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

W13a

Filed:	4/6/2018
180th Day:	10/3/2018
Staff:	C. Teufel-SF
Staff Report:	4/26/2018
Hearing Date:	5/9/2018

STAFF REPORT: PERMIT AMENDMENT

Application No.:	**9-18-0002-A1**
Applicant:	**Marin Oyster Company, Inc.**
Agent:	None
Location:	Tomales Bay, Marin County.
Project Description:	Request for after-the-fact approval for installation and use of oyster cultivation equipment and proposed conversion of areas from one cultivation method to another within a five acre area of tidelands in Tomales Bay.
Staff Recommendation:	Approval with conditions.

SUMMARY OF STAFF RECOMMENDATION

Marin Oyster Company, Inc. (MOC) proposes to amend Coastal Development Permit 2-83-22 (re-numbered 9-18-0002-A1) to modify a portion of its oyster cultivation operation on leased state tidelands in Tomales Bay, by converting an area of existing longline with "bottom bag" cultivation equipment to a system of elevated oyster cultivation baskets. Several years ago,

MOC, without benefit of an amendment to this permit, began these replacement activities. MOC is now requesting after-the-fact approval for the installation and use of the three basket lines it already put in place (a total of approximately 1,200 linear feet of support structures holding 200 three-foot long plastic baskets) as well the proposed placement of an additional 62 basket lines. MOC is also requesting after-the-fact approval for the continued use of the bottom bag on longline and floating bag on longline cultivation equipment that was installed by the previous operator of the aquaculture facility - also without the necessary CDP or amendment (approximately 260 longlines, each roughly 200-feet long with 90 to 160 attached cultivation bags).

As a result of these failures to obtain the necessary authorizations prior to carrying out development activities, violations of the Coastal Act exist on the subject property. These include, but are not limited to, installation and use of bottom bag longline, floating bag longline, and basket line oyster cultivation equipment. In response to notification by Commission permitting and enforcement staff about these Coastal Act violations – as well as its desire to carry out additional proposed development - MOC prepared and submitted this CDP application. Approval of this application pursuant to the staff recommendation, issuance of the permit, and the applicant's subsequent compliance with all terms and conditions of the permit will result in resolution of the above described violations.

To complete its proposed conversion of oyster cultivation equipment types, MOC would install up to 62 additional support structures for cultivation baskets, within an approximately one acre area currently used for cultivation of oysters using plastic mesh bags on the mudflats. These existing longline with bottom bag structures are made up of roughly 200-foot long ropes staked to the substrate at both ends, with lengths of PVC piping and affixed with 90 individual two by three-foot plastic mesh bottom bags. MOC proposes to remove 57 of these bottom bag longlines within a portion of its tidelands lease, and to replace them with 62 elevated basket lines. Each basket line would be 200-feet long and would support 45 three-foot long plastic mesh baskets. Each basket would be planted with roughly 180 oysters. The baskets would be affixed to horizontal fiberglass rods supported every five-feet by 18-inch high PVC pipe posts.

The proposed basket line structures would be installed at low tide with the use of hand tools. All equipment and material would be carried to the installation sites on a small work boat, and installation would be expected to be completed within three to five tidal cycles. MOC proposes to cultivate approximately 500,000 Pacific oysters (*Crassostrea gigas*) within the new basket structures, planting and harvesting every 18-30 months. The oysters would be grown to market size – or until large enough to transfer to MOC's other cultivation area in southern Tomales Bay - and harvested by hand with the aid of a small support boat. Because MOC is also in the process of seeking other required authorizations for this installation work, it would continue using the existing longlines with bottom bags until such authorizations are in place.

The key Coastal Act issues raised by the project are associated with its potential to result in adverse impacts to marine resources. The use of bottom bags on longlines and proposed installation, maintenance, and operation of basket lines would result in fill and disturbance to benthic habitat and its associated species. The presence of the gear and growth of the oysters could: (1) contribute to excessive organic enrichment of the sediment; (2) limit or displace

wildlife foraging opportunities; and/or (3) alter the composition of the community of organisms that relies on the benthic habitat beneath and adjacent to the aquaculture equipment. In addition, the use of the approximately 25,000 HDPE plastic mesh bottom bags and baskets within Tomales Bay has the potential to contribute to marine debris within the bay and larger environment. Some of this material could escape or disperse into and smother nearby areas of eelgrass, thus contributing to its displacement or loss.

Commission staff believes that along with the mitigation measures associated with the original authorization of MOC's operation (included in CDP 2-83-22), the implementation of new **Special Conditions 9** through **15**, will reduce impacts to marine resources such that the project can be found consistent with the terrestrial and marine resources policies of the Coastal Act. **Special Condition 9** would establish a permit term limit to ensure that MOC's operation continues to be carried out under a valid lease of state tidelands. **Special Condition 10** would require MOC, to the extent practicable, to install the proposed basket lines within areas from which bottom bag on longline cultivation equipment would be removed. This measure would concentrate the fill and disturbance of benthic habitat within areas that previously supported fill materials and have been recently disturbed. **Special Condition 10** would also help provide protection for eelgrass habitat by establishing a separation between existing eelgrass habitat and aquaculture equipment and by requiring that cultivation equipment be affixed in place. **Special Condition 11** would require MOC, to the extent practicable, to use a consistent vessel transit and access route and to limit vessel passage through eelgrass. **Special Condition 12** would require MOC to develop and submit an annual report to the Executive Director with information about its operation and marine debris reduction and response efforts. **Special Condition 13** would require MOC to implement a variety of marine debris reduction and response efforts, including participation in clean-up events and staff trainings as well as by marking its high-volume gear with its company name or other identification. Finally, **Special Conditions 14 and 15** would prohibit MOC from disturbing marine wildlife and require it to obtain all other necessary state and federal authorizations prior to proceeding with its proposed gear conversion efforts.

Commission staff therefore recommends that the Commission **APPROVE** coastal development permit amendment application 9-18-0002-A1, as conditioned.

TABLE OF CONTENTS

APPENDICES

Appendix A – Substantive File Documents

EXHIBITS

I. MOTION AND RESOLUTION

Motion:

*I move that the Commission **approve** Coastal Development Permit Amendment 9-18-0002-A1 subject to the conditions set forth in the staff recommendation specified below.*

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

Resolution:

The Commission hereby approves the Coastal Development Permit Amendment for the proposed project and adopts the findings set forth below on grounds that the development as amended and conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit amendment complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the amended development on the environment.

II. SPECIAL CONDITIONS

All terms and conditions of Coastal Development Permit 2-83-22 (included in **Exhibit 1**) shall remain in full force and effect, and the following Special Conditions 9 through 15 shall be added:

9. **Permit Term Limit.** This permit shall expire on September 13, 2027. If the term of MOC's lease (State Water Bottom Lease No. M-430-02) - currently also set to expire on September 13, 2027 - is amended or a new lease is issued by the California Fish and Game Commission, MOC may submit an application for a permit amendment requesting an extension of the permit term. MOC shall, no less than 60 days prior to permit expiration or the cessation of its operations on Lease No. M-430-02, submit a complete application to amend this permit to remove all cultivation equipment and accumulations of oyster shell and return the lease area to a natural condition.

10. **Installation Locations and Configuration.** All basket lines shall be installed within the area from which longlines with bottom bags were removed, as designated by Area B (labelled "proposed Aqua-purse off bottom area") in **Exhibit 2**. All longlines with bottom bags and basket lines shall be installed with a spacing of no less than three feet between rows. To avoid loss or disturbance of eelgrass habitat located in the southwest corner of State Water Bottom Lease No. M-430-02, no cultivation gear or other equipment shall be installed or used to the south or south-west of the floating bag longline identified in **Exhibit**

2 between Area B and Area C (labelled "existing long line; off-bottom") and all bottom bags and floating bags shall be affixed to anchored lines.

11. **Vessel Access.** Boat transit and access to and from the lease area during installation of basket line cultivation equipment, removal of longlines with bottom bags, and future planting, maintenance, and harvest activities, shall make use of the vessel route identified on **Exhibit 2** (labelled "path") and shall be limited to areas devoid of eelgrass as much as is practicable.

12. **Annual Report.** By December 31 of each year, MOC shall submit to the Executive Director an annual report with information regarding the results of quarterly cleanup events carried out as described in **Special Condition 13** and the date of training, training materials, meeting minutes, and list of attendees from the Marine Debris Reduction Training described in **Special Condition 13(C)**. In addition, the annual report shall include information on the number of cultivation baskets and bags lost, replaced, and recovered throughout the course of the year as well as any design, management, or operational changes implemented to address issues that have arisen with the expanded use of cultivation baskets. The annual report shall also include a description of any significant changes to the type, quantity and configuration of cultivation equipment that are being considered and any resource or operational challenges that are emerging.

13. **Marine Debris Reduction and Management.** MOC shall carry out operations consistent with the following marine debris reduction and management practices:

    A. Storm Damage and Debris. As soon as safely and reasonably possible following storm or severe wind or weather events, MOC shall patrol all active mariculture areas for escaped or damaged mariculture equipment. All equipment that cannot be repaired and placed back into service shall be properly recycled or disposed of at an appropriate onshore facility. In addition, MOC shall retrieve or repair any escaped or damaged mariculture equipment that it encounters while conducting routine daily and/or monthly maintenance activities associated with shellfish culture (e.g. bed inspections, shellfish harvest and planting). If the escaped gear cannot be repaired and replaced on the shellfish bed, it shall be properly recycled or disposed of on land.

    B. Gear Marking. MOC shall mark shellfish culture bags (bottom bags and floating bags), baskets, and floats in an easily identifiable manner with identification information including its company name. Markings shall be securely attached and robust enough to remain attached and legible after an extended period in the marine environment (e.g. heat transfer, hot stamp, etching, etc.). Existing culture bags, baskets, and floats currently in use shall be marked or replaced with marked versions when replanted and all unmarked gear shall be replaced in this way within 18 months of the Commission's approval of this permit amendment. In the event that its shellfish culture gear or equipment becomes displaced or dislodged from culture beds, it shall be MOC's responsibility to retrieve the material from the shoreline, open water, eelgrass beds, mudflat, or submerged bottom with minimal damage to the resources affected. Once located, such material shall be removed as soon as feasible and properly disposed of, recycled, or returned to use.

C. Marine Debris Reduction Training. WITHIN 30 DAYS OF ISSUANCE OF THIS PERMIT, MOC shall implement an employee training regarding marine debris issues, how to identify culture gear or associated materials (marking stakes, support posts, longlines, etc.) that is loose or at risk of becoming loose, proper gear repair methods and how to completely remove gear from out-of-production areas. Particular focus shall be placed on management and maintenance practices to reduce the loss of any gear type consistently found during bay cleanup and inspection activities. This training shall be repeated on an annual basis throughout the term of the permit. During trainings, MOC's employees shall be encouraged to consider and implement field and management practices that reduce the amount of small plastic gear (such as zip-ties, tags and fasteners) and non-biodegradable material (such as PVC stakes and nylon or polypropylene rope) used in its operations.

D. Cleanup Events. MOC shall carry-out quarterly Tomales Bay cleanup events in coordination with other interested parties or organizations, which shall include walking different portions of the bay and shorelines to pick up escaped shellfish gear and other trash (regardless of whether it is generated by the project). The volume and type of shellfish gear collected and the cleanup location (marked on a map) and duration of cleanup activity shall be recorded and documented in the annual report submitted to the Executive Director of the Commission. If consistently excessive discoveries of certain gear types are made, MOC shall evaluate (and if feasible, implement use of) alternative gear types or practices that would reduce these consistent sources of debris.

E. Ongoing Operations. MOC shall not leave or temporarily store tools, loose gear, or construction materials on its leased tidelands or surrounding areas. All aquaculture gear installed in active culture areas shall be kept neat and secure and maintained in functional condition. MOC shall carry out regular bed inspections and maintenance activities to help ensure that broken, collapsed, fallen, or buried gear is fixed or removed in a timely manner.

F. Bed Cleaning at Harvest. At the time of harvest of each cultivation area, MOC shall carry out a thorough inspection to locate and remove loose, abandoned or out of use equipment, tools, and accumulations of oysters from the surrounding substrate. Oyster shell shall not be intentionally placed or deposited within the lease and oysters or oyster shell accidentally spilled during harvest shall be immediately collected and removed.

G. Excessive Gear Loss or Maintenance Failures. If the Executive Director determines that MOC is responsible for consistently extensive loss of aquaculture equipment (including bottom bags or cultivation baskets) into the marine environment or is consistently failing to maintain its equipment in an intact and serviceable condition, MOC shall, within 60 days of the Executive Director's written notification, submit a permit amendment to modify its cultivation equipment and/or operational practices to address the issue.

14. Wildlife Disturbance. During vessel transit, harvest, maintenance, inspection, and planting operations, MOC shall avoid approaching, chasing, flushing, or directly disturbing shorebirds, waterfowl, seabirds, or marine mammals.

15. Other Agency Review and Approval. PRIOR TO COMMENCEMENT OF PROJECT CONSTRUCTION AND/OR INSTALLATION ACTIVITES, MOC shall submit to the Executive Director written evidence that all necessary permits, permissions, approvals, and/or authorizations for the approved project have been granted, including those from the Regional Water Quality Control Board, California Fish and Game Commission and U.S. Army Corps of Engineers. Any changes to the approved project required by these agencies shall be reported to the Executive Director. No changes to the approved project shall occur without an amendment to this permit unless the Executive Director determines that no amendment is legally necessary.

III. FINDINGS AND DECLARATIONS

A. Background and Project Description

In September of 1983, the Coastal Commission approved Coastal Development Permit No. 2-83-22 for the planting, cultivation, and harvest of oysters on a five acre area of state tidelands within Tomales Bay that had been leased by the California Fish and Game Commission (Lease No. M-430-02). CDP No. 2-83-22 was issued to Bay Bottom Beds Company and authorized the use of two kinds of equipment for the cultivation of oysters within the lease: (1) individual plastic stakes; and (2) one-foot high wooden or plastic frame racks used to support flat trays.

When the Bay Bottom Beds Company's operation was transferred to Marin Oyster Company, Inc. in 1999, neither of these approved cultivation methods were in use and the operation instead relied on two different methods and a different set of equipment for growing oysters. Specifically, the operation made use of longlines with bottom bags and longlines with floating bags. At some point prior to Marin Oyster Company, Inc.'s purchase of the operation, Bay Bottom Beds Company began using these growing methods instead of the stake and rack methods described in CDP No. 2-83-22 and installed the associated gear throughout the five acre lease without benefit of an amendment to its CDP. Marin Oyster Company, Inc. (MOC) has continued to use these methods since it began operations in 1999 and it currently maintains up to 262 individual 200-foot longlines with bottom bags and a single 150-foot longline with floating bags. Each plastic mesh bottom bag is approximately three-feet long by two-feet wide and 90 are hooked to each longline (for a total of approximately 23,600 bags between all 262 lines). Floating bags have a similar design and dimensions but have UV resistant foam floats placed within them for floatation. Up to 160 floating bags are hooked to the floating bag longline. The longlines themselves are made of nylon rope and are anchored to the substrate with PVC stakes. **Exhibit 3** provides representative photos and design schematics for this equipment.

In addition, several years ago MOC also introduced a third method, again without benefit of an amendment to its CDP. As shown in **Exhibit 3**, this new method includes rows of PVC posts used to support lines of rigid plastic mesh baskets. MOC has installed three such basket lines within its lease area (with individual lengths of roughly 170-feet, 250-feet, and 800-feet, respectively).

Through this project, MOC is requesting an after-the-fact amendment to its original CDP from 1983 (this permit was transferred from Bay Bottom Beds to MOC in 1999 through Assignment of Permit No. E-99-005-T). This amendment would authorize the oyster growing methods and

equipment MOC currently uses. Specifically, MOC is requesting after-the-fact approval for the installation, maintenance and use of up to 262 200-foot longlines with approximately 90 bottom bags each, one 150-foot longline with approximately 160 floating bags, and three elevated basket lines located along three of the lease boundaries (approximately 1,200-linear feet in total supporting up to 200 total baskets). In addition, MOC is also proposing to remove up to 57 of its existing bottom bag longlines and replace them with up to 62 additional basket lines. These additional proposed basket lines would be 200-feet long and each would support up to 45 baskets. The baskets would measure approximately three-feet long by one-foot wide and would not be equipped with buoys or floats. The baskets would be supported on fiberglass rods balanced between PVC support posts. Between the three existing lines and roughly 200 baskets that MOC is proposing to retain and the 62 additional proposed basket lines, MOC would install and use approximately 3,000 cultivation baskets across 65 lines within the lease area.

The basket lines are proposed to be installed within an approximately one-acre area (as shown in **Exhibit 2**), spaced roughly every four feet. A single longline with floating bags is proposed to continue to be used directly adjacent and southwest of this area. The roughly three and a half acres to the north of this area would continue to be used for up to 202 longlines with bottom bags. These 200-foot longlines with bottom bags would be spaced between three- and five-feet apart.

In addition to this CDP amendment, MOC is also seeking authorizations or amended approvals from the U.S. Army Corps of Engineers, Regional Water Quality Control Board and California Fish and Game Commission to reflect its ongoing and proposed shellfish cultivation operations. Because MOC is in the process of seeking these other required authorizations for its proposed installation of cultivation baskets, it would continue using its existing longlines with bottom bags until such authorizations are in place.

Installation and Removal Activities
To complete the installation of the proposed basket lines, MOC would use its outboard motor equipped 24-foot flat-bottomed skiff to bring the necessary materials - PVC posts, anchor stakes, baskets, and fiberglass support rods - to the lease area. The materials would then be offloaded by hand at low tide and the vertical PVC support posts for the lines would be hammered into place by hand. The horizontal support rods and oyster filled baskets would then be installed on the posts and secured in place.

The proposed removal of the 57 longlines with bottom bags would also be carried out by hand at low tide. Once the oysters within them are ready for harvest, the bags would be collected and the lines and PVC anchor stakes would be pulled from the substrate with hand tools and stowed aboard the 24-foot skiff for transport to shore and onshore storage.

MOC anticipates carrying out the removal of the bag lines and replacement with basket lines in a single effort spread across several low-tide cycles when the mudflats are exposed and accessible on foot. The removal and replacement would be done concurrently so that for each basket line installed, an approximately corresponding number of bag lines would be removed.

Planting and Harvest Activities
Both planting and harvest activities would also be carried out with use of the same 24-foot skiff. For harvest, the skiff would be driven to the longline and the engine turned off. The vessel would then be floated along the targeted line and the cultivation bags or baskets lifted into it for transport to shore. Once ashore, the bags or baskets would be cleaned and the mature oysters sorted and removed. Oysters not yet ready for harvest would be replaced in bags or baskets and returned to the lease area for additional grow-out.

For planting, the process would be reversed – bags or baskets filled with young seed oysters would be brought to the lease with the skiff, lifted out by hand, and affixed to the longline or horizontal supports as the skiff floats alongside.

Although the frequency of planting and harvest activities is unpredictable and reliant on a variety of highly variable factors – oyster growth rate, market demand, weather and ocean conditions, availability of seed oysters, etc. – MOC typically harvests oysters five to ten times each month and plants approximately 40 times per year. Nearly all of these activities are carried out during daylight hours. Several times per year, MOC may carry out planting, maintenance, or harvest activities at night but these activities would be limited and the only lighting provided would be by individual headlamps.

Vessel Use and Transit Route
MOC's operations on its lease would be primarily reliant on the use of a single 24-foot flat-bottomed outboard motor powered skiff. This boat would access the site up to several times per week and would enter from the deep water channel located to the west of the site by way of the access route indicated on **Exhibit 2** (labelled "path"). This route is identified by a buoy maintained in deeper water by the operator of the adjacent lease area, Hog Island Oyster Company, and the white PVC posts MOC uses to delineate the southern boundary of its lease.

B. Other Agency Approvals

U.S. Army Corps of Engineers
Marin Oyster Company, Inc. is working with the U.S. Army Corps of Engineers (ACOE) regarding its permit requirements under the Clean Water Act and Rivers and Harbors Act of 1899. MOC anticipates submitting a permit application to ACOE in May of 2018, requesting authorization for the proposed and after-the-fact placement and maintenance of bottom bag and basket line cultivation equipment in Tomales Bay. MOC expects to receive ACOE approval pending Commission authorization of the proposed project.

National Marine Fisheries Service
As part of the ACOE permit amendment review process, the ACOE will consult with the National Marine Fisheries Service (NMFS) to evaluate potential issues associated with Essential Fish Habitat and Protected Species. In addition, Commission staff coordinated with NMFS during the review of this permit amendment application.

Greater Farallones National Marine Sanctuary
Tomales Bay is within the Greater Farallones National Marine Sanctuary and under management by the Office of National Marine Sanctuaries (ONMS). Commission staff coordinated its review of the proposed project with ONMS staff and solicited early input from them, consistent with the state and federal agency coordination process established for shellfish aquaculture projects in Tomales Bay through a Memorandum of Agreement signed in 2016. In addition, ONMS staff provided information with Commission staff about the presence and location of sensitive marine resources in the project area.

California Fish and Game Commission
Marin Oyster Company Inc.'s operation is carried out within State Water Bottom Lease No. M-430-02. This lease was issued for a period of 15-years by the Fish and Game Commission and unless renewed, will terminate on September 13, 2027. Commission staff reached out to and solicited input from Fish and Game Commission staff during the course of this permit amendment review, consistent with the state and federal agency coordination process established for shellfish aquaculture projects in Tomales Bay through a Memorandum of Agreement signed in 2016.

California Department of Fish and Wildlife
Marin Oyster Company, Inc.'s aquaculture operations are required to be registered annually with the California Department of Fish and Wildlife (CDFW) and to adhere to a variety of protocols related to introduced species and the importation of oyster seed. MOC has consistent compliance record with these regulations and has a valid registration for 2018. Commission staff reached out to and solicited input from Fish and Game Commission staff during the course of this permit amendment review, consistent with the state and federal agency coordination process established for shellfish aquaculture projects in Tomales Bay through a Memorandum of Agreement signed in 2016.

C. FILL OF OPEN COASTAL WATERS

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

> *The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:*
>
> *(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.*
>
> *(2) Maintaining existing, or restoring previously dredged depths on existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.*
>
> *(3) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of*

structural pilings for public recreational piers that provide public access and recreational opportunities.

(4) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

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

(6) Restoration purposes.

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

The installation and maintenance of the cultivation bag longlines and basket lines would require the placement of over 19,000 two by three foot plastic mesh cultivation bags, several thousand 1.5-inch diameter PVC posts and two dozen metal anchoring stakes within Tomales Bay tidelands. These materials constitute "fill" as defined by the Coastal Act. Section 30108.2 of the Coastal Act states:

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

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

Allowable use

Marin Oyster Company, Inc. proposes to place fill in coastal waters for the purpose of cultivating oysters. As discussed above, MOC's proposed project is an aquaculture project, and as such qualifies as an "allowable use" under 30233(a)(7). The project is therefore consistent with the first test of Section 30233(a).

Alternatives

The Commission investigated project alternatives that would reduce or eliminate the need for fill. Due to the force of tides and currents within the proposed project areas as well as the design of the structures associated with the oyster basket cultivation method, a system of anchoring stakes and support posts is an essential element. For on-bottom cultivation, use of mesh bags allows the oysters to remain contained and consolidated during grow-out so they may be fully recovered at harvest with minimal habitat disturbance (particularly in comparison to unconsolidated placement of oysters directly on the substrate, which can significantly alter the substrate and require mechanical or hydraulic dredging techniques to harvest). Therefore, eliminating fill is not a feasible alternative for this type of oyster culture operation.

The Commission considered several alternative anchoring systems to those proposed by MOC for its proposed cultivation basket lines, including different types of posts and stakes and different post spacing configurations. While a wider spacing of support posts would be possible, to maintain the culture baskets above the substrate and within the target area of tidal influence

would result in high levels of tension and weight on the horizontal line or fiberglass rods and would therefore require larger posts, more substantial support rods, and/or anchoring systems on each end of the lines. These larger, more permanent structures would require more substantial installation methods, including the possible need for mechanized equipment (such as augers, water jets, or pile drivers). This would likely result in the installation of fewer larger structures rather than more numerous smaller structures, thereby not likely reducing the overall amount of fill required. Further, the larger structures would be more difficult to remove or adjust in the future and may require more intensive extraction methods.

Alternatives to the use of bottom bags were also considered, including the elimination of the bags and the use of support posts or racks to elevate them above the mudflats. As noted above, elimination of the bags would result in the placement of loose oysters and shell directly on the mudflats, increasing the loss and dispersal of shell, altering the physical makeup of the mudflats themselves, and requiring the use of harvest techniques that result in substantial disturbance and displacement of benthic habitat. As such, this alternative would not be less environmentally damaging than the proposed use of bottom bags.

While the use of posts or racks to elevate the bottom bags off of the mudflats would reduce the amount of direct fill, the environmental benefits of such efforts are not clear. These types of elevated alternatives may facilitate access to the mudflats for foraging wildlife such as fish, bat rays, and shorebirds when compared to the use and placement of mesh bottom bags directly on the substrate, but even this is not certain. Some species of birds have been shown to largely avoid elevated structures, and the interaction of other species of birds and marine animals with them has yet to be carefully evaluated. As such, it cannot be stated with confidence that the use of elevated gear in place of on-bottom gear would significantly increase foraging activity or opportunities. Additionally, more robust, elevated structures may have shading effects and affect currents, hydrology, and sediment transport/deposition in ways that bottom bags do not. Other affects are likely to be similar between the two alternatives. For example, oyster feeding and the deposition of organic material onto the underlying substrate is likely to occur at similar rates between the two cultivation methods. While elevated gear in some locations may facilitate flushing, water movement, and dilution of organic materials; in other locations, the more substantial and robust gear in the water column associated with elevated gear may alter current speeds and directions and concentrate organic wastes.

Based on current scientific understanding, it appears that the use of bottom bags vs elevated gear at similar densities simply results in trading some affects for others with no clear overall advantages in impact potential or magnitude. The critical considerations appear to be with the density of cultivated oysters and installed equipment (lower densities have lower potential for adverse effects) as well as maintenance and operational practices. Assuming similar densities and practices, it does not appear that it would be less environmentally damaging to replace bottom culture gear with elevated culture gear.

The proposed project includes contained bottom culture (mesh bottom bags) and off-bottom culture techniques (baskets and floating bags) using a support system with a minimal footprint that does not include the permanent placement or pile driving of anchors or supports. These project elements reduce the amount of fill compared to the alternative types and configurations

of posts and stakes that the Commission considered. In addition, there do not appear to be alternative cultivation methods that would be less environmentally damaging. The Commission therefore finds that the proposed project minimizes the amount of fill to the maximum extent feasible, so that the project is the least environmentally damaging feasible alternative and is therefore consistent with the second test of Section 30233(a).

Mitigation Measures

The final test of Coastal Act Section 30233(a) requires that feasible mitigation measures have been provided to minimize any adverse effects of the fill. As discussed in the Marine Resources section below, the placement of roughly 3,000 individual 1.5-inch diameter support posts and anchoring stakes on less than 50-square feet of bay sediment is expected to result in loss of benthic habitat and mortality and disturbance to associated organisms. However, given the small total amount of this fill and its dispersion over a large number of very small individual sites (less than one square inch each), as well as the abundance of benthic habitat in Tomales Bay similar to that which would be filled, adverse impacts associated with the installation and presence of the proposed oyster cultivation support and anchoring system would be minimal.

The proposed project would also include a more substantial amount of fill associated with the placement onto the substrate of the oyster bottom bags themselves - approximately 18,500 six-square foot bags for a total of roughly 2.5-acres covered by bottom bags. These bottom bags are typically in place, lying on the intertidal mudflats, for 12 to 24 months at a time as the oysters within them grow to harvestable size. While the placement of these mesh bags on top of the substrate would not result in the loss or removal of this substrate from the bay, the presence of the oyster shell filled mesh bags and the biological processes of the living oysters themselves may have localized effects on the underlying and adjacent benthic habitat and influence the type and abundance of organisms that it supports. These effects are associated with physical smothering or displacement from the bags and shells, as well as organic enrichment due to the deposition of biological waste from oyster filtration and feeding. By affecting benthic ecology (species composition, richness, abundance and dominance) in these ways, this fill may also affect other larger species such as fish, rays, sharks and shorebirds that forage on intertidal mudflats. In addition to effects on foraging associated with changes in the type and abundance of species present within the habitat below and adjacent to the bottom bag cultivation areas, foraging would also be affected by the presence of the plastic mesh bags themselves which in some cases may block access to prey.

To help reduce the potential for adverse impacts associated with these ecological effects, the Commission is requiring in **Special Condition 10** that MOC install all cultivation basket lines and equipment within the area from which longlines with bottom bags are to be removed, as shown in **Exhibit 2** (identified as Area B and labelled "Proposed aqua-purse off-bottom area"). With the addition of this mitigation measure, the placement of new fill would be concentrated within areas currently occupied with fill that would be disturbed as a result of the proposed removal of bottom bag longline structures. Thus, the new fill will only be in areas that are currently disturbed. In addition, **Special Condition 10** would also limit the potential loss and dispersal of cultivation gear by requiring that all bottom bags be affixed to anchored lines and by preventing the placement and use of cultivation equipment within eelgrass habitat. **Special Condition 11** would establish a vessel access and transit corridor to prevent the loss and

disturbance of eelgrass habitat due to prop-cutting or interactions with outboard motors, and **Special Condition 14** prohibits wildlife disturbance during operations and vessel transit. Finally, **Special Condition 13** would create a variety of marine debris prevention and response protocols that would reduce the likelihood of debris loss and increase opportunities for its recovery.

The Commission finds that with the addition of **Special Conditions 10, 11, 13, and 14,** feasible mitigation measures have been provided to minimize any adverse effects of fill, and, therefore, that the third and final test of Coastal Act Section 30233(a) has been met.

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

D. MARINE RESOURCES

Section 30230 of the Coastal Act states:

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

Section 30231 of the Coastal Act states:

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

Marin Oyster Company, Inc.'s proposed five-acre on- and off-bottom intertidal oyster cultivation operation and use of up to 202 bottom bag longlines, 62 basket lines, and a single floating longline has the potential to cause adverse impacts to shorebirds, marine wildlife, and benthic and water column habitats and species.

Benthic Habitat and Eelgrass
Benthic habitat at the proposed project site (State Water Bottom Lease No. M-430-02) is comprised almost entirely of exposed intertidal mudflats made up of fine sands and silts. A portion of the south-western corner of the lease supports eelgrass vegetation and habitat. The presence and location of this eelgrass habitat was confirmed by Commission staff during a site visit in April of 2018 and is shown in the results of a baywide eelgrass survey carried out by the

Greater Farallones National Marine Sanctuary in 2017. However, MOC does not currently maintain or use any aquaculture gear or oyster cultivation equipment in this portion of its lease and is not proposing to install or operate any equipment in this area in the future, as memorialized through **Special Condition 10**. Despite this, the proposed project has the potential to adversely affect eelgrass and benthic habitat in other ways.

Potential adverse impacts to benthic habitat and eelgrass from the proposed project include: (1) smothering of organisms and loss or disturbance of habitat due to the presence and growth of large numbers of oysters and the presence of bottom bags, longline anchors and basket line support devices on the bay tidelands; and (2) disturbance to sediments and organisms from post and anchor stake installation and removal activities and ongoing operations (planting, harvest and maintenance).

Smothering and Disturbance
The two elements of the proposed project that would primarily result in smothering and disturbance of benthic habitat are (1) the presence of the PVC anchoring stakes and support posts that would be used for the oyster cultivation equipment and (2) the presence of the bottom bag cultivation gear itself.

Placement of the proposed PVC post support and anchoring systems for the 202 bottom bag longlines and 62 basket lines is expected to result in the long-term displacement and loss of less than 50-square feet of benthic habitat known to support marine invertebrate communities and foraging habitat for shorebirds and marine wildlife. In addition, this activity would result in the short-term disturbance of mudflat areas adjacent to each line due to the foot traffic and trampling associated with the installation of the support and anchoring posts. However, the lost and displaced habitat would be spread across roughly 3,000 sites – each with an area of less than one square inch – and would therefore be insignificant. Additionally, in the context of the larger five-acre project area and Tomales Bay as a whole, the loss of less than 50-square feet of mudflat habitat and short-term disturbance of adjacent areas due to foot traffic and trampling is not anticipated to adversely affect the biological productivity of Tomales Bay or measurably reduce populations of the marine organisms that inhabit and rely on this habitat. Habitat mapping and aerial surveys of Tomales Bay have shown that benthic habitat comprised of fine sand and silt sediment similar to the habitat present at the project site is extensive in Tomales Bay (covering hundreds of acres) and many of these areas support similar species and populations of marine life.

Given the small size of the benthic footprint and associated disturbance areas relative to the abundance of similar benthic habitat in Tomales Bay, as well as the dispersion of this footprint over several thousand very small individual sites, adverse impacts associated with the installation and presence of the system of PVC support and anchoring posts and stakes associated with the proposed oyster cultivation gear would be minimal.

Other elements of this cultivation gear would also involve the placement of fill on benthic habitat. For example, the placement and use for oyster culture of the approximately 18,500 six-square foot bottom bags MOC is proposing to use would also result in the smothering and disturbance of benthic habitat. The total area proposed to be covered by these bags would be

approximately 2.5 acres, spread across 202 rows of bags, each approximately 200-feet long and three-feet wide (as shown in **Exhibit 3**). As discussed in a variety of studies, use of mudflats in this way may affect it in several ways, including by altering the chemical condition of the sediment and influencing the type, abundance, and diversity of species it supports. These effects result from sedimentation and organic enrichment caused by the oysters, as well as predator exclusion and current dampening from the presence of the aquaculture equipment on the surface of the mudflats.

Because the feeding activity of bivalve filter-feeders such as oysters results in the packaging of fine suspended material into larger feces that can rapidly settle to the seabed (especially under conditions with slow or poor water flushing and exchange) in areas of intensive shellfish cultivation, primary production and energy flow can be diverted from planktonic to benthic food webs. While the dynamics of bivalve feces deposition (settling velocity, disaggregation rate and resuspension) are poorly understood, enhanced sedimentation under areas of cultured shellfish is well documented (Castel et al. 1989; Mojica and Nelson 1993; Nugues et al. 1996; Spencer et al. 1996; Drake and Arias 1997; Spencer et al. 1997; Spencer et al. 1998; De Grave et al. 2001; Kaiser 2001; Crawford et al. 2003; Forrest and Creese 2006; Mitchell 2006; Bouchet and Sauriau 2008). As is the case for fin fish aquaculture, the accumulation of organic material beneath shellfish aquaculture facilities may result in the generation of an anaerobic environment that promotes ammonification and sulfate reduction, increased sediment bacterial abundance, and changes in benthic community structure and biomass.

The magnitude and extent of these effects is strongly influenced by several factors, including stocking density (the number of oysters within the cultivation gear), current speed, and coverage area (the total amount of contiguous area occupied by cultivation gear). In general, studies suggest that cultivation at low densities in areas with strong currents and with more separation between cultivation equipment is likely to result in less substantial and more localized effects while high density, extensive cultivation in more enclosed areas is likely to exacerbate environmental effects and lead to more severe disturbance to benthic habitat and communities. However, as a series of studies by Spencer et al. (1996, 1997, 1998) demonstrate, some benthic communities can be resilient to these types of disturbances and can return to reference conditions within months of an aquaculture harvest and removal of aquaculture equipment, even after significant changes have taken place.

Although the total area proposed to be used for bottom cultivation by MOC is substantial, the location of the project site in an exposed area near the edge of Tomales Bay's deep water central channel, the modest stocking density used for its cultivation bags (less than 200 oysters per bag), and the configuration of its longlines in rows with gaps of four to five feet between them would limit the amount and extent of disturbance to benthic habitat that would result from the proposed operation.

In addition, MOC's operational practices provide opportunities for periodic recovery to occur within the benthic habitat of its cultivation area. For example, as oysters grow, MOC staff routinely shift, flip, and relocate cultivation bottom bags - thus exposing previously covered areas of substrate. This is done every two months on average. Also, because the longlines are anchored in place only at the two ends (200-feet apart), current and wave action during the

intervening period is also responsible for moving and shifting the bags along the longline rows. This movement of bags, both natural and intentional, should minimize the magnitude of any effects that the cultivation gear and oysters may be having on the benthic habitat and its associated species by distributing those effects across the cultivation area.

Further, oysters planted within the bottom bags at this location by MOC are typically smaller, younger oysters that process and deposit less organic material from the water column compared to larger mature oysters. As they grow, MOC typically transfers these larger oysters to its deeper water lease area in the southern part of Tomales Bay. As such, the levels of disturbance to benthic habitat (changes to the community of organisms it supports and sediment chemistry) within the area of MOC's operation would not result in significant or long-lasting reductions to its biological productivity. Although specific testing and detailed analysis of the benthic habitat within the MOC lease area has not been carried out, available information from research carried out in other areas suggests that the effects to benthic habitat from MOC's oyster cultivation operation would be - at most - modest, localized and not likely to persist once the area is left fallow or returned to a natural condition.

To help additionally minimize these effects, the Commission is requiring in **Special Conditions 9, 10 and 13** that MOC remove all cultivation equipment and accumulations of oyster shell from the lease area upon expiration of this permit; maintain adequate spacing between rows of cultivation equipment; and avoid and address the accidental loss and displacement of oyster shell and cultivation gear.

Benthic Disturbance from Operations
Movement of personnel and equipment to the proposed project site as well as ongoing maintenance and use of the proposed aquaculture structures also has the potential to result in disturbance of benthic habitats and eelgrass. This disturbance would be most likely to occur during the transit of project vessels to and from the cultivation area, the staging of equipment and supplies for periodic repair and replacement of cultivation structures, and operations on the mudflats such as oyster planting, harvest, and maintenance activities. These activities are proposed to be carried out during a range of high and low tides and would involve the landing of one or more small project vessels on the mudflats near the basket lines and longlines, the offloading of equipment and shellfish, and the movement of project personnel by foot among the basket lines and longlines themselves. Each basket line and longline would be separated from adjacent lines by a minimum of four feet to allow access along its length. Mooring of project vessels, offloading of equipment, and movement of MOC's employees among these access corridors on foot would result in the disturbance, crushing, and damage to benthic habitats and species. Assuming that the majority of planting, harvest, and maintenance activities would be focused within these three foot wide corridors along each of the 202 200-foot longlines and 62 200-foot long basket lines, approximately 3.5 acres of sediment would be adversely affected during the initial installation of the proposed cultivation structures, and periodically disturbed as a result of their ongoing maintenance and use. Additional areas would also be disturbed during the transit of project vessels to and from the lease, their mooring on tidelands, and the loading and offloading of equipment associated with the installation of the proposed basket lines and removal of longlines.

To address the potential adverse impacts to marine biological resources and species of special biological significance, such as eelgrass, associated with this amount of disturbance to benthic habitats, MOC has integrated several resource protection measures into its operations. For example, MOC typically carries out planting and harvest activities during higher tides when the lease is submerged and its vessel can be positioned over the cultivation equipment – thus avoiding the need for the vessel and MOC personnel to contact the substrate. While some maintenance and operations (such as inspections and flipping the bottom bags) require lower tides and movement of personnel on foot through the mudflats among the cultivation gear, by carrying out planting and harvest at higher tides, MOC limits the total amount of benthic disturbance that occurs as part of its operations. In addition, MOC has demarcated a vessel access route for its personnel to use when coming and going from the lease area. Because the western edge of the lease area – closest to the central channel of Tomales Bay used for boat traffic - transitions into a deeper water area that supports extensive eelgrass habitat, MOC's use of this consistent vessel route limits the amount of eelgrass habitat that its vessel passes through. Because the use of outboard motors through eelgrass habitat at some tidal heights can cause the eelgrass to be cut or uprooted, limiting vessel transit to a single area would protect eelgrass in other surrounding areas.

To memorialize this aspect of MOC's operations and further establish this vessel transit route, the Commission is requiring in **Special Condition 11** that MOC, as much as is practicable, exclusively use the vessel route identified on **Exhibit 2** (labelled "path" in the figure) from transit to and from the lease area and limit other vessel use to areas devoid of eelgrass. Additionally, to prevent benthic disturbance associated with the onsite storage/staging of materials on the lease area – and the potential loss or displacement of equipment into surrounding habitat areas due to current and tidal action - **Special Condition 13** would prohibit the staging and storage of equipment, tools, and materials on the lease and require that MOC implement a variety of measures to avoid and address the accidental loss and displacement of cultivation gear and equipment. Such measures would include regular maintenance inspections during harvest to identify and correct worn or weathered gear at risk of breaking or escaping; clean-up events to recover materials that are accidentally lost; staff training to ensure best management practices are understood and used; and gear marking to help prevent loss and facilitate recovery. Prevention of gear loss and gear movement into sensitive habitat areas would be additionally required through the requirement in **Special Condition 10** that MOC affix its bottom bags to an anchored rope to prevent their movement into eelgrass habitat where they could displace and smother it. Further, **Special Condition 10** also requires that MOC avoid the portion of its lease that supports eelgrass habitat and install its 62 lines of proposed cultivation baskets within the same area that is currently being used for longlines with bottom bags. The installation of the new basket lines in this area would concentrate installation activities within a portion of the lease that is already periodically disturbed by ongoing aquaculture activities (use of the 57 longlines currently present there) and is proposed to be additionally disturbed through the proposed removal of these lines.

Marine Debris

Marin Oyster Company, Inc.'s proposed oyster aquaculture operation includes the placement and maintenance of several thousand individual pieces of plastic and PVC in Tomales Bay associated with the roughly 40,000 linear feet of nylon rope that would be used for the bottom bag

longlines, the roughly 3,000 PVC posts that would be used to support the basket lines, and approximately 20,000 two-foot wide by three-foot long plastic mesh bottom bags and two-foot long by one-foot wide plastic mesh cultivation baskets. As has been well documented in parts of Tomales Bay and Humboldt Bay near shellfish aquaculture operations, some of this material can disperse into the environment as debris – either due to inadequate maintenance and inspection operations or challenging oceanographic conditions (currents, tides, and wave action).

While MOC has a strong record of careful maintenance and marine debris prevention, information submitted to Commission staff over the past several years indicates that loss of cultivation gear and marine debris remains an unresolved issue in Tomales Bay. The use of common gear types, such as similarly designed bottom bags, and the lack of identifying marks or tags also makes it difficult to determine which operations within Tomales contribute the most and least to this issue. Cultivation equipment, bottom bags in particular, have been recovered throughout Tomales Bay and from open coastal beaches in the surrounding region. This equipment has been found smothering eelgrass habitat, buried in mudflats, and dispersed among tidal salt marshes. The durability of the HDPE plastics used for much of the common cultivation equipment means that if it escapes, it can persist in the environment for many decades.

Even once it degrades, plastic in the ocean is increasingly understood to pose a threat to a wide range of marine organisms as it slowly breaks into smaller and smaller pieces over time. At each step in this process, plastic debris can be ingested by, entrap, or entangle marine wildlife from whales, dolphins, and seals down to sea turtles, seabirds, and fish.

To address the potential ongoing and future release and distribution of marine debris resulting from MOC's oyster cultivation operations in Tomales Bay, the Commission is requiring in **Special Condition 13** that MOC implement a variety of best practices, including those focused on inspections following storm events; debris reduction trainings for field employees; quarterly cleanup events; gear marking; field storage of tools and construction materials; and comprehensive debris cleaning and removal activities be carried out on each bed at the time of its harvest. This requirement would reduce the long-term accumulation of debris within cultivation beds, prevent debris generation and loss, and promote recovery for materials lost due to storm action or other unavoidable causes. To further limit potential loss of the most common type of aquaculture debris found in Tomales Bay – bottom bags – **Special Condition 10** would require all bottom bags to be affixed to anchoring lines when in use. MOC currently operates consistent with this requirement.

An additional source of aquaculture related marine debris in Tomales Bay has been associated with shellfish cultivation businesses that have ceased operations and left behind large quantities of equipment, cultivation structures, and gear within the bay and its intertidal lease areas. To address this issue and help ensure that funding is available to carry out clean-up of abandoned operations, the California Fish and Game Commission requires – as part of its leasing of state tidelands – that the lessees deposit funds into escrow accounts so that funding is available to be used in the event that an operation ceases prior to recovering and fully removing its equipment. However, the funds deposited into these accounts have often been based on only rough approximations of clean-up, removal, and disposal costs that do not include an accurate or transparent accounting showing how they were estimated. As such, the funds in the escrow

accounts for many aquaculture leases do not appear sufficient to cover actual clean-up costs. While staff of the California Fish and Game Commission and California Department of Fish and Game are working to address this issue, some lessees – including MOC - have taken steps to proactively develop and document more accurate clean-up cost estimates and augment the funds in the escrow accounts for their leases accordingly. The availability of these funds - in combination with the requirement in **Special Condition 9** that MOC seek a permit amendment to remove its cultivation equipment from the bay prior to the expiration of its permit and cessation of its operations – would help ensure that MOC's existing and proposed cultivation equipment is ultimately removed from the bay and does not become marine debris.

Conclusion

Although the Commission finds that the proposed project has the potential to adversely impact marine resources and the biological productivity of coastal waters, with implementation of **Special Conditions 9** through **14**, the project would be carried out in a manner in which marine resources are maintained, species of special biological significance are given special protection, the biological productivity of coastal waters is sustained, and healthy populations of all species of marine organisms will be maintained. In addition, the proposed project, as conditioned, is expected to maintain the biological productivity of coastal waters appropriate to maintain optimum populations of marine organisms. The Commission therefore finds that the proposed project, as conditioned, is consistent with the marine resource sections (Sections 30230 and 30231) of the Coastal Act.

E. ACCESS AND RECREATION

Section 30210 of the Coastal Act states:

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

Section 30220 of the Coast Act states:

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

The proposed project has the potential to affect public access and recreation by precluding recreational activities in areas where the proposed oyster cultivation equipment would be located.

Recreation activities in and around Tomales Bay include boating, paddling (e.g., kayaks and canoes), fishing, clamming, bird-watching and nature enjoyment, walking and hiking, beach play, and enjoyment of scenic views. Boating in Tomales Bay is typically limited to the central portion of the bay because of the shallow water and tidal mudflats and shoals present in many locations along the shorelines.

The placement and use of aquaculture structures within the proposed project area was considered and authorized by the Commission in MOC's original CDP (CDP No. 2-83-22); that equipment

is within intertidal areas that are exposed at lower tides. Recreational activities are therefore currently limited in the project area and the installation and maintenance of the proposed bottom bag longlines and basket lines would not extend into any new areas in which recreational activities are currently known to occur. In addition, from a recreational use and access perspective, the cultivation equipment modifications that MOC is proposing as part of this permit amendment are not significantly different than the equipment authorized by the Commission in 1983 (stakes and elevated racks).

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

F. VISUAL RESOURCES

Section 30251 of the Coast Act states:

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

Because of the low profile of the basket lines – roughly 18-inches above the mudflats – and placement of the bottom bag longlines directly on the mudflats, as well as their proposed location offshore, the proposed aquaculture structures would not be visible from most public vantage points around the shores of Tomales Bay during most tides. In addition, the proposed five acre project area has supported aquaculture structures for many years and the visual profile and height of the two types of proposed structures are similar to those considered and authorized by the Commission as part of CDP No. 2-83-22.

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

G. ALLEGED VIOLATION

As noted above in the Staff Summary, violations of the Coastal Act exist on the subject property, including, but not limited to, installation and use of bottom bag longline, floating bag longline, and basket line oyster cultivation equipment. In response to notification by Commission permitting and enforcement staff about these Coastal Act violations, as well as its desire to carry out additional proposed development, MOC submitted this CDP application. Approval of this application pursuant to the staff recommendation, issuance of the permit, and the applicant's subsequent compliance with all terms and conditions of the permit will result in resolution of the above described violations.

Although development has taken place prior to the submission of this Coastal Development Permit amendment application, consideration of this application by the Commission has been based solely upon the Chapter 3 policies of the Coastal Act. Commission review and action on this permit amendment does not constitute a waiver of any legal action with regard to the alleged violations, nor does it constitute an implied statement of the Commission's position regarding the legality of development, other than the development addressed herein, undertaken on the subject site without a coastal permit or permit amendment. In fact, approval of this permit amendment is possible only because of the conditions included herein and failure to comply with these conditions would also constitute a violation of this permit amendment and of the Coastal Act. Accordingly, the applicant remains subject to enforcement action just as it was prior to this permit amendment approval for engaging in unpermitted development, unless and until the conditions of approval included in this permit amendment are satisfied.

Failure to comply with the terms and conditions of this permit amendment may result in the institution of enforcement action under the provisions of Chapter 9 of the Coastal Act. Only as conditioned is the proposed development consistent with the Coastal Act.

H. CALIFORNIA ENVIRONMENTAL QUALITY ACT

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

Appendix A: Substantive File Documents

Coastal Development Permits and Application Materials:
Coastal Development Permit No. 2-83-22 and associated file.

Coastal Development Permit Application No. 9-18-0002-A1 and associated file.

Environmental Documents:
Mitchell, I.M., 2006. In situ biodeposition rates of Pacific oysters (Crassostrea gigas) on a marine farm in Southern Tasmania (Australia). Aquaculture 257, 194–203.

Forrest, B.M., Creese, R.G., 2006. Benthic impacts of intertidal oyster culture, with consideration of taxonomic sufficiency. Environmental Monitoring and Assessment 112, 159–176.

Kaiser, M.J., 2001. Ecological effects of shellfish cultivation. In: Black, K.D. (Ed.), Environmental Impacts of Aquaculture. Sheffield Academic Press, Sheffield, pp. 51–75.

De Grave, S., Moore, S.J., Burnell, G., 1998. Changes in benthic macrofauna associated with intertidal oyster, Crassostrea gigas (Thunberg) culture. Journal of Shellfish Research 17, 1137–1142.

Nugues, M.M., Kaiser, M.J., Spencer, B.E., Edwards, D.B., 1996. Benthic community changes associated with intertidal oyster cultivation. Aquaculture Research 27, 913–924.

Goulletquer, P., Héral, M., 1997. Marine molluscan production trends in France: from fisheries to aquaculture. In: MacKenzie, C.L., Burrell, V.G., Rosenfield, A., Hobart, W. (Eds.), The History, Present Condition, and Future of the Molluscan Fisheries of North America and Europe. NOAA Technical Report NMFS 129, Department of Commerce, Seattle, Washington, pp. 137–164.

Goulletquer, P., Le Moine, O., 2002. Shellfish farming and coastal zone management (CZM) development in the Marennes-Oleron Bay and Charentais Sounds (Charente-Maritime, France): a review of recent development. Aquaculture International 10, 507–525.

Crawford, C.M., Macleod, C.K.A., Mitchell, I., 2003. Effects of shellfish farming on the benthic environment. Aquaculture 224, 117–140.

Drake, P., Arias, A.M., 1997. The effects of aquaculture practices on the benthic macroinvertebrate community of a lagoon system in the Bay of Cadiz (Southwestern Spain). Estuaries 20, 677–688.

Mojica, R. and Nelson, W., 1993. Environmental effects of hard clam (*Mercenaria mercenaria*) aquaculture in the Indian River Lagoon, Florida. *Aquaculture*, **113** 313-329.

Spencer, B.E., Kaiser, M.J. and Edwards, D.B., 1996. The effects of Manila clam cultivation on an intertidal benthic community: the early cultivation phase. *Aquaculture Research*, **27** 261-276.

Spencer, B.E., Kaiser, M.J. and Edwards, D.B., 1997. Ecological effects of intertidal Manila clam cultivation: observations at the end of the cultivation phase. *Aquaculture Research*, **34** 444-452.

Spencer, B.E., Kaiser, M.J. and Edwards, D.B., 1998. Intertidal clam harvesting: benthic community change and recovery. *Aquaculture Research*, **29** 429-437.

Bouchet VM1, Sauriau PG, 2008. Influence of oyster culture practices and environmental conditions on the ecological status of intertidal mudflats in the Pertuis Charentais (SW France): a multi-index approach. *Marine Pollution Bulletin*, 56(11):1898-912.