

CALIFORNIA COASTAL COMMISSION

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Th10b

May 6, 2013

TO: Coastal Commissioners and Interested Parties

FROM: Alison Dettmer, Deputy Director
Cassidy Teufel, Environmental Scientist

SUBJECT: Addendum to Staff Report for CDP Amendment Application E-06-003-A1, Coast Seafoods Company

This addendum provides revisions to the April 19, 2013 staff report on Coast Seafoods Company's proposal to amend Coastal Development Permit E-06-003 to install and operate basket-on-longline structures within a 10.86 acre area of submerged tidelands within Humboldt Bay. Proposed additions to the text are shown with underline and deletions are shown with ~~strikethrough~~.

REVISIONS

Page 5, second full paragraph:

In this amendment application, Coast Seafoods Company (Coast) proposes to remove cultivation equipment and augment its operation with a new cultivation method, the use of elevated longlines fitted with plastic baskets in which oysters would be grown. This cultivation method would be used on the 10.86 acres of Coast's operation previously used for rack-and-bag cultivation. The existing racks-and-bags in these plots would be removed to accommodate the new longlines-with-baskets. Coast began this conversion process in 2011 and is requesting after-the-fact authorization for the removal of 3,953 rack-and-bag cultivation structures and installation of 119 longlines-with-baskets as well as approval for the installation of approximately 373 additional longlines-with-baskets. While Coast proposes to convert its entire operation within the 10.86 acres to the use of longlines-with-baskets, if this cultivation method does not perform as expected, Coast would return to the use of rack-and-bag structures in this area, consistent with CDP E-06-003.

Page 12, second full paragraph:

Each of the proposed longlines includes 40 approximately two-foot long by one-foot wide plastic baskets that would extend below the rafts into the water column during most tides. While the

recent introduction of these structures onto the market and their lack of use in Humboldt Bay or elsewhere in California limits the amount of information that is available about the attraction of fouling organisms and non-native species to them, based on experience with other types of artificial hard substrate in Humboldt Bay, it is expected that these structures would attract fouling organisms over time. In response, Coast would carry out cleaning and removal activities to address fouling organisms growing on the baskets. These cleaning activities may involve the use of a pressure washer or other mechanical cleaning techniques and may result in the discharge of wash water and removed fouling organisms into the bay. Some fouling organisms, such as invasive colonial tunicates (*Didemnum* sp. and *Botrylloides* sp.), are known to be dispersed through fragmentation and discharge into marine waters, including those resulting from mechanical removal and cleaning activities (Morris and Carman 2012). Several of the invasive colonial tunicate species known to reproduce and disperse by this method have been observed in northern Humboldt Bay (Barnhart et al. 1992, Boyd et al. 2002, USGS 2005, Bullard et al. 2007). While these invasive bio-fouling organisms primarily colonize artificial hard substrates, they have also been observed spreading to eelgrass growing in areas near occupied artificial hard substrate as well (Boyd et al. 2002, Carman et al. 2009, Carman and Grunden 2010). Their rapid growth rates and competitive smothering abilities make colonial tunicates an ecological threat to native invertebrate species and habitats, such as eelgrass (NRC 2009, Carman et al. 2009). To address the potential risk that in-water cleaning this activity would have with regard to the spread and dispersion of invasive marine species that may be present within fouling communities, the Commission is requiring Coast in **Special Condition 11** to carry out the cleaning of the cultivation baskets and associated floats at an onshore facility and to collect and dispose of all removed biological material and organisms at an upland facility.

Appendix A, Substantive File Documents:

Boyd, M.J., T. J. Mulligan and F.J. Shaughnessy. 2002. Report to the California Department of Fish and Game, *Non-Indigenous Marine Species of Humboldt Bay, California*, February 28, 2002.

Bullard, S.G., B. Sedlack, J.F. Reinhardt, C. Litty, K. Gareau, and R.B. Whitlatch. 2007. Fragmentation of colonial ascidians: Differences in reattachment capability among species. *Journal of Experimental Marine Biology and Ecology* 342: 166-168.

Carman, M.R. and D.W. Grunden. 2010. First occurrence of the invasive tunicate *Didemnum vexillum* in eelgrass habitat. *Aquatic Invasions* 5(1): 23-29.

Carman, M.R., K.E. Hoagland, E. Green-Beach and D.W. Grunden. 2009. Tunicate faunas of two North Atlantic-New England islands: Martha's Vineyard, Massachusetts and Block Island, Rhode Island. *Aquatic Invasions* 4(1): 65-70.

Morris Jr, J. A., and M. R. Carman, 2012. Fragment reattachment, reproductive status, and health indicators of the invasive colonial tunicate *Didemnum vexillum* with implications for dispersal. *Biological Invasions*, 14(10), 2133-2140.

Addendum to E-06-003-A1
Coast Seafoods Company

National Research Council, 2009. *Shellfish Mariculture in Drakes Estero, Point Reyes National Seashore, California*. National Academies of Science, 139 pp. Page 58.

United States Geologic Survey, 2007. Marine Nuisance Species, *Didemnum* sp, a colonial tunicate; ascidian; sea squirt - Woodley Island, California.

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Staff:	C. Teufel-SF
Staff Report:	4/19/2013
Hearing Date:	5/9/2013

STAFF REPORT: PERMIT AMENDMENT

Application No.:	E-06-003-A1
Applicant:	Coast Seafoods Company
Agent:	H.T. Harvey and Associates
Location:	Humboldt Bay, Humboldt County.
Project Description:	Replace existing oyster cultivation rack-and-bag structures with basket-on-longline structures within a 10.86 acre area of submerged tidelands within Humboldt Bay.
Staff Recommendation:	Approval with conditions.

SUMMARY OF STAFF RECOMMENDATION

Coast Seafoods Company (Coast) proposes to amend Coastal Development Permit E-06-003 to modify its shellfish cultivation operation in Humboldt Bay by replacing rack-and-bag oyster cultivation structures with longlines-with-baskets. In 2011, Coast, without benefit of an amendment to this permit, began replacement activities. Coast is now requesting after-the-fact approval for the removal of 3,953 rack-and-bag structures and installation of 119 longlines-with-

baskets structures. In addition, Coast proposes to install approximately 373 additional longlines-with-baskets. Each rack structure Coast removed was approximately 12-feet long and three-feet wide, constructed of metal rebar, and designed to support six mesh bags of oysters laid on its surface, approximately one-foot above the substrate. The longlines-with-baskets are made up of 100-feet of enclosed monofilament line stretched between metal stake anchors and elevated above the substrate by two-inch diameter PVC pipe posts installed every 10-feet. Plastic mesh baskets filled with oysters would be hung from the monofilament line and held one-foot above the substrate. Each 100-foot longline would support 40 baskets.

The proposed longline structures would be installed by hand at low tide with the use of hand tools. All equipment and material would be carried to the installation sites with small work boats and installation is expected to be completed within 3-5 tidal cycles. Coast proposes to cultivate approximately 1.4 million Kumamoto oysters (*Crassostrea sikamea*) and Pacific oysters (*Crassostrea gigas*) on the new longline structures, planting and harvesting every 18-30 months. The oysters would be grown to market size and harvested at low tide by hand with the aid of support boats.

The key Coastal Act issue is potential adverse impacts to marine resources. The proposed installation, maintenance, and operation of longlines-with-baskets would result in fill of benthic habitat and disturbance to this habitat and its associated species, including eelgrass, a species of special biological significance. In addition, the presence of the longlines-with-baskets would shade occupied and potential eelgrass habitat, resulting in adverse impacts due to reductions in sunlight availability. Further, the proposed cultivation baskets that would be installed on the proposed longlines are expected to attract marine fouling organisms over time, including some invasive species. Maintenance operations such as the periodic cleaning of the baskets and removal of fouling organisms have the potential to exacerbate the spread and dispersal of these invasive species.

Commission staff believes that along with the mitigation measures associated with the original authorization of Coast's operation (included in CDP E-06-003), the implementation of new **Special Conditions 9 through 11**, will reduce impacts to marine resources such that the project can be found consistent with the terrestrial and marine resources policies of the Coastal Act. **Special Condition 9** would require Coast, to the extent practicable, to install the proposed longlines-with-baskets within areas recently occupied with the rack-and-bag cultivation equipment that was removed. This measure would concentrate the fill and disturbance of benthic habitat within areas that previously supported fill materials and have been recently disturbed. **Special Condition 10** would require Coast, to the extent practicable, to limit longline installation activities to areas recently occupied with rack-and-bag cultivation structures and devoid of eelgrass. **Special Condition 11** would require Coast to carry out the cleaning of the cultivation baskets and associated floats at an onshore facility and to collect and dispose of all removed biological material and organisms at an upland facility.

Commission staff therefore recommends that the Commission **APPROVE** coastal development permit amendment application E-06-003-A1, as conditioned.

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APPENDICES

[Appendix A – Substantive File Documents](#)

EXHIBITS

[Exhibit 1 – Project Location](#)

[Exhibit 2 – Clam Cultivation Raft Design](#)

[Exhibit 3 – Mooring System Diagram](#)

I. MOTION AND RESOLUTION

Motion:

*I move that the Commission **approve** Coastal Development Permit Amendment E-06-003-A1 subject to the conditions set forth in the staff recommendation specified below.*

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 Amendment for the proposed project and adopts the findings set forth below on grounds that the development as amended and conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit amendment 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. SPECIAL CONDITIONS

All terms and conditions of Coastal Development Permit E-06-003, as amended, shall remain in full force and effect, and the following Special Conditions 9 through 11 shall be added:

- 9. Installation Location.** To the extent feasible, all longlines-with-baskets shall be installed within the disturbance footprint of the recently removed rack-and-bag cultivation structures in plots East Bay Rack and Bag and Mad River Rack and Bag, as designated in [Exhibit 1](#).
- 10. Installation and Removal Activity.** During installation of longline-with-basket and removal of rack-and-bag cultivation equipment, boat transit and equipment loading and offloading activities shall be limited to areas devoid of eelgrass and recently occupied with rack-and-bag cultivation structures as much as is practicable. To the extent practicable, the applicant's personnel shall minimize the number of boat mooring areas, shall store and stage equipment and tools on project vessels during installation, and shall make use of mooring sites previously used for rack-and-bag maintenance and harvesting activities.
- 11. Bio-fouling Organism Removal.** All bio-fouling organism removal operations for the cultivation baskets and associated floats shall be carried out onshore. All bio-fouling organisms and biological materials removed during these cleaning operations shall be collected and disposed at an appropriate upland facility. No discharge of untreated wash

water or bio-fouling materials into Humboldt Bay shall occur during maintenance cleaning operations.

III. FINDINGS AND DECLARATIONS

A. BACKGROUND AND PROJECT DESCRIPTION

On May 11, 2006, the Coastal Commission approved Coastal Development Permit (CDP) E-06-003 for the planting, cultivation, and harvest of oysters on approximately 300 acres in northern Humboldt Bay and the operation of a shellfish nursery, floating upwelling system, and shellfish wet storage area also within northern Humboldt Bay. CDP E-06-003 authorized several methods of off-bottom oyster cultivation within the various one-acre to 20-acre plots that make up the 300 acre operation, including elevated lines seeded with oysters (known as longlines) and metal frame racks on which mesh bags of oysters can be placed (known as racks-and-bags).

In this amendment application, Coast Seafoods Company (Coast) proposes to remove cultivation equipment and augment its operation with a new cultivation method, the use of elevated longlines fitted with plastic baskets in which oysters would be grown. This cultivation method would be used on the 10.86 acres of Coast's operation previously used for rack-and-bag cultivation. The existing racks-and-bags in these plots would be removed to accommodate the new longlines-with-baskets. Coast began this conversion process in 2011 and is requesting after-the-fact authorization for the removal of 3,953 rack-and-bag cultivation structures and installation of 119 longlines-with-baskets as well as approval for the installation of approximately 373 additional longlines-with-baskets.

Each rack structure Coast removed was approximately 12-feet long and three-feet wide, constructed of metal rebar, and designed to support six mesh bags of oysters laid on its surface, approximately one-foot above the substrate (as shown in [Exhibit 3](#)). These structures covered approximately 3.3 acres within the total 10.86 acre area used for rack-and-bag cultivation and supported the cultivation of approximately 2.13 million oysters. The longlines-with-baskets would be installed by hand on intertidal mudflats at low tide and are comprised of a 100-foot long length of monofilament line anchored to the substrate at either end with a metal stake and elevated several feet along its length with two-inch diameter PVC posts installed vertically every ten feet or so. Between the PVC posts, the longline would support four enclosed plastic baskets planted with several dozen non-native Kumamoto oysters (*Crassostrea sikamea*) and/or non-native Pacific oysters (*Crassostrea gigas*). In total, each longline would support 40 individual baskets, as shown on [Exhibit 2](#). Overall, Coast would install approximately 492 longlines-with-baskets and cultivate a total of roughly 1.4 million oysters with this method.

The 10.86 acres in which Coast would be using longline-with-baskets is divided among two plots, known as East Bay Rack and Bag (EB R&B) and Mad River Rack and Bag (MR R&B), each in northern Humboldt Bay as shown on [Exhibit 1](#). Once in place, the longlines-with-baskets would be serviced every six to eight weeks and planted/harvested roughly every two years. Similar to current conditions with rack-and-bag culture, all visits and maintenance or planting/harvest activities would occur at low tide when the longlines and baskets are exposed on intertidal mudflats and can be accessed by foot.

B. OTHER AGENCY APPROVALS

Humboldt Bay Harbor, Recreation, and Conservation District

A portion of Coast's 300 acre operation in Humboldt Bay is carried out on tidelands that are owned and managed by the Humboldt Bay Harbor, Recreation, and Conservation District (Harbor District). In 2010, the Harbor District confirmed a five year renewal of its lease to Coast for aquaculture operations in Humboldt Bay. This lease terminates on September 7, 2015. In addition, the Harbor District issued a Use Permit to Coast for its aquaculture operation in 2007. On April 25, 2013, the Harbor District is scheduled to consider an amendment to that Use Permit in order to authorize the after-the-fact and proposed installation of longlines-with-baskets on 10.86 acres within Humboldt Bay.

U.S. Army Corps of Engineers

In 2006, the U.S. Army Corps of Engineers (ACOE) issued a permit to Coast under the Clean Water Act and Rivers and Harbors Act of 1899. Coast submitted a request to ACOE on January 3, 2013, to amend its permit to authorize the proposed and after-the-fact placement and maintenance of longlines-with-baskets in Humboldt Bay. Coast expects to receive ACOE approval of this permit amendment pending Commission authorization of the proposed project.

National Marine Fisheries Service

As part of the ACOE permit amendment review process, the ACOE consulted with the National Marine Fisheries Service (NMFS). Coast addressed all questions and concerns raised by NMFS. In addition, Commission staff worked closely with NMFS during the review of this permit amendment application.

California Department of Fish and Wildlife

Coast's aquaculture operations are required to be registered annually with the California Department of Fish and Wildlife (DFW). Coast has a valid registration for 2013. Commission staff worked closely with DFW during the review of this permit amendment application and Coast addressed all concerns raised by DFW staff.

C. FILL OF OPEN COASTAL WATERS

Section 30233(a) of the Coastal Act states, in part:

The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

- (1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*

- (2) *Maintaining existing, or restoring previously dredged depths on existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
- (3) *In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.*
- (4) *Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.*
- (5) *Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.*
- (6) *Restoration purposes.*
- (7) *Nature study, aquaculture, or similar resource dependent activities.*

The placement of the longlines-with-baskets would require the placement of approximately 5,500 two-inch diameter PVC posts and approximately 1,000 metal stakes within Humboldt Bay tidelands. These materials constitute “fill” as defined by the Coastal Act. Section 30108.2 of the Coastal Act states:

“Fill” means earth or any other substance or material, including pilings placed for the purpose of erecting structures thereon, placed in a submerged area.

Coastal Act Section 30233(a) permits fill in coastal waters if three tests are met: 1) the fill constitutes an allowable use under 30233(a); 2) there is no feasible less environmentally damaging alternative; and 3) feasible mitigation measures have been provided to minimize any adverse effects.

Allowable use

Coast proposes to place fill in coastal waters for the purpose of cultivating oysters. As discussed above, Coast’s proposed project is an aquaculture project, and as such qualifies as an “allowable use” under 30233(a)(7). The project is therefore consistent with the first test of Section 30233(a).

Alternatives

The Commission investigated project alternatives that would reduce or eliminate the need for fill. Due to the force of tides and currents within the proposed project areas as well as the design of the structures associated with the longline-with-basket cultivation method, a system of stakes and posts is an essential element of the proposed project. Therefore, eliminating fill is not a feasible alternative for this type of oyster culture operation. The Commission considered several alternative anchoring systems to those proposed by Coast, including different types of posts and stakes and different post spacing configurations. While a wider spacing of support posts would be possible, to maintain the culture baskets above the substrate and within the area of tidal influence would result in high levels of tension and weight on the line and would require larger posts and anchoring systems on either end. These larger, more permanent structures would

require more substantial installation methods, including the possible need for mechanized equipment, and would likely result in the installation of fewer larger structures rather than more numerous smaller structures, thereby not likely reducing the overall amount of fill required.

The proposed project uses off-bottom culture techniques and the installation of elevated oyster growing baskets and a minimally designed support system that does not include the permanent placement or pile driving of anchors or supports. These project elements reduce the amount of fill compared to the alternative types and configurations of posts and stakes that the Commission considered. The Commission therefore finds that the proposed project minimizes the amount of fill to the maximum extent feasible, so that the project is the least environmentally damaging feasible alternative and is therefore consistent with the second test of Section 30233(a).

Mitigation Measures

The final test of Coastal Act Section 30233(a) requires that feasible mitigation measures have been provided to minimize any adverse effects of the fill. As discussed in the Marine Resources section below, the placement of support posts and anchoring stakes on roughly 120 square feet of bay sediment is expected to result in loss of benthic habitat and mortality and disturbance to associated organisms. However, given the small amount of fill and its dispersion over a large number of sites, as well as the abundance of benthic habitat in Humboldt Bay similar to that which would be filled, adverse impacts associated with the installation and presence of the proposed longline support and anchoring system are expected to be minimal. Nevertheless, to further reduce these adverse impacts, the Commission is requiring in **Special Condition 9** that Coast, to the extent practicable, install the proposed longline-with-basket structures in those specific portions of plots EB R&B and MR R&B that were recently occupied by rack-and-bag cultivation equipment. With the addition of this mitigation measure, the placement of new fill would be concentrated within areas previously occupied with fill and recently disturbed as a result of the removal of the rack-and-bag structures. The Commission therefore finds that with the addition of **Special Condition 9**, feasible mitigation measures have been provided to minimize any adverse effects of fill and finds that the third and final test of Coastal Act Section 30233(a) has been met.

Conclusion

Because the three tests have been met, the Commission finds the proposed project, as conditioned, consistent with Section 30233 of the Coastal Act.

D. MARINE RESOURCES

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 492 longlines-with-baskets has the potential to cause adverse impacts to benthic and water column habitats and species, and marine birds.

Benthic Habitat and Eelgrass

Benthic habitat at the proposed project site is comprised of fine sands and silts that support eelgrass and a variety of invertebrate species including polychaete worms, mollusks, and crustaceans (Barnhart et al. 1992 and CCC 2006).

Potential adverse impacts to benthic habitat and eelgrass from the proposed project include: (1) smothering of organisms and loss of habitat due to the presence of longline anchoring and support devices on the bay tidelands; (2) disturbance to sediments and organisms from initial post and anchor stake installation activities and ongoing use and maintenance; and (3) shading of benthic habitat and eelgrass from the presence of the proposed longlines and baskets above the tidelands.

Smothering and Disturbance

Placement of the proposed support and anchoring system for the longlines-with-baskets is expected to result in the long-term loss of approximately 120 square feet of benthic habitat known to support marine invertebrate communities and contain the physical, chemical, and biological factors that support eelgrass. In addition, this activity would result in the short-term disturbance of a similar amount of adjacent areas due to the installation and presence of PVC support posts and metal anchoring stakes. However, this smothered and disturbed habitat would be spread across roughly 6,500 sites of several square inches each. Additionally, in the context of the larger project area and Humboldt Bay as a whole, the loss of 120 square feet of benthic habitat and short-term disturbance of a similar area due to post and stake placement and sediment

disturbance is not anticipated to adversely affect the biological productivity of Humboldt Bay or substantially reduce populations of marine organisms. Ecological studies of Humboldt Bay have shown that benthic habitat comprised of fine sand and silt sediment similar to the habitat present at the project site is dominant in Humboldt Bay (covering thousands of acres) and that many of these areas support similar communities of benthic invertebrates (Barnhart et al. 1992).

Given the small size of the benthic footprint and associated disturbance areas relative to the abundance of similar benthic habitat in Humboldt Bay, as well as the dispersion of this footprint over several thousand individual sites, adverse impacts associated with the installation and presence of the proposed system of posts and stakes are expected to be minimal. Further, as part of its review and analysis associated with CDP E-03-006, the Commission considered the impacts of Coast's operation on benthic habitat and eelgrass within Humboldt Bay. Although Coast's operation was found to result in substantial adverse impacts to eelgrass, the Commission found that with the addition of several special conditions and mitigation measures, these impacts would be consistent with the marine biological resource policies of the Coastal Act. Specifically, CDP E-03-006 includes Special Conditions 1-8 which limit the size and location of Coast's operational footprint, restrict the permit term, and require Coast to dedicate both land and financial resources for marine biological resource protection, enhancement, and restoration projects.

To additionally minimize adverse impacts to benthic habitats and species associated with the placement of longline support and anchoring structures, the Commission is requiring in [Special Condition 9](#) that, to the extent practicable, Coast locate all proposed longline-with-basket structures within those specific portions of plots EB R&B and MR R&B that were recently occupied with rack-and-bag equipment. This measure would concentrate installation activities and the placement of fill within areas that have previously been occupied with fill associated with the rack-and-bag cultivation structures and have recently been disturbed as a result of the removal of these structures.

Movement of equipment to the proposed project sites as well as ongoing maintenance and use of the proposed aquaculture structures also has the potential to result in disturbance of benthic habitats and eelgrass. This disturbance would occur primarily during the mooring of project vessels and staging of equipment, the periodic repair and replacement of the structures and the planting, sorting, and harvest of shellfish within the baskets. These activities are proposed to be carried out during low tides and would involve the landing of one or more small project vessels on the mudflats near the longlines, the offloading of longline equipment and shellfish, and the movement of project personnel by foot among the longlines themselves. Each longline would be separated from adjacent lines by a minimum of three feet to allow access along its length. Mooring of project vessels, offloading of equipment, and movement of Coast's employees among these access corridors on foot would result in the disturbance, crushing, and damage to benthic habitats and species, including eelgrass. Assuming that the majority of planting, harvest, and maintenance activities would be focused within these three foot wide corridors along each of the 492 100-foot long lines, approximately 3.39 acres of sediment and occupied and potential eelgrass habitat would be adversely affected during the initial installation of the proposed longline structures and periodically disturbed as a result of the ongoing maintenance and use of the proposed longlines-with-baskets. Additional areas would also be disturbed during the

mooring of project vessels on tidelands and the offloading of equipment associated with the initial installation of the proposed longline structures.

To address the adverse impacts to marine biological resources and species of special biological significance, such as eelgrass, associated with this amount of disturbance to benthic habitats, the Commission is requiring in [Special Condition 10](#) that, to the extent practicable, Coast limit boat transit and equipment loading and offloading activities to areas devoid of eelgrass and recently occupied with rack-and-bag cultivation structures. In addition, [Special Condition 10](#) also requires that, to the extent practicable, Coast's personnel minimize the number of boat mooring areas that are used; store and stage equipment and tools on project vessels during installation; and make use of mooring sites previously used for rack-and-bag maintenance and harvesting activities.

With the addition of [Special Condition 10](#), the Commission finds the adverse impacts to benthic habitats and species resulting from the smothering and disturbance effects of the proposed project to be consistent with Coastal Act Sections 30230 and 30231.

Shading

The presence of the new longlines-with-baskets may also adversely affect benthic habitat and eelgrass by restricting the amount of light that is able to reach the bay sediment below the baskets and longlines. Specifically, Coast would install approximately 492 individual longlines-with-baskets, each of which would shade an area directly below it of roughly 100 square feet, for a combined footprint of approximately 1.13 acres for all 492 structures. Because the structures would be supported several feet above the substrate and movement of the sun would be expected to result in a shading footprint that would include areas beyond those immediately below the longlines, this estimate is likely smaller than the actual shading footprint of the proposed structures. Such shading of benthic habitat within estuarine environments is known to restrict and stunt the growth of submerged aquatic vegetation or benthic algae, alter benthic invertebrate community structure, and modify the presence and abundance of bottom fish in the affected area. The areas within which Coast proposes to install and operate longlines-with-baskets currently support eelgrass and contain the physical, chemical, and biological features known to support eelgrass (CCC 2006). Shading associated with the proposed project structures would therefore be expected to have an adverse impact on eelgrass and eelgrass habitat within Humboldt Bay.

However, as part of its review and analysis associated with CDP E-03-006, the Commission considered the impacts of Coast's operation on eelgrass and eelgrass habitat within Humboldt Bay. Although Coast's operation was found to result in substantial adverse impacts to eelgrass, the Commission found that with the addition of several special conditions and mitigation measures, these impacts would be consistent with the marine biological resource policies of the Coastal Act. Specifically, CDP E-03-006 includes Special Conditions 1-8 which limit the size and location of Coast's operational footprint, restrict the permit term, and require Coast to dedicate both land and financial resources for marine biological resource protection, enhancement, and restoration projects. In addition, because the overall footprint of the longlines-with-baskets is smaller than that of the racks-and-bags, the proposed project would result in a substantial reduction in the shading footprint associated with aquaculture equipment within the 10.86 acre project area. Specifically, Coast has removed approximately 4,000 rack-and-bag

structures from plots EB R&B and MR R&B, each with a shading footprint of over 36 square feet (see [Exhibit 3](#)), for a total combined footprint of roughly 3.3 acres. Within these same plots, Coast would install approximately 492 individual longlines-with-baskets, each with a footprint of roughly 100 square feet, for a combined footprint of approximately 1.13 acres. To help ensure that the new proposed structures would be placed within the footprint of the previous equipment, and thus limit the shading of habitat within these plots that has not recently been shaded, the Commission is requiring in [Special Condition 9](#) that Coast, to the extent practicable, locate all proposed longline-with-basket structures within those specific portions of plots EB R&B and MR R&B that were recently occupied with rack-and-bag equipment. With this impact reduction measure, in combination with the mitigation measures already required by Special Conditions 1-8, the Commission finds that adverse impacts to eelgrass and eelgrass habitat resulting from shading associated with the proposed project would be consistent with Coastal Act Section 30230 and 30231.

Non-native Species

Based on a February 28, 2002, report to the California Department of Fish and Game titled, *Non-Indigenous Marine Species of Humboldt Bay, California*, over 95 invasive marine species are present in the bay, including numerous species known to present significant economic and ecological risk to both Humboldt Bay and other marine areas along the west coast. Many of these species are known to be “fouling organisms,” species of invertebrates and algae that are known to seek out and colonize artificial hard substrate in the marine environment. Maintenance activities for in-water structures and vessels that involve periodic removal of fouling organisms without proper collection and disposal protocols may result in increased dispersal and propagation opportunities for these species. Such opportunities for dispersion and spread pose a particular risk with some algal species and colonial species such as didemnum that may break apart into many pieces when disturbed, each of which may be capable of surviving, growing, and reproducing on its own.

Each of the proposed longlines includes 40 approximately two-foot long by one-foot wide plastic baskets that would extend below the rafts into the water column during most tides. While the recent introduction of these structures onto the market and their lack of use in Humboldt Bay or elsewhere in California limits the amount of information that is available about the attraction of fouling organisms and non-native species to them, based on experience with other types of artificial hard substrate in Humboldt Bay, it is expected that these structures would attract fouling organisms over time. In response, Coast would carry out cleaning and removal activities to address fouling organisms growing on the baskets. These cleaning activities may involve the use of a pressure washer or other mechanical cleaning techniques and may result in the discharge of wash water and removed fouling organisms into the bay. To address the potential risk that this activity would have with regard to the spread and dispersion of invasive marine species that may be present within fouling communities, the Commission is requiring Coast in [Special Condition 11](#) to carry out the cleaning of the cultivation baskets and associated floats at an onshore facility and to collect and dispose of all removed biological material and organisms at an upland facility.

Conclusion

Although the Commission finds that the proposed project has the potential to adversely impact marine resources and the biological productivity of coastal waters, with implementation of **Special Conditions No. 9** through **11**, the project is expected to be carried out in a manner in which marine resources are maintained, species of special biological significance are given special protection, the biological productivity of coastal waters is sustained, and healthy populations of all species of marine organisms will be maintained. In addition, the proposed project, as conditioned, is expected to maintain the biological productivity of coastal waters appropriate to maintain optimum populations of marine organisms. The Commission therefore finds that the proposed project, as conditioned, is consistent with the marine resource sections (Sections 30230 and 30231) of the Coastal Act.

E. ACCESS AND RECREATION

Section 30210 of the Coastal Act states:

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30211 of the Coastal Act states:

Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Section 30220 of the Coastal Act states:

Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

The proposed project has the potential to affect public access and recreation by precluding recreational activities in areas where the proposed longlines-with-baskets would be located.

Recreation activities in and around Arcata Bay include boating, paddling (e.g., kayaks and canoes), fishing, clamming, bird-watching and nature enjoyment, walking and hiking, beach play, and enjoyment of scenic views. Hunting is allowed at several locations, including the State-managed area at Fay Slough Wildlife Area. Portions of the US Fish and Wildlife Service Jacoby Creek and Eureka Slough units are open during the State waterfowl hunting season; these locations are designated for boat access only. Boating in Arcata Bay is somewhat limited because of the shallow water and tidal conditions; popular areas include the Mad River Slough area, with (“unofficial”) access from the Highway 255 bridge and other locations.

The proposed project area currently supports aquaculture structures and equipment and is within intertidal areas that are exposed at lower tides. Recreational activities are therefore currently limited in the project area and the proposed installation and maintenance of longlines-with-baskets would not extend into any new areas in which recreational activities currently occur.

For these reasons, the Commission finds that the proposed project is consistent with the public access and recreation policies (Sections 30210, 30211, and 30220) of the Coastal Act.

F. VISUAL RESOURCES

Section 30251 of the Coast Act states:

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Because of the low profile of the longlines in the water, and their proposed location offshore, the proposed aquaculture structures would not be visible from most public vantage points around the shores of Humboldt Bay. In addition, the proposed 10.86 acre project area has supported rack-and-bag structures for many years and the visual profile and height of the two types of structures are similar. Further, the proposed replacement of rack-and-bag structures with longlines-with-baskets would reduce the total above-the-surface footprint of aquaculture gear in the project area.

Therefore, the Commission finds that the scenic and visual qualities of this area shall be protected and therefore the proposed development is consistent with Section 30251 of the Coastal Act.

G. ALLEGED VIOLATION

Although development has taken place prior to the submission of this Coastal Development Permit amendment application, consideration of this application by the Commission has been based solely upon the Chapter 3 policies of the Coastal Act. Commission review and action on this permit amendment does not constitute a waiver of any legal action with regard to the cited alleged violation(s) nor does it constitute an implied statement of the Commission's position regarding the legality of any development already undertaken on the subject site without a Coastal Development Permit amendment, or that all aspects of the alleged violation(s) have been resolved.

H. CALIFORNIA ENVIRONMENTAL QUALITY ACT

In 2007, the Humboldt Bay Harbor, Recreation, and Conservation District (Harbor District) certified a Mitigated Negative Declaration for Coast's 300-acre aquaculture operation in Humboldt Bay. The Harbor District is scheduled to consider an amendment to this Mitigated Negative Declaration at its April 25, 2013, hearing to include the proposed use of longlines-with-baskets within the 10.86 acres of Coast's operation previously used for rack-and-bag culture. 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 and Application Materials:

California Coastal Commission, Final Adopted Findings for Coastal Development Permit number E-06-003, 2006

California Coastal Commission, Final Adopted Findings for Coastal Development Permit number E-02-005-A2, 2012

Project file for Coastal Development Permit Amendment Application number E-06-003-A1

Application for Coastal Development Permit Amendment number E-06-003-A1

H.T. Harvey and Associates Memo, *Differences in Environmental Effects between Rack-and-Bag and Basket-on-Longline Oyster Culture*, April 1, 2013.

Environmental Documents:

Barnhart, Roger A., Milton J. Boyd, and John E. Pequegnat. 1992. The Ecology of Humboldt Bay, California: An Estuarine Profile. U.S. Fish and Wildlife Service Biological Report 1.121 pp.

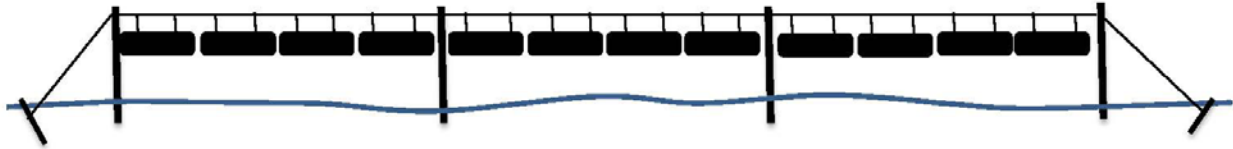
California Department of Fish and Game, *Non-Indigenous Marine Species of Humboldt Bay, California*, February 28, 2002.

Exhibit 1 – Project Location



Exhibit 2 – Longlines-with-Baskets Cultivation System Design

Structure (Side View): Lines are held up by 2 inch PVC pipe driven into the mud every 10 feet. Anchors made of galvanized fence posts are driven at the ends of each line. The lines are attached to the anchors and tension is created by a fence tightener. The baskets can be clipped and unclipped from the lines.



Spacing (Top View): Lines are 100 feet long and there are 40 baskets on each line. Lines are in groups of 3, with a 3 foot space between each line and a 20 foot space between each group of 3 lines. The 20 foot space is used to access the baskets with a boat.



20 foot space between groups of 3 lines.

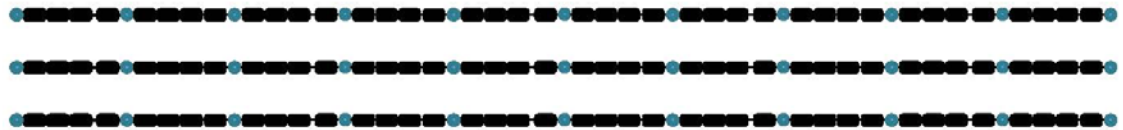


Exhibit 3 – Rack-and-Bay Cultivation System Design

Rack and Bag Culture

