CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

RECORD PACKET COPY

W13a

Date Filed: 6/12/01
49th Day: 7/31/01
180th Day: 12/9/01
Staff: MVC-SF
Staff Report: 6/28/01
Hearing Date: 7/11/01
Commission Action/Vote:

STAFF REPORT: REGULAR CALENDAR

Application No.: **E-01-008**

Project Applicant: **Monterey Abalone Company**

Project Location: Municipal Wharf #2, Monterey Harbor, Monterey County

Project Description: Construct and operate an abalone grow-out facility to cultivate up to 500,000 red abalone in Monterey Harbor, including the installation of walkways under the wharf, placement of concrete moorings on the seafloor, and installation of a seawater pumping system.

Substantive File Documents: Appendix B

SYNOPSIS

Monterey Abalone Company ("MAC") proposes to construct and operate a facility to cultivate up to 500,000 red abalone *(Haliotis rufescens)* from juveniles to maturity in two types of "culture units," barrels and cages, to be suspended in the water under Municipal Wharf #2 in Monterey Harbor. Monterey Harbor is located 110 miles south of San Francisco in Monterey Bay in Monterey County, adjacent to the Monterey Bay National Marine Sanctuary (Exhibit 1, "Project Location").

Monterey Harbor includes the Monterey Municipal Marina (a 413-slip, full service marina with a public launch ramp), Fisherman's Wharf (with restaurants, shops, dinghy docks and a guest dock), Municipal Wharf #2, Breakwater Cove Marina (a private 70-slip marina and fuel dock), Monterey Bay Boatworks, an open anchorage area, the Monterey Harbor breakwaters, and the

Coast Guard wharf. The harbor also provides opportunities for commercial fishing and multiple recreational activities such as fishing, sailing, kayaking, and whale-watching.

The proposed location of the MAC facility is Municipal Wharf #2, owned by the City of Monterey, which was constructed in 1926 and is the easternmost structure in Monterey Harbor. Wharf #2 hosts five wholesale fish companies, the abalone facility that is the subject of this staff report, public restrooms, a snack bar, restaurants, a boat hoist, and the Monterey Peninsula Yacht Club. The MAC leases its space on and below the wharf from the City of Monterey. Commercial dive charters depart from the west side of Wharf #2. A 700-foot fishing promenade extends out from Wharf #2 and covers the protective sea wall on the east side of the marina. Anglers may fish from the east side of the wharf, but no fishing is allowed around the commercial facilities and in the marina for safety reasons.

The MAC proposes to purchase small "seed" abalone (at about one year old, the seed abalone are 25-30 millimeters in shell length, 3-5 grams in weight) from hatcheries at various locations in California. The MAC will then grow the abalone out to market size (after two to three years of growth, approximately 85 millimeters in length, 110 grams in weight). The seed abalone will be stocked into culture units at a high density and monitored on a weekly basis. As the abalone grow, the number of abalone per culture unit will be reduced to maintain desired growth rates. During the grow-out period, the abalone will be fed once a week, and the culture units will be cleaned once every two weeks. The cleaning of units entails hauling the culture unit out of the water using either a block and tackle, or a battery powered winch. The culture unit is placed on a walkway, and the outside is scrubbed with a brush to remove fouling organisms that might plug the mesh. The unit is opened, mesh windows are scrubbed from the inside, and any abalone that may have died are removed. Kelp adequate to feed the abalone for a week is then added to the culture unit, and the unit is returned to the water.

The MAC proposes to use two types of culture units, barrels and cages, both of which will be suspended in the water using a variety of mooring techniques and materials, including ropes, metal clips and plastic fasteners in a variety of configurations. The majority of the barrels and cages will be attached with rope to a primary taut rope that stretches between the facility's sub-wharf walkways and the cement moorings placed on the seafloor.

The MAC proposes to use existing buildings on the wharf as an office and a workshop; the office is to be used for administrative and sales activities, and the workshop will be used for fabrication and maintenance of the culture units for rearing abalone, as well as for packing abalone for delivery to customers. Beneath the deck of the wharf, the MAC proposes to construct six walkways and a platform among the concrete pilings that support the wharf. (Exhibit 2) The walkways will be used for suspending the culture units in the water, and the platform will be used for abalone cultivation activities such as cleaning of culture units. The walkway and platform designs have already been approved by the engineering department of the City of Monterey.

The MAC proposes to install a seawater pumping system to wash down the abalone culture units. Seawater will be obtained through a ¾" intake pipe located on the central platform.

The MAC proposes to harvest giant kelp (*Macrocystis pyrifera*) by hand in a 22-foot skiff four days per week in local kelp beds, for a typical harvest total of 5 tons of kelp per week, and a maximum of 10 tons of kelp per week at full build-out. The kelp will be transported directly to the MAC facility under the wharf and fed to the abalone.

Background

The MAC has been operating its facility since 1992. On April 18, 1997, Coastal Commission staff notified the MAC that its facility was operating without the necessary coastal development permit in violation of the Coastal Act and that MAC was required to submit an "after the fact" permit application. In May of 1997, the MAC submitted a coastal development permit application and a signed Waiver of Legal Argument. The permit application was not complete until this year.

Table 2 summarizes the size and quantity of development that has already occurred without benefit of a coastal development permit, and compares this information to the full buildout that the applicant is proposing.

The individual and cumulative impacts of this project 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; and potential adverse effects to water quality and 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 conditioned. The permit conditions include several "prior to permit issuance" conditions that must be satisfied before the permit will be issued.

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 abalone shells and ultimately inhibits growth, which could have serious impacts on stocks of native marine gastropods if spread. **Mitigation Measures:** **Special Condition 1** requires that: A) within 30 days of final Commission action on this proposed project, the applicant shall provide written evidence to the Executive Director that the proposed facility obtains abalone seed only from facilities that i) have applied to the California Department of Fish and Game ("CDFG") for certification as a facility that is free of the sabellid polychaete worm, and ii) whose stock has been inspected at least once within the past 18 months by the CDFG, and iii) whose stock has been found by the CDFG to have been sabellid-free at all inspections within those same 18 months; B) within one year of final Commission action on this proposed project, the applicant shall i) obtain abalone seed only from a new or existing facility that has received "sabellid-free" certification by the CDFG, and ii) submit to the Executive Director written evidence that its abalone seed source facilities have received "sabellid-free" certification by the CDFG; C) within 30 days of final Commission action on this proposed project, the applicant shall submit written evidence to the Executive Director that the applicant fully adheres to the CDFG's transfer and inspection procedures for sabellid polychaete worm; and D) if a sabellid infestation is detected at the applicant's facility, the applicant shall immediately remove the cage or container in which the infested animal was found. **Special Condition 5** gives the Executive Director the authority to order the applicant to cease all operations if the applicant does not provide adequate evidence that its abalone seed source facilities meet the requirements described in Special Condition 1. **Special Condition 6** prohibits offshore waste disposal, including kelp debris and shells. **Special Condition 9** prohibits the applicant from constructing an abalone nursery or hatchery unless the applicant applies for and receives a permit amendment. In order for such a permit amendment to be considered, the applicant must have been certified by the CDFG as a "sabellid-free" facility.
Marine Resources: Withering Syndrome	**Issue:** Spread of withering syndrome, a disease established in the wild approximately south of Crescent City. **Mitigation Measure:** CDFG has imposed a conditional ban on transfer of seed stock to facilities north of Crescent City, and between facilities within the area north of Crescent City, contingent upon the results of a CDFG health exam showing no signs of Rickettsiales-Like Prokaryote ("rickettsia"), the suspected causative agent. Transfer is allowed if seed is inspected and meets CDFG's requirements.

Significant Issue Area	Proposed Special Conditions and Mitigation Measures
	Special Condition 2 requires the applicant to submit written evidence of its compliance with all orders by the Director of the CDFG restricting the transfer of abalone and abalone seed and requiring inspection for withering syndrome prior to any transfer, and the applicant shall destroy any and all abalone that is determined to have developed the symptoms of Withering Syndrome, or that test positive for Rickettsiales-Like Prokaryote ("rickettsia").
Marine Resources: Water Quality	**Issues:** Potential for depletion of dissolved oxygen in the water column. **Mitigation Measures:** **Special Condition 3** requires dissolved oxygen monitoring and reporting, and the submission of a Dissolved Oxygen Contingency Plan. **Special Condition 4** requires phased expansion of the facility based on the results of the dissolved oxygen monitoring required in Special Condition 3. **Special Condition 6** prohibits waste disposal, including kelp debris and shells, into the marine environment. **Special Condition 7** requires removal of all abalone, grow-out structures, moorings, materials, and equipment upon cessation of operations.
Marine Resources: Benthic Habitat	**Special Condition 4** requires phased expansion of the facility based on the results of the dissolved oxygen monitoring required in Special Condition 3. **Special Condition 6** prohibits waste disposal, including kelp debris and shells, into the marine environment. **Special Condition 7** requires that upon termination of operations, all abalone, grow-out structures, mooring devices, materials, and equipment must be removed. **Special Condition 8** prohibits the applicant from using experimental kelp feed or non-native kelp to feed the abalone cultured at its facility.
Marine Resources: Kelp Harvesting	**Issue:** The new demand for kelp to feed the abalone at the proposed facility could lead to adverse impacts on local kelp beds. **Mitigation Measure:** The CDFG and the Fish and Game Commission ("F&GC") recently updated kelp harvesting regulations in early 2001 to improve protection of kelp resources. The new regulations close a small portion of Bed 220 (the primary bed from which the proposed facility would harvest kelp); expand the area where bull kelp may be taken by hand harvest only, from Point Montera south to Santa Rosa Creek; restrict all harvesting of bull kelp within the Monterey Bay National Marine Sanctuary from March 1 through July 31 each year; establish new rules on how harvested kelp is to be weighed; specify how harvest quantities must be reported; create new kelp bed closures, particularly of kelp beds whose canopies are small and susceptible to impacts of overharvesting; and give the F&GC the authority to control or restrict kelp

Significant Issue Area	Proposed Special Conditions and Mitigation Measures
	harvesting on an emergency basis without formal revision of harvesting regulations. The new harvesting restrictions provide additional protection for local kelp beds.
Recreation: Kelp Harvesting	**Issue:** Harvesting of the kelp canopy around Monterey Bay could affect recreational opportunities and other non-consumptive uses of kelp. **Mitigation Measure:** The CDFG and the Fish and Game Commission recently reviewed and updated kelp harvesting regulations in early 2001. The new regulations close a small portion of Bed 220 to harvesting to protect it for non-consumptive uses such as recreation and tourism.

TABLE OF CONTENTS

1.0 STAFF RECOMMENDATION

Approval with Conditions

The staff recommends conditional approval of Coastal Development Permit Application No. E-01-008.

Motion:

I move that the Commission approve Coastal Development Permit Application No. E-01-008, 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-01-008, 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

Upon issuance of this permit, this permit is granted subject to the following special conditions:

1. **Source of Abalone Seed.**

A. Within 30 days of final Commission action on this proposed project, the applicant shall provide written evidence to the Executive Director that the proposed facility obtains abalone seed only from facilities that i) have applied to the California Department of Fish and Game ("CDFG") for certification as a facility that is free of the sabellid polychaete worm, and ii) whose stock has been inspected at least once within the past 18 months by the CDFG, and iii) whose stock has been found by the CDFG to have been sabellid-free at all inspections within those same 18 months.

B. Within one year of final Commission action on this proposed project, the applicant shall i) obtain abalone seed only from a new or existing facility that has received "sabellid-free" certification by the CDFG, and ii) submit to the Executive Director

evidence that all of its abalone seed source facilities have received "sabellid-free" certification by the CDFG.

C. Within 30 days of final Commission action on this proposed project, the applicant shall submit written evidence to the Executive Director that the applicant fully adheres to the CDFG's transfer and inspection procedures for sabellid polychaete worm.

D. If a sabellid infestation is detected at the applicant's facility, the applicant shall immediately remove the cage or container in which the infested animal was found.

2. **Withering Syndrome.**

A. Within 30 days of final Commission action on this proposed project, the applicant shall submit written evidence to the Executive Director of its compliance with all orders by the Director of the CDFG restricting the transfer of abalone and abalone seed and requiring inspection for withering syndrome prior to any transfer.

B. The applicant shall immediately destroy any and all abalone that is determined to have developed the symptoms of Withering Syndrome, or that test positive for Rickettsiales-Like Prokaryote ("rickettsia").

3. **Water Quality Monitoring and Reporting and Contingency Plan Program.** The applicant shall implement a dissolved oxygen sampling, monitoring and reporting, and contingency plan program that includes the following elements:

A. Dissolved Oxygen Monitoring

Sampling and monitoring requirement. Within one month of final Commission action on this permit and continuing at minimum for the first 12 months of operations and at all times once the MAC reaches full buildout capacity (500,000 abalone), the applicant shall on a biweekly basis (once every two weeks) measure dissolved oxygen ("DO") levels at i) the Monterey Harbor mouth reference site, and ii) the MAC facility itself at a site assessed and approved by the Executive Director. During the first 3 months of sampling, the applicant may take samples from more than one sampling site at the MAC facility in order to determine the most appropriate sampling site. At each sampling site (MAC facility and Monterey Harbor mouth), a sample shall be collected at each of the following three depths: within two feet of the surface; midway between the surface and the bottom; and within two feet of the bottom. The samples shall be collected in the morning hours ($\pm$ 4 hours of sunrise), and no more than two hours shall elapse between the first and last measurements made at each of the sampling sites.

Within 4 months of initiation of sampling, the applicant shall submit to the Executive Director and to the Central Coast Regional Water Quality Control Board (RWQCB) a report summarizing the DO monitoring results of the first three months. Thereafter the applicant shall submit to the Executive Director and to the RWQCB quarterly reports

(i.e., every 3 months) which summarize the DO monitoring results for the previous three months.

Reduction of Required Monitoring. During the second and following years of operation, if the MAC facility's total number of abalone remains less than 25% of the mean total number of abalone at the facility during the previous twelve months, and if the monitoring results do not activate the DO Contingency Plan (described below in Part B) at any time, then the applicant may reduce its DO sampling to biweekly sampling during summer months only (June, July, and August). The applicant shall submit summer DO monitoring results to the Executive Director and to the Regional Water Quality Control Board by September 15 of each year of summer monitoring.

The applicant may cease DO sampling and monitoring under either of the two situations: the proposed facility has not expanded (i.e. the facility remains less than 25% of the mean total number of abalone at the facility during the previous twelve months) and during the past twelve month period the DO Contingency Plan is not triggered at any time; **or** the facility has achieved full buildout and during the past twelve month period the DO Contingency Plan is not triggered at any time.

B. Dissolved Oxygen Contingency Plan

Within one month of final Commission action on this proposed project, the MAC shall submit a DO Contingency Plan for the review and approval of the Executive Director. The purpose of the Contingency Plan is to describe the actions that will be taken in the event that the DO sampling and monitoring program described above in Part A show that DO levels have decreased to a level that has the potential to cause harm to marine resources. The MAC shall immediately activate its Contingency Plan and notify the Executive Director if either of the following two scenarios occurs: (1) the determination that the mean of six consecutive DO samples at any one depth at the MAC facility is below 10% of the mean DO levels at the same depth at the Monterey Harbor mouth sampling site for the same period; or (2) the occurrence of two consecutive sampling results at any one depth at the MAC facility with a DO level of less than 5 mg/l, unless the results are within 10% of the mean levels found at the same depth at the Monterey Harbor mouth sampling site during the same period.

If the Contingency Plan is activated, the MAC shall perform daily sampling of DO levels at the MAC facility sampling site and at the Monterey Harbor mouth sampling site. The Contingency Plan shall specify the procedures and/or the type of aeration system that will be implemented to return DO levels at the MAC facility sampling site to at least 10% of the DO levels found at the Harbor mouth sampling site, as soon as possible and no later than seven days after the Contingency Plan is activated. The Contingency Plan may be deactivated if three consecutive daily samplings at the same depth at the MAC facility sampling site demonstrate to the satisfaction of the Executive Director that the mean DO level at the MAC site has returned to at least 10% of the mean DO level found at the Monterey Harbor mouth sampling site. If the MAC is unable to return the DO level at its facility to at least 10% of the DO levels found at the Harbor mouth sampling site within

seven days after the Contingency Plan is activated, the Executive Director may order the MAC to cease all operations as described in **Special Condition 5**.

4. **Annual Phased Increase in Abalone Culturing Operations.** The applicant shall phase in its total number of abalone to a maximum of 500,000, annually increasing the total number of abalone in increments as follows:

   - At the end of Year 1 *(baseline DO sampling shall be completed by September 30, 2002)*, the maximum number of abalone may not exceed 250,000; and
   - at the end of Year 2, the maximum number may not exceed 375,000; and
   - at the end of Year 3, the maximum number may not exceed 500,000.

   The applicant shall submit annual reports to the Executive Director describing expansion during the previous year and providing the total number of abalone present at the proposed facility.

5. **Cessation of Operations.** If the DO Contingency Plan described in Special Condition 3b is activated and the MAC is unable to return its DO level to within 10% of the DO levels found at the Harbor mouth sampling site, or if the MAC is unable to demonstrate to the Executive Director within twelve months of receipt of its permit that its abalone seed source facilities are certified by CDFG as "sabellid free," then the Executive Director may order the MAC to cease all operations, and to remove all abalone, grow-out structures, mooring devices, materials, and equipment within 90 days.

6. **Waste Disposal.** The MAC shall not dispose of any equipment or waste, including shells or kelp debris, into the marine environment. All debris from culture units shall be disposed of on land.

7. **Facility Removal.** Upon termination of operations, the MAC shall remove all abalone, grow-out structures, mooring devices, materials, and equipment within 90 days.

8. **Restrictions on Abalone Feed Type.** The MAC shall not use experimental kelp feed or non-native kelp to feed the abalone cultured at its facility.

9. **Requirements for construction of a nursery and/or hatchery.** The MAC may not construct an abalone nursery or hatchery at its facility unless it applies for and receives a permit amendment from the Coastal Commission or its successor. In order for such a permit amendment to be considered, the MAC shall have been certified by the CDFG as a "sabellid-free" facility.

10. **Condition Compliance.** The applicant shall satisfy all requirements specified in the conditions hereto that the applicant is required to satisfy prior to issuance of this permit. The Executive Director may grant additional time as warranted after the demonstration of good cause for such an extension by the applicant. Failure to comply with timing requirements contained within the conditions may result in the institution of enforcement action under the provisions of Chapter 9 of the Coastal Act.

4.0 FINDINGS AND DECLARATIONS

4.1 Project Location

Monterey Harbor is located 110 miles south of San Francisco in Monterey Bay in Monterey County, adjacent to the Monterey Bay National Marine Sanctuary (Exhibit 1, "Project Location"). Monterey Harbor includes the Monterey Municipal Marina (a 413-slip, full service marina with a public launch ramp), Fisherman's Wharf (with restaurants, shops, dinghy docks and a guest dock), Municipal Wharf #2, Breakwater Cove Marina (a private 70-slip marina and fuel dock), Monterey Bay Boatworks, an open anchorage area, the Monterey Harbor breakwaters, and the Coast Guard wharf. The harbor also provides opportunities for commercial fishing and recreational activities such as fishing, sailing, kayaking, and whale-watching.

The proposed location of the Monterey Abalone Company ("MAC") facility is Municipal Wharf #2, owned by the City of Monterey, which was constructed in 1926 and is the easternmost structure in Monterey Harbor. Wharf #2 hosts five wholesale fish companies, the abalone facility that is the subject of this staff report, public restrooms, snack bar, restaurants, a boat hoist, and the Monterey Peninsula Yacht Club. The MAC leases its space on and below the wharf from the City of Monterey. Commercial dive charters depart from the west side of Wharf #2. A 700-foot fishing promenade extends out from Wharf #2 and covers the protective sea wall on the east side of the marina. Anglers may fish from the east side of the wharf, but no fishing is allowed around the commercial facilities and in the marina for safety reasons.

4.2 Project Description

The MAC proposes to construct and operate a facility to cultivate up to 500,000 red abalone *(Haliotis rufescens)* from juveniles to maturity in two types of "culture units," (barrels and cages) to be suspended in the water under Municipal Wharf #2, in Monterey Harbor. The MAC facility has been operating since 1992 without benefit of a coastal development permit, and therefore the proposed project application is not only for a permit for the existing facility size, but also for "full buildout" or the maximum facility size. Table 2 summarizes the proposed project's initial size and the size of the facility at full buildout.

Table 2. Proposed project at initial size versus full buildout

CHARACTERISTIC	INITIAL PROJECT SIZE	FULL BUILDOUT (Cumulative total maximum)
Number of walkways beneath wharf	6	16
Number of moorings placed on seafloor	130	190
Square footage of moorings placed on seafloor	436	636
Number of abalone cultured at the facility	170,000	500,000
Quantity of kelp harvested to feed abalone	5 tons/week maximum	10 tons/week maximum

The MAC proposes to purchase "seed" abalone (at about one year old, the seed abalone are 25-30 millimeters in shell length, 3-5 grams in weight) from hatcheries at various locations in California. The MAC will then grow the abalone out to market size (after two to three years of growth, approximately 85 millimeters, 110 grams). The seed abalone will be stocked into culture units at a high density and monitored on a weekly basis. As the abalone grow, the number of abalone per culture unit will be reduced to maintain desired growth rates. During the grow-out period, the abalone will be fed once a week, and the culture units will be cleaned once every two weeks. The cleaning of units entails hauling the culture unit out of the water using either a block and tackle, or a battery powered winch. The culture unit is placed on a walkway, and the outside is scrubbed with a brush to remove fouling organisms that might plug the mesh. The unit is opened, mesh windows are scrubbed from the inside, and any abalone that may have died are removed. Kelp adequate to feed the abalone for a week is then added to the culture unit, and the unit is returned to the water.

The culture units will be suspended in the water using a variety of mooring techniques and materials, including ropes, metal clips and plastic fasteners in several configurations. The majority of the barrels and cages will be attached with rope to a primary taut rope that stretches between the facility's sub-wharf walkways and the cement moorings placed on the seafloor. The MAC proposes to place 130 concrete moorings (covering 436 square feet of seafloor) initially, and during expansion would install, at maximum, 60 additional moorings, for maximum total of 190 moorings (covering 636 square feet of seafloor total).

The MAC proposes to use an office and a workshop on the wharf; the office is to be used for administrative and sales activities, and the workshop will be used for fabrication and maintenance of the culture units for rearing abalone, as well as for packing abalone for delivery to customers. Beneath the deck of the wharf, the MAC proposes to construct six walkways and a platform among the concrete pilings that support the wharf, with a total of sixteen walkways at full buildout. The walkways will be used for suspending the culture units in the water, and the platform will be used for abalone cultivation activities such as cleaning of culture units. The walkway and platform designs have already been approved by the engineering department of the City of Monterey.

MAC also proposes to install a seawater pumping system to wash down the abalone culture units. Seawater will be obtained through a ¾" intake pipe located on the central platform. Other components of the system include a pump and pressure tank.

The MAC proposes to harvest giant kelp (*Macrocystis pyrifera*) by hand in a 22-foot skiff four days per week in nearby kelp beds (usually in Bed #220 which is an open bed regulated by the Department of Fish and Game), for a typical harvest total of 5 tons of kelp per week, and a maximum of 10 tons of kelp per week at full build-out. The kelp will be transported directly to the MAC facility under the wharf and fed to the abalone.

4.3 Other Agency Approvals

4.3.1 City of Monterey

The State Lands Commission granted the tidelands in which the proposed project would occur to the City of Monterey, which approved the proposed project as landowner. The MAC has a lease from the City of Monterey to construct platforms and walkways underneath Municipal Wharf #2 and to operate its facility. The City of Monterey's Chief of Planning determined that the proposed project is categorically exempt from the CEQA process. The City of Monterey Harbormaster has approved the proposed project.

4.3.2 California Department of Fish and Game

The California Department of Fish and Game ("CDFG") requires permits for operation of aquaculture facilities and regulates the harvest of kelp through the licensing of kelp harvesters and the management of individual kelp beds. The MAC holds current year 2001 permits for aquaculture and for kelp harvesting from the CDFG. The CDFG recently promulgated new kelp harvesting regulations which restrict where the MAC may take kelp and which will protect the portion of Kelp Bed 220 near Monterey's Cannery Row.

4.3.3 Regional Water Quality Control Board – Central Coast Region

The Regional Water Quality Control Board regulates discharges into ocean waters through the NPDES permit program. The Central Coast Regional Water Quality Control Board ("RWQCB") waived regulation of the proposed facility under the NPDES program in a May 2001 letter.

4.4.4 U.S. Coast Guard

In a June 1997 letter, the U.S. Coast Guard determined that the proposed project poses no navigational hazards.

4.4.5 Monterey Bay National Marine Sanctuary, NOAA

The Monterey Bay National Marine Sanctuary (MBNMS) was designated in accordance with the National Marine Sanctuaries Act. NOAA has been assigned responsibility for managing National Marine Sanctuaries and has developed regulations and permit requirements uniquely suited to protect the resources at each sanctuary. Regulations and permit requirements for the MBNMS are described in the United States Code of Federal Regulations, Title 15, Part 922. The Monterey Bay National Marine Sanctuary determined in a December 2000 letter that no permit for the grow-out facility would be required.

4.4.6 U.S. Army Corps of Engineers

The Army Corps of Engineers requires permits for projects in harbors and open navigable coastal waters. Upon issuance of a coastal development permit, the Army Corps of Engineers intends to issue a Letter of Permission for the proposed project under the Rivers and Harbors Act.

4.3 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.*

Construction and operation of the proposed abalone grow-out facility will constitute aquaculture. Hence, the Commission finds that the proposed 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: marine resources and water quality; placement of fill in coastal waters; and public access and recreation.

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 an exotic parasite, the sabellid polychaete worm, into harbor and marine waters and native mollusks 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; and (5) overharvesting of kelp in order to feed the abalone.

4.4.1.1 The Sabellid Polychaete Worm[1]

Discovery and 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 for commercial research.

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 the natural growth of abalone shell. 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.

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 1990s. Various eradication methods have been tried, and while eradication efforts have met with some success, complete eradication of the sabellid has proved elusive. Thus, the California Department of Fish and Game and abalone culturists 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. The worm's larvae do not swim in the water column where they would be widely dispersed by currents; instead, they fall until they find a surface and 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

---

[1] Much of the factual information in this section about the sabellid is taken from the following sources:

"An Introduced Sabellid Polychaete Pest Infesting Cultured Abalones and its Potential Spread to other California Gastropods." Armand M. Kuris and Carolynn S. Culver. Invertebrate Biology 118(4): 391-403. American Microscopical Society, Inc., 1999.

"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).

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 natural predators of adult sabellids.
- 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, particularly gastropods, creating a threat of spread from infested aquaculture facilities into wild populations and establishment in state waters. Rocky intertidal areas are particularly at risk. Research suggests 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. After the infestation was discovered in 1996, the aquaculture company, in cooperation with the CDFG and researchers at the University of California at Santa Barbara, began an eradication program based on the "epidemic threshold of transmission theory" which says that a certain density of hosts is required to maintain a rate of transmission sufficient for a parasite population to persist. Several million individuals of the main host species (a turban snail) were removed from the intertidal zone and destroyed. Subsequent field surveys at the site found no further evidence of the parasite. *(C. Culver, UCSB, personal communication June 4, 2001; Science Daily Magazine, August 18, 1999).*

Response by the California Department of Fish and Game
In May 1996, the CDFG concluded, based on continuing investigations by the Department, the aquaculture industry, and the University of California at Santa Barbara, that "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."[2] To prevent the further introduction and spread of the sabellid worm, and to achieve its goal of complete sabellid eradication, the CDFG promulgated the following requirements:[3]

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

[3] Memos to all registered abalone aquaculturists from Jacqueline E. Schafer, CDFG, dated May 20, 1996, and December 6, 1996.

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 Monterey Abalone Company submitted its sabellid polychaete worm prevention plan to CDFG in November 1998. [4]

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 then conducts three inspections over a two-year period. Each inspection entails 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. Monterey Abalone Company has not applied for sabellid-free certification due to the large number of samples required by CDFG for the testing and certification process.

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 marine resources throughout the state are real.

If the animals used for cage culture come from facilities that contain the parasite, the chance of introducing infested animals to Monterey Harbor is small but possible. Shore facilities are managing infestation through cultural practices *(F. Wendell, CDFG, personal communication May 22, 2001)*. 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 such 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.

[4] "Plan for the Eradication of the Sabellid Worm from the Facilities of the Monterey Abalone Company," Monterey Abalone Company, dated November 9, 1998.

If infested abalone are introduced to culture facilities in Monterey Harbor, the chance of the larvae escaping into the natural environment is near certainty. Culver et al. [5] 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. In another experiment by Kuris and Culver (1999), uninfested abalone were placed in tanks with a plastic screen separating them from sabellid-infested abalone. Although infestation rates were much lower than when uninfested abalone were comingled with infested abalone without a barrier, the infestation rate was still significant. Research has found that the worms can also travel on shell and kelp debris.[6]

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 units 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).*

The CDFG performed a Risk Assessment of the MAC facility in July 1997, immediately following a low level infestation at the MAC facility (all infested animals were sold prior to the assessment as sabellid infestation does not affect the abalone itself, only its shell). The 1997 assessment included a dive collection of various invertebrates from pilings beneath where infested animals had been held, and from another location distant from the MAC facility; all collected animals were found to be free of sabellids. The Risk Assessment recommended, however, that 1) kelp or other debris should not be discarded into the bay; 2) hands and equipment should be rinsed in fresh water between each cage to limit infestation; 3) populations should be kept separate; and 4) newly arrived abalone should be examined for possible infestation. [7] CDFG made another dive collection of invertebrates near the MAC facility in 1998; no sabellid infestation was found, although divers did find three old abalone shells, two of which had light infestation. According to CDFG, "the shells showed no sign of infestation at the shell margin and the shells could have been on the [ocean] bottom for a long time." [8] The most recent sabellid spot inspection took place in August 2000; no sabellid infestation was found. [9]

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. No facility has passed this test yet, although one facility is nearly certified. To date, six facilities have applied to be certified as sabellid-free. This certification could occur more quickly than two years if an

[5] "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).

[6] "An Introduced Sabellid Polychaete Pest Infesting Cultured Abalones and its Potential Spread to other California Gastropods." Armand M. Kuris and Carolynn S. Culver. Invertebrate Biology 118(4): 391-403. American Microscopical Society, Inc., 1999.

[7] "Risk Assessment, Monterey Abalone, July 1, 1997," CDFG.

[8] Letter from Fred Wendell, CDFG, to Art Seavey, MAC, dated January 8, 1999.

[9] Letter from Thea Robbins, CDFG, to Art Seavey, MAC, dated March 27, 2001.

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 *(F. Wendell, CDFG, personal communication, May 22, 2001).*

The Commission finds it necessary to require in **Special Condition 1** that: A) within 30 days of final Commission action on this proposed project, the applicant must provide written evidence to the Executive Director that the proposed facility obtains abalone seed only from facilities that i) have applied to the California Department of Fish and Game ("CDFG") for certification as a facility that is free of the sabellid polychaete worm, and ii) whose stock has been inspected at least once within the past 18 months by the CDFG, and iii) whose stock has been found by the CDFG to have been sabellid-free at all inspections within those same 18 months; B) within one year of final Commission action on this proposed project, the applicant shall i) obtain abalone seed only from a new or existing facility that has received "sabellid free" certification by the CDFG, and ii) submit to the Executive Director written evidence that its abalone seed source facilities meet the above described criteria; C) within 30 days of final Commission action on this proposed project, the applicant shall submit written evidence to the Executive Director that the applicant fully adheres to the CDFG's transfer and inspection procedures for sabellid polychaete worm; and D) if a sabellid infestation is detected at the applicant's facility, the applicant shall immediately remove the cage or container in which the infested animal was found. The CDFG expects at least one abalone hatchery facility to be certified as "sabellid free" by later this year. *(F. Wendell, CDFG, personal communication, May 22, 2001).*

Special Condition 1 is necessary to ensure that implementation of said project will maintain marine resources, protect the marine sanctuary, and maintain healthy populations of existing species of marine gastropods as required by Coastal Act Section 30230 given the following facts:

- 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 Monterey 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
- Monterey Harbor is located directly adjacent to the Monterey Bay National Marine Sanctuary, and ocean currents connect harbor waters with sanctuary waters.

Under **Special Condition 5**, the Executive Director may order the MAC to cease all operations if it does not submit evidence within twelve months of receipt of its permit that demonstrates that all abalone seed source facilities have been certified as "sabellid-free" by CDFG. **Special Condition 6** prohibits the MAC from discharging abalone shells, kelp debris, or any other waste material into the marine environment. The Commission also imposes **Special Condition 9**, which prohibits the construction of an abalone nursery or hatchery at the MAC facility unless the MAC applies for and receives a permit amendment. In order for such a permit amendment to be considered, the MAC shall have been certified by the CDFG as a "sabellid-free" facility.

Project consistency with Coastal Act policies
The Commission finds that with the requirements of **Special Conditions 1, 5, 6, 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 to ensure that the facility remains sabellid-free. The Commission therefore finds that the proposed project as 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 the Channel Islands in 1986, Withering Syndrome ("WS") caused populations of black abalone from San Diego to Cayucos, San Luis Obispo County, to decline by as much as 99 percent. The disease subsequently spread throughout southern California and has impacted several species of abalone, including the red abalone. WS has spread among wild abalone stocks in southern and central California, where the most plausible transmission method was through the water column. Withering syndrome is not harmful to humans, but can cause abalone to become lethargic and weak, lose weight, and eventually die of starvation. *(F. Wendell, CDFG, California Marine Currents, Vol. 1, No. 3)*

It is now certain that the causative agent for withering syndrome is the bacteria Rickettsiales-Like Prokaryote ("RLP" or "rickettsia"), although the presence of rickettsia in an abalone does not necessarily mean that the abalone will develop WS symptoms. RLP is established from La Paz (cultured) to San Francisco (wild and uncultured), an area that is considered to be the endemic zone for WS. RLP was recently detected in two sites in northern California, Crescent City and Van Damme State Park, but without WS. Research has shown that elevated water temperature and the expression of WS in RLP-infected abalone are related. This might account for the appearance of WS following El Nino events. While elevated water temperature may be a "stress trigger" for WS in RLP-infected abalone, it may not be the only stresser. Colder water along the north coast may afford some protection against WS in spite of the presence of RLP, but this has yet to be confirmed. Further research is being performed to clarify what temperatures and environments do stimulate the development of WS. A new method for RLP detection called Polymerase Chain Reaction has been developed; this is important because this method of RLP detection is non-lethal for abalone and the method may eventually be advanced enough that it could detect the presence of RLP in water samples.[10]

---

[10] Friedman, C. S., K. B. Andree, T. T. Robbins, J. D. Shields, J. D. Moore, K. Beauchamp and R. P. Hedrick. 2000. "Candidatus *Xenohaliotis californiensis*," a newly described bacterial pathogen and etiological agent of withering syndrome found in abalone, *Haliotis* spp., along the west coast of North America. Journal of Shellfish Research **19**:513., **and** Moore, J. D., T. T. Robbins and C. S. Friedman. 2000. Withering syndrome in farmed red abalone *Haliotis rufescens*: Thermal induction and association with a gastrointestinal Rickettsiales-like prokaryote. Journal of Aquatic Animal Health **12**:26-34.

Recent identification and action by the CDFG
In 1998, the CDFG determined that withering syndrome was well-established in the wild south of the City of Carmel, and recognized that transfer of cultured abalone between aquaculture facilities was likely contributing to the spread of WS to wild abalone stocks beyond the disease's endemic range. 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 allowed transfers of young abalone only (less than six months old) on the condition that a CDFG health exam did not find signs of rickettsia.

Despite this measure, however, both withering syndrome and rickettsia were detected in locations north of Carmel. In response, on March 22, 1999, the CDFG director adjusted the dividing line between endemic and clear areas northward to in San Francisco (thus the conditional ban on seed stock transfer was based on San Francisco, not the City of Carmel). More recently, withering syndrome and rickettsia were detected north of San Francisco in Crescent City and near Van Damme State Park, where 10,000 abalone were outplanted for research purposes in 1995. In early 2000 a scientific panel was convened to assess the states of CDFG's efforts to control Withering Syndrome. On May 7, 2000, CDFG issued a Withering Syndrome Action Plan that included the following elements: 1) monitoring (at infected sites, exposed sites, and unexposed sites in order to determine background infection levels); 2) research (on transmission of disease, and on water temperature's role as "stress trigger" for development of WS); and 3) another modification of the CDFG abalone transfer ban so that the dividing point prohibiting abalone transfer is now Crescent City. *(F. Wendell, CDFG, personal communication, May 22, 2001; CDFG Withering Syndrome Action Plan, May 7, 2000).*

Project consistency with Coastal Act policies
Monterey Harbor lies south of Crescent City, in an area within which the CDFG has now determined withering syndrome to be endemic. Any transfer of MAC stock to locations north of Crescent City, 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 an inspection does not find signs of rickettsia). However, the MAC does not ship abalone to other facilities for re-stocking; the MAC only purchases seed abalone for grow-out. The MAC purchases all of its seed abalone from abalone hatcheries in central and southern California.

The MAC has observed symptoms of WS in approximately 1% of the abalone under culture at its MAC facility. Laboratory tests have also confirmed the presence of WS bacteria in two samples of abalone from the MAC facility, although the MAC facility is located within the geographical range of endemic WS. The MAC's policy is to destroy any abalone with symptoms of WS, and its preventive measures include ensuring proper food quantities for the abalone, clean culture units that allow water to flow through easily, and proper stocking densities (taking into account abalone size).

In order to prevent further spreading of WS from the proposed MAC facility, the Commission imposes **Special Condition 2**, which requires the applicant to submit written evidence of its compliance with all orders by the Director of the CDFG restricting the transfer of abalone and abalone seed and requiring inspection for withering syndrome prior to any transfer, and requires

the applicant to destroy any and all abalone that is determined to have developed the symptoms of Withering Syndrome, or that test positive for Rickettsiales-Like Prokaryote ("rickettsia"). The Commission therefore finds that the proposed project as 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.

4.4.1.3 Water Quality

An aquaculture facility such as the one proposed by the MAC 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 affected
Monterey Harbor is a part of the Monterey Bay National Marine Sanctuary, and as such supports a large and diverse population of marine species, including rare and endangered species; marine invertebrate fauna including polychaete worms, crustaceans (e.g., crabs, shrimp), mollusks (e.g., snails, bivalves), anemones and seastars; and marine mammals. The area of seafloor directly beneath the proposed site for the abalone grow-out facility is sandy bottom and mud. Seastars, anemones and other organisms have colonized the concrete moorings and the pier pilings supporting the wharf.

Potential for depletion of dissolved oxygen in the water column
The dissolved oxygen ("DO") level in water is critical to the health of marine organisms; deficient DO concentration 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.[11] The California Ocean Plan sets forth that DO concentration shall not at any time be depressed 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, culture operations introduce the potential that abalone feed and fecal material could accumulate on the sea floor. High concentrations of particulate organic material may result in increases in decay organisms which consume available DO. Calm, poorly-mixed environments are especially susceptible to low DO levels, while areas that experience frequent tidal movement are more likely to maintain adequate 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.

Commission evaluation and mitigation of impacts associated with potential depletion of dissolved oxygen in the water column
The MAC states that it is committed to maintaining water quality, as the quality of its abalone product will be dependent on continued good water quality and adequate DO levels. The proposed site is also relatively exposed and receives a significant amount of flushing from tidal

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

currents and swells. Although the MAC will rely on currents and wave action to circulate seawater through the plastic screens on the culture units, it also proposes to wash down culture units once every other week in order to keep screens, barrels, cages and abalone clean by spraying them with pressurized seawater. Material that will be removed includes algae, invertebrates such as barnacles, sponges and tunicates, any uneaten kelp remaining in the barrels and cages, and any abalone feces that are not removed by natural flushing while the culture units are suspended in the water. The proposed abalone grow-out facility has the potential to cause localized depletion of DO levels, especially as the facility expands, the total number of cultured abalone increase, and the total quantity of kelp fed to the abalone increases.

The Commission therefore imposes several special conditions to ensure that the proposed projects will not significantly deplete the DO levels in the water column. To detect any local DO depletion, the Commission imposes **Special Condition 3**, which requires the implementation of a DO Monitoring and Reporting Program and the submission of a DO Contingency Plan to the Executive Director prior to issuance of a permit. The monitoring program requires DO sampling at the MAC facility and at a reference site, the Monterey Harbor mouth, at 3 different depths of the water column, on a biweekly basis, for an entire year, and contains criteria for maintaining or decreasing monitoring frequency depending on facility size and monitoring results. The monitoring program will allow the Executive Director to determine whether the MAC facility is having an impact on local DO levels, and provides a framework for implementation of the DO Contingency Plan, should DO levels drop to a level that triggers the Contingency Plan. The Contingency Plan is based on standards set by the California Ocean Plan, and will be triggered if either of the following occurs: (1) the determination that the mean of six consecutive DO samples at the MAC facility is below 10% of the mean DO level at the Harbor mouth sampling site for the same period; or (2) two consecutive sampling events with results of less than 5 mg/l at the MAC facility, unless they are within 10% of the mean level found at the Harbor mouth sampling site during the same period. The DO Contingency Plan will specify the procedures to be used for restoring dissolved oxygen to the appropriate level within 7 days after the Contingency Plan is activated.

To further prevent DO depletion, the Commission imposes **Special Condition 4**, which institutes phased annual increases in total abalone stock contingent upon satisfactory results of the dissolved oxygen monitoring required in Special Condition 3. **Special Condition 6** prohibits the disposal of waste, including shells, into the marine environment, to minimize the amount of organic matter introduced to the project site's environment. **Special Condition 8** requires removal of all abalone, grow-out structures, mooring devices, materials, and equipment upon cessation of operations. The Commission finds that the proposed project as 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.

4.4.1.4 Benthic Habitat

An aquaculture facility such as the one proposed by the MAC has the potential to adversely impact benthic habitat and organisms, through accumulation of kelp debris and abalone feces,

placement of concrete moorings on the seafloor, or if experimental or non-native kelp feed is used.

Species and uses potentially affected
Monterey Harbor is a part of the Monterey Bay National Marine Sanctuary, and as such supports a large and diverse population of marine species, including rare and endangered species; marine invertebrate fauna including polychaete worms, crustaceans (e.g., crabs, shrimp), mollusks (e.g., snails, bivalves), anemones and seastars; and marine mammals. The area of seafloor directly beneath the proposed facility site is sandy bottom and mud. Seastars, anemones and other organisms have colonized the concrete moorings and the pier pilings supporting the wharf.

Potential benthic impacts due to accumulation of kelp and abalone feces
The proposed facility could impact the benthic community via disturbance resulting from the potential build up on the seafloor of detritus, including kelp feed and fecal material. There is general consensus that substantial organic enrichment causes deleterious changes in the community of organisms that lives in sand or mud. Accumulation of organic material could 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). The potential impact of accumulated organic matter is mitigated by the character of the Monterey Harbor environment. The harbor is relatively exposed and receives a significant amount of flushing from ocean tides and currents, and the harbor seafloor is scoured by these strong currents on a regular basis.

An estimation of the potential extent of benthic impacts is complicated by the presence of four fish processing facilities on the same wharf as the proposed grow-out facility. These facilities collectively dump as much as 5000 pounds of fish parts and bycatch into the harbor four times a month, for a maximum monthly discharge of 20,000 pounds of fish parts and bycatch. These facilities are located close to the proposed MAC facility site, at distances ranging from immediately adjacent to only 100 feet away. *(Paul Danger, City of Monterey, personal communication June 14, 2001)* The fish processing companies and their discharge are not regulated because they are exempt under federal regulations Title 40, Section 408 because they do not discharge more than 4,000 pounds of raw material per day. *(Matt Thompson, RWQCB, personal communication, June 11, 2001)* Thus, it is the opinion of the staff biologist that it would be impossible to assess individual facilities' responsibility for organic matter accumulation and potential benthic impacts in the vicinity of Monterey Harbor. Therefore, the Commission staff does not recommend a sediment and benthic sampling program. The conditions for this proposed abalone grow-out facility thus differ from those imposed on the four Pillar Point abalone grow-out projects approved by the Commission in 1999. The Pillar Point projects, however, were cumulatively larger in size, in a location which receives less natural flushing of the seafloor, and in a different Regional Water Quality Control Board jurisdiction which required NDPES permits for each facility and a substantial water quality, sediment and benthic sampling program. For the proposed project in Monterey Harbor, the Regional Water Quality Control Board declined to require a NPDES permit and therefore did not require any sampling or monitoring of the MAC. [12]

[12] Letter from Roger W. Briggs, Central Coast Regional Water Quality Control Board, to California Coastal Commission, May 22, 2001.

In order to prevent benthic impacts from the proposed project, the Commission imposes **Special Condition 6**, which prohibits the MAC from discharging abalone shells, kelp debris, or any other waste material into the marine environment. **Special Condition 4** institutes phased annual increases in total abalone stock contingent upon the results of the DO monitoring required in **Special Condition 3**.

Potential benthic impacts due to placement of concrete moorings
The proposed project would include the initial placement of 130 concrete moorings covering 436 square feet of seafloor, but at full build-out would install, at maximum, another 60 moorings, for a total of 210 concrete moorings covering 636 square feet of seafloor. Barrels are lighter and tangle more easily than cages, and thus require attachment to moorings to prevent tangling and enable efficient functioning of the facility. However, the MAC has stated that after the initial 130-mooring installation, as expansion of the facility occurs, cages which do not require moorings will be used at a much higher ratio than barrels, in order to minimize the number of moorings. The mooring devices will not have a significant impact on the benthos because the proposed MAC facility would be located underneath a pre-existing wharf that already shades and impacts the benthic habitat in the water below. While the placement of the moorings will impact the immediate area of benthic communities found in the sand and mud of the seafloor, the impact is not significant, as the area will be rapidly recolonized when the facility is no longer functioning and the moorings are removed.

In order to prevent the proposed facility's grow-out structures and associated equipment from becoming marine debris when the facility ceases to operate, the Commission imposes **Special Condition 7** which requires that upon termination of operations, Monterey Abalone Company shall remove all abalone, grow-out structures, mooring devices, materials, and equipment within 90 days.

Potential impacts due to experimental or non-native kelp feed
Use of experimental or non-native kelp feed could cause the introduction of exotic non-native species to the marine environment. Therefore, the Commission imposes **Special Condition 8**, which prohibits the MAC from using experimental kelp feed or non-native kelp to feed the abalone cultured at its facility.

Consistency with Coastal Act policies
The Commission finds that with the requirements of **Special Conditions 4, 6, 7, and 8** the proposed project as conditioned 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.

4.4.1.5 Kelp Harvesting

Regulatory framework
The Fish and Game Code (§6653 and §6750) provides the Fish and Game Commission ("F&GC") with the authority to establish regulations as may be necessary to ensure the proper

harvesting of kelp and aquatic plants for commercial and sport purposes. [13] 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 recently finalized new amendments to these kelp harvesting regulations in accord with the California Environmental Quality Act. [14]

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 to "endeavor to maintain a sustainable harvest,"[15] 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. Under the new kelp harvesting regulations, aerial surveys will now take place twice a year, in winter and summer. Such biannual surveying is a significant improvement on the past frequency of surveying, which was only once every five years. *(R. Collins, CDFG, Personal Communication, May 30, 2001)* 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.
- 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.

---

[13] 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.

[14] "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 Environmental Document (March, 2001).

[15] Ibid., pp. 2-4.

- 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.

Section 30411(a) of the Coastal Act states:

> *"The Department of Fish and Game and the Fish and Game Commission are the principal state agencies responsible for the establishment and control of wildlife and fishery management programs and the commission shall not establish or impose any controls with respect thereto that duplicate or exceed regulatory controls established by these agencies pursuant to specific statutory requirements or authorization."*

For the purposes of Section 30411(a), the Fish and Game Commission's kelp harvesting regulation program is a "wildlife...management program." Section 30411(a) prohibits the Commission from "establish[ing] or impos[ing] any controls with respect to [any such program] that duplicate or exceed regulatory controls established by" the Fish and Game Commission. Therefore, the Coastal Commission lacks the regulatory authority to impose conditions to mitigate potential impacts on the affected kelp resource to a level of consistency with, or deny the project based on inconsistency with, applicable marine resource policies of the Coastal Act.

New project-related demand for kelp

The MAC states that the initial facility size with 170,000 abalone requires harvesting 5 tons of kelp per week, and that the facility at full build-out with 500,000 abalone requires harvesting 10 tons of kelp per week, at maximum. The MAC proposes to harvest primarily from Kelp Bed 220 which is an open kelp bed regulated by CDFG, a small portion of which was recently closed to harvest.

The MAC is a founding member of the Monterey Kelp Cooperative ("MKC"), a private group of kelp harvesters which voluntarily restricts and self-regulates its total kelp harvest. MKC members agree to a "Cooperative Kelp Plan" which specifies what total quantity of kelp that MKC members may harvest per week. The plan is revised every October and must be approved by MKC's Board of Governors. The three-person Board of Governors consists of one kelp harvester representative, one representative from the CDFG, and one representative from the Monterey Bay National Marine Sanctuary. MKC members other than the MAC include:

- Pacific Abalone Farms, represented by Gary Russell
- Grillo Enterprises, represented by Phyllis Grillo-Weinbrenner
- US Abalone, represented by David Ebert

Due to the partial closure of Bed 220, all MKC kelp harvesters, including the MAC, may harvest only from the portions of Bed 220 that are still open to harvesting, or from other nearby open kelp beds.

Potential impacts to the kelp bed community

In 1999, concern about the levels of kelp harvesting within the Ed Ricketts Underwater Park, which includes part of Bed 220, prompted the Monterey Bay National Marine Sanctuary, together with the Cities of Monterey and Pacific Grove, to fund a study on the effects of kelp harvesting in that area. The report[16] used aerial photographs dating from 1976 along with kelp harvest records to assess the impacts of a range of kelp harvesting intensities using statistical analysis. The study found no statistically significant difference between the control area and the harvested areas, but the sample size was small and statistical power was therefore low. Thus the study's results do not necessarily indicate that there was not a harvesting effect, only that such an effect was undetectable given the available data. The report recommended continued surveying and data-gathering in the area, more frequently than the once every five years that was the practice until recently. This recommendation will be implemented in the near future with biannual aerial surveying (once in winter, once in summer) that will significantly improve the quantity of data with which to assess overall effects of harvesting on kelp beds.

The volume of kelp needed to sustain aquaculture operations remains relatively constant throughout the year, but there are significant seasonal fluctuations in kelp abundance. During the winter kelp canopies are thinned by storms, so 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. Kelp harvesting also 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.

CDFG recently finalized new kelp harvesting regulations that close a section of Bed 220 closest to Cannery Row in Monterey to harvesting by designating it as a "no take" area. Kelp harvesting may still occur in the remaining areas of Bed 220 which are located to the west of Cannery Row and southward along most of the Monterey peninsula. The MAC will therefore harvest from the portions of Bed 220 that are still open to harvest, but is also likely to harvest from other open kelp beds in the area such as Bed 221, which starts immediately east of the MAC facility and Municipal Wharf #2. Particularly during winter, this displacement of kelp demand may shift impacts from kelp harvesting to other open kelp beds.

Recent changes in the kelp harvesting regulations

In response to concerns about potential impacts from harvesting to bull kelp, the F&GC expanded the area where bull kelp may be taken by hand harvest only, from Point Montera south to Santa Rosa Creek. Hand harvesting encourages the harvesting of mature bull kelp plants that have released reproductive tissue into the local area. It also protects bull kelp from the large-scale harvest that could occur if mechanical harvesters were used in large patches of bull kelp.

---

[16] "The Effects of Small-Scale Kelp Harvesting on Giant Kelp Surface Canopy Dynamics in the Ed Ricketts Underwater Park Region: Final Report to the Monterey Bay National Marine Sanctuary and the Cities of Monterey and Pacific Grove." Michael D. Donnellan and Michael S. Foster, Coastal Solutions Group, 1999.

The new kelp harvesting regulations also restrict all harvesting of bull kelp within the Monterey Bay National Marine Sanctuary from March 1 through July 31 each year, a seasonal closure that was requested by the Sanctuary. Other significant changes include new rules on how harvested kelp is to be weighed; how harvest quantities must be reported; new kelp bed closures, particularly of kelp beds whose canopies are small and susceptible to impacts of overharvesting; the closure of a portion of Bed 220 to harvesting; and a provision giving the F&GC authority to control or restrict kelp harvesting on an emergency basis without formal revision of harvesting regulations. [17]

Commission evaluation of impacts

The MAC's proposed take of kelp is small relative to the quantities taken by other kelp harvesters in the state. *(R. Collins, CDFG, Personal Communication, May 30, 2001)* The total annual harvest of kelp canopy from Bed 220 by all users over the past decade has been less than 400 tons, but a rough estimate of the amount of drift kelp produced from Bed 220 is 200,000 tons per year; the current harvest is therefore less than 1% of the estimated drift kelp available from this bed.[18] However, the CDFG's recent decision to close the portion of Bed 220 closest to Monterey Harbor will lessen kelp harvesting impacts to that bed, particularly during the winter season. The MAC's voluntary participation in the Monterey Kelp Cooperative contributes to the reduction of cumulative impacts to local kelp resources. The proposed project will therefore not cause significant impacts to kelp resources.

Consistency with Coastal Act policies

Section 30411(a) of the Coastal Act states:

> *"The Department of Fish and Game and the Fish and Game Commission are the principal state agencies responsible for the establishment and control of wildlife and fishery management programs and the commission shall not establish or impose any controls with respect thereto that duplicate or exceed regulatory controls established by these agencies pursuant to specific statutory requirements or authorization."*

For the purposes of Section 30411(a), the Fish and Game Commission's kelp harvesting regulation program is a "wildlife...management program." Section 30411(a) prohibits the Commission from "establish[ing] or impos[ing] any controls with respect to [any such program] that duplicate or exceed regulatory controls established by" the Fish and Game Commission. Therefore, the Coastal Commission lacks the regulatory authority to impose conditions to mitigate potential impacts on the affected kelp resource to a level of consistency with, or deny the project based on inconsistency with, applicable marine resource policies of the Coastal Act.

---

[17] "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 (March 2001), Chapter 2, "Project Description."

[18] Ibid, page 3-74.

4.4.1.5 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 will be consistent with Coastal Act Sections 30230 and 30231.

4.4.2 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 moorings 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. Monterey Harbor provides the necessary saline conditions to support marine culture of abalone, and the municipal wharf provides a protected area in which to secure the grow-out structures. The project is proposed to be located within the harbor and beneath a wharf where it will have the least impact. The concrete moorings placed on the seafloor are necessary to secure barrels and cages against tidal wave surges to prevent them from breaking free and to prevent tangling of lines. Barrels, which are small and light, require connections to seafloor concrete moorings in order to prevent tangling of culture unit lines that would impede the efficient functioning of the grow-out facility.

However, the MAC experimented with configurations of cages (which are larger and heavier than barrels) and found that cages function well without concrete moorings. When MAC expands and adds additional walkways, culture units, and abalone, its new culture units will be primarily cages, which will not require concrete moorings. However, a small number of barrels will always be needed as smaller culture units for various sizes of abalone that are very close to market size. Barrels are lighter and tangle more easily than cages, and thus require attachment to moorings to prevent tangling and enable efficient functioning of the facility. The MAC has worked with Commission staff to minimize the number of additional concrete moorings to the greatest extent possible. The MAC has stated that after the initial 130-mooring installation, as expansion of the facility occurs, cages (which do not require moorings) rather than barrels will be used to the maximum extent feasible, so that the number of moorings in excess of the initial 130 moorings would only be 60, for a total of 190 moorings covering approximately 636 square feet of seafloor. 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, as discussed in Sections 4.4.1 through 4.4.1.5 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.

4.4.3 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 facility will be located near the end of Municipal Wharf #2, underneath the surface of the wharf. Public access to the wharf is somewhat limited by the City of Monterey, the owner of the wharf. Although no fishing is allowed around the commercial facilities and in the marina for safety reasons, anglers may fish from the east side of the wharf. Abalone deliveries will be made by arrangement with other seafood wholesalers on the wharf, and the MAC estimates that even at highest sales volume, only one vehicle trip per day will be generated by deliveries. The MAC has a permit for two vehicles to park on the wharf in front of the MAC workshop. The MAC will encourage its eight employees to bicycle or walk to work or park their vehicles at the

foot of the wharf or nearby where there is public parking. The abalone facility will provide educational tours for groups, schools and visitors upon appointment.

Recreation at Monterey Harbor
Monterey Harbor offers a wide variety of recreational activities including opportunities for commercial fishing and multiple recreational activities such as fishing, sailing, kayaking, and whale-watching. Municipal Wharf #2 hosts five wholesale fish companies, the abalone facility that is the subject of this staff report, public restrooms, a snack bar, restaurants, a boat hoist, and the Monterey Peninsula Yacht Club.

Commission evaluation of impacts
The proposed aquaculture project will not interfere with the public's right of access to or along the shoreline because it 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. Due to the proposed project's location beneath an existing wharf, and the very small amount of vehicle trips related to the proposed facility, the project would not significantly impact public access or recreation. The restrictions on public access and fishing at Municipal Wharf #2 were put in place by the City of Monterey for safety reasons prior to the MAC facility's proposed location on the wharf, so the proposed project would not alter or expand these existing restrictions.

Conclusion – Public Access and Recreation
Hence, the Commission concludes that for the reasons stated above in this report, the project as proposed 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.*

Due to the MAC's proposed location beneath an existing municipal wharf in Monterey Harbor, there will be no significant impacts to the visual character of the harbor area. The proposed facility's office and workshop on the wharf would be located in existing buildings on the wharf, and would therefore not cause any alteration of the wharf's visual character. The Commission thus finds that the proposed project will be consistent with the existing visual character of the harbor as required by Coastal Act Section 30251.

4.5 Alleged Violation

Development consisting of the construction of an abalone grow-out facility, including installation of walkways, platforms, a seawater pumping system and other structures, placement

of concrete moorings on the seafloor, and operation of the facility since 1992, has taken place without benefit of a coastal development permit (see Table 2 for a summary of existing facility size in comparison to proposed full buildout size). Although development has taken place prior to submission of this permit application (Violation No. V-3-97-007), consideration of the application by the Commission has been based solely upon the policies of the Chapter 3 policies of the Coastal Act. Approval of the permit does not constitute a waiver of any legal action with regard to the alleged violation, nor does it constitute an admission as to the legality of any development undertaken on the subject site without a coastal permit.

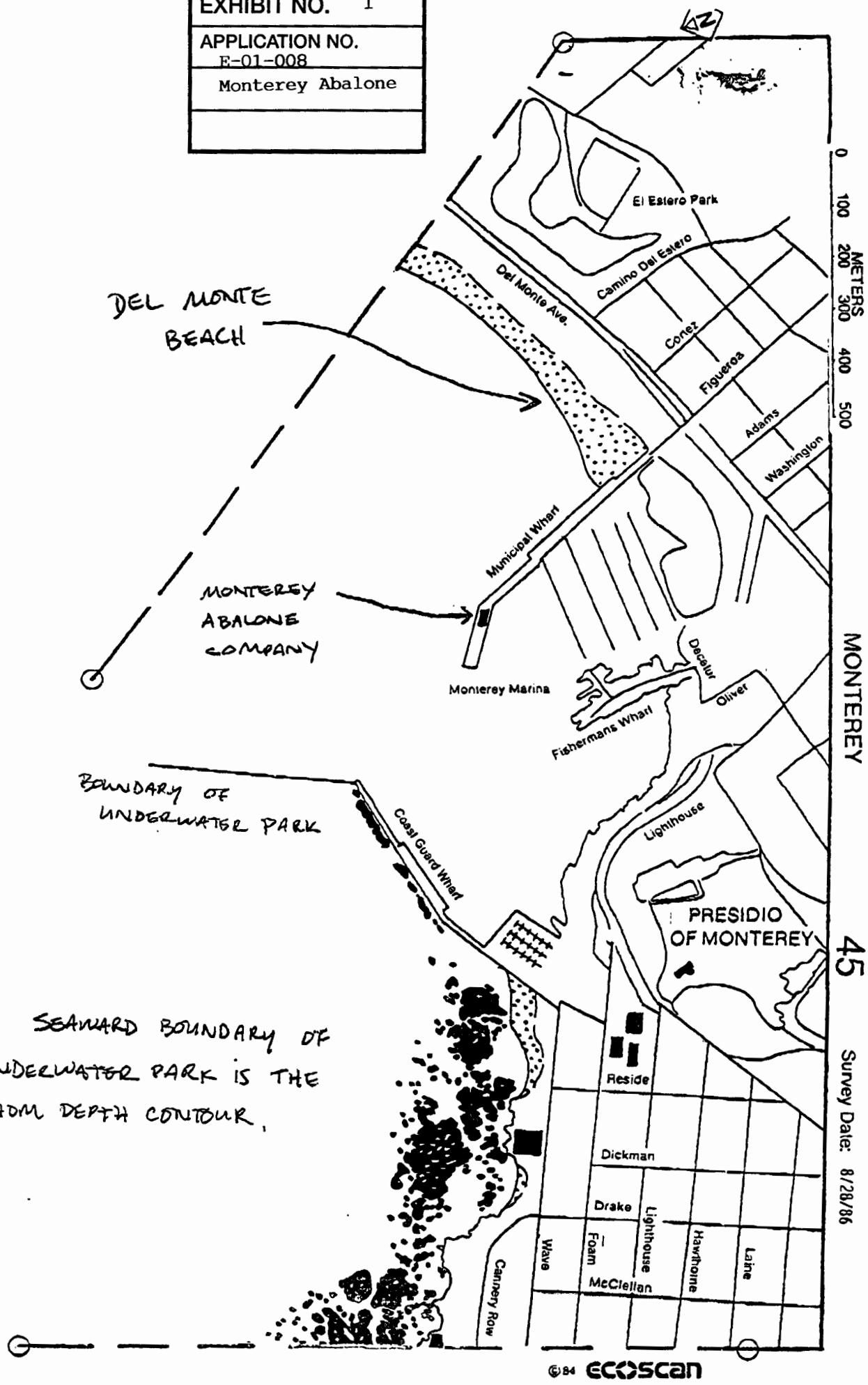
4.6 California Environmental Quality Act

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 California Public Resources Code § 21080.5(d)(2)(i) states:

> *The rules and regulations adopted by the administering agency shall require that an activity will not be approved or adopted as proposed if there are feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment.*

Thus, CEQA requires the consideration of feasible alternatives and mitigation measures to lessen any environmental impacts of the project to a level of insignificance. The Commission incorporates into its finding of CEQA consistency its analysis in this staff report of the proposed project's potential impacts under Coastal Act policies. Although the abalone grow-out facility has some potential to result in adverse impacts to marine resources and marine water quality, the Executive Director finds no feasible less environmentally damaging alternatives or additional feasible mitigation measures other than those identified herein, that would substantially lessen any significant adverse impact which the activity may have on the environment. Therefore, the Commission finds that the project as fully conditioned is consistent with the mitigatory requirements of CEQA.

EXHIBIT NO. 1
APPLICATION NO. E-01-008
Monterey Abalone



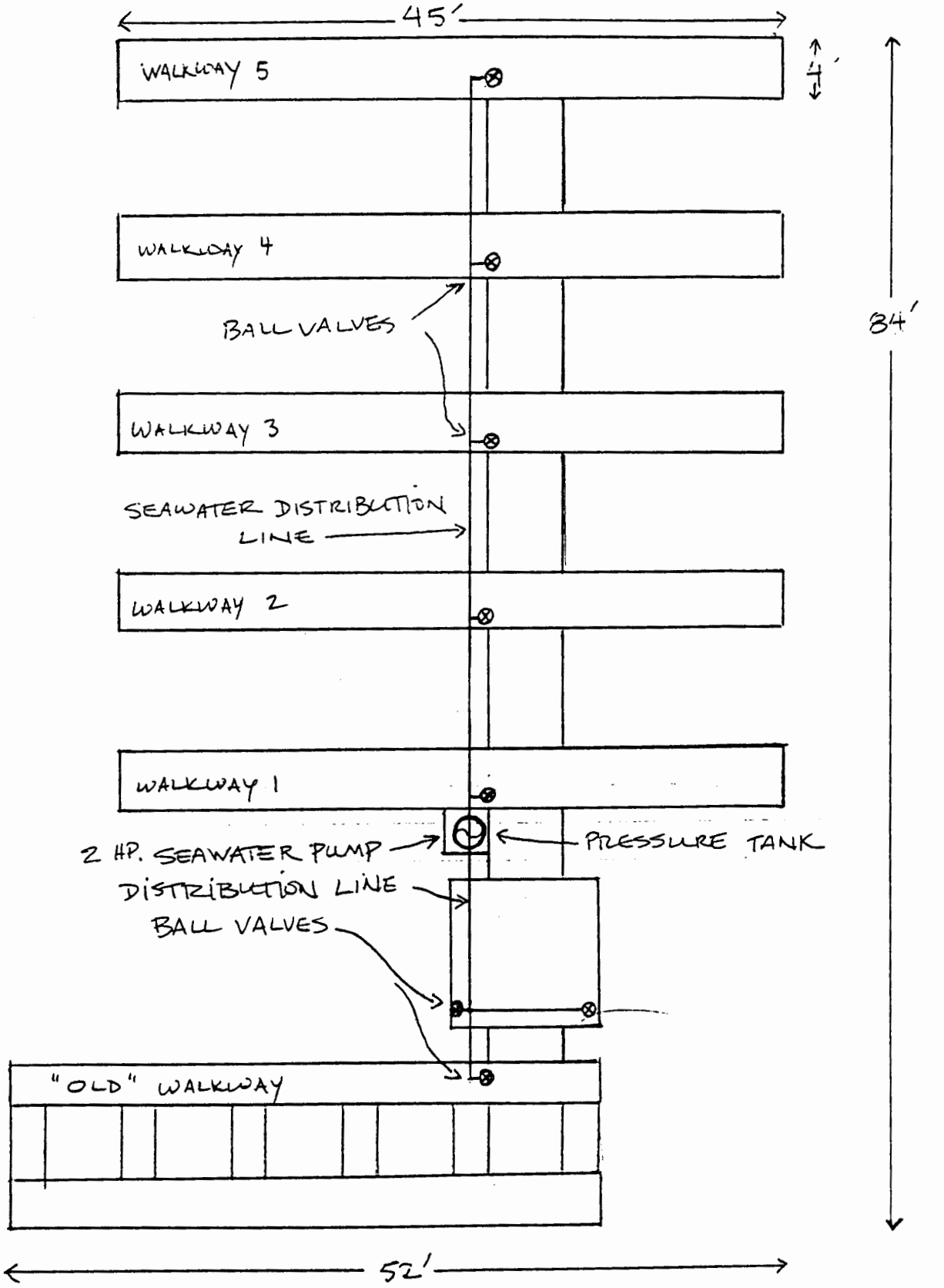


EXHIBIT NO. 2
APPLICATION NO. E-01-008
Monterey Abalone

APPENDIX A
STANDARD CONDITIONS

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

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

3. Interpretation. Any questions of intent of interpretation of any condition will be resolved by the executive director or the Commission.

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

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

APPENDIX B
SUBSTANTIVE FILE DOCUMENTS

Coastal Development Permit Application Materials

Application for Coastal Development Permit E-01-008

Agency Letters, Permits and Orders

Letter from Grace Kato, State Lands Commission, to Kevin Colin, California Coastal Commission, November 27, 2000.

Letter from Stephen Scheiblauer, City of Monterey Harbormaster, to Marina Cazorla, California Coastal Commission, March 28, 2001

Letter from M.L. Van Houten, U.S. Coast Guard, to Joseph Cavanaugh, Monterey Abalone, July 25, 1997.

Letter from Roger Briggs, Central Coast Regional Water Quality Control Board, to Marina Cazorla, California Coastal Commission, May 22, 2001, re NPDES Permit Determination.

Letter from Scott Kathey, Monterey Bay National Marine Sanctuary, to Joseph Cavanaugh, Monterey Abalone, December 20, 2000.

Department of Fish and Game 2001 Aquaculture Permit, November 11, 2000.

Department of Fish and Game 2001 Kelp Harvesting Permit, January 1, 2001.

Memos to all registered abalone aquaculturists from Jacqueline E. Schafer, California Department of Fish and Game, May 20, 1996; December 6, 1996.

Risk Assessment for Monterey Abalone, California Department of Fish and Game, July 1, 1999.

Letter from Fred Wendell, CDFG, to Art Seavey, Monterey Abalone Company, January 8, 1999.

Letter from Thea Robbins, CDFG, to Art Seavey, Monterey Abalone Company, March 27, 2001.

Environmental Documents and Reports

California Department of Fish and Game Withering Syndrome Action Plan, May 7, 2000.

California Ocean Plan, 1997, State Water Resources Control Board.

Giant and Bull Kelp Commercial and Sport Fishing Regulations, Final Environmental Document, California Department of Fish and Game, March 2001.

Plan for the Eradication of the Sabellid Worm from the Facilities of the Monterey Abalone Company, Monterey Abalone Company, November 9, 1998.

References

Culver, Carolynn S., Kuris, Armand M., and Beede, Benjamin, "Identification and Management of the Exotic Sabellid Pest in California Cultured Abalone." A publication of the California Sea Grant College System. Publication No. T-041; ISBN 1-888691-05-0, La Jolla, 1997.

Donnellan, Michael D. and Michael S. Foster, Coastal Solutions Group, "The Effects of Small Scale Kelp Harvesting on Giant Kelp Surface Canopy Dynamics in the Ed Ricketts Underwater Park Region: Final Report to the Monterey Bay National Marine Sanctuary and the Cities of Monterey and Pacific Grove," 1999.

Friedman, C. S., K. B. Andree, T. T. Robbins, J. D. Shields, J. D. Moore, K. Beauchamp and R.P. Hedrick. 2000. "Candidatus *Xenohaliotis californiensis*," a newly described bacterial pathogen and etiological agent of withering syndrome found in abalone, *Haliotis* spp., along the west coast of North America. Journal of Shellfish Research 19:513.

Kuris, Armand M. and Culver, Carolynn S., "An Introduced Sabellid Polychaete Pest Infesting Cultured Abalones and its Potential Spread to other California Gastropods." Invertebrate Biology 118(4): 391-403. American Microscopical Society, Inc., 1999.

Moore, J. D., T. T. Robbins and C. S. Friedman. 2000. Withering syndrome in farmed red abalone *Haliotis rufescens*: Thermal induction and association with a gastrointestinal Rickettsiales-like prokaryote. Journal of Aquatic Animal Health **12**:26-34.

Science Daily Magazine, August 18, 1999.

Stickney, Robert, Principles of Aquaculture, John Wiley and Sons, 1994.

Wendell, Fred, CDFG, California Marine Currents, Vol. 1, No. 3.

Lease Documents

City of Monterey Lease Expansion, Approved July 19, 1994.

Other

Collins, Robson. California Department of Fish and Game. Personal Communication. May 30, 2001.

Culver, Carolyn. Marine Science Institute, University of California at Santa Barbara. Personal

Communication. June 4, 2001

Danger, Paul. City of Monterey. Personal Communication. June 14, 2001.

Thompson, Matt. Central Coast Regional Water Quality Control Board. Personal Communication. June 11, 2001.

Wendell, Fred. California Department of Fish and Game. Personal Communication. February 23, 199; May 22, 2001.