proposed upland aquaculture facility.

Area of Production Foregone

As described in Barnhart et al. (1992), Arcata Bay at high tide has a total area of about 8525 acres and a volume of about 85.1 million cubic meters. At low tide, the volume of Arcata Bay is reduced to approximately 48 million cubic meters. The project's intake volume, and the lost productivity it causes, therefore represents from about 0.005% to 0.008% of the Bay's high and low volumes, which equates to a range of about 0.4 to 0.7 acres of the Bay's area. Alternatively, Coast's daily intake volume would represent about 0.01% of the average daily tidal volume exchanged between Arcata Bay and the Bay entrance. Using this measure results in lost productivity from the intake equal to about 0.8 acres of Arcata Bay.

The above APF estimates are roughly proportional those of standard entrainment studies state agencies have used recently to identify entrainment mitigation requirements for both larger and smaller facilities, and are also relatively consistent with recent Commission findings on entrainment impacts. For example, the Commission found that the proposed West Basin pilot desalination facility pulling in about 580,000 gallons per day of seawater from a partially enclosed harbor area would result in an Area of Production Foregone of about 0.27 acres – i.e., about half the APF and half the intake flow of Coast's facility. At a much larger scale, the entrainment studies for the Huntington Beach Power Plant's 253.5 million gallon per day cooling water intake identified an Area of Production of about 120 acres, which similarly scales down to about 0.48 acres at Coast's proposed intake volume.

[7] In Arcata Bay, 44% of the total volume of water is replaced each day and 99% of the total volume of water is replaced every seven days. Volume and tidal prism estimates are from Barnhart et al. 1992.

[8] Previous studies have shown that during the spring-summer upwelling season, much of the phytoplankton biomass within Humboldt Bay originates outside the Bay in the nearshore ocean, and is transported into the Bay by tidal currents (e.g., Barnhart et al. 1992; O'Connell 2013).

Proposed Compensatory Mitigation
Coast proposes to mitigate for the potential entrainment effects of the proposed project by funding the restoration of approximately 3.5 acres of tidal wetland habitat within Humboldt Bay. Specifically, the proposed wetland restoration would consist of the eradication of approximately 0.5 to 0.75 acres of non-native, invasive dense-flowered cordgrass (*Spartina densiflora*), allowing the re-establishment of native wetland vegetation at Bracut Marsh, a tidal wetland on the east shore of Arcata Bay owned by the State Coastal Conservancy (Conservancy).

Spartina densiflora (*Spartina*) is an invasive wetland plant from South America that was introduced to the region in the late 19th century. It has infested over 90% of salt marshes in the three adjacent estuaries of Humboldt Bay, the Eel River Delta, and the Mad River Estuary. *Spartina* as of 2011 was thought to be present in over 1000 acres of Humboldt Bay salt marsh (**Exhibit 4**), with evidence that the invasion is still progressing (H.T. Harvey & Associates 2012). If left unchecked, it tends to form dense monocultures, resulting in the displacement of native vegetation, reduced habitat heterogeneity and value, and reduced biodiversity in the marsh ecosystem.[9] In Humboldt Bay, *Spartina* is most common in salt and brackish marshes, but it has also been observed spreading onto mudflats and sand spits, where it may have adverse effects on oyster farming, on foraging habitat for shorebirds, and on the free movement and foraging of native fish species, including Chinook and coho salmon, Dungeness crab, and tidewater goby (H.T. Harvey & Associates 2012). In other estuaries, the invasive members of the *Spartina* genus have been shown to act as "ecosystem engineers," bringing about pronounced changes to ecosystem functions, and studies have shown similar effects in Humboldt Bay. A recent comparative study of native and *Spartina*-invaded salt marshes in Humboldt Bay has demonstrated that *Spartina*-dominated marshes also have lower net primary productivity, most likely related to low light-penetration and reduced growth of benthic algal in dense stands of *Spartina* (Lagarde 2012). *Spartina* has also been shown to alter the benthic macroinvertebrate community, increasing the abundance of non-native snails and reducing the abundance of important prey items for waterfowl and shorebirds. Conversely, the removal of *Spartina* from Humboldt Bay salt marshes has been observed to result in increased invertebrate species richness and increased abundance of the native snail *Littorina subrotundata* (Mitchell 2012). In addition to its direct impacts, the dominance of invasive *Spartina* in Humboldt Bay has slowed efforts at marsh restoration because of fears that restored marshes will be invaded by *Spartina*, compromising their habitat value (SCC 2013; CDP #1-14-0249).

Over the last ten years, *Spartina* has been removed from approximately 200 acres of Humboldt Bay's 1,030 acres of tidal marsh, largely through the efforts of the U.S. Fish and Wildlife Service at sites within the Humboldt Bay National Wildlife Refuge (HBNWR). However, in the region's remaining marshes, the extent of the invasion has increased significantly. In June 2015, the Commission approved a CDP for the Humboldt Bay Regional Spartina Eradication Plan (Regional Eradication Plan; CDP # 1-14-0249), a large-scale effort by the Harbor District and Conservancy to eradicate *Spartina* from hundreds of acres of salt marsh, at multiple locations in Humboldt Bay and the Eel and Mad River estuary, over multiple years. The Commission has previously authorized *Spartina* eradication projects in the HBNWR (ND-049-06, ND-017-10, ND-025-10, and ND-041-10) and on marshes owned by the City of Arcata (McDaniel Slough

[9] U.S. Fish and Wildlife Service, Humboldt Bay National Wildlife Refuge, "Spartina Invasion and Management", http://www.fws.gov/refuge/Humboldt_Bay/wildlife_and_habitat/SpartinaManagement.html. Accessed May 23, 2016.

Wetland Enhancement Project, CDPs 1-06-036 and 1-06-036-A1). If completed, the Regional Eradication Plan would result in large reductions in *Spartina* coverage within Humboldt Bay, but would not treat all the known infested areas (**Exhibit 4**), and at present lacks sufficient funding to treat all of the targeted restoration sites. Additional restoration work and funding is needed to eradicate the species on a Bay- or region-wide basis.

Proposed Mitigation Site

Bracut Marsh, the proposed mitigation site, contains 3.5-acres of restored tidal marsh located on the eastern shore of Arcata Bay between Arcata and Eureka (**Exhibit 5**). Prior to 1981, the site consisted of a diked former tideland filled with gravel, earth and wood debris that had been used as a lumber storage yard. The site was purchased by the Conservancy, and in the 1980s was restored as a wetland mitigation bank (the first in the state) to offset wetland losses in the City of Eureka (MRB/PWA 2004). During restoration, the fill was excavated, tidal action was reintroduced through dike breaching, and wetland vegetation, including *Spartina densiflora* (which at the time was thought to be a local variant of the native *Spartina foliosa*) was planted (Clifford 2002; MRB/PWA 2004). While initial 1981 restoration efforts were unsuccessful, with modifications in 1987 incorporating additional restoration features led to vastly improved restoration; the additional restoration work was completed in 1992-93. The site currently supports a mix of salt marsh wetland, riparian and transitional habitats, with salt marsh concentrated in the lower-elevation, seaward portions of the site (**Exhibit 5**). The salt marsh vegetation is dominated by *Spartina* or a mixture of *Spartina* and native pickleweed (*Salicornia* spp.), with several elevated "islands" dominated by tufted-hairgrass (*Deschampsia caespitosa*) (MRB/PWA 2004). Nonetheless, populations of two rare salt marsh plants, Humboldt Bay owl's clover (*Castilleja ambigua* ssp. *humboldtiensis*) and Point Reyes bird's beak (*Cordylanthus palustris* ssp. *maritimus*), persist on-site, though in places these species may be at risk of being shaded out by *Spartina* (MRB/PWA 2004). Past vegetation mapping indicates that *Spartina* in Bracut Marsh is within the 26 – 60% cover class overall (**Exhibit 4**), but is in the 61 – 100% cover class in the lower elevation, seaward portions of the site (H.T. Harvey & Associates 2012; Benson 2016; **Exhibit 5**). A recent visual estimate of the area currently occupied by *Spartina* in Bracut Marsh is between 0.5 and 0.75 acres (Benson 2016). Without control efforts, further spread of *Spartina* within the marsh is likely, and even at present levels it is adversely affecting the biodiversity, productivity, habitat and mitigation value of the site.

At this time, Coast has had preliminary discussions of the proposed mitigation work at Bracut Marsh with the Conservancy (the landowner) and the Harbor District, which holds the permit for *Spartina* eradication work at the site pursuant to CDP # 1-14-0249. Coast has also solicited a *Scope of Work and Fee Proposal* (Benson 2016) for the project from the Natural Resources Services division of the Redwood Community Action Agency (RCAA), a local non-profit organization and licensed landscape contractor which has previously conducted *Spartina* removal and marsh restoration in other areas of Humboldt Bay, including successful efforts within the HBNWR. However, no formal authorization or agreement to carry out the proposed mitigation work has been made.

Work Plan & Cost

The *Scope of Work and Fee Proposal* (Benson 2016), prepared by RCAA and provided by Coast to Commission staff, includes the following key components:

- Site Assessment. RCAA would conduct a site assessment, using protocols described in the Regional Eradication Plan, to evaluate and map the extent of *Spartina* in Bracut Marsh, recommend treatment methods from the suite allowed under the Regional Eradication Plan, and recommend best management practices to minimize impacts on sensitive species and water quality;
- Work Plan. RCAA would prepare a site-specific work plan based on the site assessment, describing the treatment area, methods, and schedule.
- Spartina Treatments (5 years): During Year 1, RCAA would treat 100% of the invasive *Spartina* within the delineated treatment area using methods such as top-mowing, brushcutting, shovel excavation, and flaming with torches. During Years 2 – 5, RCAA would perform follow-up treatment of *Spartina* resprouts and newly germinated seedlings as needed.
- Monitoring and Reporting: RCAA would monitor *Spartina* removal progress each year for the five year treatment period, using treatment work records, photo-points, estimates of % cover and density, and annual mapping. RCAA would prepare an annual report following each monitoring effort, and a final comprehensive project report at the end of Year 5.

RCAA states that the final success criterion for the project would be 95% eradication of *Spartina* from the interior, inboard portion (inland of the existing levy/berm) of Bracut Marsh. RCAA estimates that the cost for carrying out this work would be $19,668.

In addition to the proposed removal work to be performed by RCAA, Coast proposes to carry out long-term monitoring and maintenance on the site after the initial five-year project in order to detect and remove any *Spartina* re-invading the site, and to continue to meet the proposed success criteria.

Discussion
Eradication of invasive *Spartina* from a coastal salt marsh is suitable as mitigation for the projected entrainment impacts of the Coast upland shellfish hatchery for several reasons. First, as noted above, Humboldt Bay tidal marshlands dominated by *Spartina densiflora* have been shown to have lower net primary productivity (NPP) than marshes dominated by a mixed assemblage of native species, primarily due to lower below-ground productivity and reduced productivity by benthic algae in *Spartina*-infested wetlands (Lagarde 2012). In fact, the observed NPP in native marshes was roughly twice that of *Spartina*-dominated marshes. Thus, the eradication of *Spartina* from and the restoration of native salt-marsh vegetation to 0.5 to 0.75 acres of tidal marsh at the Bracut (or other) site could be expected to roughly compensate for the 0.4 to 0.7 acre Area of Production Foregone (see above) that is estimated to result from the entrainment and impingement of marine organisms during operation of the Coast hatchery. Second, and more broadly, *Spartina* infestations in Humboldt Bay and elsewhere have been shown to negatively affect the abundance, biodiversity and habitats of marine organisms ranging from plants to invertebrates, shorebirds and fish, including fish species whose larvae may be at risk of entrainment or impingement from the proposed project. The proposed removal of *Spartina* would thus directly benefit marine and estuarine species at the salt marsh mitigation site and in the surrounding bay environment.

Bracut Marsh (APN 50124112) was identified as a target site in the Regional Eradication Plan, and future *Spartina* eradication work at this site is permitted under Coastal Development Permit #1-14-0249. However, no eradication work at the site is planned in the foreseeable future due to a lack of funding. Thus, Coast's proposed funding of *Spartina* eradication and wetland restoration at Bracut Marsh would extend the reach, and improve the effectiveness, of the regional effort. Any future funding under the Regional Eradication Plan that would otherwise have been devoted to Bracut Marsh could instead be directed to other restoration sites currently lacking financial support.

The small size of Bracut Marsh would allow the proposed mitigation to clear *Spartina* from virtually the entire site, limiting the risk of immediate reinvasion from untreated patches on-site, and its relatively isolated location, at some distance from major *Spartina* infestations elsewhere in Arcata Bay (**Exhibit 4**), would reduce the site's exposure to *Spartina* seeds transported from neighboring marshes. Additionally, Bracut Marsh is situated between units of the HBNWR (Jacoby Creek and Eureka Slough) which have already undergone *Spartina* eradication treatment (ND-025-10) (**Exhibit 5**). Cordgrass removal at the Bracut site would represent a further step toward complete treatment of eastern Arcata Bay, and would contribute to the long-term success of these larger projects by removing a nearby *Spartina* seed source. The preliminary work plan and treatment methods submitted by Coast are consistent with the Regional Eradication Plan, and with previous *Spartina* removal projects that have, to date, proven successful in salt marshes within the HBNWR system.

Coast's proposal differs from previous *Spartina* removal projects approved by the Commission in that it is intended as compensatory mitigation for the projected impacts, from entrainment and impingement, of Coast's upland mariculture facility on the biological productivity of Humboldt Bay. In order for the mitigation to be effective, and the impacts to marine resources fully offset, the proposed *Spartina* eradication and native marsh restoration must prove to be successful and sustainable through the full period during which the impacts of Coast's project are occurring. **Special Condition 1** limits the term of this coastal development permit to approximately ten years, with a permit expiration date of August 15, 2025, which is the date the Coast's current lease from the Harbor District expires. Thus, the *Spartina* eradication program proposed by Coast must be sustained at least through this date.

A primary threat to the long-term success of *Spartina* removal projects (and marsh restoration in general) in Humboldt Bay is the potential for the reinvasion by *Spartina* once treatments have ceased (H.T. Harvey & Associates 2012). Based on previous, similar eradication programs carried out by the U.S. Fish and Wildlife Service in the HBNWR, the five-year program proposed by Coast has a high likelihood of successfully removing *Spartina* from the proposed mitigation site. However, the restoration programs at the HBNWR have also included a long-term monitoring and maintenance component, to provide further assurance that *Spartina* will be prevented from reinvading the restored marshes (J. Gerwein, Coastal Conservancy, pers. comm.). Coast has expressed its willingness to conduct monitoring and maintenance at the marsh restoration site beyond the initial five-year treatment period; however, a detailed monitoring and maintenance program has not yet been developed.

The primary performance criterion submitted by Coast in the *Scope of Work and Fee Proposal* (Benson 2016) -- 95% eradication of *Spartina* from Bracut Marsh (inboard of the levies) -- is generally consistent with the Regional Eradication Plan and the eradication rates which have been achieved in practice in prior removal projects. However, the infeasibility of complete *Spartina* removal at most sites underlines the inherent potential for reinvasion. Moreover, the *Scope of Work* does not include performance criteria directly related to native marsh recovery, which is necessary for the full mitigation of the impacts of the hatchery project related to seawater intake.

In order to memorialize the mitigation commitments made by Coast, and to strengthen the proposed mitigation in order to maximize its chance of success and assure full compensation of the upland hatchery's projected impacts to marine resources, the Commission is adopting **Special Condition 3**. This condition requires Coast, prior to the construction of Phase II development, to pay a $21,000 mitigation fee to the Humboldt Bay Harbor, Recreation and Conservation district (or other entity approved by the Executive Director) to carry out a *Spartina* eradication and tidal wetland enhancement project at a site along Arcata Bay. This fee includes both the cost estimate in the quote provided by RCAA and a 5 percent fee for the administration of the mitigation funds by the Harbor District. At a minimum, this project shall result in the removal of 0.5 acres of *Spartina*, to be replaced with native vegetation either through natural regrowth or, as needed, planting. The mitigation fee shall include funding for primary and follow-up treatments during the initial five-year project period, as well as administrative costs. Although the Commission anticipates that the mitigation project will be carried out at Bracut Marsh, as proposed, the mitigation may be carried out at any other suitable site subject to the terms of this condition.

Special Condition 3 also requires that, prior to construction of Phase II development, Coast and/or the entity receiving the mitigation fee, prepare for the Executive Director's review and approval a *Spartina* Removal and Marsh Restoration Plan including a full site evaluation, a detailed project work plan, proposed removal and restoration techniques, performance standards, and plans for monitoring, maintenance and reporting. The removal and restoration techniques implemented shall be consistent with those approved by the Commission as part of the Regional Eradication Plan (CDP 1-14-0249), and the performance standards shall, at a minimum, include the following criteria: (a) Less than 5% cover by *Spartina* within the project area within five years of implementation of primary treatment; (b) the restoration of native tidal marsh plant species in the treatment area to a level of coverage and diversity similar to surrounding natural marshlands, (c) achievement of fully restored (to "maintenance" stage) marsh habitats within the treatment area within five years of implementation of primary treatment, and (c) maintenance of fully restored marsh habitats and less than 5% cover by *Spartina* through the 2025 expiration date of the subject coastal development permit. The monitoring and maintenance plan shall include provisions for monitoring of the treatment area through August 15, 2025, and any necessary maintenance treatments beyond the five-year project period needed to continue meeting the performance criteria. In particular, the additional monitoring and performance criteria included in **Special Condition 3** are needed to prevent the reinvasion of *Spartina* into the restored marsh and assure full mitigation of impacts to marine resources associated with the proposed hatchery's seawater intake.

Seawater Discharge

The proposed intake of up to 1 million gallons of seawater per day to support hatchery operations would necessitate the return flow of a similar amount of water from the various hatchery facilities. The return flow would occur through two six-inch PVC discharge pipes running parallel to the intake pipes. The discharge pipes would terminate at a point approximately 5 feet above the seafloor, and would include an elbow bend to ensure that the discharge stream is directed away from the seafloor. Prior to discharge, the return flow would be passed through a heat exchanger to bring the water to a temperature similar to ambient conditions in the Bay. With the inclusion of these design features, the seawater discharge would not result in significant physical or thermal disruption of benthic habitats at the base of the pier, including nearby seagrass beds.

Non-native Species

The construction of a microalgae greenhouse during Phase II of the proposed project would enable coast to culture phytoplankton on-site in order to supplement and enrich the feed for its shellfish. Seawater used for these cultivation activities would be withdrawn from Arcata Bay, circulated through the water tanks of the greenhouse system and directed to the combined discharge line for release back into the Bay. As such, viable biological material from these cultivated algae may be released into Arcata Bay. However, this would not result in adverse environmental effects because all algae species to be cultivated are already present in the Humboldt Bay area or are incapable of surviving and reproducing under local conditions.

Water Quality

Seed Washing

Because some of the shellfish seed is proposed to be transported to Washington for grow-out, prior to shipment, the shellfish seed is proposed to be soaked in a 60 ppm freshwater sodium hypochlorite (chlorine bleach) solution as required by the Washington Department of Fish and Wildlife. A 396-gallon freshwater storage tank would be placed adjacent to the seed wash facility and used to prepare the wash solution. Harvested shellfish seed would be placed into totes, the totes would be filled with the wash solution and the seed left to soak for at least one hour. At the end of the treatment, the seed would be removed and the wash solution would be neutralized using sodium thiosulfate (per industry standards). The neutralized solution would then be discharged to the existing septic system, which discharges to a leach field located on the former pulp mill site southwest of the project site. Because the proposed seed wash operations would be carried out within a concrete pad area with a catchment system and sump, any spill of chlorinated wash solution would be contained within this area. Additionally, as described above, the wash water would be tested and neutralized prior to discharge. This would ensure that water discharged to the leach field, and ultimately to the groundwater, would not be contaminated with reactive chlorine. These two proposed measures are therefore adequate to protect and maintain the quality of coastal waters during seed washing operations.

Discharges to Existing Leach Field

As described in Section III.A, above, Coast proposes to dispose of the neutralized seed-washing solution to an existing leach field previously used as part of the septic system of the former pulp mill. Taylor's use of the leach field, located approximately 800 feet southwest of the warehouse to be used for the shellfish hatchery, was approved by the RWQCB in July 2015, allowing for the discharge of 10,000 gallons per week of treated wash water from the Taylor seed-washing

facility. Under Taylor's system, wash water is pumped to a 5,000 gallon freshwater holding tank, where it is dechlorinated. The treated water is the transferred via pipeline to a 16,000 gallon septic tank which discharges to the leach field. The proposed Coast facility would make use of the existing infrastructure operated by Taylor, and contribute up to 800 gallons per week of additional discharge to the leach field. As described above, the discharge of treated, neutralized wash water to groundwater within the leach field would not result in chlorine or other contamination. However, due to the presence of soil and groundwater contamination related to historic pulp mill operations on the former mill site, the proposed discharge of water to the leach field must be evaluated for its potential to mobilize existing contaminants into coastal waters.

Previous investigations of soil and groundwater contamination at the mill site have identified several areas of known or suspected contamination by volatile organic compounds (VOCs), hydrocarbons and heavy metals. A January 30, 2014 report prepared by Integral Consulting, Inc., on behalf of Taylor Mariculture synthesized soil and groundwater testing results from six previous investigations conducted over the past 15 years, and evaluated the effects of the proposed reuse of the leach field on the groundwater flow regime (i.e., hydraulic gradient). The January 2014 Integral report did not identify any areas of contamination within the leach field flow path (the area between the leach field and Arcata Bay), but acknowledged that the data for this area were limited and that elevated levels of VOCs and arsenic had previously been detected in several wells to the north of the leach field. In order to rectify this data gap, in 2014 the RWQCB required the Harbor District and Taylor to establish and test a new groundwater monitoring well and conduct additional soil testing within the leach field flow path. This additional testing, summarized in the *Leach Field Monitoring Well Installation Report* (Integral, November 5, 2014), did not detect VOCs, hydrocarbons, or toxic metals in groundwater within the leach field flow path. In addition, groundwater modeling contained in the January 2014 Integral report indicated that reuse of the leach field at the discharge levels proposed by Taylor would not result in appreciable changes in the groundwater flow regime, nor in the mobilization of contaminant plumes in areas adjacent to the leach field.

In a letter dated March 14, 2014, the North Coast RWQCB determined that the Taylor hatchery, "which includes the mariculture project and disposal of wash water from the seed wash facility in a separate infiltration area," qualified for a waiver of waste discharge requirements under RWQCB Resolution No. R1-2012-0099 (Policy for Waiving Waste Discharge Requirements for Specific Types of Discharge for Flow-through Seawater Systems and Aquaculture Operations). The RWQCB Cleanups Program conducted additional assessments of the potential for groundwater contamination in the leach field area (area "AOI-6"), and based on the data and reports discussed above, concluded the following in an August 13, 2014 letter:

> [W]*e conclude that reuse of the leach field … will not exacerbate groundwater pollution immediately north of AOI-6. The Report's data comparisons to numeric groundwater quality goals indicates no significant degradation to groundwater quality in AOI-6.*

As of December 17, 2014, the RWQCB Cleanups Program required no further assessment of the leach field area.

The additional discharge to the leach field of 800 gallons per week of discharge proposed by Coast would represent an 8% increase above the 10,000 gallons per week that Taylor is authorized to discharge. Given that there is no evidence of existing contamination within the

leach field flow path, and that the additional 800 gallons per week of discharge appears to be bounded by the discharge rate scenarios modeled in the January 2014 Integral report and, it is unlikely that Coast's proposed use of the existing leach field would result in the mobilization of legacy pollutants or further degradation of water quality within Humboldt Bay. Nonetheless, to ensure that this potential has been fully assessed by the expert agency, and that contaminant releases which would degrade the quality of coastal waters are avoided, the Commission is imposing **Special Condition 4**, which requires that prior to project use of the leach field, Coast provide evidence that the North Coast RWQCB has approved the proposed discharges.

Ground Disturbance During Construction
During Phase I of project implementation, Coast proposes to install seawater intake and discharge pipes beneath the existing road between the warehouse and pier (**Exhibit 2**). Coast estimates that the pipe installation may require between 10 – 20 cubic yards of excavation. During Phase II of the project, Coast proposes to construct a 15,000 square foot microalgae greenhouse adjacent to the existing warehouse (**Exhibit 2**). Coast has not yet commissioned building or engineering plans for the greenhouse structure, nor determined whether ground-disturbing activities (e.g., installation of foundations) will be necessary for its construction. In both cases, Coast proposes to develop and implement an erosion control and soil loss prevention plan, incorporating best management practices (BMPs) such as silt-fencing and fiber rolls, around areas of ground disturbance. However, since these plans have not yet been developed and are not available for review, the Commission is unable to determine whether the erosion control and water quality protection measures to be included in the plans would be adequate to prevent erosion, control runoff, and protect coastal water quality. In order to assure that the quality of coastal waters is maintained during project construction, the Commission is adopting **Special Condition 5**. This condition requires Coast to develop, and submit for the Executive Director's review and approval, Storm Water Pollution Prevention and Erosion Control Plans prior to the commencement of any ground-disturbing construction activities during Phases I and II of the project.

Conclusion
Although the Commission finds that the proposed project as proposed has the potential to adversely impact marine resources and the biological productivity of coastal waters, with implementation of **Special Conditions 1 – 5**, the Commission finds that the project would be carried out in a manner that would maintain marine resources, protect species of special biological significance, sustain the biological productivity of coastal waters, and maintain healthy and optimum populations of all species of marine organisms. The Commission therefore finds that, as conditioned, the project would be consistent with the marine resource sections (Sections 30230 and 30231) of the Coastal Act.

D. ENVIRONMENTALLY SENSITIVE HABITAT AREAS
Coastal Act Section 30240 states:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.*

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

In addition, Coastal Act Section 30107.5 defines "Environmentally sensitive area" as follows:

"Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Osprey Nests

Due to the status of osprey (*Pandion haliaetus*) as a Species of Special Concern in California, occupied osprey nests may be considered to be environmentally sensitive habitat areas (ESHA). In recent years, several occupied osprey nests have been observed on the former mill site (**Exhibit 6**), including on a power pole platform near the base of the Berth Two pier, in close proximity to the project site. A pair of ospreys was identified nesting on this tower in 2013 and 2014, and Coast has stated that the pair is believed to have continued using the nest during the 2015 nesting season.[10] The occupied power pole platform is located approximately 400 feet west of the pier and 250 feet from Coast's portion of the existing warehouse.

Osprey is a large raptor species that historically nested throughout much of California (as well as other parts of the country and world). Due to human persecution, habitat alteration, and the use of DDT following World War II, the osprey population in the state declined throughout much of its historic range. Today the osprey breeding range in California is restricted to the northern parts of the state, and the species is listed by the Department of Fish and Game as a Species of Special Concern. Ospreys primarily prey on fish, and the species is sometimes referred to the fish eagle or sea hawk. The birds generally nest in forested habitats near large water bodies, in tall, stable snags or in live trees with flat or broken tops that will support large stick nests. Sometimes ospreys build nests on tall cliffs or on human-made structures, as is the case at the subject site. Adult birds often show a high degree of nest fidelity, meaning that they return to a particular nesting site each year. Ospreys can be sensitive to disturbance during the courtship and nesting seasons (typically March through September), and disturbance during this time may result in nest abandonment. In other cases, ospreys have been observed to tolerate human disturbance surrounding their nest sites, and at times nest in areas where industrial or recreational activities occur, including on the Samoa peninsula.

In an August 2013 memorandum submitted to the Commission as a part of condition compliance for the Taylor Mariculture CDP (E-11-029), Taylor's biological consultant presented observational evidence that the power pole nesting platform nearest the Berth Two pier and warehouse has been used, by ospreys, at least on occasion, since at least 2005. Combined with observations that nesting has occurred on this platform in each year since 2012, it is reasonable to conclude that the ospreys using this nest are, to some degree, habituated to the noise and

[10] A nesting pair was also observed by Commission staff at this location during a June 2012 site visit.

disturbance levels associated with human activities, vehicle traffic and the existing shellfish hatchery on site.

The proposed construction of shellfish hatchery facilities at the project site would not directly affect the existing osprey nests on the former pulp mill property. However, the noise, vibration and increased activity generated during project-related construction occurring outside the existing warehouse have the potential to disturb ospreys during the nesting season. This disturbance could deter adult birds from returning to active nests close to the construction area, thus inhibiting incubation or feeding of young, or result in the total abandonment of active nests, ultimately leading to the loss of osprey eggs or young.

Coast has proposed to provide a qualified ornithologist to conduct a pre-construction survey before initiating any trenching or excavation activities on the site, and to avoid trenching and excavation activities within 300 feet of an active osprey nest unless such activities need to occur within 300 feet of the active nest, in which case Coast would implement biological monitoring and a reduced disturbance-free buffer. The Commission has approved similar 300-foot buffers for osprey protection in the past, and agrees that such a buffer is necessary in this case to prevent significant disturbance to active osprey nests. **Special Condition 6** requires that Coast avoid outdoor trenching, excavation and other ground-disturbing activities within 300 feet of an active osprey nest during the March 15 to August 15 nesting season. If these construction activities within the 300-foot disturbance-free buffer cannot be delayed until after the osprey breeding season, they may proceed only under the oversight of a qualified biological monitor with the authority to halt construction activities if and when the ospreys occupying a nest show signs of disturbance, agitation, or abnormal behavior, and to suspend construction activities until the chicks have fledged or the issue is otherwise resolved.

With implementation of this condition, the Commission finds that disturbance of occupied osprey nests would not occur, that adverse impacts to ESHA would be avoided, and that the proposed project is consistent, as conditioned, with Section 30240 of the Coastal Act.

E. California Environmental Quality Act

On March 7, 2016, the Humboldt Bay Harbor, Recreation, and Conservation District, acting as the CEQA lead agency, issued a notice of exemption concluding that the proposed construction and operation of an upland shellfish hatchery and saltwater intake and discharge pipes was categorically exempt from CEQA pursuant to State CEQA Guidelines Sections 15303 (New Construction or Conversion of Small Structures) (California Code of Regulations, Title 14, Section 15303).

In addition, Section 13096 of the Commission's administrative regulations requires Commission approval of coastal development permit applications to be supported by a finding showing the application, as modified by any conditions of approval, to be consistent with any applicable requirements of the California Environmental Quality Act ("CEQA"). Section 21080.5(d)(2)(A) of CEQA prohibits approval of a proposed development if there are feasible alternatives or feasible mitigation measures available that would substantially lessen any significant impacts that the activity may have on the environment. The project as conditioned herein incorporates measures necessary to avoid any significant environmental effects under the Coastal Act, and there are no less environmentally damaging feasible alternatives or mitigation measures. Therefore, the proposed project is consistent with CEQA.

Appendix A: Substantive File Documents

Coastal Development Permits, Consistency Certifications, Negative Determinations and Application Materials:

Coastal Development Permit Application No. 9-16-0033 (Coast Seafoods Company).

Staff Report for Coastal Development Permit No. 1-15-0604 (Humboldt Bay Harbor, Recreation & Conservation District).

Staff Report for Coastal Development Permit No. 1-14-0249 (Humboldt Bay Harbor, Recreation & Conservation District).

Staff Report for Coastal Development Permit No. 9-13-0500 (Hog Island Oyster Company).

Staff Report and Application File for Coastal Development Permit No. E-11-029 (Taylor Mariculture).

Negative Determination Nos. ND-025-10, ND-017-10, ND-04-10, and ND-049-06 (U.S. Fish and Wildlife Service).

Staff Report for Consistency Certification No. CC-079-06 (BHP Billiton LNG International).

Staff Report for Coastal Development Permit No. E-06-013 (Poseidon Resources).

Staff Reports for Coastal Development Permit No. 1-06-036 and CDP Amendment No. 1-06-036-A1 (City of Arcata Environmental Services Department).

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D.W. Parson, North Coast Regional Water Quality Control Board, letter to A. Ingram, Louisiana-Pacific Corporation, and J. Crider, Humboldt Bay Harbor, Recreation and Conservation District, re: Cleanups Regulatory Program – No Further Assessment Required for Area of Interest 6 (AOI-6), December 17, 2014.

M.A. Hillyard and E.P. Conti, Integral Consulting, Inc., letter to D.W. Parson, North Coast Regional Water Quality Control Board, re: Leach Field Monitoring Well Installation Report, November 5, 2014.

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Coast Seafoods
Upland Hatchery Vicinity

Upland Hatchery Facility
Humboldt Bay, CA
For Coast Seafoods

Prepared on:09/16/2015
Prepared by: Ruth Park
Map/Data Source: ESRI, Humboldt County

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Exhibit 1
Application No. 9-16-0033
Coast Seafoods
Project Location
Page 1 of 1

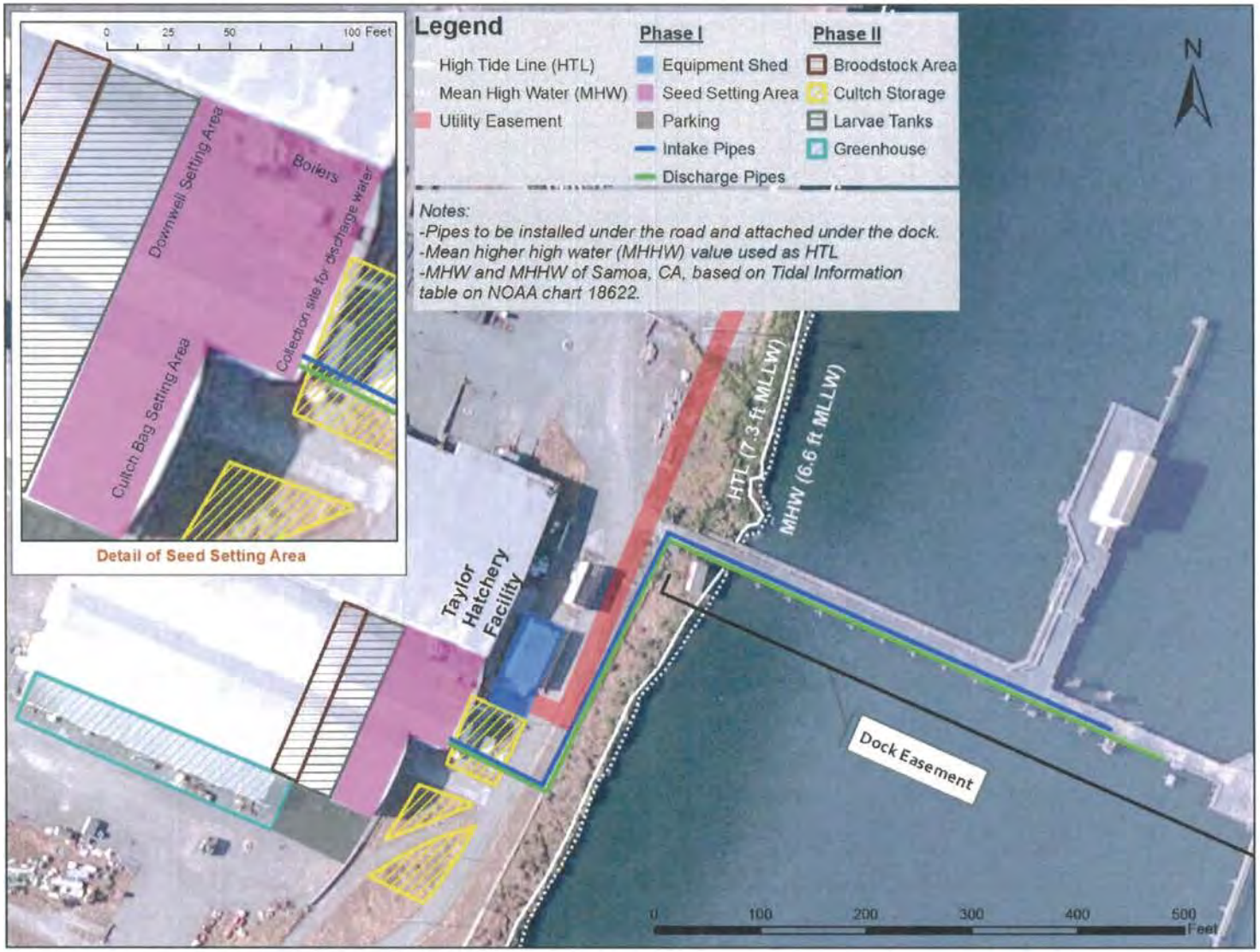

FIGURE 2

Humboldt Bay, Berth II Mariculture Facility
Initial Study

Plan View
Humboldt Bay, CA
For Coast Seafoods

Prepared on:12/14/2015
Prepared by: Ruth Park
Map/Data Source: ESRI

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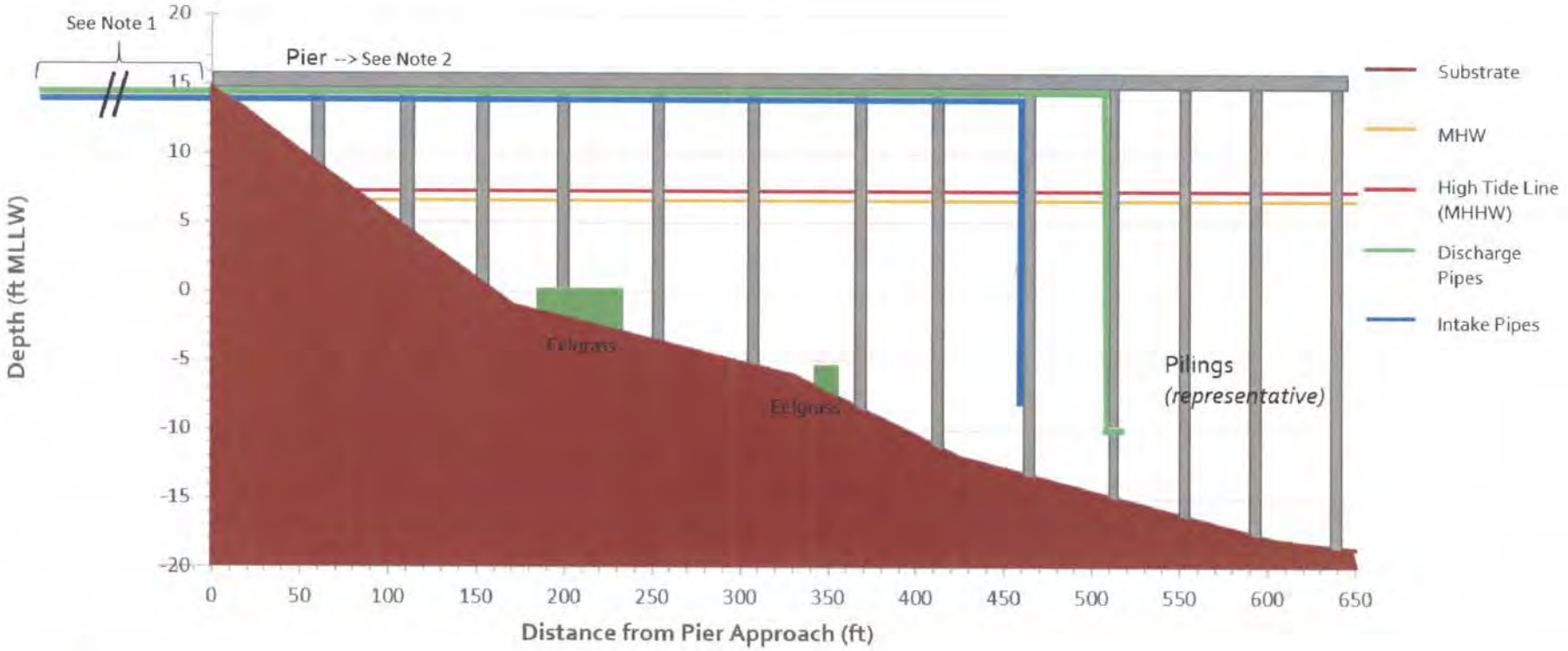
Exhibit 2
Application No. 9-16-0033
Coast Seafoods
Project Components
Page 1 of 1



Notes:

1. Pipes contain a bend and continue under the road for approximately 365 ft to the building (Plan View, Figure 2).
2. Pier height was estimated based on site photographs.
3. MHW and MHHW of Samoa, CA, based on Tidal Information table on NOAA chart 18622. Bathymetry information from NOAA chart 18622.
4. Eelgrass location information provided by the Harbor District (Appendix B).

FIGURE 3

Humboldt Bay, Berth II Mariculture Facility
Initial Study

Cross-Section of Pipes along RWT2 Pier

Humboldt Bay, CA
For Coast Seafoods

Prepared on:12/14/2015
Prepared by: Ruth Park

CONFLUENCE
ENVIRONMENTAL COMPANY

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Exhibit 3
Application No. 9-16-0033
Coast Seafoods
RWT2 Pier Cross-Section
Page 1 of 1

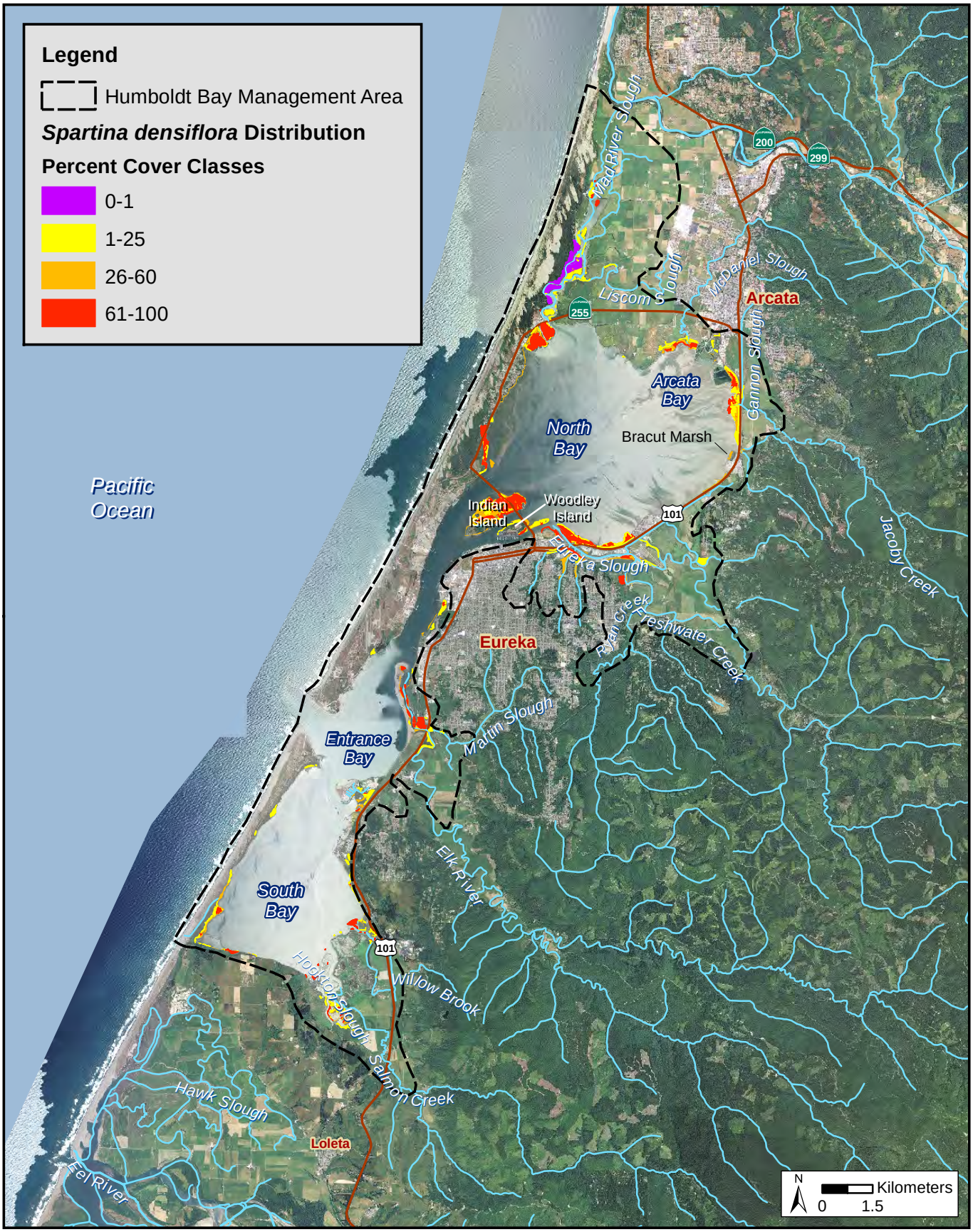

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Figure 3-2: Humboldt Bay *Spartina densiflora* Distribution

Humboldt Bay Regional Invasive Spartina Management Plan (3192-02)

November 2012

Exhibit 4
CDP No. 9-16-0033
Coast Seafoods
Page 1 of 1

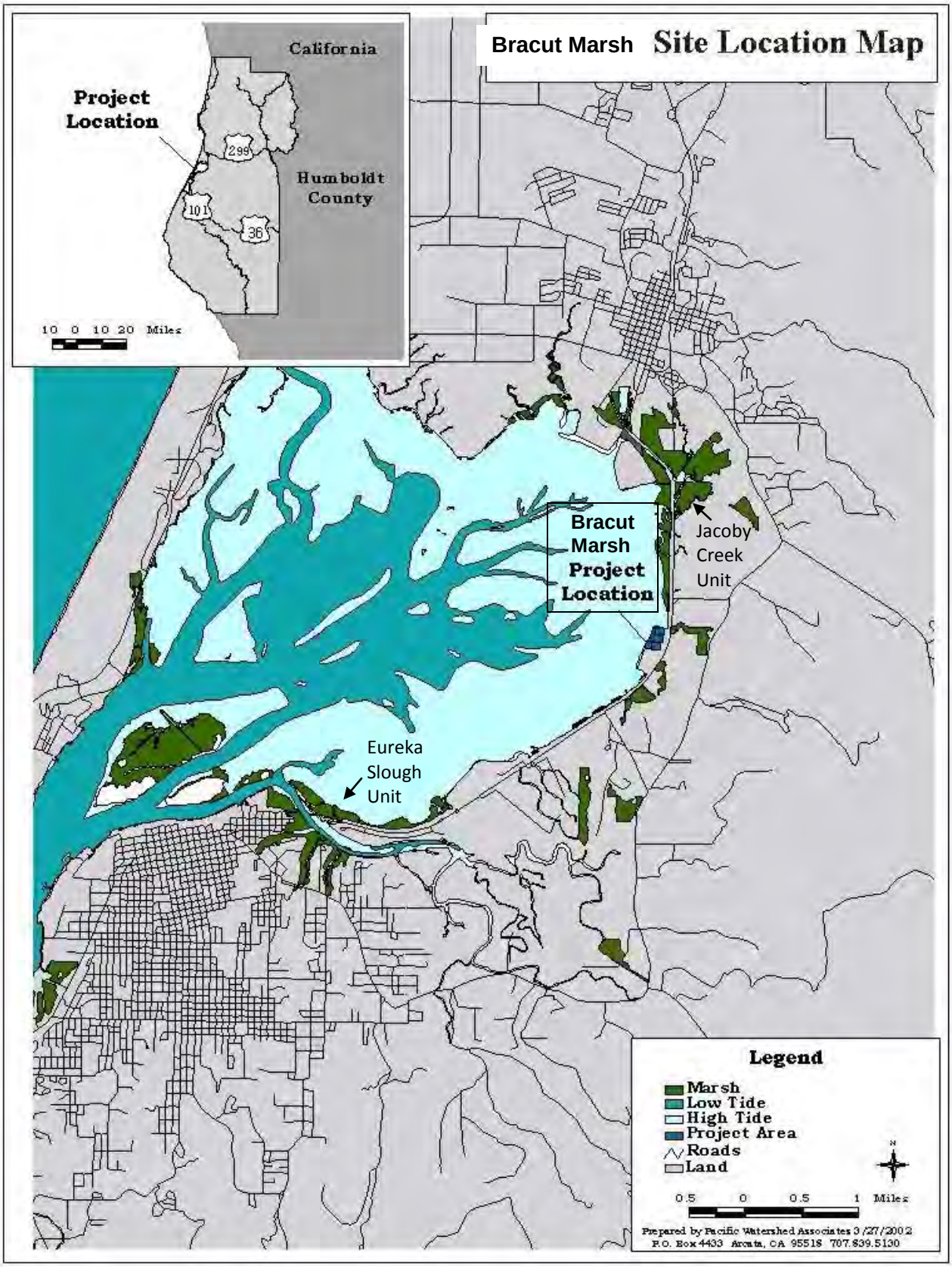

Exhibit 5
Application No. 9-16-0033
Coast Seafoods
Proposed Mitigation Site
Page 1 of 2

Figure 2-6
Bracut Marsh
Vegetation Types

Legend

- Unvegetated Tidal Channels/Pools
- Pickleweed/Chilean Cordgrass
- Chilean Cordgrass
- Tufted Hairgrass
- Saltgrass/Sicklegrass
- Annual Grassland
- Alder/Willow
- Freshwater Seep and Pond
- Arrowgrass/Pacific Silverweed
- Gravel/Sparse Vegetation
- Levee

Sources: U.S. Fish and Wildlife - Digital Orthophotography, 2000

N

0 5 10 20 30 40 Meters

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Figure 1: Osprey Nest Locations Observed During 2013 Breeding Season

Taylor Mariculture Shellfish Seed Production Project, Berth Two Site, Samoa, California (3453-01)
August 2013

Exhibit 4
Application No. 9-16-0033
Coast Seafoods
Osprey Nest Locations
Page 1 of 1