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CALIFORNIA COASTAL COMMISSION

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STAFF REPORT: REGULAR CALENDAR

Application No.: **E-98-17**

Project Applicant: **Doug Hayes (Pacific Offshore Farms)**

Location: Northwest corner of Pillar Point outer harbor, San Mateo County (Exhibits 1 and 2).

Project Description: Anchor and operate a raft grow-out facility in a 248' x 60' (14,880 sq. ft., 0.34 acre) area of Pillar Point Harbor to culture up to 500,000 red abalone.

Related Approvals: San Mateo County Harbor District. "License Agreement for Submerged Lands and Overlying Water and Other Described Facilities and Equipment for the Purpose of Abalone Aquaculture" (January 29, 1997).

Regional Water Quality Control Board, San Francisco Bay Region. "National Pollutant Discharge Elimination System ("NPDES") Permit No. CA0036277" (June 17, 1998).

California Department of Fish and Game. "1999 Aquaculture Registration."

California Department of Fish and Game. "1999 Kelp Harvesting License."

U.S. Army Corps of Engineers. Regional Permit No. 22808S pending (Public Notice date: December 22, 1997).

Substantive File Documents: **Appendix D**

SYNOPSIS

Note: Exhibits 1 - 4 and Appendices A - E are contained in a separate corresponding packet.

Project Location and Description

Doug Hayes, *dba* "Pacific Offshore Farms," proposes to cultivate up to 500,000 red abalone *(Haliotis rufescens)* from juveniles to maturity in screened plastic cages hung from up to 20 floating rafts moored within a 248' x 60' area of Pillar Point Harbor.

Pillar Point Harbor is located 20 miles south of San Francisco at the northern end of Half Moon Bay in San Mateo County, adjacent to the Monterey Bay National Marine Sanctuary (Exhibit 1, "Project Location"). It is the only protected ocean harbor between Bodega Bay and Santa Cruz. Existing facilities at the harbor include fish processing and freezing operations, a fuel dock, berths, parking lots, and a public boat launch ramp. The harbor also provides opportunities for commercial fishing, recreational boating and fishing, clamming, sailing, kayaking, windsurfing, marine-related commercial and retail facilities, restaurants, and other visitor-serving activities such as pedestrian and bike paths and birdwatching.

Background

In September, 1994, the San Mateo County Harbor District ("SMCHD") designated an area approximately 500 yards by 750 yards (77.5 acres) in the northwest corner of the outer harbor, adjacent to the outer breakwater, as appropriate for aquaculture facilities (Exhibit 2, "Area in Pillar Point Harbor deemed appropriate for aquaculture by the San Mateo County Harbor District").

As "lead agencies" under the California Environmental Quality Act ("CEQA") the SMCHD and the California Department of Fish and Game ("CDFG") certified on July 10, 1996, a mitigated negative declaration ("MND") for aquaculture operations in Pillar Point Harbor. The MND evaluates operation of up to five abalone facilities within 2.4 acres of the 77.5-acre area of Pillar Point Harbor set aside for aquaculture, with a combined density of up to 5,150,000 abalone at full build-out. Since certification of the MND, one applicant has withdrawn its application, and the total number of abalone proposed has decreased to 2,250,000.

In February, 1997, the SMCHD ratified license agreements with four licensees for areas of submerged lands and overlying water within the designated aquaculture area of the harbor for the purpose of abalone aquaculture. In June, 1998, the Regional Water Quality Control Board ("RWQCB") issued a national pollutant discharge elimination system ("NPDES") permits to each of the four proposed operators.

The Coastal Commission is reviewing the following four applications separately:

- Pacific Offshore Farms (Doug Hayes): Application No. E-98-17 to culture up to 500,000 abalone within a 248' x 60' (14,880 sq. ft., or 0.34 acre) area;
- Princeton Abalone (Jon Locke): Application No. E-98-18 to culture up to 500,000 abalone within a 250' x 75' (18,750 sq. ft., or 0.43 acre) area;
- Blue Pacific Abalone (Lyle Wagner): Application No. E-98-19 to culture up to 800,000 abalone within a 250' x 105' (26,250 sq. ft., or 0.60 acres) area;
- Pearl Abalone Company (Christian Zajac): Application No. E-98-20 to culture up to 450,000 abalone within a 98' x 40' (3,920 sq. ft., or 0.09 acre) area.

This coastal development permit application (No. E-98-17) is only for Pacific Offshore Farms' proposed project.

The individual and cumulative impacts of this project and the other three related aquaculture projects currently proposed in Pillar Point Harbor raise significant Coastal Act issues. The key issues raised are the potential introduction of exotic species into the Monterey Bay National Marine Sanctuary; resource and use conflicts with kelp harvesting; use conflicts with the fishing community for harbor space; and potential adverse effects to the marine benthic environment.

Aquaculture is a coastal-dependent development and therefore a preferred use under the Coastal Act, but nevertheless must still meet the resource protection standards of the Coastal Act.

Table 1 summarizes project-related significant issues, potential impacts, and the mitigation measures and extensive conditions that the applicant will implement to avoid said impacts or reduce them to a level of insignificance.

The staff recommends approval of the project only as extensively conditioned. The proposed permit conditions include several "prior to permit issuance" requirements that the applicants will not be able to meet immediately. These include obtaining all abalone seed stock from facilities that have been certified by the California Department of Fish and Game as "sabellid-free."

Table 1. Issue Summary: Potential Impacts and Proposed Conditions and Measures

Significant Issue Area	Proposed Special Conditions and Mitigation Measures
Marine Resources: Sabellid Polychaete Worm	Issue: Possible introduction of the sabellid polychaete worm, an exotic species that deforms the shell and ultimately inhibits growth, and would have very serious impacts on stocks of native marine gastropods if spread. Mitigation Measure: **Special Condition 4** requires that all stock come from (1) a facility that has been certified by the California Department of Fish and Game ("CDFG") as "sabellid-free," **or** (2) a new facility that has applied for sabellid-free certification and that uses wild brookstock, each of which have been inspected by the CDFG and found to be free of sabellids prior to introduction to the facility, and then implements the CDFG stock inspection procedures that apply to sabellid-free facilities periodically thereafter as described in Appendix B. This condition provides also that if a sabellid infestation is detected, the cage or container in which the infested animal was found must be immediately removed. **Parts of this condition must be met prior to permit issuance, and it could be over two years before there are any facilities certified "sabellid-free" facilities in the state.** This Commission condition regarding sabellids is more stringent than the CDFG requirements, but staff thinks that it is warranted to use the precautionary principle to protect native stocks of marine resources as required under the Coastal Act. The CDFG thinks their standards—that only the seed stock source, not the entire facility, must meet a pre-transfer inspection—are adequate to protect native marine resources and support aquaculture. **Special Condition 9** prohibits waste disposal, including shells, except as authorized under the NPDES permit. **Special Condition 1** requires evidence that the anchoring design has been approved by the harbor master of the San Mateo County Harbor District ("SMCHD") to ensure that the grow-out structures do not break free.
Marine Resources: Withering Syndrome	Issue: Spread of withering syndrome, a disease established in the wild approximately south of Point San Pedro, near the City of Pacifica in San Mateo County. Mitigation Measure: CDFG has imposed a conditional ban on transfer of seed stock to facilities north of Point San Pedro, near the City of Pacifica in San Mateo County, and between facilities within the area north of Point San Pedro, contingent upon the results of a CDFG health exam showing no signs of rickettsia, the suspected causative agent.
Marine Resources: Water Quality and Benthic Habitat	Issues: Potential for (1) depletion of dissolved oxygen in the water column; (2) benthic impacts due to shading and placement of anchoring devices; (3) changes in the benthic community due to accumulation of detritus and fecal material on the sea floor; and (4) marine debris. Mitigation Measures:

Significant Issue Area	Proposed Special Conditions and Mitigation Measures
	Special Condition 5 imposes dissolved oxygen monitoring, and a benthic monitoring and reporting program per specific standards contained in Appendix C. **Special Condition 6** provides for phased increases in production based on the results of the dissolved oxygen and benthic monitoring required in Special Condition 5. **Special Condition 7** requires cessation of operations if results of the benthic infaunal sampling and analysis indicate a significant change in the infaunal community under the grow-out facilities, and removal of all abalone, grow-out structures, anchoring devices, materials, and equipment within 120 days. **Special Condition 9** prohibits waste disposal, including shells, except as authorized under the NPDES permit. **Special Condition 1** requires evidence that the anchoring design has been approved by the harbor master of the SMCHD to ensure that the grow-out structures do not break free. **Special Condition 10** requires removal of all abalone, grow-out structures, anchoring devices, materials, and equipment upon cessation of operations.
Marine Resources: Kelp Harvesting	**Issue:** The new demand for kelp to feed the abalone, especially in conjunction with the three other proposed abalone aquaculture projects, could lead to adverse impacts on the kelp bed community. **Mitigation Measures:** **Special Condition 8** prohibits harvest, take, or purchase of kelp obtained from (1) open bed #220 between the Monterey breakwater and Point Pinos, and (2) open bed #221 between New Brighton State Beach and Soquel Point (Pleasure Point area), off the Santa Cruz County coast, between December 1 and May 15 (seasonal times of low abundance). The CDFG is reviewing and updating its kelp harvesting regulations, which should be completed with new, more comprehensive standards by the end of 2000. Based on this new forthcoming information, it may be appropriate for the Commission to consider an amendment request for this condition after the Fish & Game Commission has certified the revised regulations.
Commercial Fishing Operations	**Issue:** (1) Potential use conflicts with existing commercial fishing anchorage space in Pillar Point Harbor; (2) increased use of ancillary boating facilities; and (3) potential navigational and safety hazards. **Mitigation Measures:** **Special Condition 1** requires that anchoring designs be approved by the harbor master of the SMCHD. **Special Condition 2** prohibits loading or unloading any equipment or materials on, at or from the public boat launch ramp, docks, or vehicle

Significant Issue Area	Proposed Special Conditions and Mitigation Measures
	approach road. It also provides that prior to using the public boat launch ramp to install or remove its grow-out structures, an operator must submit evidence to the executive director that it has coordinated with the harbor master on use of the public boat launch ramp to conduct said activities (e.g., use during a time when demand for use of the boat launch is anticipated to be light). **Special Condition 3** requires marking of grow-out structures to ensure navigational safety pursuant to all U.S. Coast Guard and harbor master requirements. **Special Condition 9** prohibits waste disposal except as authorized under the NPDES permit. **Special Condition 11** requires working with the San Mateo County Harbor District to (1) reconfigure the license agreement areas and/or (2) enable anchorage or mooring in the buffer areas between adjacent aquaculture facilities and/or (3) employ other feasible options to yield as much transient anchorage and mooring space as possible. Each aquaculture operator must enable a proportionate amount of space such that no more than 30 anchorage spaces are lost due to the four proposed aquaculture facilities and associated buffer areas.
Public Access	**Issue**: Installation and/or operation of the abalone aquaculture facilities could restrict public access. **Mitigation Measures**: **Special Condition 2** prohibits loading or unloading any equipment or materials on, at or from the public boat launch ramp, docks, or vehicle approach road. It also provides that prior to using the public boat launch ramp to install or remove its grow-out structures, an operator must submit evidence to the executive director that it has coordinated with the harbor master on use of the public boat launch ramp to conduct said activities (e.g., use during a time when demand for use of the boat launch is anticipated to be light).
Recreation	**Issue:** Harvesting the kelp canopy around Monterey Bay could affect recreational opportunities and/or exacerbate existing use conflicts. **Mitigation Measures:** **Special Condition 8** prohibits harvest, take, or purchase of kelp obtained from (1) open bed #220 between the Monterey breakwater and Point Pinos, and (2) open bed # 221 between New Brighton State Beach and Soquel Point (Pleasure Point area), off the Santa Cruz County coast, between December 1 and May 15 (seasonal times of low abundance). The CDFG is reviewing and updating its kelp harvesting regulations, which should be completed with new, more comprehensive standards by the end of 2000. Based on this new forthcoming information, it may be appropriate for the Commission to consider an amendment request for this condition after the Fish & Game Commission has certified the revised regulations.

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Note: Appendices A - E are contained in a separate corresponding packet.

1.0 STAFF RECOMMENDATION

Approval with Conditions

The staff recommends conditional approval of Coastal Development Permit Application No. E-98-17.

Motion:

I move that the Commission approve Coastal Development Permit Application No. E-98-17, subject to the conditions specified below.

The staff recommends a YES vote. To pass the motion, a majority of the Commissioners present is required. Approval of the motion will result in the adoption of the following resolution and findings.

Resolution:

The Coastal Commission hereby **grants** permit No. E-98-17, subject to the conditions below, for the proposed development on the grounds that (1) as conditioned, the development will be in conformity with the provisions of Chapter 3 of the California Coastal Act of 1976 and (2) there are no feasible alternatives or feasible mitigation measures, other than those specified in this permit, which would substantially lessen any significant adverse impact which the activity may have on the environment.

2.0 STANDARD CONDITIONS Appendix A

3.0 SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. **Approval from the Harbor Master of the San Mateo County Harbor District ("SMCHD") on Anchoring Grow-Out Structures. Prior to issuance of this permit,** Pacific Offshore Farms shall submit to the executive director of the Coastal Commission ("executive director") written evidence that its anchoring design has been approved by the harbor master.

2. **Use of the Public Boat Launch Ramp.** Pacific Offshore Farms shall not load or unload any equipment or materials on, at, or from the public boat launch ramp, docks, or vehicle approach road. **Prior to using the public boat launch ramp to install or remove its grow-out structures,** Pacific Offshore Farms shall submit evidence to the executive director that it has coordinated with the harbor master on use of the public boat launch ramp to conduct said activities (e.g., during a time when demand for use of the boat launch is anticipated to be light).

3. **Markings to Ensure Navigational Safety.** Pacific Offshore Farms shall mark its grow-out structures to ensure navigational safety pursuant to all U.S. Coast Guard and SMCHD harbor master requirements.

4. **Sabellid Polychaete Worm -- California Department of Fish and Game ("CDFG")-Approved Transfer and Inspection Procedures.** Pacific Offshore Farms shall only obtain stock from (1) a facility that has been certified by the CDFG as "sabellid-free," **or** (2) a new facility that has applied for sabellid-free certification and that uses wild brookstock, each of which have been inspected by the CDFG and found to be free of sabellids prior to introduction to the facility. **Prior to issuance of this permit**, Pacific Offshore Farms shall submit to the executive director evidence that its source facilities "meet one of the above-listed criteria." Pacific Offshore Farms shall then fully adhere to the transfer and inspection procedures contained in **Appendix B**, with the following additional requirement: If a sabellid infestation is detected, Pacific Offshore Farms shall **immediately** remove the cage or container in which the infested animal was found.

5. **Monitoring and Reporting Program.**

   a. Pacific Offshore Farms shall implement dissolved oxygen monitoring as required in its NPDES permit;

   b. Pacific Offshore Farms shall submit and implement plans to conduct **sediment and benthic infaunal surveys** in accordance with the sampling methods and requirements listed in **Appendix C**. The executive director shall respond to all plan submittals within 30 days.

   c. Pacific Offshore Farms shall submit to the executive director for review and approval (1) the technical report prepared pursuant to Provision 2 of its NPDES permit by January 15 of each year, (2) a report of all results from its monitoring program according to the guidelines contained in **Appendix C** within six months of completing each field survey, and (3) a summary of dissolved oxygen monitoring if levels are detected to be below 5.0 mg/l for five consecutive days within five business days.

6. **Annual Phased Increase in Abalone Culturing Operations.** Pacific Offshore Farms shall phase its total number of abalone to a maximum of 500,000, annually increasing growth in 25% increments contingent upon authorization by the executive director of the Coastal Commission as follows:

   - At the end of Year 1 *(year 1 sampling conducted by September 30, 2000; report submitted by March 31, 2001)*, the maximum number of abalone may not exceed 125,000 (25% of 500,000);
   - at the end of Year 2, the maximum number may not exceed 250,000;
   - at the end of Year 3, the maximum number may not exceed 375,000; and
   - at the end of Year 4, the maximum number may not exceed 500,000.

The executive director will base his response to incremental expansion requests on the dissolved oxygen and benthic monitoring required in Special Condition 5, and will give said respond within 30 days of request and report submittal.

7. **Cessation of Operations.** If results of the benthic infaunal sampling and analysis indicate a significant change in the infaunal community under the grow-out facilities as defined in the "Thresholds of Significance" section of **Appendix C**, Pacific Offshore Farms shall remove all abalone, grow-out structures, anchoring devices, materials, and equipment within 120 days.

8. **Kelp Harvesting**. Pacific Offshore Farms shall not harvest, take, or purchase kelp obtained from (1) open bed #220 between the Monterey breakwater and Point Pinos, and (2) open bed #221 between New Brighton State Beach and Soquel Point (Pleasure Point area), off the Santa Cruz County coast, between December 1 and May 15.

   (Note that Pacific Offshore Farms may request that the Commission modify this restriction through an amendment to this permit based upon emergence of new information that may affect kelp harvesting, such as the CDFG's review of its kelp harvesting regulations. The review process for the next such revision will begin summer or fall, 1999, and the regulations are scheduled to be certified by the Fish & Game Commission by the end of Year 2000.)

9. **Waste Disposal.** Pacific Offshore Farms shall not dispose any equipment or waste, including shells, into the marine environment, except as authorized in its NPDES permit.

10. **Facility Removal.** Upon termination of operations, Pacific Offshore Farms shall remove all abalone, grow-out structures, anchoring devices, materials, and equipment within 90 days.

11. **Maximization of Transient Anchorage Space.** Prior to issuance of this permit, Pacific Offshore Farms shall work with the San Mateo County Harbor District to (1) reconfigure its license agreement area and/or (2) enable anchorage or mooring in the buffer areas between it and adjacent aquaculture facilities and/or (3) employ other feasible options to yield as much transient anchorage and mooring space as possible. Pacific Offshore Farms must enable transient anchorage or mooring space for at least two more vessels than can be accommodated as its facility is currently proposed and configured.

4.0 FINDINGS AND DECLARATIONS

Note: Exhibits 1 - 4 and Appendices A - E are contained in a separate corresponding packet.

4.1 Project Location

Pillar Point Harbor is located 20 miles south of San Francisco at the northern end of Half Moon Bay in San Mateo County. It is the only protected ocean harbor between Bodega Bay and Santa Cruz. Breakwaters separate the harbor into inner and outer areas.

The unincorporated community of Princeton-by-the-Sea lies to the northwest, and the community of El Granada lies to the northeast and east, across Highway 1. The City of Half Moon Bay lies to the south. The harbor is located adjacent to the Monterey Bay National Marine Sanctuary. (Exhibit 1, "Project Location")

Existing facilities at the harbor include fish processing and freezing operations, a fuel dock, berths, parking lots, and a public boat launch ramp. Romeo Pier, which is owned and operated by the San Mateo County Harbor District ("SMCHD"), lies in the northern area of the harbor.

Pillar Point Harbor provides opportunities for commercial fishing, recreational boating and fishing, clamming, sailing, kayaking, windsurfing, marine-related commercial and retail facilities, restaurants, and other visitor-serving activities such as pedestrian and bike paths and birdwatching.

4.2 Provision of an Aquaculture Area within Pillar Point Harbor by the San Mateo County Harbor District, and Preparation of a Mitigated Negative Declaration

In September, 1994, the SMCHD designated an area approximately 500 yards by 750 yards (77.5 acres) in the northwest corner of the outer harbor, adjacent to the outer breakwater, as appropriate for aquaculture facilities (Exhibit 2, "Area in Pillar Point Harbor deemed appropriate for aquaculture by the San Mateo County Harbor District").

As "lead agencies" under the California Environmental Quality Act ("CEQA")[1] the SMCHD and the California Department of Fish and Game ("CDFG") certified on July 10, 1996, a mitigated negative declaration ("MND") for aquaculture operations in Pillar Point Harbor.

In February, 1997, the SMCHD ratified license agreements with four licensees for areas of submerged lands and overlying water within the designated aquaculture area of the harbor for the purpose of abalone aquaculture.

In June, 1998, the Regional Water Quality Control Board ("RWQCB") issued a national pollutant discharge elimination system ("NPDES") permits to each of the four proposed operators.

[1] Pursuant to a cooperative agreement as authorized by California Environmental Quality Act Guidelines, Title 14, California Code of Regulations Section 15051(d).

4.2.1 Description of Project Evaluated in the Mitigated Negative Declaration

The MND evaluates a project defined as operation of up to five abalone facilities within 2.4 acres of the 77.5-acre area of Pillar Point Harbor set aside for aquaculture, with a combined density of up to 5,150,000 abalone at full build-out. A 300-foot buffer will exist between each of the five aquaculture operations/facilities (not between each raft structure within a single facility).

The five facilities that constitute the project defined in the MND include: "U.S. Abalone" (Thomas Ebert), which operated in Pillar Point harbor between 1989 and 1998 without benefit of a coastal development permit, and the proposals of Jon Locke, *dba* "Princeton Abalone," Brian Price and Joel Roberts, *dba* "Deeper Blue Enterprises," Lyle Wagner, *dba* "Blue Pacific Abalone," and Christian Zajac, *dba* "Pearl Abalone Company."

Two of the four applicants, Jon Locke ("Princeton Abalone") and Lyle Wagner ("Blue Pacific Abalone") proposed both onshore and offshore components to their facilities.

Since completion of the MND, the following changes have occurred:

- US Abalone removed all abalone from its raft system in Pillar Point Harbor as of November, 1998, and removed the rafts themselves as of January, 1999;
- Doug Hayes, *dba* "Pacific Offshore Farms," has replaced "Deeper Blue Enterprises" as an applicant;
- Princeton Abalone now proposes only an offshore component; and
- The combined total number of abalone at full build-out has decreased by 56%, from 5,150,000 to 2,250,000. Each applicant now proposes to culture the following maximum number of abalone:

  -Pacific Offshore Farms: up to 500,000 (offshore rafts only);
  -Princeton Abalone: up to 500,000 (offshore structures only);
  -Blue Pacific Abalone: up to 800,000 (onshore and offshore components);
  -Pearl Abalone Company: up to 450,000 (offshore rafts only).

Exhibit 3, "SMCHD License Agreement Areas," shows the proposed facility locations.

Coastal Commission Review
The Coastal Commission is reviewing each application separately:

- Pacific Offshore Farms (Doug Hayes): Application No. E-98-17 to culture up to 500,000 abalone within a 248' x 60' (14,880 sq. ft., or 0.34 acre) area;
- Princeton Abalone (Jon Locke): Application No. E-98-18 to culture up to 500,000 abalone within a 250' x 75' (18,740 sq. ft., or 0.43 acre) area;
- Blue Pacific Abalone (Lyle Wagner): Application No. E-98-19 to culture up to 800,000 abalone within a 250' x 105' (26,250 sq. ft., or 0.60 acre) area;

- Pearl Abalone Company (Christian Zajac): Application No. E-98-20 to culture up to 450,000 abalone within a 98' x 40' (3,920 sq. ft., or 0.09 acre) area.

This coastal development permit application (No. E-98-17) is only for Pacific Offshore Farms' proposed project.

4.3 Project Description for the "Pacific Offshore Farms" Facility

Project Purpose
Doug Hayes, *dba* "Pacific Offshore Farms," proposes to cultivate red abalone *(Haliotis rufescens)* from juveniles to maturity in screened plastic cages hung from floating rafts moored within Pillar Point Harbor. Hayes also proposes to study the impact of aquaculture on Pillar Point Harbor for possible future expansion.

Facility Description
Pacific Offshore Farms will use a 248' x 60' (14,880 sq. ft., or 0.34 acre) area to moor its rafts. (See Exhibit 3, "SMCHD License Agreement Areas"). Rafts will be constructed of marine-grade wood, bolted together with heavy-duty galvanized hardware, and will support submerged screened plastic cages (buckets) that have open access to seawater. None of the wood will be treated with the preservative creosote.[2]

Rafts will be kept afloat by four 55-gallon plastic barrels installed between the raft top and the cage, or USCG-approved plastic-covered foam. Each cage will contain a natural substrate on which the abalone will live. (See Exhibits 5 and 6 for schematic diagrams of Pacific Offshore Farms' raft and cage structures). The rafts will be anchored in a way that is acceptable and approved by the SMCHD, pursuant to **Special Condition 1**, to ensure that they will not break free.

As seedlings (which are very small, about the size of a thumb nail) approach 2 inches, they will be moved into individual floating cages, also moored within the license area. Dissolved oxygen monitoring will dictate the actual biomass in each cage (density will be reduced if dissolved oxygen levels decrease). Animals will be harvested from the larger cages in three to four years, when they reach 3.5 inches.

Although Pacific Offshore Farms requested on March 12, 1999, to include connection of an underwater cable from its grow-out structures to the main electrical panel located on Romeo Pier, the harbor master has determined that placement and connection of said cable is not authorized for feasibility and safety reasons.[3] Thus said request is not included as part of this project description.

[2] Telephone conversation between Moira McEnespy, CCC, and Doug Hayes, Pacific Offshore Farms, September 24, 1998.

[3] Telephone conversation between Moira McEnespy, CCC, and Dan Temko, Harbor Master, SMCHD, June 4, 1999.

4.4 Coastal Act Issues

Coastal Act Section 30411(c) states in part:

> *The Legislature finds and declares that salt water or brackish water aquaculture is a coastal-dependent use which should be encouraged to augment food supplies and to further the policies set forth in Chapter 4 (commencing with Section 825) of Division 1.*

Coastal Act Section 30222.5 states:

> *Ocean front land that is suitable for coastal dependent aquaculture shall be protected for that use, and proposals for aquaculture facilities located on those sites shall be given priority, except over other coastal dependent developments or uses.*

Coastal Act Sections 30250(a) and 30105.5 provide for review of cumulative impacts. Section 30250(a) states in relevant part:

> *New residential, commercial, or industrial development...shall be located...where it will not have significant adverse effects, either individually or cumulatively, on coastal resources.*

Section 30105.5 states:

> *Coastal Act Section 30105.5 defines "cumulatively" or "cumulative effect" to mean the incremental effects of an individual project shall be reviewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.*

Creation and operation of the proposed abalone grow-out facility will constitute aquaculture. Furthermore, ocean-front land includes submerged lands. Hence, the Commission finds that said project is a coastal-dependent use that is given priority status in the Coastal Act pursuant to Coastal Act Section 30222.5.

Therefore, the remainder of this section will analyze the proposed aquaculture project with other coastal-dependent developments and uses, and Coastal Act policies concerning (1) marine resources and biological productivity, (2) existing commercial fishing operations, (3) recreation, including recreational fishing and boating operations, and (4) placement of fill in coastal waters.

Furthermore, analysis will address cumulative impacts where appropriate pursuant to Coastal Act Sections 30250(a) and 30105.5.

4.4.1 Marine Resources

Coastal Act Section 30230 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 environmental 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.*

Coastal Act Section 30231 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.*

There are several potential impacts associated with cultivating abalone in the manner proposed: (1) introduction of exotic parasites, particularly a sabellid polychaete worm, into harbor and marine waters through infected abalone; (2) spread of disease, particularly "withering syndrome;" (3) impaired water quality due to deficient dissolved oxygen levels; (4) impacts to benthic habitat, fish, and invertebrates; (5) reduction in avian habitat area; and (6) overharvesting of kelp in order to feed the abalone.

4.4.1.1 The Sabellid Polychaete Worm[4]

Discovery / Background

Abalone culturists in California began to observe shell deformities and slow growth in their abalone in the late 1980s. The problem was soon attributed to a non-native sabellid polychaete worm from South Africa that was accidentally introduced to California when infested abalone were imported.

The sabellid polychaete worm that parasitizes abalone and other mollusks does not feed on its host, but rather uses the hard shell as an attachment site. The worm itself is a suspension feeder, removing food from the surrounding waters. It damages its host by interfering with natural growth. Thus, although infestations do not directly affect the quality of the abalone's meat, they can deform the shell to the point where the animal's growth slows or virtually ceases.

[4] Much of the factual information in this section about the sabellid is taken from the following source: "Identification and Management of the Exotic Sabellid Pest in California Cultured Abalone." (Carolynn S. Culver, Armand M. Kuris, and Benjamin Beede. A publication of the California Sea Grant College System. Publication No. T-041; ISBN 1-888691-05-0. (La Jolla, 1997).

Because low infestations are not readily noticeable, the sabellid was spread rapidly through transfer of infested stock to virtually all abalone mariculture facilities in California by the mid 1990's. Various eradication methods were tried, but proved to be infeasible or unsuccessful. Thus, growers have focused on controlling the spread of infestation.

Transmission mechanism
The larval parasite reaches infestation stage when it is able to crawl. Larvae typically crawl to a new location on their hosts' shell or to a new host. Fortunately, the worm's larvae do not swim or float in the water column where they would be widely dispersed by currents. Rather, the benthic larvae crawl along the substrate until they find a suitable host. Transmission does not require direct contact between infested and uninfested animals. Furthermore, once the sabellid has been encased by shell, it no longer requires a living host for its development and reproduction (i.e., empty shells of animals that were infested before they died act as a source of infestation). Thus, larvae can spread if they become dislodged from the host shell or from a substrate, and can be transported by kelp, equipment, wet hands, and infested shells.

Environmental threat
Spread of the sabellid is of particular concern for the following reasons:

- The sabellid is an introduced species. Biological control experiments using native California intertidal and subtidal fishes and invertebrates have not turned up any predators of adult sabellids, though screening for potential predators of the larval stage is needed.
- The biological and ecological characteristics of the sabellid suggest that it has a high potential for successful invasion in California, as demonstrated by its successful infestation and reinfestation of abalone facilities throughout California, and in Mexico and Oregon.
- Sabellid worm larvae accept a broad range of hosts and are capable of infesting several native species of mollusks in addition to abalone, creating a threat of spread from infested aquaculture facilities into wild populations and establishment in state waters. Preliminary experiments conducted by Culver and her colleagues (1997) suggest that bivalves, such as mussels and oysters, are much less susceptible to infestation than snails.

The threat to natural populations is real as evidenced by the fact that the sabellid worm has infested populations of native snails in the rocky intertidal zone within a small cove adjacent to the discharge pipe from an abalone aquaculture facility in central California *(Culver, personal communication February 25, 1999).* After the infestation was discovered, the aquaculture company in cooperation with the CDFG and researchers at the University of California at Santa Barbara began an eradication program. Several million individuals of the main host species (a turban snail) have been removed from the intertidal zone and destroyed since 1996. The most recent field survey (1998) indicates that there were few infested snails remaining and that there was no evidence of recent transmission of the parasite as indicated by the absence of young worms *(C. Culver, UCSB, personal communication February 25, 1999).*

Response by the California Department of Fish and Game
The California Department of Fish and Game ("CDFG" or "Department") concluded in May, 1996, that based on continuing investigations by the Department, the aquaculture industry, and the University of California at Santa Barbara, "every abalone aquaculture facility in the state is to be considered positive for presence of the [sabellid] worm unless, and until, inspections by the Department's Fish Health Laboratory ("FHL"), or other FHL approved inspectors, determine otherwise."[5]

To prevent the further introduction and spread of the sabellid worm, and to achieve its goal of complete sabellid eradication by December, 1999, the CDFG has promulgated the following requirements:[6]

> Outplanting of abalone into the wild. The Department will continue to emphasize the requirement of Fish and Game Code §6400 that any abalone to be planted into the wild must be inspected by the Department prior to planting. The Department will only approve the planting of sabellid-free abalone from sabellid-free broodstock.
>
> Approved sabellid eradication and prevention plans. All registered abalone aquaculturists were required to submit to the Department no later than December 31, 1996, a sabellid eradication plan. The FHL will review each plan and assess the risk each facility may represent to California resources. Each facility will then be required to conform to approved cleanup plan. New facilities must obtain an approved sabellid prevention plan. The CDFG received and informally approved Pacific Offshore Farms' sabellid polychaete worm prevention plan in November, 1997.
>
> Certification of facilities as "sabellid-free." On July 7, 1998, the director of the CDFG signed a policy containing procedures for the CDFG to certify facilities as sabellid-free. Each operator must request initiation of CDFG's inspection program to certify a facility as sabellid-free. CDFG personnel will then conduct three inspections over a two-year period. Each inspection will entail inspection of each container (e.g., tank, cage, barrel) in the facility. The sampling protocol will include sufficient replication to allow CDFG to conclude that the stock is sabellid-free with 95% statistical confidence if no sabellids are observed in the sample.

Commission evaluation and mitigation of impacts
The CDFG aquaculture team has made significant progress in developing and implementing procedures for the sampling, reduction, and eventual eradication of sabellid worms in existing shore facilities, and for preventing new infestations. However the sabellid problem is not solved and the risks to the marine resources of the Monterey Bay Marine Sanctuary are real.

How serious is the risk to natural populations from the proposed aquaculture facilities? To answer this question one needs information regarding the likelihood of infested animals being

[5] Memo to all registered abalone aquaculturists from Jacqueline E. Schafer, CDFG, dated May 20, 1996.

[6] Memos to all registered abalone aquaculturists from Jacqueline E. Schafer, CDFG, dated May 20, 1996, and December 6, 1996. Personal communication with Fred Wendell, Chair, CDFG Aquaculture Team, on July 17, 1998.

placed in cage culture, the likelihood of sabellid larvae escaping the cages, and the likelihood of escaped larvae infesting natural populations.

If the animals used for cage culture come from facilities that contain the parasite, the chance of introducing infested animals to Pillar Point Harbor is small but real. Shore facilities are managing infestation through cultural practices *(F. Wendell, CDFG, personal communication February 23, 1999).* The small abalone used as "seed" are kept in tanks which are isolated from the tanks housing larger animals known to be infested. Prior to transfer, these "seed" animals are inspected by the CDFG. They examine a sufficient number of individuals that there is no more than a 1% probability of missing an infestation rate of 5% or greater.

Such sampling programs are based on the assumption that infested animals are randomly distributed within the population and that each individual within the population has an equal change of being sampled. In practice, infested animals probably occur in clusters because of the manner of larval dispersal, and truly random samples are difficult to collect. In addition, recently attached worms are difficult to see. Therefore, it is the professional opinion of the Commission's marine ecologist that the actual probability of missing a 5% infestation is somewhat larger than 1% by an unknown amount.

If infested abalone are introduced to culture facilities in Pillar Point Harbor, the chance of the larvae escaping into the natural environment is near certainty. Culver et al. (1997) suspended infested abalone in cages above uninfested animals. All the individuals below the suspended cages became infested. The larva apparently fall into the water column either because of physical disturbance or as part of their natural behavior. The worms can also travel on shell and kelp debris.

After falling to the sea floor in the harbor, the sabellid larvae must then find a suitable host. The probability of this occurring is low. The harbor bottom is composed of sand and mud and gastropods occur in low density. A second avenue of dispersal is on kelp debris that gets washed out of the harbor. The information needed to estimate the probability of dispersal out of the harbor on kelp debris is not available. Finally, there is the possibility of culture rafts breaking loose in storms. This has occurred in the past and some of the abalone were not recovered *(F. Wendell, CDFG, personal communication February 23, 1999).* In these previous occurrences, the rafts remained within the harbor, but on one occasion the raft drifted onto the breakwater where snails would be expected to occur.

As stated above, the CDFG's established procedures to certify an abalone-culturing facility as sabellid-free entail three inspections by CDFG personnel over a two-year period once the operator has requested initiation of the inspection program. Currently, only two facilities in the state have requested said initiation as of February 25, 1999. The CDFG inspected one facility twice and found it to be sabellid-infested. The CDFG will inspect the other facility soon.

Although said certification could occur more quickly than two years if an existing facility were to shut down and be kept dry for a long enough period to ensure that all sabellids were killed, or if a new facility were to be built, it will likely be two years before stock from a certified sabellid-free facility is available.

Nevertheless, considering the following factors, the Commission finds it necessary to require in **Special Condition 4** that prior to issuance of this permit, Pacific Offshore Farms prove it can and will obtain all stock from (1) a facility that has been certified by the CDFG as "sabellid-free," or (2) a new facility that has applied for sabellied-free certification and that uses wild broodstock, each of which have been inspected by the CDFG and found to be free of sabellids, prior to introduction into the facility in order to ensure that implementation of said project will maintain marine resources, protect the adjacent marine sanctuary, and maintain healthy populations of existing species of marine gastropods as required by Coastal Act Section 30230:

- the sabellid worm has not yet been eradicated;
- the probability of introducing the sabellid parasite into the natural environment as a result of aquaculture activities in Pillar Point Harbor is small but real;
- potential spread of the sabellid poses a documented environmental threat;
- a successful introduction of this non-native sabellid parasite into native populations of mollusks could have extremely serious consequences;
- once established, eradication of the sabellid demands drastic measures; and
- Pillar Point Harbor is located directly adjacent to the Monterey Bay National Marine Sanctuary, an ocean currents connect harbor and sanctuary waters.

Furthermore, the Commission staff has worked with the CDFG's aquaculture team to develop abalone transfer and inspection procedures appropriate for Pillar Point Harbor culturing operations. The goals were to (1) address the frequent stocking of rafts with stock from various existing facilities; (2) where applicable, require that facilities request as soon as possible to initiate the inspections necessary to become certified as sabellid-free; and (3) remove sabellid-infested animals, should they be discovered, as soon as feasible. The Commission imposes these transfer and inspection procedures, which are contained in **Appendix B**, as **Special Condition 4**. **Special Condition 4** further requires that if a sabellid infestation is detected, Pacific Offshore Farms shall immediately remove the cage or container in which the infested animal was found.

In addition, the Commission imposes **Special Condition 9**, which prohibits Pacific Offshore Farms from discharging abalone shells into the marine environment.

Finally, the Commission imposes **Special Condition 1**, which requires evidence that Pacific Offshore Farms' anchoring design has been approved by the harbor master of the SMCHD to ensure that its grow-out structures do not break free.

Project consistency with Coastal Act policies

The Commission finds that with the requirements of **Special Conditions 1, 4, and 9,** the proposed project will be carried out so as to avoid to the greatest extent feasible the introduction of sabellid worms into marine waters, and ensure that the facility remains sabellid-free. The Commission therefore finds that the proposed project as extensively conditioned can be carried out in a manner that will sustain and maintain the biological productivity and quality of coastal

waters, and maintain healthy populations of all species of marine organisms as required by Coastal Act Sections 30230 and 30231.

4.4.1.2 Withering Syndrome

Background
First discovered in 1986, withering syndrome caused populations of black abalone from San Diego to Cayucos, San Luis Obispo County, to decline by as much as 99 percent. Withering syndrome is not harmful to humans, but can cause abalone to lose weight and eventually die of starvation.

Recent identification and action by the CDFG7
The CDFG first determined that withering syndrome was well-established in the wild south of the City of Carmel, a rough dividing point between endemic and clear areas. As an immediate stop-gap measure, on August 26, 1998, the CDFG director placed a conditional ban on transfer of seed stock to facilities north of Carmel and between facilities within the area north of Carmel. The condition allows transfers only if a CDFG health exam does not find signs of the rickettsia bacteria, the likely causative agent for withering syndrome (only small seed, <20 mm will pass this test).

Recently, however, some locations north of Carmel have shown signs of both withering syndrome and rickettsia. In response, on March 22, 1999, the CDFG director adjusted the dividing line between endemic and clear areas northward to Point San Pedro, near the City of Pacifica in San Mateo County (thus the conditional ban on seed stock transfer is now based on Point San Pedro, not the City of Carmel).

Meanwhile, the CDFG has been implementing the following actions to confirm the area in which the disease is established and develop appropriate eradication measures:

1. Developing a sampling plan for wild abalone stocks in the north (sampling mainly around facilities, but also at some sites well-removed);
2. Conducting research to determine all transmission pathways (suspect water-borne transmission through water column); and
3. Conducting research to provide certainty that rickettsia is actually the causative agent.

Research results will not be available for at least six months to one year, at which time the CDFG's Aquaculture Disease Committee will review the data and make further recommendations. In the interim, the conditional ban will remain in effect, and the approximate dividing line at Point San Pedro between endemic and clear areas may be adjusted northward if necessary.

[7] Telephone communication with Fred Wendell, Aquaculture Coordinator, CDFG, on October 26, 1998.

Project consistency with Coastal Act policies
Pillar Point Harbor lies south of Point San Pedro, in an area within which the CDFG has determined withering syndrome to be endemic. Any transfer of Pacific Offshore Farms' stock to locations north of Point San Pedro, into areas clear of withering syndrome, would be subject to the conditional ban imposed by the CDFG (i.e., transfers would not be allowed unless a health exam does not find signs of rickettsia, the likely causative agent for withering syndrome).

The Commission thus finds that the proposed project as subject to the CDFG-imposed conditional ban will be carried out in a manner that will maintain healthy populations of all species of marine organisms as required by Coastal Act Section 30230.

4.4.1.3 Water Quality and Benthic Habitat

An aquaculture facility, such as the one proposed by Pacific Offshore Farms, has the potential to reduce the dissolved oxygen concentration in the water column and cause adverse changes to the benthic community.

Species and uses potentially affected8
Pillar Point Harbor supports ocean, commercial, and sport fishing; marine habitat; fish migration; preservation of rare and endangered species; contact and non-contact water recreation; shellfish harvesting; fish spawning; and wildlife habitat.

The harbor supports a diverse population of benthic fauna that includes polychaete worms, crustaceans (e.g., crabs, shrimp), and mollusks (e.g., snails, bivalves). Other invertebrates include anemones and seastars.

The harbor is also an important nursery area for juvenile fish in the summer. Flatfish, including English sole, various rockfish species, members of the surfperch family, and Pacific herring are abundant in the summer. Smaller numbers of many other significant commercial and sport species are also found. Starry flounder and topsmelt are abundant in winter, and northern anchovy, Pacific sardine, mackerel, and striped bass are also present.

Potential for depletion of dissolved oxygen in the water column
The dissolved oxygen ("DO") concentration in water is critical to the health of marine organisms; deficient DO concentrations could result in both lethal and sublethal effects. As a general rule, DO levels less than 5.0 mg/l are unacceptable to aquatic organisms.[9] The San Francisco Bay Region Basin Plan establishes a DO objective of 5.0 mg/l *(Chapter 3, p. 3-3)*, and the California Ocean Plan sets forth that the DO concentration shall not at any time be depressed

[8] According to data from the following sources, referenced in the *Revised Expanded Initial Study for Abalone Aquaculture Operations, Pillar Point Harbor, San Mateo County* (Huffman & Associates, June, 1996): (1) *Biological Survey of Pillar Point Harbor*; Water Quality, Bird and Mammal Survey, Fish Survey, Benthic Survey, Diver Transects (Marine Ecological Institute, 1976); (2) Pillar Point Harbor Water Quality Data Summary 1990-1993 (Entrix, Inc.); (3) Bird Sampling Data – Mitigation Monitoring Program for Pillar Point Harbor Boat Launch Ramp Mitigation Site (Entrix, Inc., 1993); (4) Pillar Point Boat Ramp Facility Mitigation Site Monitoring Program Baseline Data Report (Entrix, Inc., June 24, 1991).

[9] Stickney, Robert. *Principles of Aquaculture.* (John Wiley and Sons, 1994).

more than 10 percent from that which occurs naturally as the result of the discharge of oxygen-demanding waste materials *(Chapter II, Section D, No. 1; p. 4)*. Abalone can tolerate lower DO levels than fish.

At very high numbers, the respiration of the abalone themselves could reduce DO levels in the water column. In addition, cage culture operations introduce the potential that abalone feed and fecal material could accumulate on the sea floor within the harbor. High concentrations of particulate organic material result in increases in decay organisms which consume available DO. Calm, poorly-mixed environments are especially susceptible to low DO levels. Increases in organic matter in bottom sediments could result in a local reduction in available DO from the surrounding environment below the level necessary to support local plant and animal species.

The MND contains a simple model of abalone DO uptake versus DO availability in the harbor. This model ultimately suggests that the potential for depletion of dissolved oxygen in the water column throughout the harbor by up to 5,150,000 abalone will not be significant.[10]

Potential for benthic impacts

The MND states that the proposed raft structures will create shade that could adversely affect algae and benthic organisms. Also, placement of the raft anchoring devices will change the existing substrate.

Most importantly, the proposed facilities could impact the benthic community via disturbance resulting from the potential build up of detritus, including kelp and/or substitute feed, and fecal material on the seafloor. There is general consensus that substantial organic enrichment causes deleterious changes in the community of organisms that lives in sand or mud.

For example, said accumulation could favor species that thrive in disturbed organically rich sediments. In addition, large accumulation of organic material could result in decreases in DO near the bottom due to the respiration of decay organisms, and cause a loss of most of the natural invertebrate community in the sediments. Furthermore, invertebrate community changes could lead to changes in the fish community (e.g., change the forage value of the seafloor to bottom-feeding fishes).

Finally, the grow-out structures and associated equipment could become marine debris if they are not properly removed upon cessation of operations.

Provisions and prohibitions contained in the NPDES permits

Since the MND analysis, the collective abalone total for all proposed abalone operations at Pillar Point Harbor has been reduced to 2,250,000 abalone at full buildout (of which Pacific Offshore Farms will produce 500,000, or about 22%). Notwithstanding the decrease in abalone production, the NPDES permits granted to the four proposed aquaculturists state that some

[10] There was a lot of initial concern over DO availability because a conversion error in the MND's (Huffman report's) model calculations--using the density of water instead of the density of oxygen--led to a gross underestimate of available DO and the suggestion that 5,150,000 abalone have the potential to severely impact DO levels in the harbor with resultant negative impacts to the biota. Correction of said error shows that there is actually about 700 times more available oxygen than first calculated (36,000,000 liters instead of 52,000 liters).

concern about potential DO depletion still remains (but cite the initial suggestion of the MND DO model, which has since been found to grossly underestimate the amount of available DO – See Footnote 10).

The NPDES permits also state that intensive monitoring of DO concentrations, benthic infauna, and bottom sediment will provide a suitable index of how the proposed facilities may affect benthic fish communities residing in the harbor.

Thus, Pacific Offshore Farms' NPDES permit, like those the RWQCB granted to the other three proposed operators, requires several mitigation measures, consistent with those identified in the MND:

- Monitoring Program. Each operator shall sample DO levels and water temperature on a daily basis, and periodically sample bottom sediment and benthic infauna as specified in its NPDES permit to evaluate the significance of potential project-related impacts and effects.

- Annual Reporting. Each operator shall submit an annual technical report to the RWQCB's executive officer that (i) summarizes the past year's monitoring data and documents that all receiving water limitations are being met; (ii) summarizes potential water quality problems and describes how they will be solved; and (iii) proposes an increase in number of abalone to be grown in the coming year. Production shall not be increased until the executive officer accepts the proposal in the technical report.

- Phased Growth in Abalone Culturing Operations. Each operator shall phase production during its five-year NPDES permit period (June, 1998 – June, 2003), increasing growth annually in 20% increments contingent upon the executive officer's authorization.

Pursuant to another measure, Pacific Offshore Farms submitted a DO contingency plan to the RWQCB and the Coastal Commission staff on September 27, 1998. The plan states that if DO levels drop to below 5.0 mg/l, Pacific Offshore Farms will aerate the water inside the abalone cages with an off-the shelf aeration system. A battery-powered air pump will pump air through a small plastic tube to a defuser that is mounted to the inside bottom of the modified 5-gallon containers used as abalone cages. The aeration system will be mounted under the security hatches on the rafts. Although Pacific Offshore Farms requested on March 12, 1999, to connect an underwater cable from its grow-out structures to the main electrical panel located on Romeo Pier, to run an aeration system, the harbor master has determined that said activity is not authorized for feasibility and safety reasons (see Section 4.3 of this report, "Facility Description").

Commission evaluation and mitigation of impacts

Potential depletion of dissolved oxygen in the water column

Based on the MND's DO model (which concludes that the potential for depletion of DO in the water column throughout the harbor by up to 5,150,000 abalone will not be significant--see Footnote 10), it seems unlikely that Pacific Offshore Farms' grow-out of up to 500,000 abalone or the four potential operator's cumulative total grow-out of up to 2,250,000 abalone will cause

significant depletion of DO in the water column throughout the harbor. This conclusion is nevertheless based upon the findings of one simple model.

The Commission therefore imposes several special conditions to ensure that the proposed projects will not significantly deplete DO from the water column. To detect any local DO depletion, the Commission imposes **Special Conditions 5(a) and 5(c)**, which incorporate the DO monitoring required by Pacific Offshore Farms' NPDES permit and provide for reporting of monitoring results.

To further mitigate any DO depletion not satisfactorily mitigated by Pacific Offshore Farms' aerating its abalone cages, the Commission imposes **Special Condition 6**, which institutes phased annual increases in total abalone stock contingent upon executive director approval. The executive director shall base said approval on the results of the dissolved oxygen and benthic monitoring required in Special Condition 5. Finally, Pacific Offshore Farms must notify the RWQCB if DO levels drop below 5.0 mg/l. The RWQCB may then require Pacific Offshore Farms to remove its stock until DO levels remain at or above 5.0 mg/l.[11]

Potential benthic impacts due to shading and placement of the anchoring devices

With respect to potential impacts to benthic habitat due to shading and placement of anchoring devices, the Commission finds said impacts will not be significant for the following reasons: (1) the 300-foot buffers between each facility will reduce shading; (2) shading impacts will not have a significant effect because water clarity is very poor near the harbor bottom most of the time; (3) placement of rafts will not prevent use of the substrate underneath; and (4) the anchoring devices will require a very small amount of bottom area.

Potential benthic impacts due to accumulation of kelp and abalone feces

The proposed facilities, both individually and cumulatively, could adversely affect the benthic community by causing a build up of detritus and fecal material on the seafloor. There is general consensus that substantial organic enrichment causes deleterious changes in the community of organisms that live in sand or mud. The Commission therefore finds that each operator must conduct independent benthic monitoring, and associated annual reporting, to ensure that its facility is not significantly affecting Pillar Point Harbor's existing benthic community. Operators can coordinate the work of monitoring contractors to reduce costs.

Organic enrichment can be monitored directly by taking sediment samples and analyzing them for total organic carbon ("TOC"). There is evidence, however, from studies around a fish farm that changes in the benthic community can take place beyond the area within which increases in TOC are obvious (Weston 1990). In order to strengthen inferences based on samples taken during the period of aquaculture operations, a preliminary survey of the benthic community is considered necessary.

The Commission thus imposes **Special Condition 5(b)** which requires Pacific Offshore Farms to conduct initial and subsequent sediment and benthic infaunal surveys in accordance with the

[11] Telephone conversation between John Dixon and Moira McEnespy, CCC, and Michael Napolitano, RWQCB, June 1, 1999.

sampling methods and requirements listed in **Appendix C.** The Commission also imposes **Special Condition 5(c)** which provides for reporting of monitoring results.

Furthermore, the Commission imposes **Special Condition 7** which states that if results of the benthic infaunal sampling and analysis indicate a significant change in the infaunal community under the grow-out facilities as defined in the "Thresholds of Significance" section of **Appendix C**, Pacific Offshore Farms shall remove all abalone, grow-out structures, anchoring devices, materials, and equipment within 120 days.

In addition, the Commission imposes **Special Condition 9**, which prohibits waste disposal except as authorized under the NPDES permit.

Finally, **Special Condition 6** institutes phased annual increases in total abalone stock contingent upon executive director approval. The executive director will base his response to incremental expansion requests on the dissolved oxygen and benthic monitoring required in Special Condition 5, and will give said respond within 30 days of request and report submittal.

Pacific Offshore Farms may apply for an amendment to this permit that seeks to modify or delete Special Condition 5 based on an alternate way to meet the intent of the requirements of Special Condition 5 and Appendix C. One such alternative could be demonstration that Pacific Offshore Farms has modified its facility and/or cage design to ensure that only a negligible amount of waste kelp or abalone feces will be released into the marine environment.

Potential marine debris

To avoid any potential residual marine debris, the Commission imposes **Special Conditions 1 and 10. Special Condition 1** requires evidence that the anchoring design has been approved by the harbor master of the SMCHD to ensure that the grow-out structures do not break free. **Special Condition 10** requires, upon cessation of abalone grow-out operations, Pacific Offshore Farms to remove all abalone, grow-out structures, anchoring devices, materials, and equipment within 90 days. Pacific Offshore Farms' license agreement with the SMCHD provides for an "environmental protection and remediation fund," which will ensure implementation of Special Condition 10.

Consistency with Coastal Act policies

The Commission finds that with the requirements of **Special Conditions 1, 5, 6, 7, 9, and 10**, the proposed project as reviewed pursuant to Coastal Act Section 30105.5 in conjunction with three concurrent projects *(CDP Application Nos. E-98-18, E-98-19, and E-98-20)*, which will be conditioned similarly, will be carried out in a manner that maintains marine resources, sustains the biological productivity and quality of coastal waters, and maintains healthy populations of all species of marine organisms as required by Coastal Act Sections 30230 and 30231.

4.4.1.4 Avian Habitat

Avian species that use Pillar Point Harbor

Pillar Point Harbor provides refuge, foraging and roosting habitat for a great diversity of migrating and wintering birds. The harbor is unique along the San Mateo County Coast in

providing calm waters of mixed depths, attracting many bird species that are otherwise rare or unknown in the area.

Furthermore, several species of special concern use the harbor or surrounding areas: the western snowy plover *(Charadrius alexandrinus nivosus)* (federally listed as threatened, California species of special concern) winters at the northwest beach area between September and mid April; the brown pelican *(Pelicanus occidentalis)* (federally and state listed as endangered) uses the harbor area in late summer, fall, and early winter; and the marbled murrelet *(Brachyramphus marmoratus)* (state listed as endangered, federally listed as threatened), has been sighted in the Half Moon Bay and Pillar Point areas.

Bird census data reveals that the harbor's four habitat types support the following percentages of bird use, respectively: Open water, 51%; shoreline edges, 30%; sandy areas, 12%; and rock areas, 7%.[12]

The MND and several interested parties have identified concerns about the proposed project's potential impacts on avian species.

Loss of avian habitat due to placement of the physical structures (e.g., rafts)
The raft or ladder structures used in the aquaculture facilities will decrease the amount of open water habitat available for birds to feed, dive, and rest in the outer harbor.

Loss of open-water habitat is especially important because many species (e.g., loons, scaup, scoters, mergansers, grebes) do not sleep or rest on land or a hard surface such as the proposed abalone rafts. They remain on the water where they can dive or take flight, using land only to nest.[13] Other species such as cormorants and pelicans may, however, use the rafts as additional roosting areas.

Furthermore, all species that use the harbor require unobstructed open-water areas to taxi for take-off (only puddle ducks such as mallards, pintails and teals that feed in shallow water and marshes take direct flight upward).[14]

Interested parties have identified the following other impacts and requirements: (1) the birds cannot go eastward, out of the harbor, because the main boat channel is there, causing too much disturbance; (2) many birds that spend their entire lives at sea, nesting on islands, need to rest in the harbor during heavy storms; and (3) an adequate buffer must be maintained between the rafts and the western beach.

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[12] Results of 1990-1991 baseline study bird census data (Entrix, 1991), as contained in the *Revised Expanded Initial Study for Abalone Aquaculture Operations, Pillar Point Harbor, San Mateo County* (Huffman & Associates, June, 1996, p. 27).

[13] Letter from Eileen Jennis-Sauppe, Sequoia Audubon Society, to James Stilwell, SMCHD, dated December 19, 1995.

[14] Letter from Eileen Jennis-Sauppe, Sequoia Audubon Society, to James Stilwell, SMCHD, dated December 19, 1995.

Commission evaluation of impacts
Placement and operation of Pacific Offshore Farms' abalone grow-out structures will occupy 0.34 acre of open water habitat, which is only about 0.6% of the 58 acres of biologically productive area in the northwest corner of the harbor. Furthermore, birds will not be precluded from using the buffer areas between each grow-out facility.[15] Thus the actual area of open water habitat precluded by all four proposed operations will be only 1.46 acres, or about 2.5 percent of the 58 acres of biologically productive area in the northwest corner of the harbor.[16]

In addition, all structures will be placed at least 500 feet from the western beach area, the second most highly-used habitat type.

Consistency with Coastal Act policies
The Commission thus finds that, for the reasons stated in its evaluation above, placement and operation of the proposed project as reviewed pursuant to Coastal Act Section 30105.5 in conjunction with three concurrent projects *(CDP Application Nos. E-98-18, E-98-19, and E-98-20)* will be carried out in a manner that will maintain healthy bird populations as required by Coastal Act Section 30230.

4.4.1.5 Kelp Harvesting

Regulatory framework
Fish and Game Code §6653 and §6750 provide the Fish and Game Commission ("F&GC") with authority to establish regulations as may be necessary to ensure the proper harvesting of kelp and aquatic plants for commercial and sport purposes.[17] The CDFG is the lead agency responsible for managing both giant kelp *(Macrocystis pyrifera)* and bull kelp *(Nereocystis luetkeana)* pursuant to commercial and sport fishing regulations *(14 CCR §30 and § 165)*. The F&GC last amended these regulations in March, 1996, in accord with the California Environmental Quality Act.[18].

To manage commercial harvesting, the CDFG charts and numbers the state's kelp beds. Official beds are designated in Section 165.5(j) and (k) of Title 14, California Code of Regulations. Beds are actually geographic areas, not individual patches, and thus vary in length and contain differing amounts of kelp canopy that change with time. Although one management objective is

[15] E-mail correspondence from Gary Page, Point Reyes Bird Observatory, to Moira McEnespy, CCC, dated January 20, 1999, stating the opinion that all birds could get off the water with a 300-foot take-off distance (although not necessarily endorsing said buffer distance).

[16] Pacific Offshore Farms, 0.34 acre; Princeton Abalone, 0.43 acre; Blue Pacific Abalone, 0.60 acre; and Pearl Abalone, 0.09 acre.

[17] Under §6650, the F&GC may establish license and permit requirements; establish fees and royalties; require report of take; establish open and closed seasons; establish or change possession limits; establish and change area or territorial limits for harvesting; and prescribe the manner and the means of taking kelp and aquatic plants for commercial purposes. Under §6750, the F&GC may establish, extend, shorten or abolish open seasons and closed seasons; establish, change, or abolish bag limits, possession limits, and size limits; establish and change areas or territorial limits for taking; and prescribe the manner and means of taking kelp and aquatic plants for recreational purposes.

[18] "Giant and Bull Kelp Commercial and Sport Fishing Regulations." *Section 30 and 165, Title 14, California Code of Regulations.* California Department of Fish and Game. Final Draft Environmental Document (January, 1996).

to "endeavor to maintain a maximum sustained harvest and utilization of the state's kelp resources,"[19] the CDFG has no fixed standard for sustainable harvest because kelp production is so highly variable.

The CDFG uses aerial surveys to assess the kelp resources; the extent of giant kelp is determined by measuring the kelp bed's surface canopy on the photographs. Aerial surveys are scheduled to be conducted every five years, subject to financial constraints; the last survey of all designated beds was done in 1989. The F&GC then designates which kelp beds may be harvested, and places limitations on the method of harvest:

- Kelp beds are designated as either (a) available for lease and exclusive harvest by the lessee, (b) open beds available for harvest by any licensed kelp harvester, or (c) closed beds that cannot be harvested for environmental reasons.

  A kelp harvesting license from the CDFG is required to harvest kelp commercially from designated "open" beds. The license enables the licensee to harvest to the limit the regulations allow at designated open beds on a "first-come, first-served" basis. If a bed has been cut to the limit the regulations allow, the licensee is prohibited from harvesting and must go to another bed. Under the "open" designation, a bed's canopy could be heavily or completely removed by harvest. Sixty percent of the kelp beds in California are set aside for small harvesters.[20]

- Kelp plants (giant and bull) may be cut no deeper than four feet below the ocean surface. For giant kelp, this restriction protects the plants' holdfasts, juvenile and reproductive blades, and young subsurface plants from being harvested before reaching maturity. Bull kelp is killed by this procedure.

- The F&GC may recommend temporary closure of a kelp bed for up to one year if it finds a bed has been significantly damaged (e.g., via storm, oil spill, or harvesting activities). Notice of the closure is sent to all licensed harvesters.

Kelp cannot be cut or harvested in marine life refuges, ecological reserves, national parks, or state underwater parks.

Finally, the F&GC requires harvesters to keep harvest and landing records, which record, among other statistical information, the wet weight of harvest, date of landing, and bed of origin. Harvest records are submitted once per month.

New project-related demand for kelp

There are fairly widely-varying estimates of the amount of kelp needed to grow out red abalone from seedlings to market size.

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[19] Ibid., pp. 2-6.

[20] Telephone conversation with Rob Collins, Nearshore Ecosystem Coordinator, Marine Region, CDFG, on December 12, 1994 (referenced in the *Revised Expanded Initial Study for Abalone Aquaculture Operations, Pillar Point Harbor, San Mateo County (June, 1996)*, p. 46)

Estimate contained in the Mitigated Negative Declaration

The MND estimates the amount of kelp needed for the grow-out life of each abalone at between 3.0 and 4.7 lbs. of kelp. Assuming a grow-out life of three years, this estimate translates into a cumulative total of between 1,125 and 1,800 tons of kelp per year (which equals 21.6 – 34.6 tons per week, or 3.1 – 4.9 tons per day), broken down per company as follows:

- Pacific Offshore Farms: 250 – 400 tons/yr. (4.8 – 7.7 tons/wk., or 0.7 – 1.1 tons/day);
- Princeton Abalone: 250 – 400 tons/yr. (4.8 – 7.7 tons/wk., or 0.7 – 1.1 tons/day);
- Blue Pacific Abalone: 400 – 640 tons/yr. (7.7 – 12.3 tons/wk., or 1.1 – 1.8 tons/day);
- Pearl Abalone: 225 – 360 tons/yr. (4.3 – 6.9 tons/wk., or 0.6 – 1.0 tons/day).

Estimates from the applicants

Doug Hayes ("Pacific Offshore Farms") states that 100,000 abalone need about 600 lbs. of kelp per week at 10-15 mm in size, and about 1,100 lbs. per week at 30 mm, but asserts that the exact amount of kelp needed is impossible to calculate because he will buy 5,000 abalone at a time and they will all grow at different rates.

Princeton Abalone states that it will require about 466,470 lbs./yr. for 224,000 abalone (which translates to 1,041,228 lbs./yr., or 521 tons/yr. (10 tons/wk., or 1.4 tons/day), at its maximum operational capacity of 500,000 animals), but cautions that its estimates are educated guesses at best.

Blue Pacific Abalone states that it is not comfortable guessing at the amount of needed kelp, due to wide variations in growth rates between abalone of the same age, and unknown mortality rates.

Pearl Abalone estimates that it will require 100 tons of kelp to feed 90,000 abalone in the first year, and 500 tons of kelp in the fifth year. These estimates do not appear to account for different consumption rates based on abalone size, or the total number of abalone at each size once full build-out is reached.

Estimates from existing growers

Mr. Chris Van Hook, owner of Abalone International, Inc., located in Crescent City, estimates that 100,000 abalone will need about 1 ton of kelp per week at between one to two inches in size, and about 1.5 tons of kelp per week at between two and three inches in size. This estimate translates into a cumulative total of about 1,561 tons of kelp per year (30.0 tons/wk., or 4.3 tons/day), broken down per company as follows:

- Pacific Offshore Farms: 347 tons/yr. (6.7 tons/wk., or 1.0 tons/day);
- Princeton Abalone: 347 tons/yr. (6.7 tons/wk., or 1.0 tons/day);
- Blue Pacific Abalone: 555 tons/yr. (10.7 tons/wk., or 1.5 tons/day);
- Pearl Abalone: 312 tons/yr. (6 tons/wk., or 0.9 tons/day).

An existing onshore abalone farm in Cayucos, San Luis Obispo County, could not provide a feeding figure.

Potential impacts to the kelp bed community

All prospective Pillar Point abalone aquaculturists, including Pacific Offshore Farms, will harvest kelp from designated open beds pursuant to annual kelp harvesting licenses and/or purchase kelp from existing suppliers. The MND states that the facility operators plan to obtain kelp primarily from south of Half Moon Bay, in the Santa Cruz or Monterey areas, and from local beds. There are currently only six kelp beds between San Mateo County and Point Sur from which the growers could legally and feasibly obtain kelp.[21]

Furthermore, some kelp beds located off Santa Cruz and in Monterey Bay may not necessarily be viable options for the growers due to concerns expressed by various local interest groups regarding the harvesting of kelp from these beds (e.g. the prime area for kelp harvesting in Monterey Bay is being proposed as an underwater park, and thus a "no take" area).[22]

The new kelp demand will be added to that of existing harvesters in the Monterey Bay region. Six harvesters formed the Monterey Kelp Cooperative in September, 1998, under which they seek to self-regulate the resource. Existing harvest levels are about 20 – 25 tons per week.

In addition, the volume of kelp needed to sustain aquaculture operations remains relatively constant throughout the year, but there are significant seasonal fluctuations in kelp abundance (e.g., due to storms). Thus, during the winter, kelp must be taken from a few sheltered beds at levels similar to summer needs, which intensifies take from specific beds and may result in the removal of a significant portion of the total canopy. Hence, potential adverse impacts from kelp removal would be more likely to occur during winter, after canopies are thinned by storms.

Thus, given the minimal amount of kelp available near the project area, the existence of competing harvesters, local interest in limiting harvest of some beds, and natural factors such as the recurring el Nino weather pattern that cause kelp abundance to fluctuate, local kelp resources could be adversely impacted by the proposed grow-out facilities.[23]

Finally, kelp harvesting potentially affects the entire kelp bed community beyond the kelp plants themselves, such as finfish populations that live in giant kelp forests (e.g., the young of some rockfish species recruit specifically to the upper kelp canopy); invertebrates that live on and among kelp; birds that forage in and adjacent to and rest in giant kelp beds; and sea otters, seals and sea lions that raft, rest, or forage in giant kelp forests.

In response to the potential for limited kelp, Pacific Offshore Farms has stated it will employ the following alternatives if the legal harvest of local kelp beds proves to be insufficient to support its operation: (1) Truck kelp purchased from Southern California in plastic 55-gallon drums; (2) travel beyond local beds to any open bed within the state to obtain kelp (3) stockpile and freeze

[21] Technically there are nine beds, but one is designated for private lease only, and two have little or no kelp *(Personal communication with Robson Collins, Nearshore Ecosystem Coordinator, Marine Region, CDFG, on February 1, 1999).*

[22] Letter from DeWayne Johnston, CDFG, to Richard Thompson, ACOE, dated February 27, 1998.

[23] Letters from DeWayne Johnston, CDFG, to Richard Thompson, ACOE, dated February 27, 1998, and April 1, 1998.

kelp during abundant periods to use during the winter months; and (4) purchase dried kelp or pellet food from suppliers via the internet.

Concerns about the existing kelp harvesting program

There is debate about whether or not the California Department of Fish and Game's and the Fish and Game Commission's kelp harvesting program is adequate to ensure the continued viability of the kelp bed community, and whether the regulations properly address the multiple uses of the kelp beds. Concerns have been voiced by the superintendents of the Monterey Bay and Gulf of the Farallones National Marine Sanctuaries[24] and other interested parties.[25]

First, the existing regulations allow take of both giant and bull kelp down to four feet below the water surface. While this distance protects the reproductive blades of giant kelp, which are located just above the structure that attaches a plant to the substrate, it does not protect those of bull kelp, which are located on the surface blades. Because bull kelp does not recruit year-round, heavy harvest of its surface canopy can eventually have a severely adverse impact on a bed. For example, clearing mature plants may increase the amount of benthic light and allow other benthic or subsurface species to become dominant and then limit later bull kelp recruitment success. Or, the local spore source may be decreased significantly by continual removal of the reproductive portions of the blades.

In response to potential bull kelp impacts, the F&GC has restricted take of bull kelp in beds north of San Francisco to hand harvest only, and designated all bull kelp beds in that region as either "for lease" (seven beds) or "closed" (five beds).[26] No bull kelp beds are designated "open," the designation in which the canopy could be heavily or completely removed by harvest. Furthermore, most of the beds in which giant and bull kelp are mixed are found north of San Francisco, where they have received the "lease" or "closed" designation. In the few beds south of San Francisco in which the two kelp types mix and the beds are designated as "open," bull kelp only constitutes about two to three percent of the bed. No purely bull kelp beds exist south of San Francisco.[27]

Second, the program does not appear to some to adequately address harvesting impacts to the entire kelp bed community, although the CDFG and F&GC have reached the following conclusions relative to 1996 levels of harvest:[28]

- Populations of fishes in southern and central California are not seriously impacted by commercial harvesting, though some fishes may be displaced for a time following harvesting,

[24] Recall that Pillar Point Harbor is located adjacent to the Monterey Bay National Marine Sanctuary.

[25] See Appendix E, "Correspondence," for the record of written concerns, including those from the marine sanctuaries.

[26] As designated in *CCR Title 14, Section 165(c)(5).*

[27] Telephone conversation between Moira McEnespy, CCC, and Robson Collins, Nearshore Ecosystem Coordinator, Marine Region, CDFG, February 22, 1999.

[28] "Giant and Bull Kelp Commercial and Sport Fishing Regulations." *Section 30 and 165, Title 14, California Code of Regulations.* California Department of Fish and Game. Final Draft Environmental Document (January, 1996), Chapter 4, "Environmental Impacts."

and harvesting of canopies may open some areas to predation by fishes that otherwise would not feed in the areas;

- While kelp harvesting does incidentally remove some sessile and motile invertebrates, the overall effect on invertebrate populations appears not to be significant;
- While it is recognized that numerous species of birds use the kelp forests, the effect of canopy removal and kelp harvesting operations on bird populations is not significant; and
- Based on a review of available information, kelp harvesting activities have little to no effect on marine mammals using the kelp forests.

Other concerns with the existing kelp harvesting program are that it appears to be self-patrolled and self-enforced, and lack over-harvesting penalties. Furthermore, aerial surveys to assess the kelp resource do not occur very frequently or regularly (the last survey was done in 1989, and the one before that in 1967), do not differentiate between giant and bull kelp beds, and do not provide seasonal assessments of canopy removal due to natural events (e.g., storms) versus commercial harvest. Finally, some think that kelp beds are currently being harvested at their maximum.

Concerns have been exacerbated by the fact that no "kelp budget" was prepared to evaluate the new demands of the four proposed abalone-culturing operations, (i.e., no recent inventory of the amount and location of existing kelp, assessment of the new demand from the four proposed abalone aquaculture proposals, and conclusion of how and where said demand could be accommodated in a manner that would sustain the kelp resource and associated uses), especially considering that the new proposals could about double the existing demand for kelp from the Monterey Bay region.[29]

Collaboration between CDFG and CCC staff to address potential kelp harvesting impacts
On April 15, 1999, Commission staff sent a letter to the CDFG director and the staff and the chair of the Fish and Game Commission requesting that both agencies work cooperatively to develop solutions to the kelp harvesting issues.[30] The Commission staff outlined its concerns regarding use conflicts, impacts to associated species and the kelp bed community, the seasonal nature of impacts, reporting requirements, and the lack of information available about the effects of kelp removal on kelp forests at present levels. The staff highlighted additional concerns about the potential impacts of increased kelp harvesting on the Monterey Bay region.

CDFG staff responded on April 20, 1999, in a letter stating the following:

- The CDFG has also been concerned that the demand for kelp resulting from new or expanded abalone culture operations will exceed the supply available locally, especially during periods of low abundance;

[29] Letters from Ed Ueber, GFNMS/MBNMS, to Loretta Barsamian, RWQCB, February 23, 1998, and June 16, 1998. See also Appendix E, "Correspondence" for the record of written concerns.

[30] Letter from Peter Douglas, Executive Director, CCC, to Richard Thieriot, President, F&GC, Robert Hight, Director, CDFG, and Robson Collins, Nearshore Ecosystem Coordinator, Marine Region, CDFG, April 15, 1999.

- The CDFG is aware of the need for more frequent monitoring of the health of harvested kelp beds;
- In December, 1998, the Fish and Game Commission directed the CDFG to address the issue of kelp harvesting by existing Monterey Bay area abalone growers and its impact on other uses as part of its upcoming review of kelp management regulations due to the F&GC in 2000; and
- The CDFG welcomes the opportunity to explore new, alternative approaches to the management of kelp harvest with Coastal Commission staff, other agencies, and the national marine sanctuaries.[31]

Staff of the CDFG, the CCC, and the MBNMS met on May 6, 1999, to further discuss kelp harvesting issues and possible solutions. At the meeting, CDFG staff indicated that it would specifically address use conflict issues in its upcoming review of its kelp harvesting and management regulations.

The Commission staff welcomes the opportunity to work closely with the CDFG during its review and revision of the kelp harvesting regulations. The staff will encourage the CDFG to revise its program to fully address all relevant Coastal Act policies. The staff also supports the CDFG's role as the agency responsible for developing and implementing the harvesting regulations. The Coastal Commission finds, however, that if the currently-proposed aquaculture projects are to proceed before the end of 2000, when the CDFG updates its kelp harvesting regulations, the Commission must condition the permits to prohibit use of kelp from the identified impacted kelp beds for use in the permitted abalone facilities. Without this prohibition, the Commission cannot make the requisite findings that individually and cumulatively the kelp harvesting needed to sustain the proposed abalone projects is consistent with Coastal Act policies.

Commission evaluation of impacts

It appears that Pacific Offshore Farms' project should not cause significant adverse additional impacts to the kelp resource itself because Pacific Offshore Farms states it will obtain kelp from open beds throughout the state, via purchase or direct harvest, which will help mitigate potential impacts to local kelp beds. From a statewide perspective, an additional take of about 400 tons of kelp per year (the largest estimate of Pacific Offshore Farms' annual take) is small compared with the current annual statewide take of over 100,000 tons per year (0.40%).

Based on the information currently available, it also appears that the four abalone-culturing projects proposed for Pillar Point Harbor will not cause significant adverse additional impacts to the kelp resource itself for the following reasons: (1) the CDFG's existing commercial kelp harvesting program limits harvest to the upper four feet of kelp plants, and thus protects mature giant kelp plants' holdfasts, reproductive and juvenile blades, and young juvenile plants; (2) removing the entire canopy of a giant kelp bed down to four feet from the surface will not harm the bed in the long term; (3) kelp beds are extremely productive, increasing by about 100 tons

[31] Letter from Robson Collins, Nearshore Ecosystem Coordinator, Marine Region, CDFG, to Peter Douglas, Executive Director, CCC, April 20, 1999.

per acre per year; and (4) the majority of bull kelp beds are protected from heavy harvest by "lease" or "closed" designations.

The proposed project both individually and in conjunction with the other three proposed abalone aquaculture facilities may, however, cause adverse impacts to the larger kelp bed community. Although the CDFG staff will address these issues in its upcoming review of its kelp harvesting and management regulations, said review and recommended revisions may not be acted on by the Fish and Game Commission until the end of 2000. The Coastal Commission thus finds that if the currently-proposed aquaculture projects are to proceed before the end of 2000, when the CDFG updates its kelp harvesting regulations in a manner that fully addresses Coastal Act policies, the Commission must condition the permits to prohibit use of kelp from the identified impacted kelp beds for use in the permitted abalone facilities. Without this prohibition, the Commission cannot make the requisite findings that individually and cumulatively the kelp harvesting needed to sustain the proposed abalone projects is consistent with Coastal Act policies.

The Coastal Commission therefore requires **Special Condition 8**, which restricts harvest, take, or purchase of kelp obtained from (1) open bed #220 between the Monterey breakwater and Point Pinos, and (2) open bed #221 between New Brighton State Beach and Soquel Point (Pleasure Point area), off the Santa Cruz County coast, from December 1 until May 15 (a seasonal time of low abundance).

Pacific Offshore Farms may request that the Commission modify this restriction through an amendment to this permit based upon emergence of new information that may affect kelp harvesting (i.e., information in addition to that set forth in this section of the Commission's findings). Each of the following two developments, for example, may provide a vehicle through which such new information may emerge, and thus may provide an appropriate basis on which to request an amendment to Special Condition 8.

> First, the CDFG reviews and amends its kelp harvesting regulations every five years. The review process for the next such revision will begin this summer or fall, and the regulations are scheduled to be certified by the F&GC by the end of Year 2000. CDFG staff have indicated that these revisions will address new or expanded demand, especially during periods of low abundance, and the need for more frequent monitoring of the health of harvested beds.[32]
>
> Second, the Monterey Kelp Cooperative seeks to self-regulate its hand-harvesting along the area from the Monterey Coast Guard Breakwater to Lover's Point in Pacific Grove, via a kelp plan drafted by its members, to ensure ongoing sustainable harvests of kelp and to avoid conflicts with other users of the beds. Thus, evidence of membership in the Monterey Kelp Cooperative and submittal of its annual kelp plan[33] could provide a key

[32] Letter from Rob Collins, Nearshore Ecosystem Coordinator, Marine Region, CDFG, to Peter Douglas, Executive Director, CCC, April 20, 1999.

[33] The kelp plan must be approved by the Board of Governors each October 31. The board of governors is comprised of three members: (1) Member Governor (elected annually by a majority vote and appointed by the members of the cooperative); (2) Manager Governor (the Regional Manager for the Marine Region of the CDFG);

mechanism to address kelp harvesting impacts, and could constitute an appropriate basis for the Commission to consider an amendment to Special Condition 8.

Note: Recreational and use conflict issues regarding kelp will be discussed in section 4.4.3 of this report, "Public Access and Recreation."

Consistency with Coastal Act policies
The Commission finds that with the requirement of **Special Condition 8**, and as implemented according to the CDFG's existing commercial kelp harvesting management program, the proposed project, as reviewed pursuant to Coastal Act Section 30105.5 in conjunction with three concurrent projects *(CDP Application Nos. E-98-18, E-98-19, and E-98-20)* will be carried out in a manner that maintains the state's kelp resource as required by Coastal Act Section 30230.

4.4.1.6 Conclusion – Marine Resources

The Commission concludes that, for the reasons stated in sections 4.4.1.1 – 4.4.1.5 of this report, the project as proposed and conditioned, and as reviewed pursuant to Coastal Act Section 30105.5 in conjunction with three concurrent projects *(CDP Application Nos. E-98-18, E-98-19, and E-98-20)*, which will be conditioned in a similarly, will be consistent with Coastal Act Sections 30230 and 30231.

4.4.2 Potential Use Conflicts with Existing Commercial Fishing Operations

Coastal Act Section 30234 states in pertinent part:

> *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided....*

Coastal Act Section 30234.5 states:

> *The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

4.4.2.1 Potential Use Conflicts with Existing Commercial Fishing Anchorage Space

The area set aside by the SMCHD for aquaculture operations, which includes the proposed abalone grow-out project license areas, currently provides general (or transient) anchorage space for both recreational and commercial vessels (i.e., open-water space where vessels can drop anchor). This area also contains specific mooring sites (specific spaces that vessels can tie up to).

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and (3) Scientist Governor (nominated by the other governors and approved by the Superintendent of the MBNMS; must be a marine scientist with a proven understanding and research background of giant kelp biology).

The staff has sought to determine the number of vessels that will be able to use the outer harbor for transient anchorage and mooring space by finding the total number of acres in the outer harbor, and then subtracting the number of acres unavailable due to depth; navigation channels; the existing breakwaters, pier, and public boat launch ramp; existing moorings; and the proposed abalone facilities.

The staff analysis is based on the assumption that two vessels can safely anchor in one acre.[34] In consultation with the SMCHD, the staff has determined that without the proposed abalone aquaculture facilities, 286 vessels can anchor and moor in the outer harbor as follows:

284	Total number of acres in the outer harbor;[a]
- 69	Acres less than 6.0 feet in depth;[b]
- 31	Acres precluded by the existing navigation channel (13 acres), which runs to the west entrance of the inner harbor, and the proposed navigation channel (18 acres), which will run to Romeo Pier (which itself will be moved slightly east of its existing location);[bc]
- 17	Acres precluded because they are within 176 feet of any breakwater;[d]
- 4.55	Acres precluded for Romeo Pier buffer area;[d]
- 1.16	Acres precluded for existing public boat launch ramp buffer;[d]
= 161	Number of acres not precluded by physical factors
322	Translation into number of vessels: 161 acres x 2 vessels/acre = 322 vessels
- 36	Number of vessels precluded by existing mooring permits;[e]
= 286	Number of vessels that could be anchored in the outer harbor without the proposed abalone aquaculture facilities.

a *Concept Marine*, November 6, 1998 (File no. 29829/102/1301)

b Concept Marine, June 36, 1999 (File no. 29829/104/1301)

c Telephone conversation between Dan Temko, Harbor Master, SMCHD, and Moira McEnespy, CCC, June 2, 1999.

d Letter from Peter Grenell, General Manager, SMCHD, to Susan Hansch, Chief Deputy Director, CCC, June 22, 1999.

e The SMCHD currently has 72 mooring permits, 30 of which are being exercised (i.e., there are only 30 moorings currently in the outer harbor, but there could be up to 72), and about half of which are issued to members of the fishing community (Telephone conversation between Dan Temko, Harbor Master, SMCHD, and Moira McEnespy, CCC, June 3, 1999). Thirty-six (50% of 72) is the number of vessels that could preclude transient anchorage space for the fishing community.

[34] Letter from Bob Miller, Crab Boat Owners Association of San Francisco, President, and Pacific Coast Federation of Fisherman's Associations' Vessel Safety Committee, Chair, to Joy Chase, CCC, February 17, 1997, p. 2.

Pacific Offshore Farms' grow-out structures will preclude 14,880 sq. ft., or 0.34 acre, of available anchorage space. The more significant issue is the combined loss of anchorage space due to the operation of all four abalone-culturing proposals. The Harbor Master and a representative of the commercial fishing community have agreed that as the four license areas are presently configured, (1) operation of the four currently-proposed abalone grow-out facilities would preclude vessel use of the buffer areas,[35] (2) the license and buffer areas combined total about 23.05 acres, and hence (3) that the facilities (including the license and buffer areas) would preclude anchorage for at least 40 vessels (about 40 vessels spaced 100 feet apart; about 50 vessels spaced 75 feet apart).[36] (Exhibit 4, "Area of Anchorage Lost")

Subtracting 40 vessels from the 286 that can be accommodated without the four proposed facilities yields 246 vessels (i.e., with the four abalone aquaculture facilities as proposed, there will be space enough in the outer harbor to accommodate 246 vessels).

Commercial fishing industry concerns about lost anchorage space

The commercial fishing community has expressed the following concerns about the potential loss of safe anchorage space:[37]

- Pillar Point Harbor provides the only safe anchorage space between Point Reyes and Santa Cruz;
- Under present fishery management schemes, Pillar Point Harbor at times becomes the focus of the entire salmon fleet (there is a waiting list for slips, so in rough weather or when the bite is on, the outer harbor is filled with anchored vessels);
- Loss of anchorage space at Pillar Point Harbor would effectively deny access to about half of the fishing grounds between the Farallon Islands and Santa Cruz;
- Reducing anchorage area would cause problems, congestion, or even eliminate Pillar Point as a safe harbor. Furthermore, the harbor's bottom composition is such that a vessel operator needs to maintain an extra margin of space from other vessels in case his or her anchor should slip on a windy day;

[35] Based on recommendations for scope of anchor rode stated in Chapman's *Piloting, Seamanship and Small Boat Handling*, a vessel in Pillar Point Harbor requires approximately 352 feet to safely anchor using a danforth-type anchor (the type currently required under existing SMCHD regulations). Thus the 300-foot buffers between the license areas are not adequate for use as safe anchorage area.

[36] The MND calculates the combined area of the five facilities it evaluates to be 2.4 acres, and assumes that vessels will be able to use the buffer areas between the abalone facilities. The MND concludes that removal of 2.4 acres of open water anchorage area is not expected to be a significant impact because (1) vessels would be free to use the 300-foot buffer zones between the licensed areas and (2) vessels would still be able to use the remaining outer harbor area. The MND does not contain any further facts, figures, or analysis to support its conclusion.

[37] In addition to letters from various individuals, the Commission staff has received letter from representatives of the following organizations: Moss Landing Commercial Fishermen's Association; Crab Boat Owners Association of San Francisco; Pacific Coast Federation of Fishermen's Associations, Inc.; Salmon Trollers Marketing Association; Humboldt Fishermen's Marketing Association; and Half Moon Bay Fisherman's Marketing Association. Appendix E, "Correspondence," contains the full record of written comments.

- Reducing anchorage area would cause inconvenience and interference with fishing operations and significant adverse economic impacts on fishermen and women as well as the fish processors of the harbor and elsewhere;
- The U.S. Army Corps of Engineers created Pillar Point Harbor as a "safe harbor" for exclusive fishing and boating uses; and
- Approval of the proposed abalone grow-out facilities would create a special business opportunity for aquaculturists at the expense of fishermen and women.

Commission evaluation

Aquaculture as a Use in Pillar Point Harbor Consistent with the Public Trust

The State Lands Commission granted the Pillar Point Harbor tide and submerged lands to the SMCHD in July, 1960. The grant provides that the SMCHD may grant franchises thereon and may lease any part of said lands for purposes consistent with the trust upon which said lands are held by the state.[38] Aquaculture is a use consistent with the public trust,[39] and the SMCHD executed license agreements for the four proposed abalone aquaculture facilities in February, 1997. Thus, Pillar Point does not have to function solely as a "harbor of refuge" or "safe harbor," to the exclusion of other uses, in this case aquaculture. Furthermore, Coastal Act Section 30411(c) encourages salt water or brackish water aquaculture as a coastal-dependent use.

Demand for Anchorage Space

The Commission has attempted to quantify the existing demand for anchorage space in the outer harbor. Neither the applicants, the SMCHD, nor the commercial fishing industry has any records of historical use. Furthermore, there are broad discrepancies between each party's estimate of demand.

The applicants contend that the outer harbor is sparsely used for anchorage and is never full. A representative of the commercial fishing industry estimates, however, that there is already more demand than there is space. He states that about 400-500 commercial vessels may need to use the harbor during the salmon season, which runs from approximately Memorial Day until Labor Day (May 1 – September 1).[40] Note that the outer harbor without the four proposed facilities can currently accommodate anchorage space for only 286 vessels. Representatives of the commercial fishing community believe that the burden of proof should be on the aquaculture applicants that their projects will not reduce needed anchorage space. Finally, the SMCHD estimates that about 200 vessels use the outer harbor during peak use periods.

[38] Statues of 1960, Chapter 68, Section 1(a).

[39] Verbal communication with Mary Howe, State Lands Commission, May 17, 1999.

[40] Meeting with Bob Miller, Crab Boat Owners Association of San Francisco, President, and Pacific Coast Federation of Fisherman's Associations' Vessel Safety Committee, Chair, on December 7, 1998.

Potential Mitigation Measures

The staff has explored options with the SMCHD[41] to alleviate the potential anchorage space conflict as follows:

- The SMCHD is currently planning to add 71 new berths to the inner harbor (which would bring the total number of berths in the inner harbor to the maximally-allowed 440). The Harbor District has stated, however, that it is not possible to provide any reliable calculation of adjusted transient anchorage, mooring, or berthing space attributable to said new berths at this time.

- The Commission staff understands that the SMCHD ordinances currently require use of a danforth-type anchor, which requires a scope of about 8:1 (or a radius of about 352 feet). Other anchor types may, however, reduce the necessary scope, thereby enabling more anchorage and mooring space (e.g., a helix-type anchor requires a scope of about 3-4:1, which may decrease the acreage used for moorings by about half). The Harbor District has stated, however, that allowing alternative anchor types to the danforth is a decision to be made by the Board of Harbor Commissioners, and that it does not have any plans to implement other or additional anchoring, mooring, or berthing systems. An applicant may submit a request to the Harbor District to use a different anchor type; said process to evaluate and decide upon such request will take not less than 60 days. Princeton Abalone has submitted such a request.

- The SMCHD has stated that enabling mooring or anchoring in the buffer areas between each aquaculture facility is important and/or necessary.

- The SMCHD has stated that spreading the license agreement areas further apart to create larger buffer areas between them, or more tightly consolidating the license agreement areas to increase anchorage and mooring space outside their collective perimeter would both be possible and enable more transient anchorage and mooring space. The Harbor District staff tentatively estimates that space to accommodate six to ten additional vessels could be created by these alternatives, respectively.

- Finally, the SMCHD has stated that if the harbor becomes crowded, it will respond as it has done historically by rafting vessels first within the inner harbor, then within the outer harbor. Very roughly, rafting may accommodate 150 additional vessels, bringing the total number of accommodated vessels to 396.

Conclusion

Because there are (1) no records documenting levels of historical use in the outer harbor and (2) very disparate estimates of the amount of anchorage space needed during peak use periods (e.g., the SMCHD estimates 200 vessels and the commercial fishing industry estimates 400-500

[41] (1) Letter from Moira McEnespy, CCC, to Peter Grenell, General Manager, and Dan Temko, Harbor Master, SMCHD, April 20, 1999. (2) Letters from Susan Hansch, Chief Deputy Director, CCC, to Peter Grenell, General Manager, and Dan Temko, Harbor Master, SMCHD, June 7 and 16, 1999. (3) Letter from Peter Grenell, General Manager, SMCHD, to Susan Hansch, Chief Deputy Director, CCC, June 22, 1999.

vessels), it is difficult to accurately determine the existing levels of demand for anchorage space in the outer harbor. Without the four proposed aquaculture facilities, the outer harbor can currently accommodate anchorage and mooring space for 286 vessels.

In light of this difficulty, the Commission finds that it is appropriate to apply the measures identified and/or supported by the SMCHD to maximize available anchorage and mooring space and thus resolve this potential harbor space conflict. The Commission therefore imposes **Special Condition 11**, which requires the applicants to work with the SMCHD to (1) reconfigure their license agreement areas (e.g., delineate the license agreement areas further apart to create larger buffer areas between them, or more tightly consolidating the areas to increase anchorage and mooring space outside their collective perimeter) and/or (2) enable anchorage or mooring in the buffer areas between them and adjacent aquaculture facilities (e.g., by installing non danforth-type moorings) and/or (3) employ other feasible options to yield as much transient anchorage and mooring space as possible. Based on preliminary estimates by the SMCHD, it appears that space to accommodate about ten more vessels can be created. Thus, **Special Condition 11** requires each of the operators to enable a proportionate amount of space such that no more than 30 anchorage spaces are lost due to the four proposed aquaculture facilities and associated buffer areas.[42]

Based on the imposition of Special Condition 11, the Harbor District's practice of rafting vessels in emergency situations, that available moorings may be used in times of need, and the best information available at this time, it appears there will be sufficient anchorage and mooring space to accommodate existing anchorage space demand.

Consistency with Coastal Act policies
The Commission finds that based on the best information available the proposed project as conditioned and as reviewed pursuant to Coastal Act Section 30105.5 in conjunction with three concurrent projects *(CDP Application Nos. E-98-18, E-98-19, and E-98-20)* will not reduce the anchorage space needed to accommodate the existing demand for commercial boating harbor space as required by Coastal Act Section 30234, and will allow continuance of the commercial activities that currently use Pillar Point Harbor as required by Coastal Act Section 30234.5.

4.4.2.2 Increased Use of Ancillary Harbor Facilities

The proposed abalone grow-out operations will increase use of Pillar Point Harbor's public boat launch and parking facilities. Pacific Offshore Farms, along with the three other prospective operators, plans to depart from the public boat launch ramp when towing its raft modules to its license space. Launching activities may interfere with recreational and commercial boat launch activities. In addition, all four operators propose to either collect kelp from local beds by boat

[42] Each proposed aquaculture operator is required to contribute toward providing space to accommodate at least ten more vessels. Shares are based on each license agreement areas' proportion of the total collective area (1.46 acres) as follows: Pacific Offshore Farms: 0.34 acre = 23% of 1.46 acres; Princeton Abalone: 0.43 acre = 30% of 1.46 acres; Blue Pacific Abalone: 0.6 acre = 40% of 1.46 acres; Pearl Abalone: 0.09 acre = 7% of 1.46 acres. Thus Pacific Offshore Farms is required to enable 2 spaces (about 23% of the 10 needed spaces); Princeton Abalone is required to enable 3 spaces (30% of 10 spaces); Blue Pacific Abalone is required to enable 4 spaces (40% of 10 spaces); and Pearl Abalone is required to enable 1 space (about 7% of the 10 spaces).

and/or truck kelp from other areas to the harbor. Transporting kelp by boat to the facilities will also require use of the public boat launch ramp.

The Commission is therefore imposing **Special Condition 2** to prevent use conflicts with the public boat launch ramp. This condition prohibits Pacific Offshore Farms from loading or unloading any equipment or materials on, at or from the public boat launch ramp, docks, or vehicle approach road. The intent of this condition is not to prevent Pacific Offshore Farms from using the launch ramp, docks, or vehicle approach road, but simply to prevent tying up an area specifically meant for launching activities to conduct potentially lengthy loading and unloading activities. Pacific Offshore Farms' license agreement with the SMCHD provides for its use of the existing hoist on Romeo Pier, which the SMCHD will make available to all abalone licensees, to off-load kelp, cages, and equipment into a boat that can be taken to the offshore grow-out area.

Special Condition 2 also provides that prior to using the public boat launch ramp to install or remove its grow-out structures, Pacific Offshore Farms shall submit evidence to the executive director that it has coordinated with the harbor master on use of the public boat launch ramp to conduct said activities (e.g., during a time when demand for use of the boat launch is anticipated to be light).

With regard to parking, the SMCHD has concluded that the proposed aquaculture operations will not significantly impact the harbor's existing regular and overflow parking areas.

Consistency with Coastal Act policies
The Commission finds that with the requirement of **Special Condition 2**, the proposed project as reviewed pursuant to Coastal Act Section 30105.5 in conjunction with three concurrent projects *(CDP Application Nos. E-98-18, E-98-19, and E-98-20)*, which will be conditioned similarly, will be carried out in a manner that protects use of the public boat launch ramp and parking facilities as required by Coastal Act Section 30234.

4.4.2.3 Potential Navigational or Safety Hazards

The SMCHD chose to set aside the northwest corner of the harbor for aquaculture facilities in part because that area is located outside of the navigational routes used to access the inner harbor. Nevertheless, placement and operation of the aquaculture facilities could create navigational or safety hazards if the raft structures are not properly marked, aquaculture apparatus becomes dislodged or breaks apart, or any debris is disposed of in the harbor area.

To mitigate these potential impacts to a level of insignificance, the Commission imposes three special conditions. **Special Condition 3** requires Pacific Offshore Farms to mark its grow-out structures to ensure navigational safety pursuant to all U.S. Coast Guard and SMCHD harbor master requirements. **Special Condition 1** requires Pacific Offshore Farms to submit evidence to the executive director that its anchoring design has been approved by the harbor master to ensure that the grow-out structures do not break free. **Special Condition 9** prohibits Pacific Offshore Farms from disposing any equipment or waste into the marine environment, except as authorized in its NPDES permit.

Consistency with Coastal Act policies
The Commission finds that with the requirements of **Special Conditions 1, 2, 3, and 9**, the proposed project as reviewed pursuant to Coastal Act Section 30105.5 in conjunction with three concurrent projects *(CDP Application Nos. E-98-18, E-98-19, and E-98-20)*, which will be conditioned similarly, will be carried out in a manner that protects the harbor facilities, and the commercial fishing and recreational boating industries, as required by Coastal Act Section 30234.

4.4.2.4 Conclusion –Commercial Fishing

The Commission concludes that, based on the findings in sections 4.5.2.1 – 4.5.2.3 of this report, the project as proposed, conditioned, and reviewed pursuant to Coastal Act Section 30105.5 in conjunction with three concurrent projects *(CDP Application Nos. E-98-18, E-98-19, and E-98-20)* will be consistent with Coastal Act Sections 30224, 30234, and 30234.5.

4.4.3 Public Access and Recreation

Coastal Act Section 30210 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.*

Coastal Act Section 30211 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.*

Coastal Act Section 30220 states:

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

Coastal Act Section 30234 states:

> *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and*

located in such a fashion as not to interfere with the needs of the commercial fishing industry.

Coastal Act Section 30234.5 states:

The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

Public Access
The proposed abalone aquaculture facilities do not include any construction of new development on land. Some operators do, however, plan to use the public boat launch ramp. With regard to parking, the SMCHD has concluded that the proposed aquaculture operations will not significantly impact the harbor's existing regular and overflow parking areas.

Recreation at Pillar Point Harbor
Pillar Point Harbor offers a wide variety of recreational activities including boating, clamming, fishing, sailing, kayaking, and windsurfing. In addition, the public access trail and associated beach area along the western shoreline of the harbor, near the highly productive northwest corner, are used by hikers, bicyclists, and birders.

Particular demand for sailboat anchorage space occurs during races (which occur approximately three times per year) and Labor Day weekend.[43]

Recreation around the Monterey Bay
The four proposed aquaculturists' plans to harvest kelp to support their abalone operations could affect nearshore recreational users around Monterey Bay.

In its 1995/96 review of its the kelp harvesting regulations,[44] the CDFG and the F&GC concluded, however, that kelp harvesting operations have no significant effect on the recreational use of the nearshore environment. The review concludes that although some recreational users are temporarily displaced by harvesting operations, they receive some benefits as well. For example, harvesting opens up lanes in the canopy which allow access to areas that were previously closed due to the density of the kelp and more light to penetrate subsurface areas (to the benefit of kayakers and underwater photographers, etc.).[45]

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[43] Telephone conversation with Jennifer Solestri, Commodore, Half Moon Bay Yacht Club, in March, 1996 (referenced in the *Responses to Comments on the Expanded Initial Study for Abalone Aquaculture Operations, Pillar Point Harbor, San Mateo County (June, 1996)*, p. 18)

[44] "Giant and Bull Kelp Commercial and Sport Fishing Regulations." *Section 30 and 165, Title 14, California Code of Regulations.* California Department of Fish and Game. Final Draft Environmental Document (January, 1996).

[45] "Giant and Bull Kelp Commercial and Sport Fishing Regulations." *Section 30 and 165, Title 14, California Code of Regulations.* California Department of Fish and Game. Final Draft Environmental Document (January, 1996), Section 4.6."

There is general consensus, nevertheless, that use conflicts involving the kelp resource exist.[46] Specifically, many ocean-related educational and recreational activities, such as viewing see otters or the kelp itself, are greatly enhanced by the existence of the kelp canopy. Thus conflicts arise when kelp is harvested, as the canopy can be cut down to four feet below the water surface.

Furthermore, the volume of kelp needed to sustain aquaculture operations remains relatively constant throughout the year, but there are significant seasonal fluctuations in kelp abundance (e.g., due to storms). Thus, during the winter, kelp must be taken from a few sheltered beds at levels similar to summer needs, which intensifies take from specific beds and may result in the removal of a significant portion of the total canopy. Hence, potential use conflicts would be more likely to occur during winter, after canopies are thinned by storms.

These use conflicts currently exist in areas offshore Monterey and Santa Cruz with the current kelp harvesting levels. For example, kelp bed #220, offshore the Monterey coast, is designated as an open bed. Various local interest groups have expressed concern about harvesting kelp from beds offshore Cannery Row, and the City of Monterey has asserted regulatory (permit) authority over kelp harvesting offshore its jurisdiction.

Collaboration between CDFG and CCC staff to address potential kelp harvesting impacts
On April 15, 1999, Commission staff sent a letter to CDFG staff and the chair of the Fish and Game Commission requesting that both agencies work cooperatively to develop solutions to the kelp harvesting issues.[47] The Commission staff outlined its concerns regarding use conflicts, impacts to associated species and the kelp bed community, the seasonal nature of impacts, reporting requirements, and the lack of information available about the effects of kelp removal on kelp forests at present levels. The staff highlighted additional concerns about the potential impacts of increased kelp harvesting on the Monterey Bay region.

CDFG staff responded on April 20, 1999, in a letter stating the following:

- The CDFG has also been concerned that the demand for kelp resulting from new or expanded abalone culture operations will exceed the supply available locally, especially during periods of low abundance;
- The CDFG is aware of the need for more frequent monitoring of the health of harvested kelp beds;
- In December, 1998, the Fish and Game Commission directed the CDFG to address the issue of kelp harvesting by existing Monterey Bay area abalone growers and its impact on other uses as part of its upcoming review of kelp management regulations due to the F&GC in 2000; and

[46] (1) Letter from DeWayne Johnston, CDFG, to Richard Thompson, ACOE, dated February 27, 1998; (2) Conversation with Jerry Spratt, CDFG, February 2, 1999; (3) Conversation with Ed Ueber, Gulf of the Farallones National Marine Sanctuary, February 16, 1999; (4) Conversation with Bill Douros, Montery Bay National Marine Sanctuary, February 16, 1999.

[47] Letter from Peter Douglas, Executive Director, CCC, to Richard Thieriot, President, F&GC, Robert Hight, Director, CDFG, and Robson Collins, Nearshore Ecosystem Coordinator, Marine Region, CDFG, April 15, 1999.

- The CDFG welcomes the opportunity to explore new, alternative approaches to the management of kelp harvest with Coastal Commission staff, other agencies, and the national marine sanctuaries.[48]

Staff of the CDFG, the CCC, and the MBNMS met on May 6, 1999, to further discuss kelp harvesting issues and possible solutions. At the meeting, CDFG staff indicated that it would specifically address use conflict issues in its upcoming review of its kelp harvesting and management regulations.

The Commission staff welcomes the opportunity to work closely with the CDFG during its review and revision of the kelp harvesting regulations. The staff will encourage the CDFG to revise its program to fully address all relevant Coastal Act policies. The staff also supports the CDFG's role as the agency responsible for developing and implementing the harvesting regulations. The Coastal Commission finds, however, that if the currently-proposed aquaculture projects are to proceed before the end of 2000, when the CDFG updates its kelp harvesting regulations, the Commission must condition the permits to prohibit use of kelp from the identified impacted kelp beds for use in the permitted abalone facilities. Without this prohibition, the Commission cannot make the requisite findings that individually and cumulatively the kelp harvesting needed to sustain the proposed abalone projects is consistent with Coastal Act policies.

Commission evaluation of impacts

The four proposed aquaculture projects will not interfere with the public's right of access to or along the shoreline because they will not include any construction of new development on land, restrict access to the project vicinity, or significantly impact the harbor's existing parking areas.

Because some operators do plan to use the public boat launch ramp, the Commission is imposing **Special Condition 2** to prevent use conflicts with said ramp. This condition prohibits Pacific Offshore Farms from loading or unloading any equipment or materials on, at or from the public boat launch ramp, docks, or vehicle approach road. The intent of this condition is not to prevent Pacific Offshore Farms from using the launch ramp, docks, or vehicle approach road, but simply to prevent tying up an area specifically meant for launching activities to conduct potentially lengthy loading and unloading activities. Pacific Offshore Farms' license agreement with the SMCHD provides for its use of the existing hoist on Romeo Pier, which the SMCHD will make available to all abalone licensees, to off-load kelp, cages, and equipment into a boat that can be taken to the offshore grow-out area.

Special Condition 2 also provides that prior to using the public boat launch ramp to install or remove its grow-out structures, Pacific Offshore Farms shall submit evidence to the executive director that it has coordinated with the harbor master on use of the public boat launch ramp to conduct said activities (e.g., during a time when demand for use of the boat launch is anticipated to be light).

[48] Letter from Robson Collins, Nearshore Ecosystem Coordinator, Marine Region, CDFG, to Peter Douglas, Executive Director, CCC, April 20, 1999.

Furthermore, combination of the four proposed aquaculture project's physical structures and operations will not significantly impact recreational opportunities in Pillar Point Harbor for the following reasons:

- They will preclude only 1.46 acres of open water space, which leaves more than adequate space to accommodate other recreational uses;
- They will not hinder access to the vicinity of the breakwaters themselves, and thus will not impact clamming, eeling, and other recreational sportfishing activities that occur in the area; and
- They will be located at least 500 feet from the western beach area, the second most highly-used avian habitat area, and thus will not hinder birding opportunities.

The proposed project's kelp harvesting requirements, especially in conjunction with the kelp requirements of the three other proposed abalone grow-out facilities, will, however, exacerbate recreational use conflicts in the Monterey Bay area because these conflicts already exist with the current level of kelp harvest. Although the CDFG staff will address use conflicts in its upcoming review of its kelp harvesting and management regulations, said review and recommended revisions may not be acted on by the Fish and Game Commission until the end of 2000. The Coastal Commission thus finds that if the currently-proposed aquaculture projects are to proceed before the end of 2000, when the CDFG updates its kelp harvesting regulations in a manner that fully addresses Coastal Act policies, the Commission must condition the permits to prohibit use of kelp from the identified impacted kelp beds for use in the permitted abalone facilities. Without this prohibition, the Commission cannot make the requisite findings that individually and cumulatively the kelp harvesting needed to sustain the proposed abalone projects is consistent with Coastal Act policies.

The Coastal Commission therefore requires **Special Condition 8**, which restricts harvest, take, or purchase of kelp obtained from (1) open bed #220 between the Monterey breakwater and Point Pinos, and (2) the open bed between New Brighton State Beach and Soquel Point (Pleasure Point area), off the Santa Cruz County coast, from December 1 until May 15 (a seasonal time of low abundance).

Pacific Offshore Farms may request that the Commission modify this restriction through an amendment to this permit based upon emergence of new information that will affect kelp harvesting. (i.e., information in addition to that set forth in this section of the Commission's findings). Each of the following two developments, for example, may provide a vehicle through which such new information may emerge, and thus may provide an appropriate basis on which to request an amendment to Special Condition 8.

> First, the CDFG reviews and amends its kelp harvesting regulations every five years. The review process for the next such revision will begin this summer or fall, and the

regulations are scheduled to be certified by the F&GC by the end of Year 2000. CDFG staff have indicated that these revisions will address use conflict issues.[49]

Second, the Monterey Kelp Cooperative seeks to self-regulate its hand-harvesting along the area from the Monterey Coast Guard Breakwater to Lover's Point in Pacific Grove, via a kelp plan drafted by its members, to ensure ongoing sustainable harvests of kelp and to avoid conflicts with other users of the beds. Thus, evidence of membership in the Monterey Kelp Cooperative and submittal of its annual kelp plan[50] could provide a key mechanism to address kelp harvesting impacts, and could constitute an appropriate basis for the Commission to consider an amendment to Special Condition 8.

Consistency with Coastal Act policies
The Commission finds that with the requirements of **Special Conditions 2 and 8**, the proposed project as reviewed pursuant to Coastal Act Section 30105.5 in conjunction with three concurrent projects *(CDP Application Nos. E-98-18, E-98-19, and E-98-20)* will be carried out in a manner that protects maximum access as required by Coastal Act Sections 30210 and 30211, will accommodate existing recreational fishing and boating harbor space needs as required by Coastal Act Sections 30234 and 30234.5, and will protect water-oriented recreational uses as required by Coastal Act Sections 30210 and 30220.

Conclusion – Public Access and Recreation
Hence, the Commission concludes that for the reasons stated above in this report, the project as proposed and conditioned, and as reviewed pursuant to Coastal Act Section 30105.5, will be consistent with Coastal Act Sections 30210, 30211, 30220, 30234, and 30234.5.

4.4.4 Scenic and Visual Qualities

Coastal Act Section 30251 states in part:

> *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.*

The proposed abalone grow-out facilities will be visible in the distance to both north- and south-bound motorists on State Route 1, also known as Cabrillo Highway, a designated "scenic highway" that parallels the coast and runs adjacent to Pillar Point Harbor. The abalone grow-out

[49] Meeting with Rob Collins, Nearshore Ecosystem Coordinator, Marine Region, CDFG, May 6, 1999, at the MBNMS office in Monterey.

[50] The kelp plan is approved by the Board of Governors each October 31. The board of governors is comprised of three members: (1) Member Governor (elected annually by a majority vote and appointed by the members of the cooperative); (2) Manager Governor (the Regional Manager for the Marine Region of the CDFG); and (3) Scientist Governor (nominated by the other governors and approved by the Superintendent of the MBNMS; must be a marine scientist with a proven understanding and research background of giant kelp biology).

facilities will also be visible from certain areas of El Granada. Closer views of the project area will be obtained from Capistrano Road, which is parallel to the northern portion of the harbor, and from the public access trail in the northwest beach area.

The proposed project area is currently used to moor boats. To minimize visual intrusion and ensure that the proposed structures will blend in with existing boat features (masts, pilot houses, etc.) and be in character with the nature of the harbor, the SMCHD is prohibiting any structure placed on the rafts from extending more than five feet from the raft surface, and from having elements that will reflect light and cause significant glare.

The Commission finds that Pacific Offshore Farms' grow-out facility will be consistent with the existing visual character of the harbor as required by Coastal Act Section 30251 because it will occupy a very small portion of the open water area, 0.34 acre of the 284-acre outer harbor, and will be restricted in height and character by the SMCHD.

All four proposed abalone grow-out facilities will occupy a relatively small portion of the open water area, 1.46 acres of the 284-acre outer harbor, and will be restricted in height and character by the SMCHD. The Commission thus finds that the proposed project as reviewed pursuant to Coastal Act Section 30105.5 in conjunction with three concurrent projects *(CDP Application Nos. E-98-18, E-98-19, and E-98-20)* will be consistent with the existing visual character of the harbor as required by Coastal Act Section 30251, and thus will be consistent with said section.

4.4.5 Placement of Fill in Coastal Waters

Coastal Act Section 30108.2 defines "fill" as "earth or any other substance or material, including pilings placed for purposes of erecting structures thereon, placed in a submerged area." The concrete drums and anchoring structures that will be placed on the harbor floor to secure the abalone grow-out facilities constitute fill as defined in Coastal Act Section 30108.2.

Coastal Act Section 30233(a) 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 wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating*

facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.

(4) 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.

(5) 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.

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource dependent activities.

Coastal Act Section 30233(a) permits fill in coastal waters if three tests are met. The first test requires that the project fit into one of the eight categories of uses permitted for open coastal water fill enumerated in Coastal Act Section 30233(a). The Commission finds that the proposed aquaculture facilities and operations are clearly allowed under use number (8), "nature study, aquaculture, or similar resource dependent activities."

The second test requires that there be no feasible less environmentally damaging alternative. The proposed abalone grow-out facility is premised on direct interface with marine waters. Pillar Point Harbor provides the necessary saline conditions to support cage culture of abalone, and a protected area in which to place the grow-out structures. Furthermore, the projects are proposed to be located within the harbor where they will have the least amount of impacts (e.g., out of the navigation channel, near the breakwaters and harbor mouth where there is the greatest amount of mixing). The Commission therefore finds that no feasible less environmentally-damaging alternative exists.

The third and final test requires that feasible mitigation measures be provided to minimize adverse environmental effects. The Commission finds that the conditions contained in this permit provide feasible measures to mitigate potential adverse effects on marine resources, commercial fishing, and public access and recreation, including recreational boating, as discussed in Sections 4.4.1 through 4.4.3 of this report.

Hence, the Commission concludes that the project as proposed and conditioned satisfies the three tests of Coastal Act Section 30233(a) and thus is consistent with said section.

4.5 California Environmental Quality Act

As "lead agencies" under the California Environmental Quality Act ("CEQA") the San Mateo County Harbor District and the California Department of Fish and Game certified on July 10, 1996, a mitigated negative declaration for aquaculture operations in Pillar Point Harbor, Half Moon Bay, California.

The Commission's permit process has also been designated by the State Resources Agency as the functional equivalent of the CEQA environmental impact review process. The Commission's permit review process identified numerous impacts that were not resolved in the mitigated negative declaration. Pursuant to section 21080.5(d)(2)(A) of the CEQA and section 15252(b)(1) of Title 14, California Code of Regulations (CCR), the Commission may not approve a development project "if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment." The Commission finds that only as extensively conditioned are there no feasible less environmentally damaging alternatives or additional feasible mitigation measures that would substantially lessen any significant adverse impact which the activity may have upon the environment, other than those identified herein. Therefore, the Commission finds that the project as fully conditioned is consistent with the provisions of the CEQA.

NOTE:

The following exhibits and appendices are contained in a separate corresponding packet:

Exhibit 1: "Project Location"

Exhibit 2: "Area in Pillar Point Harbor deemed appropriate for aquaculture by the San Mateo County Harbor District"

Exhibit 3: "San Mateo County Harbor District License Agreement Areas"

Exhibit 4: "Area of Anchorage Lost"

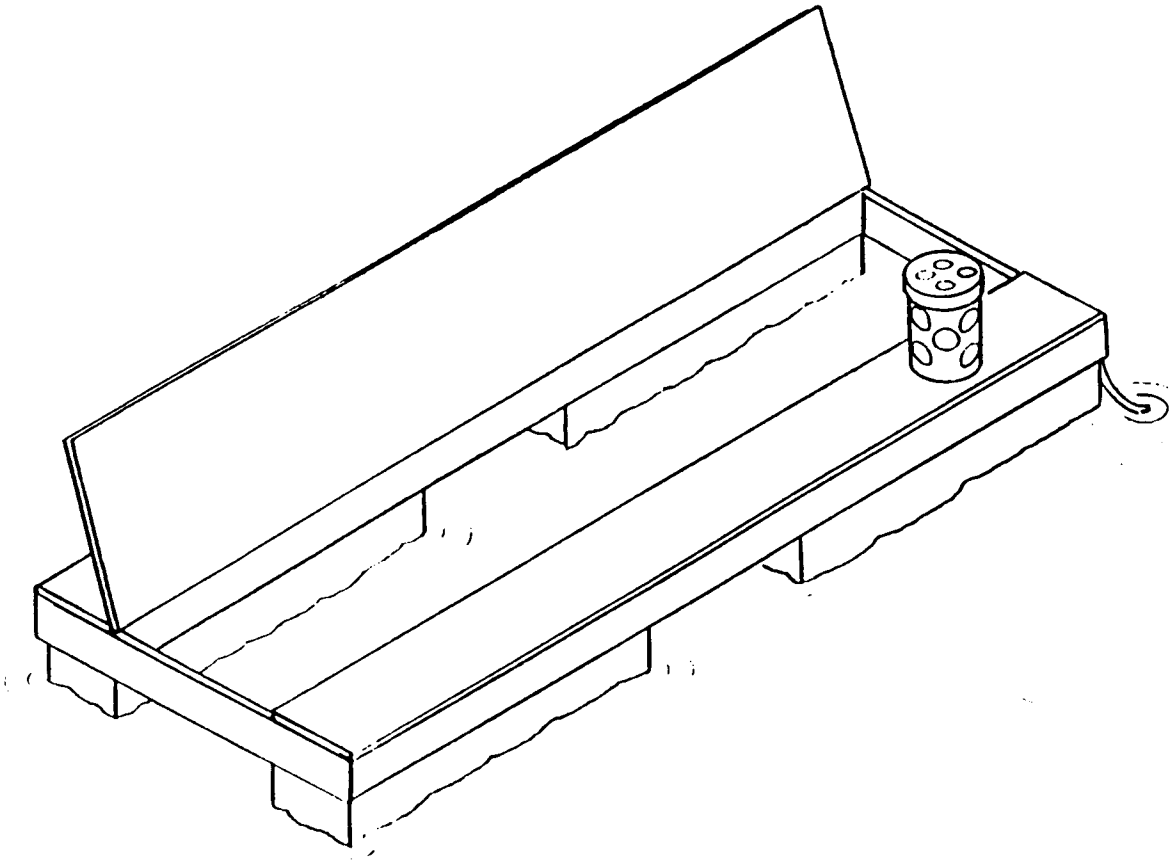
Appendix A. Standard Conditions

Appendix B. CDFG Stock Inspection Procedures for Aquaculture Operations in Pillar Point Harbor

Appendix C. Sampling, Analysis and Reporting Requirements

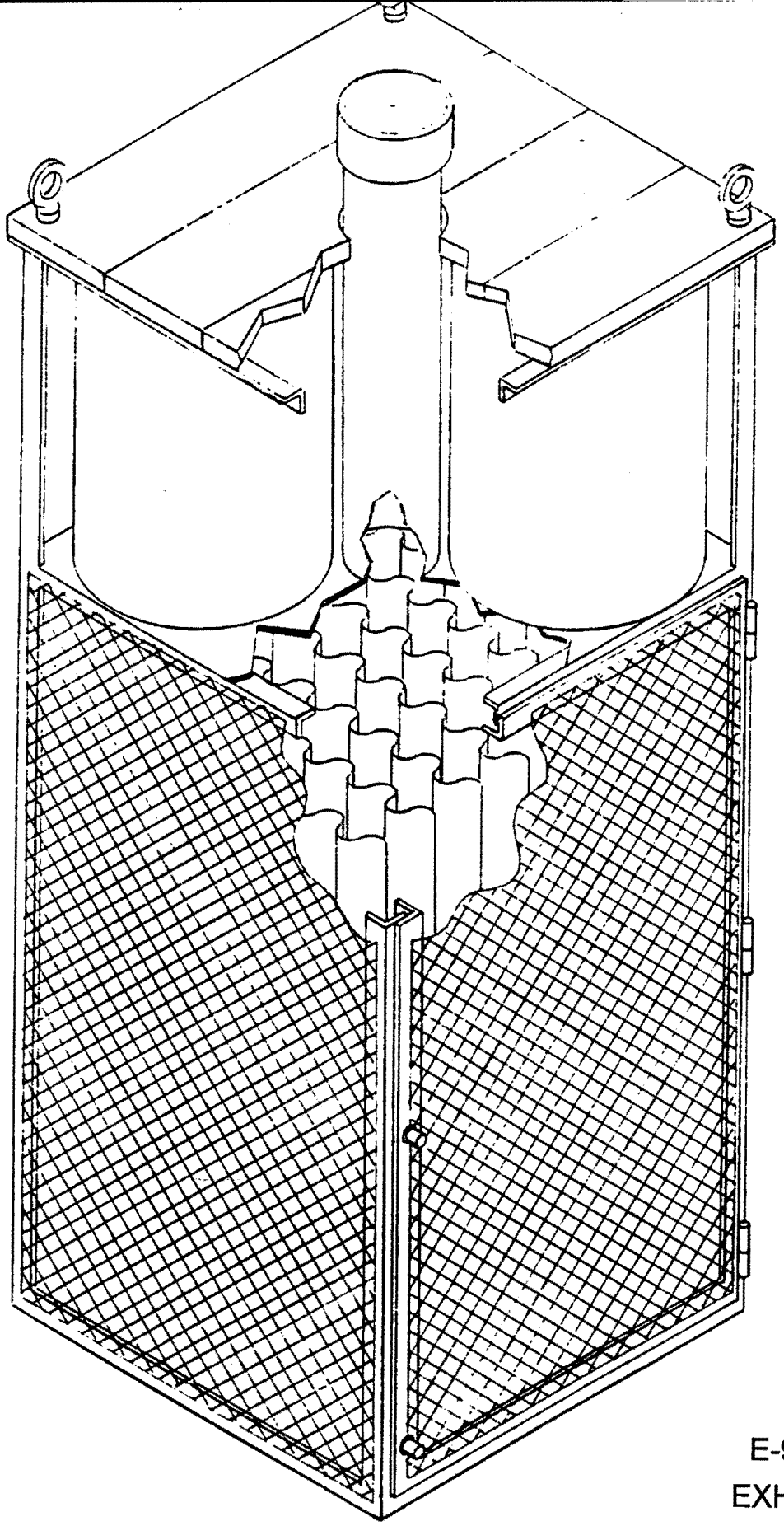
Appendix D. Substantive File Documents

Appendix E. Correspondence



E-98-17
EXHIBIT 5

In this illustration, you can see a 4' x 10' raft with the security hatch open and a plastic cage on the deck. These cages are hung from the inside opening of the raft.



E-98-17
EXHIBIT 6

This cut-away drawing shows the cages design used for the larger abalone (2 - 3.5 "). These are 4' x 4' x 10' tall and can hold up to 5,000 animals. The tube at the top is for adding kelp.