

CALIFORNIA COASTAL COMMISSION

ENERGY, OCEAN RESOURCES AND FEDERAL CONSISTENCY
455 MARKET STREET, SUITE 300
SAN FRANCISCO, CA 94105
VOICE (415) 904-5200
WEB: WWW.COASTAL.CA.GOV



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STAFF REPORT: REGULAR CALENDAR

Consistency Certification No.: CC-0001-25

Applicant: Ocean Rainforest, Inc.

Location: Federal waters offshore of Ventura County

Project Description: Phased installation and operation of a submerged aquaculture facility within a 2,000-acre site for the cultivation of giant kelp (*M. pyrifera*) approximately 6.3 nautical miles from the Ventura Harbor.

Staff Recommendation: Conditional Concurrence

SUMMARY OF STAFF RECOMMENDATION

Ocean Rainforest, Inc. (Ocean Rainforest) requests concurrence with its consistency certification (CC) for the phased construction and operation of a 2,000-acre commercial-scale, giant kelp (*Macrocystis pyrifera*) aquaculture facility in federal waters off Ventura County, California. By area, the proposed project would be the largest marine aquaculture facility in the United States and the largest contiguous project footprint in California's offshore waters. The project would be located in an area offshore of Ventura County identified in 2021 through an effort by the National Oceanic and Atmospheric Administration (NOAA) National Centers for Coastal Ocean Science (NCCOS) as one where aquaculture would be least likely to conflict with the existing ocean uses and environmental resources that were evaluated.

The proposed kelp aquaculture facility would consist of modular Offshore Cultivation Units (OCUs). Each OCU would be an approximately 2,000-foot by 600-foot rectangular array of cultivation lines suspended 15 to 30 feet below the sea surface and moored to the seafloor with 26 anchors. Kelp would be seeded onto cultivation lines and then harvested at peak biomass with specialized vessels six to eight months later. Harvested kelp would be transported to Ventura Harbor for handling and processing and is anticipated to be sold commercially for use in a variety of manufacturing industries and consumer products such as a plant-growth stimulant for application on agricultural crops.

OCUs would be incrementally added to the project area in defined phases, if Ocean Rainforest decides to install additional OCUs beyond those already installed in a prior phase. Specifically, two OCUs would be installed in the first phase, six additional OCUs would be installed in phase two, seven additional OCUs would be installed in phase three and six additional OCUs would be installed in phase four. Table 1 on page 10 provides details on the proposed and total development in each phase. The soonest Ocean Rainforest would achieve full build out, 21 OCUs, would be ten years. The Commission's federal consistency review and corresponding U.S. Army Corps of Engineers (USACE) permit is for the full-scale, 2000-acre project. However, prior to each phase, Ocean Rainforest would need to demonstrate the project has met defined operational and environmental performance criteria prior to approval from the Executive Director and USACE for Ocean Rainforest to proceed to the next phase. The Executive Director's "phase-gate review" of the project provides a formal mechanism to consider whether supplemental review or other action is appropriate prior to implementation of each project phase.

The proposed project has the potential to affect several coastal resources and uses. The effects of greatest concern are the increased risk of entanglement for marine wildlife—including humpback and gray whales, dolphins, pinnipeds, sea turtles, and seabirds—and potential impacts on commercial and recreational fishing, particularly within CDFW Fishing Block 665, where displacement of trawl, seine, and gillnet activity may occur. Additional potential effects include an increased risk of vessel strikes on marine wildlife, as well as disturbance associated with construction and operation; impacts on benthic habitats, which may be affected by anchor placement and organic deposition from kelp cultivation and biofouling; and changes to pelagic water quality and primary productivity that may result from nutrient uptake and seasonal kelp biomass. In addition, the use of vessels for installation, harvest, and maintenance introduces spill-related hazards.

Staff recommends a variety of conditions address these potential effects through comprehensive performance standards, monitoring requirements, and protective measures. These include: avoidance of sensitive marine habitat by anchors, and implementation of sediment and water-quality monitoring ([Condition 4](#)); gear inspection, maintenance, and marine debris management requirements ([Condition 1](#)); wildlife monitoring and reporting protocols and vessel speed-reduction measures to avoid injury to marine wildlife ([Conditions 3 and 6](#)); limits on operations during adverse

ocean and weather conditions ([Condition 5](#)); implementation of spill-prevention and spill-response measures ([Condition 7](#)); full facility removal supported by updated financial assurance instruments ([Conditions 8 and 9](#)); a Lost or Damaged Fishing Gear Recovery Plan to compensate for fishing gear interactions with the project infrastructure or vessels ([Condition 11](#)) and a Fisheries Mitigation Plan and Funding Agreement ([Condition 12](#)) to minimize and mitigate impacts on the fishing community during each phase of development. Ocean Rainforest has agreed to these conditions and has incorporated them into its project description in a letter written to the USACE ([Exhibit 14](#)).

With these conditions, the project would avoid or minimize adverse effects on coastal resources and uses and would be conducted in a manner consistent with the enforceable policies of California's Coastal Management Program. Staff therefore recommends that the Commission conditionally concur with consistency certification CC-0001-25. The motion is on **page 5** of this report.

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I. APPLICANT'S CONSISTENCY CERTIFICATION

Ocean Rainforest, Inc. has certified that the proposed activity complies with the enforceable policies of the approved California Coastal Management Program (CCMP) and will be conducted in a manner consistent with that program.

II. MOTION AND RESOLUTION

Motion:

I move that the Commission **conditionally concur** with consistency certification CC-0001-25 on the grounds that, if modified in accordance with the conditions recommended by staff, the project described therein would be fully consistent with the enforceable policies of the California Coastal Management Program.

Staff recommends a **YES** vote on the motion. Passage of this motion will result in a concurrence with the certification and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution:

The Commission hereby **conditionally concurs** with consistency certification CC-0001-25 by Ocean Rainforest, Inc. on the grounds that, if modified in accordance with the conditions recommended by staff, the project described therein would be consistent with the enforceable policies of the California Coastal Management Program.

III. CONDITIONS

1. Aquaculture Gear Inspection, Monitoring, and Marine Debris Management Plan.

Prior to commencement of construction, Ocean Rainforest shall submit to the Executive Director for review and approval a final Aquaculture Gear Inspection, Monitoring, and Marine Debris Management Plan (Plan). Ocean Rainforest shall implement the Plan as approved. The Plan shall be consistent with, but shall supersede where necessary, Ocean Rainforest-submitted "Aquaculture Gear Inspection, Monitoring, and Marine Debris Management Plan" (August 2026), including the components cited below. The Plan submitted for Executive Director review and approval shall include, at a minimum, the following requirements.

1. Infrastructure Monitoring

- a. Post-Construction Infrastructure Inspection. A full inspection of all installed aquaculture infrastructure immediately following construction that includes anchor verification to confirm proper installation, mooring integrity, gear placement, and consistency with approved project plans. Inspections shall be conducted by a qualified third party with expertise in ocean-based mooring

systems. A post-construction verification report shall be submitted to the Executive Director within 30 days of completion of construction. The report shall include anchor verification testing results, verification photographs and video, and any corrective actions.

- b. Routine Infrastructure Monitoring. The plan shall provide details for monthly on-water inspections that include the following: above-water inspection of all surface buoys (including PATON buoys); rotating underwater inspection of coupling plates for each OCU using ROV or qualified divers such that every coupling plate is inspected at least quarterly; biofouling assessments during both above-water and underwater inspections; and aerial photos or equivalent remote imagery documenting buoy presence, array geometry, and any system irregularities. Monitoring will include defined GPS or equivalent position-tracking methods to monitor gear locations and detect displacement, drift, or other deviations from approved configurations including defined displacement distances that would trigger an inspection.
- c. Storm-Triggered Infrastructure Monitoring. Procedures for conducting inspections following storm events, high winds, extreme swell conditions, or other environmental conditions that may compromise gear integrity. The Plan shall identify inspection triggers, inspection methods, and documentation procedures.
- d. Records shall be maintained and provided to the Executive Director upon request and reported in the Annual Report.

2. Facility Maintenance

- a. Biofouling Management. Measures for monitoring and managing biofouling to maintain structural integrity, prevent component failure, and reduce the potential for debris generation, including disposal practices. Cleaning events shall be recorded in maintenance logs and reported in the Annual Report.
- b. Component Replacement Schedule. The Plan shall include a schedule of replacement intervals for all major gear components based on expected lifetimes of the specific materials used for the project. The replacement schedule should include at least lines, anchors, buoys, connectors, and PATON components.
 - i. The Plan shall include methods for tracking and documenting component replacement.
 - ii. If any component type (e.g., chain segment, connector, buoy type) exhibits more than two failures within a six-month period, an engineering assessment shall be carried out to determine whether the failure mode is component-related, batch-related, or environmental. The engineering assessment shall be used to inform the corrective action and that action shall be taken at the earliest practical time. Such actions may include fleet-wide replacement, batch replacement, or a modified inspection protocol.
- c. Inventory Tracking. Ocean Rainforest shall maintain an inventory of all deployed gear, including installation date, component type, and location within each OCU. If gear is lost and/or replaced, that information shall be noted in the inventory along with the corresponding date(s). The inventory

shall be provided to the Executive Director upon request and a list of all lost gear from the preceding year shall be included in the Annual Report.

3. Marine Debris Management

- a. Gear Marking. All buoys, cultivation lines, backbone lines and mooring lines shall be marked or tagged in a durable manner with a unique identifier so that they may be readily identified as belonging to Ocean Rainforest. The Plan shall specify marking methods, materials, placement, and any numbering or coding system. Marking durability and legibility shall be reviewed during monthly inspections.
- b. Derelict Aquaculture Gear Procedures. The Plan shall provide procedures for identifying, locating, reporting, and recovering lost or derelict aquaculture gear. Lost gear shall be reported to the Executive Director within the timeframe specified in the Plan. The Plan shall include documentation methods for gear that cannot be recovered and an explanation of why recovery was not feasible.
- c. Marine Debris Cleanup. Measures for conducting cleanup of aquaculture-related debris and other marine debris in the project's vicinity. Ocean Rainforest shall maintain records of unrecovered aquaculture gear.
 - i. Ocean Rainforest shall annually remove from in-water locations an amount of marine debris no less than the weight of aquaculture gear lost and unrecovered during the preceding year, with the goal of not contributing to a net increase in marine debris. Cleanup activities may include coordination with organizations such as commercial fishermen's associations or lost fishing gear recovery programs.
- d. Voluntary Annual Cleanup. A description of any voluntary annual cleanup activities Ocean Rainforest will undertake, which may include coordination with local partners, resource agencies, community groups, or industry organizations.

4. Implementation and Plan Updates. Ocean Rainforest shall implement the Plan as approved by the Executive Director. Any substantial change to gear types, installation methods, operational practices, or maintenance procedures that may affect infrastructure performance or the potential for marine debris generation shall be reported to the Executive Director. The Executive Director may request modifications to the Plan during Phase-Gate review based on observed performance, environmental conditions, new technologies, or other relevant information.

5. Annual Reporting. Ocean Rainforest shall submit an Annual Report to the Executive Director no later than January 31st of each year summarizing the previous year's monthly inspections, storm-triggered inspections, maintenance actions, gear loss incidents, debris recovery efforts, voluntary cleanup activities, and any adaptive changes to infrastructure or operational practices.

2. Phased Implementation . Prior to any in-water work or construction activities, Ocean Rainforest shall submit to the Executive Director for review and approval a final Phased Implementation and Adaptive Monitoring Framework (Framework). Ocean Rainforest shall implement the Framework as approved. The Framework shall be consistent with, but shall supersede where necessary, Ocean Rainforest-submitted "Phased

Implementation and Adaptive Monitoring Framework” (May 2026), to include the components cited below.

1. **Defined Phase-Gate Criteria.** Ocean Rainforest shall further specify the Phase-Gate Criteria described in section 4.3 of the May 2026 Framework, including minimum data windows, structural performance standards, coastal-effects determinations, wildlife interaction metrics, stakeholder engagement requirements, navigational safety review procedures, and Essential Fish Habitat conservation actions. Environmental data thresholds shall be developed in consultation with the Executive Director and USACE and NMFS staff, and describe the standards, thresholds, and documentation that Ocean Rainforest will use to demonstrate performance prior to requesting progression to any subsequent phase.
2. **Data Windows.** The minimum data window for Phase 1 shall be increased to not less than 36 months of monitoring.
3. **Phase-Gate Review and Executive Director Determination.** Ocean Rainforest shall not proceed to a subsequent installation phase unless and until the Executive Director completes a Phase-Gate Review and issues written approval authorizing that subsequent phase progression. The Phase-Gate Review shall determine whether:
 - a. The minimum monitoring window has been completed;
 - b. All Phase-Gate Criteria identified in the Framework have been met;
 - c. All corrective actions identified by Ocean Rainforest or the Executive Director have been completed;
 - d. There are any coastal effects that are substantially different than originally described in the Consistency Certification;
 - e. Updated versions of the plans listed in Section A of the Framework have been submitted for any additional revisions identified during the previous Phase’s operations.

If the Executive Director determines that progression is not warranted based on outstanding anomalies, unresolved corrective actions, monitoring results, inconsistency with the CCMP or deviation with the project or coastal effects described in the Consistency Certification reviewed by the Commission (CC-0001-25), progression shall not occur unless Ocean Rainforest is able to resolve these issues to the satisfaction of the Executive Director.

3. Environmental Monitoring Plan. Prior to commencement of construction, Ocean Rainforest shall submit to the Executive Director for review and approval a final Environmental Monitoring Plan (EMP). Ocean Rainforest shall implement the Plan as approved. The EMP shall be consistent with, but shall supersede where necessary, Ocean Rainforest-submitted “Environmental Monitoring Plan” (August 2026), including the components cited below. The approved EMP shall include, at a minimum, the following: requirements.

1. **Wildlife Entanglement Monitoring and Notification Protocols.** The EMP shall include detailed procedures for monitoring, reporting, and responding to any observed or suspected wildlife entanglement, including the following elements:

- a. Entanglement hazard monitoring and corrective action: A description of monitoring frequency, methods, and responsible personnel for identifying potential wildlife entanglement hazards associated with project materials, gear, or structures. Additional description of responsible personnel and timeframe for corrective action to address identified hazards.
 - b. Entanglement Protocols in the event of entanglement: A description of the de-entanglement or rescue procedures that would be implemented in the event that wildlife entangled in any element of the project facility or marine debris is observed.
 - c. Notification protocols: A list including contact information of which entities would be contacted to assist entangled wildlife involving marine mammals, sea turtles, and sea birds.
 - i. Suspected entanglement of a marine mammal or sea turtle is reported immediately by calling the NOAA Fisheries Hotline at 877-SOS-WHALE (877-767-9425), or alternatively by hailing the U.S. Coast Guard on VHF Channel 16
 - ii. Suspected entanglement of a seabird is reported immediately by calling the Santa Barbara Wildlife Care Network at 805-966-9005
 - d. Protocols for documenting and reporting: Any entanglement events and any observations of injured or stranded protected wildlife shall be reported in writing to the Executive Director, U.S. Army Corps of Engineers, and NMFS, within two calendar days. Documentation to include available photographs or video, species identified, gear involved (if any), location and circumstances of the encounter, and any response actions taken.
2. Invasive Species Monitoring and Seeding Restrictions. The EMP shall include measures to monitor for, prevent, and rapidly respond to any introduction or spread of invasive species, including the following elements:
 - a. The origin of kelp seed source or other reproductive material shall be in compliance with a California Department of Fish and Wildlife broodstock collection permit.
3. Wild Fish Aggregation Monitoring. The EMP will describe the monitoring methods, frequency and duration that would be used to detect and document any aggregation of wild fish that occurs at the project facility. Such monitoring shall be capable of determining the fish species and approximate numbers included in aggregations.
4. Native Fish Spawning and Harvest Timing Protections. These protections shall include the methods and timing for pre-harvest inspections for fish egg masses on the kelp. If fish eggs are observed, kelp harvest shall be delayed for that OCU until the eggs have hatched. Harvesting from other, non-affected, OCUs may proceed as planned. The EMP shall include documentation and reporting procedures for inspections, species of fish egg observed, if readily identifiable, deferred harvests, and date harvest resumed.

4. Sediment and Water Quality Monitoring Plan. Prior to commencement of construction, Ocean Rainforest shall submit to the Executive Director for review and approval an updated, final Sediment and Water Quality Monitoring Plan (Updated Plan). Construction shall not commence until the Executive Director has approved the

Updated Plan. The Updated Plan shall replace and supersede the May 2026 Sediment and Water Quality Monitoring Plan and shall include, at a minimum, the following components:

1. **Monitoring Stations and BACI Design.** The Updated Plan shall include final mapped locations for all monitoring stations, including project footprint stations, down-current stations, and two fixed reference stations. Reference stations shall be demonstrated to be comparable in depth, sediment grain size, offshore distance, and current regime, and located outside the area of potential project influence.
2. **Sampling and Replication.** The Updated Plan shall identify the minimum number of sediment cores, benthic infauna grabs, and water quality replicates to be collected at each station including during Baseline Surveys. The Updated Plan shall provide justification demonstrating that the proposed sampling design will achieve at least 80 percent statistical power to detect changes relative to baseline and reference conditions.
3. **Sediment Monitoring Schedule.** Sampling for sediment quality monitoring shall occur during, or within 60 days following, peak kelp biomass. Sediment monitoring shall occur at least once after all OCUs in a given phase have been used to cultivate kelp (Phases 1–4, approximately Years 3, 5, 7, and 10), or every five years, whichever occurs first. Following Phase 4, sediment monitoring may transition to a five-year interval only if no project-attributable effects have been detected and with prior written approval from the Executive Director.
4. **Water Quality Monitoring Schedule.** Water quality monitoring shall occur monthly for at least 24 months of each Phase and shall be supplemented by buoy-based measurements.
5. **Statistical Thresholds.** The Updated Plan shall incorporate the statistical analysis framework described in the May 2026 Sediment and Water Quality Monitoring Plan and shall define natural variability envelopes (95 percent prediction intervals) and minimum detectable effect sizes for each parameter based on baseline variance, developed in consultation with the Executive Director and staff of USACE and NMFS. The Updated Plan shall specify quantitative exceedance criteria for determining project-attributable effects.
6. **Adaptive Management.** No reduction in monitoring frequency shall occur unless approved in advance by the Executive Director and only after the stability criteria identified in the Updated Plan have been met. The Updated Plan shall establish step-up monitoring triggers, including any two consecutive exceedances of a natural variability envelope or any identified project-attributable effect. Ocean Rainforest shall notify the Executive Director in writing within 14 days of any exceedance or anomaly.
7. **Corrective Actions.** The Updated Plan shall specify corrective actions that shall be taken as well as implementation timelines and heightened monitoring methods that will be deployed if project-attributable adverse effects are identified by the Executive Director following review of monitoring results. Heightened monitoring shall be implemented until conditions return to within approved natural variability envelopes. Corrective actions may include

adjustments to cultivation density or operations. Identification of project-attributable effects may result in reopening of the Commission's Consistency Certification review.

8. Reporting and Data Availability. The Updated Plan shall maintain the Annual Integrated Monitoring Report structure described in the May 2026 Sediment and Water Quality Monitoring Plan. All raw data and unedited ROV imagery shall be retained by Ocean Rainforest and made available to the Executive Director upon request.

5. Critical Operations and Curtailment Plan (COCP). Prior to commencement of any in-water construction or operational activities for each project phase, Ocean Rainforest shall submit a phase-specific Critical Operations and Curtailment Plan (COCP) to the Executive Director for review and approval.

The COCP shall include, at a minimum, the following components:

1. Safe Operating Conditions. Definition of the environmental and operational limiting conditions, including but not limited to
 - a. sea state, swell height, wind speed, currents, visibility, and any other meteorological or ocean conditions that exceed the safe operating limits of project vessels, equipment, or personnel;
 - b. conditions that would hinder or prevent effective spill containment or cleanup; and
 - c. conditions that pose a hazard to personnel or to the marine environment.
2. Thresholds. Clear operational thresholds requiring suspension or curtailment of offshore work when limiting conditions are met, and conditions under which operations may safely resume.
3. Weather Windows. A minimum advance favorable weather forecast that must be met and maintained for the duration of offshore activities.
4. Suspended Operations. Identification of the onsite individual with full authority to suspend operations, including:
 - a. the designated vessel master or offshore operations lead responsible for determining when limiting conditions exist; and
 - b. procedures for immediate cessation of work when thresholds are exceeded.
5. Prevent and respond to spills. Measures that will be implemented to ensure consistency with the approved Spill Prevention and Response Plan (SPRP) and requirements that all necessary spill-response equipment, communication protocols, and emergency notification procedures are in place and functional prior to commencing offshore activities.
6. Plan update. The COCP shall be updated and resubmitted for Executive Director approval prior to each subsequent project phase, reflecting lessons learned, changes in the project vessel fleet or operational profile, and any corrective actions or monitoring results identified through the project's adaptive management framework.

No offshore construction or operational activities may begin until the Executive Director has approved the COCP for the applicable project phase. The applicable approved

COCP shall be implemented and adhered to during each phase's construction and operation.

6. Vessel Speed. All project vessels shall comply with NOAA's Vessel Speed Reduction (VSR) program measures in effect at the time of vessel operations, including the seasonal Southern California VSR Zone (May 1 through December 15) and any NOAA-designated dynamic, temporary, or special VSR zones. When operating within an active VSR zone, project vessels shall travel at 10 knots or less, except when the vessel operator determines that a higher speed is necessary for safe navigation or crew safety. Any such exceedance shall be limited to the minimum speed and duration needed to address the safety concern, after which vessels shall return to speeds of 10 knots or less as soon as safely practicable.

7. Spill Prevention and Response Plan (SPRP). Prior to commencement of any in-water construction or operational activities for each project phase, Ocean Rainforest shall submit a phase-specific Spill Prevention and Response Plan (SPRP) to the Executive Director for review and approval. The SPRP shall reflect the vessel fleet, equipment, and operational profile for the applicable project phase and shall remain consistent with the Phased Implementation and Adaptive Monitoring Framework submitted with the project application.

The SPRP shall:

1. Potential Spill Sources. Identify all potential spill sources associated with the phase-specific vessel fleet and equipment, including fuels, lubricants, hydraulic fluids, and any other hazardous materials carried onboard project vessels.
2. Prevention Measures. Specify all spill-prevention measures required to be in place during construction, operations, and decommissioning, including:
 - a. use of vegetable-based, biodegradable, food-grade hydraulic fluid for all installation, maintenance, planting, and harvesting activities;
 - b. a prohibition on at-sea fueling or refueling;
 - c. routine vessel maintenance requirements (e.g., replacement of worn hydraulic lines, engine leak inspections, use of bilge socks and absorbent pads).
3. Spill-Response Equipment. Describe required spill-response equipment, including vessel-appropriate spill kits carried onboard at all times, construction-phase spill kit capacity of at least one-half barrel of oil absorption, and procedures for handling, storing, and disposing of contaminated sorbents consistent with state and federal hazardous materials requirements.
4. Emergency Response Notification. Include emergency notification and reporting procedures consistent with federal and state requirements, including but not limited to:
 - a. immediate verbal notification to 911, U.S. Coast Guard Sector Los Angeles-Long Beach, Cal OES State Warning Center, and the National Response Center (when applicable);
 - b. required written follow-up reports submitted within 7 days if spills meet federal reportable quantities under EPCRA Section 304;

- c. procedures for reporting oiled wildlife to the Oiled Wildlife Care Network and species-specific wildlife rescue agencies, as identified in the SPRP.
- 5. Responsible Parties. Identify personnel responsibilities and authority, including the vessel master or designated responsible party who has full authority to initiate spill response and emergency notifications. The SPRP shall include procedures to ensure that all contractors and crew members receive spill-prevention and spill-response training prior to participating in offshore work.
- 6. Wildlife Protection. Address wildlife protection procedures, including the role of Marine Wildlife Observers during in-water construction activities and protocols for reporting and avoiding interactions with oiled or injured wildlife.
- 7. Incorporation into Operational Framework. Integrate SPRP reporting and corrective actions with the Phased Implementation and Adaptive Monitoring Framework, including requirements that spill-kit inspection records be included in the Annual Integrated Monitoring Report. Additionally, the use of the Framework's immediate reporting and corrective action procedures for any spill event, including preparation of corrective action plans within 60 days as required under the Framework.

No offshore construction or operational activities may commence before the Executive Director has approved the SPRP for the applicable project phase.

8. Decommissioning and Facility Removal. WITHIN 90 DAYS PRIOR TO THE TERMINATION OF COMMERCIAL OPERATIONS, as determined by Ocean Rainforest, Ocean Rainforest shall submit an updated Decommissioning Plan for:

- a. The timely removal of all kelp, and the kelp cultivation facility including grow-out structures, anchoring devices, buoys, equipment, and materials associated with the kelp aquaculture facility;
- b. Restoring the site to a condition that enables resumption of the same type of fishing activities that occurred there prior to project installation; and
- c. A thorough inspection of the facility site by a qualified independent third-party to verify the completion of all removal activities and restoration of the site. The updated Decommissioning Plan shall identify the entities proposed for the post decommissioning inspection.

Upon approval by the Executive Director of the updated Decommissioning Plan, Ocean Rainforest shall implement it in accordance with the time schedule specified therein and shall completely remove the kelp cultivation facility, including all lines, ropes, buoys, anchors, and associated equipment and infrastructure. In the event that Ocean Rainforest is unable or unwilling to meet the obligations under this condition, the Executive Director will provide notification to Ocean Rainforest that the Financial Assurance required under [Condition 9](#) shall be used to decommission the facility.

Alternatively, Ocean Rainforest shall comply with the conditions above, including to implement the plan for removal of the facility, within 60 days of a written request by the Executive Director, if the Executive Director determines that a significant lapse in maintenance, monitoring, or condition-compliance activities has occurred such that the facility is no longer being maintained in its approved condition, poses a danger to

mariners or wildlife, or presents an immediate risk of generating or spreading marine debris.

9. Financial Assurance for Facility Removal. PRIOR TO COMMENCEMENT OF CONSTRUCTION OF THE FIRST PHASE AND PRIOR TO COMMENCEMENT OF ANY SUBSEQUENT NEW PHASE, Ocean Rainforest shall secure a financial assurance instrument, in a form and amount acceptable to the Executive Director, to ensure full observance and performance by Ocean Rainforest of [Condition 8](#) and to fund any and all facility removal and site restoration activities not completed by Ocean Rainforest under the requirements of [Condition 8](#).

Financial assurance may be provided through a performance bond, irrevocable letter of credit, or other surety mechanism approved by the Executive Director. All financial assurance instruments must name the California Coastal Commission as the beneficiary/assured and remain valid for the duration of the authorized project activities, including required facility removal and site restoration.

The amount of financial assurance required initially shall correspond to the scope of the initial project phase. Thereafter, the amount of the required financial assurance shall be updated, prior to construction of the next phase (if any), to correspond to the size of the then-installed project plus the marginal increased size of that next phase; the financial assurance shall be updated accordingly for any further phase installation(s). Prior to initiating construction or deployment of any new phase, Ocean Rainforest shall submit to the Executive Director, for review and written approval, a phase-specific financial assurance amount supported by a detailed cost estimate. The approved financial assurance may be provided as a lump sum at the start of the phase or may be provided prior to the installation of each offshore cultivation unit and associated infrastructure. No construction or deployment of a phase may begin until the Executive Director approves the corresponding financial assurance instrument. The instrument must be fully funded and effective before any offshore cultivation unit and infrastructure covered by that assurance is installed.

Cost Estimate Requirements. Each phase-specific cost estimate shall be prepared by a qualified marine contractor or engineer, or shall include documentation demonstrating Ocean Rainforest's relevant experience in developing such estimates and methodology employed. The cost estimate shall include, at minimum, itemized costs for:

1. Removal and retrieval of all kelp and installed structures, including but not limited to biofouling, moorings, anchors, lines, buoys, subsurface components, cultivation structures, navigation markings, and monitoring equipment;
2. Vessel use, fuel, and crew time for removal operations, including standby and transit time;
3. Specialized equipment or diver labor, if applicable;
4. Disposal, recycling, or processing of removed materials, including transportation to on-shore facilities;
5. Environmental restoration of the project area, including seabed remediation if needed;

6. Monitoring and reporting required during decommissioning or post-removal verification;
7. Contingency (minimum 20 percent unless otherwise approved), reflecting uncertainties in offshore conditions and facility condition; and
8. Inflation adjustments based on a recognized marine construction cost index, applied from the date of estimate preparation to the period of anticipated decommissioning

Cost estimates must:

1. Present calculations and assumptions in a transparent, reproducible format;
2. Identify sources for unit costs (e.g., contractor quotes, recent comparable projects, published rate sheets); and
3. Include maps or diagrams showing the footprint and elements covered by the estimate

Cost estimates must be developed using multiple, different sources. The Executive Director may require revisions if costs appear underestimated or unsupported.

The letter of credit or other surety device shall be maintained in full force and effect at all times until the successful removal of the entire facility (kelp, grow-out structures, anchoring devices, buoys, lines, equipment, debris, and associated materials) has been completed and the project area has been restored. Financial assurance shall be released only after the Executive Director determines, in writing, that all associated structures have been fully removed and the site has been restored. The Executive Director may require consolidation, retention, or replacement of financial assurance instruments as phases are added or decommissioned.

10. Landing Coordination During Commercial Squid Season. To minimize conflicts with the commercial squid fleet and ensure orderly harbor operations, Ocean Rainforest shall coordinate kelp harvesting and landing activities with Ventura Harbor staff and representatives of the local fishing community in the event that the commercial squid season overlaps with Ocean Rainforest's harvest schedule.

Prior to initiating any kelp landings during an active commercial squid season, Ocean Rainforest shall:

1. Confer with Ventura Harbor staff and designated representatives of the local fishing fleet regarding expected squid fishing activity, harbor congestion, and available landing capacities; and
2. Develop a mutually agreed-upon landing schedule that minimizes interference with commercial squid operations.

11. Lost or Damaged Fishing Gear Recovery Plan. Prior to commencement of construction, Ocean Rainforest shall submit to the Executive Director, for review and approval, a final Lost or Damaged Fishing Gear Recovery Plan (Plan). The Plan shall describe the process by which commercial and recreational fishermen may seek compensation from Ocean Rainforest for fishing gear that is lost, damaged,

or rendered unusable as a result of contact or interaction with the approved offshore seaweed aquaculture project. Ocean Rainforest shall implement the Plan as approved.

The Plan shall be consistent with, but shall supersede where necessary, Ocean Rainforest-submitted “Lost or Damaged Fishing Gear Recovery Plan” (August 2026). At a minimum, the Plan submitted for Executive Director review and approval shall include:

1. Preventative Measures. Measures Ocean Rainforest will take to avoid or minimize collision, entanglement, or other interaction with fishing gear, including coordination and communication with the U.S. Coast Guard, NOAA, and commercial and recreational fishing communities.
2. Eligibility Criteria. Criteria that define the circumstances under which claims for compensation are eligible.
3. Claim Submission and Review Procedures. A description of claim submission procedures, including a claim form; information necessary for claim review; and the process, roles, and steps Ocean Rainforest will use to evaluate and resolve claims.
4. Timelines. Specific timelines for Ocean Rainforest’s review, determination, and resolution of claims.
5. Compensation Methodology. A method for determining compensation, including the replacement value of lost or damaged gear and compensation for time and foregone harvest.
6. Dispute Resolution. A process by which claimants may seek review or resolution if they disagree with Ocean Rainforest’s proposed compensation.
7. Communication and Outreach. Actions Ocean Rainforest will take to ensure potentially affected fishermen are aware of the Plan and have clear information on how to submit claims and contact Ocean Rainforest.
8. Documentation and Reporting. Procedures for documenting claims, resolutions, and related incidents, including reporting within the Annual Integrated Monitoring Report and immediate reporting requirements for gear failure, navigational safety incidents, or other circumstances requiring prompt notification.

12. Fisheries Mitigation Plan and Funding Agreement. Prior to commencement of construction of any project phase, Ocean Rainforest shall submit to the Executive Director, for review and approval, a Fisheries Mitigation Plan and Funding Agreement (Plan and Agreement). Ocean Rainforest shall implement the approved Plan and Agreement. The Plan and Agreement shall be consistent with the overarching intent and principles of the Resilience Funds section of Commission-approved 2026 Statewide Strategy for Coexistence of California Fishing Communities and Offshore Wind (Statewide Strategy), including but not limited to:

- improving the ability of fishermen to adapt to spatial changes;
- ensuring transparent, community-directed distribution of resilience funds; and
- supporting long-term resilience and viability of California fishing communities.

The Plan and Agreement shall include, at a minimum, the following components, adapted from the Statewide Strategy:

1. Resiliency fund structure. Plans to structure the stewardship and use of resiliency funds to support affected fishing communities that includes transparent, fishermen-led decision making to support long-term resilience rather than short-term replacement of income. Funds shall be used only for purposes that directly benefit the affected fishing community.
2. Administrative entity. Procedures for identifying and designating a qualified administrative entity responsible for receiving, holding, managing, and disbursing mitigation funds. In alignment with Strategy guidance, the administrative entity shall:
 - a. have demonstrated capacity for financial administration;
 - b. maintain transparent accounting and reporting;
 - c. operate independently from Ocean Rainforest; and
 - d. coordinate with the fishermen's committee described below.

The entity may be a port district, fishermen's organization, nonprofit, or other qualified third party.

3. Fishermen's Committee. Requirements for establishing a committee of fishermen representing the fisheries, ports, and communities directly affected by the aquaculture project. The Fishermen's Committee will make decisions on how to use resiliency funds to support the community. Consistent with the Statewide Strategy, the Fishermen's Committee shall:
 - a. be composed of fishermen selected through a transparent and community-supported process;
 - b. include representation from gear types and fisheries using Block 665;
 - c. operate under defined procedures for quorum, voting, meeting frequency, and conflict-of-interest avoidance;
 - d. make recommendations or decisions regarding fund expenditures; and
 - e. coordinate with the administrative entity and Executive Director to ensure funds are used for allowable purposes.
4. Allowable Uses of Resiliency Funds. The Plan and Agreement shall list allowable project types consistent with the Statewide Strategy's guidance on community resilience investments, including reasonable expenses for:
 - a. port or harbor fisheries-related infrastructure improvements;
 - b. marine debris, hazards, and derelict gear removal;
 - c. safety and navigation equipment for vessels;
 - d. efforts that improve operational efficiency or reduce fishing costs;
 - e. training, business planning, or organizational capacity building;
 - f. programs that support community coherence, cooperative planning, or inter-fleet coordination;
 - g. overhead and management of resilience funds;
 - h. investments that improve fishermen's ability to adapt to spatial conflicts or environmental change.

Funds may not be used for direct income replacement unless explicitly approved by the Executive Director and aligned with Statewide Strategy guidance for exceptional circumstances.

5. Mitigation Payment Structure and Timing. A schedule for mitigation payments equal to the “Mitigated Landings” value for the first three years of each project phase.
 - a. Payments shall correspond to the marginal increase in displaced landings associated with each phase. Annual payments for each phase are as follows, and will be adjusted annually based on the Consumer Price Index (CPI):
 - i. Phase 1-\$16,282 per year
 - ii. Phase 2-\$13,523 per year
 - iii. Phase 3-\$12,593 per year
 - iv. Phase 4-\$9,817 per year
 - b. If multiple phases commence within the same three-year period, mitigation payments for those phases shall be made concurrently.
 - c. Total contributions under full buildout shall be \$156,646 plus any adjustments made based on the CPI.
6. Governance, Transparency, and Reporting. Procedures for public reporting of funds balance, expenditures, and committee decisions and guidance to provide to the Fishermen’s Committee on the governance of the group.
7. Coordination and Stakeholder Engagement. A description of how Ocean Rainforest will continue outreach and coordination with affected fishing communities throughout each project phase. Consistent with the Statewide Strategy, this shall include:
 - a. clear points of contact for fishermen;
 - b. regular opportunities for fishermen to provide input on fund use;
 - c. a process for updating the Plan and Agreement as fishing patterns, project conditions, or community needs evolve.
8. Applicant Funding Agreement Requirement. Prior to the Executive Director’s approval of the Plan and Agreement, Ocean Rainforest. shall enter into a formal funding agreement, subject to the prior review and approval by the Executive Director, with the designated administrative entity. This funding agreement shall:
 - a. specify the annual mitigation payment amounts and schedule;
 - b. authorize the administrative entity to receive and manage resiliency funds;
 - c. ensure funds are used only for allowable purposes identified in the approved Plan and Agreement;
 - d. establish procedures for transmitting payments, verifying receipt, and maintaining accounting records; and
 - e. remain in effect for the duration of the project or until all required payments and reporting obligations have been fulfilled.

No construction may begin on any phase until Ocean Rainforest has executed the funding agreement and the Executive Director has confirmed that the administrative entity and Fishermen’s Committee have been established consistent with the approved Plan and Agreement.

IV. FINDINGS AND DECLARATIONS

A. Project Description

Ocean Rainforest, Inc. (Ocean Rainforest) proposes phased construction and operation of a 2,000-acre commercial-scale, giant kelp (*Macrocystis pyrifera*) aquaculture facility in federal waters off Ventura County, California. Because the proposed project has a reasonably foreseeable potential to affect California coastal resources, Ocean Rainforest voluntarily submitted a consistency certification (CC) to ensure consistency of the project with the California Coastal Management Program.

By area, the proposed project would be the largest open-ocean aquaculture facility in the United States and the largest contiguous project footprint in California's offshore waters. For comparison, the Commission previously concurred with consistency certifications for a 100-acre mussel farm in federal waters offshore of Los Angeles County (Catalina Sea Ranch, CC-035-12) and a pilot scale kelp farm within an 86-acre site offshore of Santa Barbara (Ocean Rainforest, CC-0003-21) and approved a coastal development permit (E-12-012) for a 72-acre kelp and shellfish aquaculture facility in state waters near Santa Barbara. The Commission has also approved over a dozen coastal development permits for shellfish farms in Morro Bay, Tomales Bay and Humboldt Bay ranging from approximately 5 to 280 leased acres, although active cultivation typically occurs on only a portion of the authorized lease areas. The proposed project greatly exceeds the scale of these existing operations in both total area and anticipated extent of active cultivation.

Location

Ocean Rainforest proposes to develop its project within Aquaculture Opportunity Area (AOA) N2-D, one of the ten areas identified in 2021 by the National Oceanic and Atmospheric Administration (NOAA) as potentially suitable for aquaculture based on a spatial analysis of existing ocean uses and sensitive ecological resources within the Southern California Bight (Morris et al., 2021). NOAA designated AOA N2-D following an evaluation of federal waters between 3 and 25 nautical miles offshore and an assessment of 203 spatial datasets addressing a variety of navigation lanes, biological resources, fishing activities, military uses, and offshore oil and gas infrastructure. A Programmatic Environmental Impact Statement (PEIS) prepared in 2025 evaluated potential environmental impacts associated with identifying the Southern California Aquaculture Opportunity Areas and broadly assessed aquaculture development within them (National Marine Fisheries Service, 2025). Because the federal government does not currently require leases for aquaculture facilities in federal waters or have a clear regulatory approach for establishing such leases, the Aquaculture Opportunity Area identification process did not result in a lease sale and associated programmatic review by California under the Coastal Zone Management Act. However, because development of a project within an Aquaculture Opportunity Area (or other portion of federal waters) requires authorization from the U.S. Army Corps of Engineers, federal consistency review under the CZMA may still occur at the project-level, as is the case with Ocean

Rainforest's current project (and prior pilot-scale effort between 2023 and 2025 offshore of Santa Barbara).

The proposed project site, AOA N2-D, is situated in federal waters in the eastern Santa Barbara Channel, 6.3 nautical miles west of Ventura Harbor (Figure 1). The water depth in the project area averages 115 feet and the seafloor is mud-like substrate and gently sloping (0.8 degrees on average). This AOA is one with the least overlap with sensitive marine habitats such as rocky reef or deep-sea coral areas. The site is characterized by relatively mild wind and wave conditions and vessel activity dominated by passenger and pleasure craft, and fishing. Ocean Rainforest selected this location due to its low potential for conflict with existing ocean uses ([Exhibit 5](#)), its proximity to Ventura Harbor, and its consistency with the spatial suitability criteria and setback guidance identified by NOAA through its AOA process.

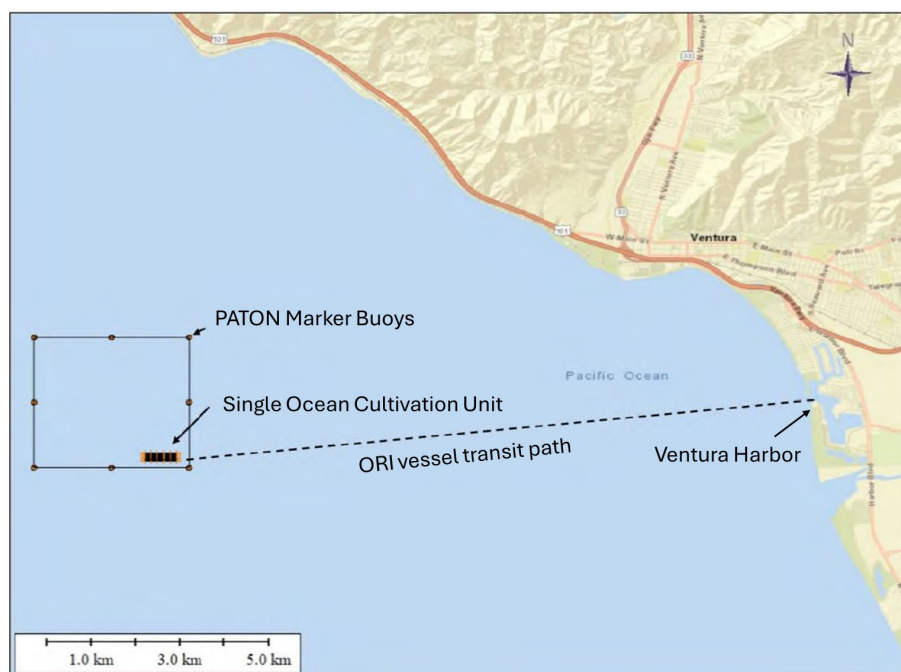


Figure 1 Proposed 2000-acre project location and a single offshore cultivation unit (OCU).

Design and Construction

The proposed aquaculture facility would consist of modular Offshore Cultivation Units (OCUs). Each OCU would be an approximately 2,000-foot by 600-foot rectangular array of cultivation lines suspended 15 to 30 feet below the sea surface (Figure 2). Nineteen cultivation lines (approximately 1.6 inches in diameter) would extend the full length of the OCU and connect to two backbone lines (approximately 2.2 inches in diameter) located at each end, resulting in a total of about 38,000 feet (7.2 miles) of cultivation line

per OCU. Four mid-backbone lines, evenly spaced along the length of the structure, would support the cultivation lines ([Exhibit 1](#)).

The OCU perimeter would be buoyed by 22 larger flotation devices (approximately 4 feet in diameter and 7.5 feet long), while internal lines would be supported by 20 smaller buoys (approximately 2.3 feet in diameter and 4 feet long). Each buoy would be made of foam encased in plastic and attached by a chain to a plate that would serve as a connection point between the buoy and structural components ([Exhibit 2](#)). Perimeter buoys would include GPS units to allow operators to monitor system integrity; unexpected buoy movement would indicate a potential mooring or line failure requiring attention. In total, each OCU would have approximately 42 buoys.

The structure would be anchored to the seafloor using two classes of drag-embedment anchors. Eighteen 1,650-pound (750-kilogram) anchors would connect to the backbone line and secure the ends of each OCU, and eight 3,310-pound (1,500-kilogram) anchors would attach to mid-bone lines and secure the sides, for a total of 26 anchors per OCU.

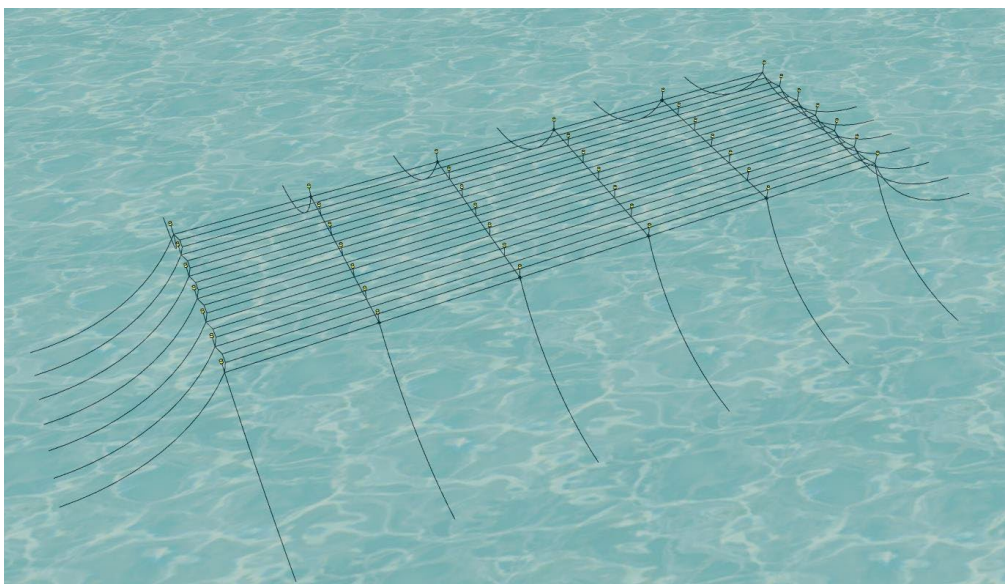


Figure 2 Three-dimensional rendering of an Offshore Cultivation Unit (OCU).

The approximate surface footprint of each OCU, 2000 ft X 600 ft, would be roughly 27 acres. The projected seafloor expression based on the outermost anchor points of a single OCU, would be roughly 78 acres because mooring lines would be deployed with a 1:3 scope and extend approximately 300 feet beyond the edge of the outer cultivation lines.

A single OCU is expected to take three to four days to install in favorable sea and weather conditions. A combination of mid-sized work vessels (e.g., Danny C, a 77 ft utility vessel) and smaller support boats would deploy assembled mooring lines. Opposing pairs of mooring lines would be connected to form the OCU perimeter then back-bone lines and mid-lines would be attached and tensioned. Permanent surface buoys would then be attached. Following installation, an inspection would ensure

connections are correct and anchors have been properly embedded as detailed in [Condition 1](#).

At full build-out, the project would consist of 21 OCUs distributed across a 2,000-acre area (Figure 3). Although the combined surface footprint of the OCUs would total 567 acres (27 acres per OCU), spacing required for moorings and vessel access results in the OCUs being evenly arranged across the full 2,000-acre site. The OCUs would be organized in a grid with roughly 1,000 ft between the surface buoys of adjacent OCUs in the horizontal direction and roughly 700 ft between buoys in the vertical direction (Figure 4). Private Aids to Navigation (PATON), regulated by the U.S. Coast Guard, would mark the corners and midpoint of the outer perimeter of the facility. Within this area, nearly 800,000 feet (over 150 miles) of cultivation lines would be installed for seaweed production, along with approximately 882 buoys and roughly 550 anchors.

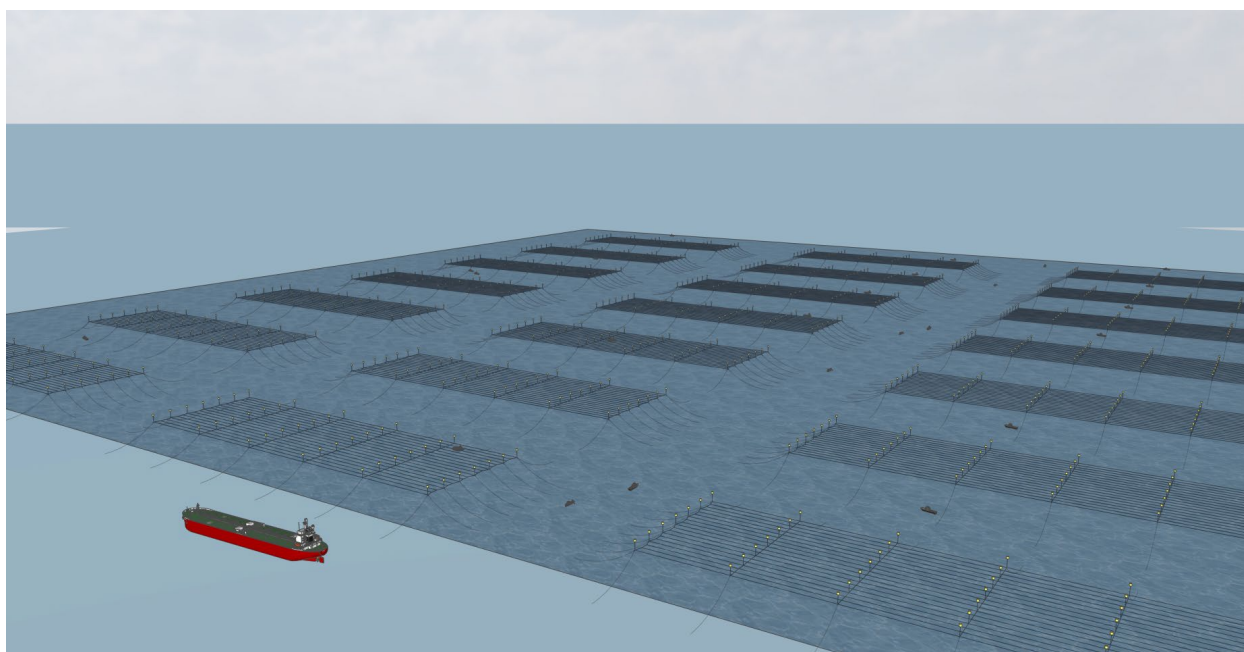


Figure 3 Graphic representation of the distribution and spacing of offshore cultivation units (OCUs) at full build out.

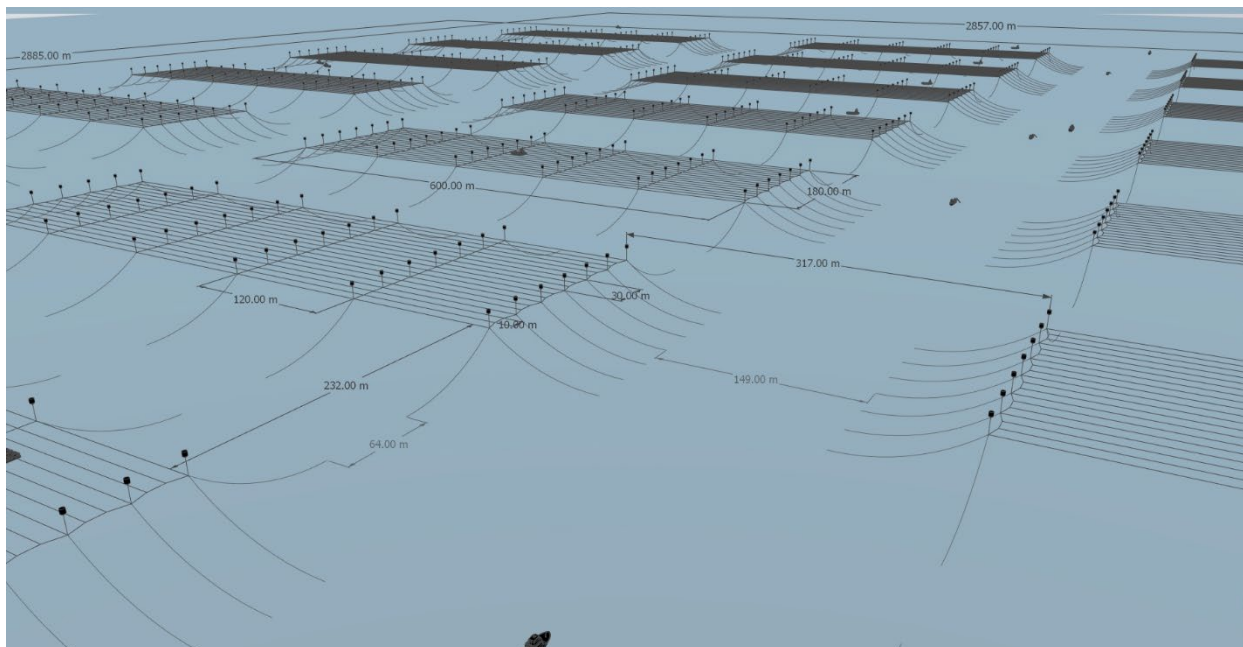


Figure 4 Project drawing showing spacing between Offshore Cultivation Units (OCUs) and OCU mooring lines.

Operations and Harvest

Kelp seeding material would be collected from wild populations of native California giant kelp, *Macrocystis pyrifera*, within the Santa Barbara Channel. The seeding material would be propagated in Ocean Rainforest's existing hatchery in Goleta, California and attached to cultivation ropes in sterile conditions. Seeded lines would be visually inspected prior to deployment to confirm they are free of other biota and disease.

Kelp would be harvested from the OCUs 6-8 months after seeding using custom-built vessels. Kelp is expected to be harvested during peak biomass which depends on local seasonal growing conditions but generally occurs between April and September. To harvest the kelp, cultivation lines would be lifted to the deck of the boat while mechanical cutting devices separate the plants from the ropes. The harvested kelp would be collected directly onto the vessel deck. No other pre-treatment or processing would occur offshore. Cultivation lines would be reseeded onshore. However, the in-water infrastructure at the proposed project site would remain the same outside the active growing season.

Harvested kelp would be off-loaded in Ventura Harbor on existing docks and transported to existing processing facilities for handling and product development. Ocean Rainforest anticipates harvesting 170-250 tons of kelp per OCU per year and between 5,000 to 6,000 tons per year once all 21 proposed OCUs are installed and in use. Once processed onshore, the harvested kelp is anticipated to be sold commercially for use in a variety of manufacturing industries and consumer products including as a plant-growth stimulant for agricultural use. Cultivated kelp is not proposed to be retained in the ocean for potential uses such as restoration or carbon sequestration.

Ocean Rainforest would visit the cultivation site between one and five times per month, with more frequent visits during cultivation and harvest periods. Once full-scale operations are achieved, Ocean Rainforest anticipates roughly 800 vessel trips per year to its offshore facility. Dedicated maintenance visits would occur at least once a month to inspect gear, monitor and remove biofouling, and perform regular gear repair and replacement, as described in the Aquaculture Gear Inspection, Monitoring, and Marine Debris Management Plan ([Exhibit 3](#)).

Ocean Rainforest would follow a component replacement schedule based on expected service life and observed condition ([Exhibit 3](#)). Mooring chains and drag embedment anchors are engineered for service lives exceeding 15 years under offshore conditions, while synthetic ropes typically last 5–7 years depending on loading, abrasion, and environmental exposure. Replacement will occur upon approach to the expected lifespan or sooner if inspections indicate accelerated wear. As part of its commitment to inspect and replace project components, Ocean Rainforest will provide an updated, final Aquaculture Gear Inspection, Monitoring, and Marine Debris Management Plan for Executive Director review and approval prior to construction as described in [Condition 1](#).

Phased implementation

This Commission’s review and the corresponding USACE permit consider the potential effects to coastal resources from the full, 2000-acre project. However, the project has been designed to be implemented in four phases (Table 1). Ocean Rainforest would need approval from the Executive Director and USACE to proceed to a subsequent phase, as detailed in the Phased Implementation and Adaptive Monitoring Framework ([Exhibit 4](#)) included with its consistency certification - which will be updated and finalized through [Condition 2](#). The phasing creates defined review intervals and the opportunity to verify project infrastructure, monitoring systems, and operational practices function as expected before additional units are installed. Under the proposed schedule, the earliest the project could reach the maximum proposed buildout of 21 OCUs is ten years from initial installation. However, Ocean Rainforest may decline or delay progressing to a subsequent phase based on operational capacity, market demand, and other business decisions.

Table 1 The maximum number of Offshore Cultivation Units (OCUs) that would be installed during each development phase, the corresponding project area footprint, and the minimum monitoring span required before advancing to the next phase. Note the cultivation area is roughly 30% of the full project area.

Phase	Max OCUs Installed	Cumulative OCUs	Cultivation area (acres)	Project footprint (acres)	Min Monitoring Span
Phase 1	2	2	53	190	36 months
Phase 2	6	8	214	760	24 months
Phase 3	7	15	400	1430	24 months
Phase 4	6	21	560	2000	On going

Phase-Gate review

As proposed by Ocean Rainforest in its consistency certification and memorialized through [Condition 2](#), advancement from one phase to the next would require a formal Phase-Gate review to verify compliance, confirm that foreseeable coastal effects remain within the bounds evaluated during this initial federal consistency review, and confirm stakeholder engagement and wildlife-protection performance.

As part of the proposed Phase-Gate review, Ocean Rainforest would submit the following materials in a notice to proceed request to the USACE, the California Coastal Commission (Commission), and other consulted agencies:

- Phase Compliance Summary: summarizing compliance status, with citations to monitoring reports and incident logs.
- Monitoring Data Summary: presenting all monitored parameters over the prior phase, comparing results against natural-variability thresholds and reference-site values, and identifying any concerning trends.
- Stakeholder Engagement Log: describing meetings, attendees, topics, and outcomes with the Ventura County Commercial Fishermen's Association, Commercial Fishermen of Santa Barbara, and other stakeholders.
- Updated Plans for the next phase, including:
 - a. Spill Prevention and Response Plan ([Condition 7](#))
 - b. Critical Curtailment and Response Plan ([Condition 5](#))
 - c. Sediment and Water Quality Monitoring Plan ([Condition 4](#))
- Revised Surety Device ([Condition 9](#)): reflecting the cost of removing and restoring the project area for all anticipated development in the next phase.
- Updated Navigational Safety Risk Assessment: if applicable, including USCG correspondence.
- EFH and ESA Status: confirming implementation of all conservation actions associated with the prior phase.
- Phase Deployment Plan: describing the proposed timing, sequence, and vessel mobilization for the next phase of OCU installations.

The notice to proceed request with these materials would be provided 60 days prior to the next planned phase of project implementation. Upon review, if all criteria are confirmed to have been met, the Executive Director would provide approval and USACE would need to issue a Notice-To-Proceed with construction for its authorization of the next project phase. If the Executive Director determines in its review of Ocean Rainforest's notice and submitted materials that the project is being operated or having substantially different coastal effects than initially reviewed, the Executive Director may seek a supplemental consistency certification review¹ or other action authorized by law before providing approval for construction of the project phase at issue in the notice.

¹ 15 C.F.R. § 930.66.

Phased-Gate review would require confirmation of the following:

- Minimum data window: at least 24 months (36 months for Phase 1) of operational data collected after installation of the most recent OCU.
- Compliance: no outstanding compliance issues; all required reports submitted and accepted.
- Structural performance: no material structural failures; any failures fully investigated and corrected with Executive Director and USACE concurrence.
- Environmental monitoring: monitored parameters remain within the established natural-variability envelope and monitoring thresholds defined in the project's approved monitoring plans.
- Wildlife protection: no wildlife entanglements; or if an entanglement occurred, a completed investigation, corrective actions, and concurrence by NMFS, USACE, and Executive Director.
- EFH compliance: implementation of all Essential Fish Habitat conservation actions identified for the prior phase by the National Marine Fisheries Service.

Ocean Rainforest's phased implementation approach for its commercial aquaculture facility includes adherence to a suite of operational, monitoring, and management plans that would guide project construction, operation, and review at each phase. Draft versions of some of these plans are included as Exhibits to this report. [Conditions 1, 3, 4, 5, 7, 8, 11 and 12](#) establish that the Executive Director must review and approve the updated plans before they would be finalized. These plans include: Phased Implementation and Adaptive Monitoring Framework ([Exhibit 4, Condition 2](#)) Aquaculture Gear Inspection, Monitoring, and Marine Debris Management Plan ([Exhibit 3, Condition 1](#)); Environmental Monitoring Plan ([Exhibit 13, Condition 3](#)); Sediment and Water Quality Monitoring Plan ([Exhibit 7, Condition 4](#)); Spill Prevention and Response Plan ([Exhibit 12, Condition 7](#)); Marine Wildlife Education and Training Curriculum ([Exhibit 8](#)); Lost or Damaged Fishing Gear Recovery Plan ([Exhibit 10, Condition 11](#)); Critical Operations and Curtailment Plan ([Condition 5](#)); Fisheries Mitigation Plan and Funding Plan ([Exhibit 12](#)); and Decommissioning Plan ([Exhibit 9, Condition 8](#)). Ocean Rainforest has agreed all Conditions and has requested that USACE incorporate the Conditions into their permit for the project, the letter to USACE is included as [Exhibit 14](#).

Taken together, the proposed phased implementation schedule and Phase-Gate review process promotes adaptive management and the careful expansion of the project through the incremental installation of OCUs, with each step needing to demonstrate infrastructure performance, verified environmental conditions, and continued stakeholder coordination. Through this framework, the project would grow from a roughly 200-acre to 2000-acre development as environmental data, regulatory consistency, and operational readiness support continued progression.

B. Background

Demonstration Project, Consistency Certification CC-0003-21

To inform development of its current commercial-scale proposal, Ocean Rainforest installed and operated a pilot-scale kelp aquaculture facility from May 2023 through December 2025, located 4.4 nautical miles offshore of Santa Barbara (Consistency Certification No. [CC-0003-21](#)). The project consisted of a single Offshore Cultivation Unit (OCU) with a design similar to the one proposed under this consistency certification, though slightly smaller in scale at approximately 2,000 feet by 300 feet (14 acres).

At the time the demonstration project began, commercial kelp aquaculture was new to California. Ocean Rainforest used the demonstration period to evaluate the engineering performance and structural integrity of the OCU, as well as to better understand any potential coastal effects associated with installation, operation, and decommissioning of a commercial-scale facility.

The Commission's conditional concurrence included a number of monitoring requirements and contingency plans for unexpected events like gear failures and entanglement. Ocean Rainforest completed all required monitoring and submitted regular reports throughout project implementation.

The following section summarizes the project and the key facility design lessons learned from the demonstration project. Relevant results from environmental monitoring are discussed in the findings sections below.

Structural integrity and design

Third-party structural monitoring reports indicate the demonstration project was generally structurally sound and withstood challenging ocean conditions, including a 50-year storm event that occurred during the roughly two years the project was in place. Monitoring of the demonstration project started following installation, and continued weekly for the first four weeks and then twice per month for the remainder of the project duration. This monitoring detected a series of buoys detaching from their mooring lines beginning in the spring of 2025. Based on these events, Ocean Rainforest has proposed keeping the core OCU design for its commercial project while altering some materials and biofouling management practices, as detailed further below.

Beginning in February of 2025, a series of buoys became detached from the facility. Overall, four float buoys detached and one corner-marker buoy detached twice. All float buoys and corner-marker buoys were retrieved within two days of being documented missing. Subsequent inspection led Ocean Rainforest to believe biofouling contributed to the detachment of the floats and that corrosion of the mooring hardware contributed to the detachment of the corner markers. The OCU retained its structure, remaining buoys were within expected locations, despite the missing float buoys indicating the design had redundancy that was able to compensate.

Ocean Rainforest initiated decommissioning of the demonstration project in the fall of 2025, consistent with regulatory conditions requiring full removal of all project infrastructure upon completion of the pilot period. The company successfully removed all kelp grow lines, buoys, moorings, grow-line anchors, and the facility's four large corner-marker buoys. However, two of the four block-anchor sets used to secure the corner-marker buoys could not be recovered and remain on the seafloor. Ocean Rainforest made multiple attempts to retrieve the anchors but was ultimately unsuccessful.

In July 2026, the Commission approved a remedial action plan to address the unrecovered anchors through a [reopening of the project's consistency certification \(CC-0003-21\)](#). The plan included funding for local fishermen to attempt to recover or relocate the block anchors and, if those efforts were unsuccessful, the plan required the removal of an equivalent amount of marine debris from the Santa Barbara Channel. As of the publication of this staff report, funds are being processed and should be transferred to the Pacific Federation of Fishermen's Associations (PCFFA) by the end of August to begin recovery the blocks.

Lessons learned

Ocean Rainforest has incorporated several modifications to the original design, materials, and maintenance procedures of the proposed commercial-scale facility to address the issues observed with its pilot project related to detached float and marker buoys and unretrieved anchors. For example, float buoys are now proposed to be secured with chain rather than polypropylene line. This change is expected to reduce biofouling and improve long-term durability. Ocean Rainforest also proposes to conduct regular inspections and remove biofouling before it compromises the structural integrity of any component. Additionally, mooring elements are proposed to be treated with enhanced anti-corrosion materials to further reduce the potential for premature degradation.

Anchor retrieval during future decommissioning efforts would rely on stronger mooring materials and the use of a secondary retrieval line. If the primary line were to fail, the secondary line would enable crews to locate the anchor and attempt removal, this eliminating the challenges that arose with the need to search for the pilot project anchors. Final specifications for chain type, grade, dimensions, and associated coatings or corrosion treatments will be determined during detailed engineering design for Phase 1.

Ocean Rainforest has also updated its maintenance and inspection protocols to ensure early detection and correction of issues before gear failure occurs. These revisions are reflected—and will continue to be reflected—in the final Aquaculture Gear Inspection, Monitoring, and Marine Debris Management Plan ([Exhibit 3](#)), consistent with [Condition 1](#).

C. Standard of Review

Consistency Certification

On February 3, 2025, the Commission received a request for concurrence with Ocean Rainforest's consistency certification for the proposed installation and operation of a 2000-acre commercial-scale kelp aquaculture facility in federal waters offshore of Ventura County. The proposed project triggered federal consistency review because Ocean Rainforest is required to obtain a federal permit from the USACE under Section 10 of the Rivers and Harbors Act of 1899, a permit type that is "listed" in the California Coastal Management Program (CCMP) because such activities have the potential to affect coastal uses or resources.

To expedite and reduce uncertainty in its regulatory review process, Ocean Rainforest voluntarily submitted a consistency certification to the Commission for its proposed project. Commission staff deemed the application complete on March 23, 2026. The standard of review for federal consistency certification is the enforceable policies of the California Coastal Management Program, as provided in Chapter 3 of the California Coastal Act.

The Commission is reviewing the consistency certification for the full 2,000-acre proposed project that would be conditionally permitted in the USACE permit. As a condition of the USACE permit, Ocean Rainforest would need to demonstrate adherence to project criteria to proceed from one phase to the next. Consultations and Other Agency Approvals

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) has regulatory authority over the proposed project under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 403), which governs the placement of structures or work in or affecting navigable waters of the United States. USACE issued a public notice on December 9, 2024, announcing receipt of the permit application (Application No. SPL-2022-00738-LPF) and inviting public comment through January 8, 2025.

As part of its decision-making process, USACE conducts a "public interest review," which considers the benefits and potential impacts of the project on navigation, marine resources, cultural resources, water quality, recreation, and other environmental and community factors. This review also informs USACE's responsibility as the lead federal agency for project-specific review under NEPA and the Environmental Assessment (EA) that it is preparing.

Additionally, USACE initiated the following federal consultations and coordination:

- Essential Fish Habitat consultation with the National Marine Fisheries Service (NMFS) under Section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act.
- Endangered Species Act Section 7 consultation with NMFS to evaluate potential effects on listed marine species and designated critical habitat.
- Coordination with NMFS under the Marine Mammal Protection Act regarding potential marine mammal interactions.

- Coordination with the U.S. Fish and Wildlife Service (USFWS) regarding species and resources under USFWS jurisdiction, including compliance with the Migratory Bird Treaty Act.
- National Historic Preservation Act Section 106 consultation, as required, with the California State Historic Preservation Officer and relevant tribal governments (if resources or areas of potential tribal cultural significance may be affected).

If USACE authorizes the project, the permit is anticipated to have a 10-year term. At the end of the permit term, the project could potentially be reverified or extended, subject to USACE's permitting standards at that time. Any extension may require renewed consultation with NMFS because the ESA biological opinion prepared for the project evaluates effects over a 10-year period.

Under the Coastal Zone Management Act (CZMA), reauthorization or reissuance of the USACE permit would trigger a new federal consistency review only if (1) the Commission's enforceable policies within the CCMP have changed in a manner that affects the project, or (2) the reauthorization would result in substantially different coastal effects than previously reviewed (15 C.F.R. § 930.51(b)).

U.S. National Marine Fisheries Service

The National Marine Fisheries Service (NMFS) has responsibilities over the proposed project under the Marine Mammal Protection Act (MMPA), the Magnuson-Stevens Fisheries Conservation and Management Act (MSA), the Endangered Species Act (ESA), and the Fish and Wildlife Coordination Act. An ESA and Essential Fish Habitat (EFH) consultation was initiated between NMFS and USACE on January 15, 2025, and was completed on September 22, 2025 and is provided in [Exhibit 6](#). NMFS determined that ESA-listed species were not likely to be adversely affected by the project and thus did not provide an incidental take statement. The agency provided EFH conservation recommendations to address potential adverse impacts to EFH. USACE and Ocean Rainforest have adopted all conservation recommendations into the permit and project, respectively.

Tribal Governments

On February 19, 2026, Commission staff sent outreach letters to representatives of the following California Native American Tribes understood to have current and/or historic connections to the project area, as identified by the Native American Heritage Commission (NAHC):

- Barbareño/Ventureño Band of Mission Indians
- Coastal Band of the Chumash Nation
- Northern Chumash Tribal Council
- Santa Ynez Band of Chumash Indians
- Santa Ynez Band of Mission Indians

The outreach letters notified the Tribes of the Commission's review of the project and offered the opportunity to coordinate with staff to better understand potential effects and

identify measures to avoid or minimize significant impacts. Additional emails were sent to the Tribes on April 2 and 29, 2026, with updates to the Commission staff's review timeline and reminders for the offer of consultation. Commission staff met with the Santa Ynez Band of Chumash Indians who requested to be notified of any marine wildlife entanglement with the project and to be updated by Commission staff as Ocean Rainforest progresses through development phases. Commission staff agreed to provide the Tribe with notification of any wildlife entanglement events and to provide periodic updates on project progress.

In addition to notification from Commission staff, USACE sent letters to all Tribes on the NAHC list in December 2023 and January 2025 and said they had received no response or concern about the project. Finally, the Sacred Lands File search requested by USACE was negative, indicating no known sacred lands in the project area.

D. Placement of Fill in Marine Waters

Section 30233(a) of the CCMP 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 Conditions 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.

....

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

The proposed installation of approximately 546 anchors (26 per OCU across 21 OCUs at full buildout), and 4 anchors for navigational markings involves the placement of fill in open coastal waters. Under Section 30233(a) of the CCMP, the Commission may authorize such fill only if three analytical tests are met:

1. The activity must fall within one of the seven allowable use categories identified in Section 30233(a).
2. There must be no feasible, less environmentally damaging alternative to the proposed fill.
3. Feasible mitigation measures must be incorporated to minimize adverse environmental effects.

Allowable Use Test

One of the seven allowable uses of fill under 30233(a) is aquaculture. Because the proposed anchors and chains would support a seaweed aquaculture facility, the

proposed project is consistent with the allowable use test of Coastal Act Section 30233(a).

Alternatives

No feasible, less environmentally damaging alternatives to the proposed placement of fill have been identified. Alternatives that would avoid fill—such as using nearby offshore oil platforms as mooring points—have previously been found infeasible due to the U.S. Coast Guard’s 1,640-foot (ft) vessel-preclusion zones around those platforms.²

Ocean Rainforest also evaluated two anchor systems with differing fill requirements: helical screw anchors and drag embedment (danforth-type) anchors. Helical screw anchors are installed with a hydraulic-powered underwater drill machine and can provide a robust anchoring point. Helical screw anchors disturb significantly less seafloor habitat because of their smaller footprint and lack of mooring chain lay-down. For these reasons, the Commission has previously determined helical anchors to be the least environmentally damaging long-term option for open-ocean moorings (e.g., CC-035-12 Catalina Sea Ranch).

However, Ocean Rainforest identified concerns with the use of such anchors for the proposed project due to its greater size and plan for eventual decommissioning. For such a facility, helical anchors may be infeasible because they may not provide the same hold strength as drag-embedment anchors and can also be more difficult to recover. As such, Ocean Rainforest proposes to use drag embedment anchors due to their superior ability to withstand lateral forces and their demonstrated performance in seaweed aquaculture, including during the applicant’s demonstration project. Drag embedment anchors are also designed to be recoverable and often have higher success of recovery than helical anchors.

Commission staff agrees with Ocean Rainforest’s assessment and selection of drag-embedment anchors as the least environmentally damaging feasible alternative.

Anchor installation would cause both temporary and permanent benthic impacts. Setting each anchor requires dragging it approximately 10 feet across the bottom; given the soft sand/mud substrate in the project area, these temporary effects are expected to be minor. Permanent impacts result from the final anchor position and associated mooring chain. Accordingly, alternative sites for the proposed project and anchors must be considered to ensure that feasible, less environmentally damaging options are not available.

² 33 CFR 147.1104, 33 CFR 147.1108, 33 CFR 147.1111

Ocean Rainforest estimates that each OCU would result in approximately 2,000 square feet (182 m²) of direct contact with the seafloor, which constitutes fill under the Coastal Act. At full build out, the total footprint would be approximately 42,000 square feet (roughly one acre). This area includes the benthic footprint of four, 1200 lb. concrete block anchors, three hundred seventy-eight 1,650-lb anchors, one hundred sixty-eight 3,300-lb anchors, and approximately 54,600 feet of mooring chain (100 ft per anchor). Roughly 60 percent of the total benthic contact area would result from chain lay-down rather than the anchors themselves. Depending on site conditions and chain sweep, the benthic area affected by each OCU may exceed 2000 square feet. This seafloor contact represents a long-term but spatially limited physical alteration of marine substrate.

According to the siting analysis (Morris et al., 2021) and PEIS (NMFS, 2025) prepared by NOAA, the project location avoids locations of known hardbottom substrate, rocky reef, and deep-sea corals. Further, anchors will only be placed in softbottom habitat the presence of which will be confirmed through pre-construction sediment baseline monitoring ([Condition 4](#)). Thus, changing the project location would not result in a less environmentally damaging alternative to the proposed design.

Therefore, the project is consistent with the second test of Coastal Act Section 30233(a) and that for this project, no less environmentally damaging feasible alternative exists.

Mitigation

The third requirement of Section 30233(a) is that fill may be permitted only where feasible mitigation measures have been incorporated to minimize adverse environmental effects. The following sections of this report describe the project components with potential to affect coastal resources and identify the avoidance and minimization measures, as well as the recommended Conditions, that would minimize adverse environmental effects associated with the placement of fill. As discussed, due to the small footprint of the proposed anchors relative to the proposed OCUs, anticipated absence of sensitive habitat within the installation sites, the ability of soft substrate benthic communities to quickly recover from small disturbance events (such as installation of anchors), and the regional abundance of soft substrate habitat similar to that expected to be found at the installation sites, the fill associated with the proposed anchors would not result in significant adverse environmental effects. [Condition 1](#) ensures that a pre-construction survey accurately describes the bottom type, and subsequent monitoring in Special [Condition 4](#) will monitor and report the status of benthic habitat over the duration of the proposed project.

Ocean Rainforest has also proposed a number of mitigation measures that have been memorialized in Conditions to mitigate for potential impacts to other coastal resources. Under [Condition 1](#), aquaculture gear will be regularly inspected and maintained in addition to implementation of a marine debris management plan, [Condition 3](#) establishes protocols and monitoring for wildlife entanglement, invasive species, fish aggregation, and native fish spawning. [Condition 5](#) establishes operation limits in respect to weather and sea-state conditions. [Condition 4](#) establishes sediment and water quality monitoring for potential adverse environmental effects. [Condition 6](#) requires Ocean Rainforest to follow NOAA's seasonal vessel speed reduction program.

[Condition 7](#) memorializes a Spill Prevention and Response plan that shall be implemented in the event of the release of hazardous materials. These measures would further minimize potential adverse environmental effects from the proposed project.

Finally, Ocean Rainforest has committed to the timely recovery and full removal of all project structures, anchors, and materials upon termination of the project. This would also minimize potential adverse environmental effects associated with the proposed anchors by helping ensure that they are carefully and completely removed and do not become obstacles capable of snagging and accumulating fishing equipment and other gear that would pose a risk to marine life. The project will follow a Decommissioning Plan, finalized through [Condition 8](#). [Condition 9](#) establishes financial assurance to ensure full observance and performance of decommissioning.

With the incorporation of these mitigation measures and Conditions, the Commission finds that the third test of Coastal Act Section 30233(a) has been met and that the proposed project is therefore consistent with Coastal Act Section 30233(a).

E. Marine Resources

Section 30230 of the CCMP states:

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

Section 30231 of the Coastal Act states:

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

The proposed project has the potential to affect marine resources through an increased risk of entanglement for marine wildlife in cultivation gear, an increased risk of vessel strikes on marine wildlife, as well as disturbance associated with construction and operation. Anchor placement may impact benthic communities, and organic deposition from kelp cultivation and biofouling may alter benthic habitat. The nutrient uptake from the seasonal kelp biomass may also alter pelagic water quality and primary production.

Marine Wildlife

The proposed kelp cultivation facility is located in the open coastal waters of the Southern California Bight, an area used year-round and seasonally by a wide variety of marine mammals, sea turtles, and seabirds. Marine mammal species with a moderate to high potential of being present in the project area include the gray whale, humpback whale, fin whale, common minke whale, California sea lion, Pacific harbor seal, Pacific white-sided dolphin, common bottlenose dolphin, long-beaked common dolphin, and short-beaked common dolphin. All of these species are also known to spend significant periods of time within California state waters.

Three species of sea turtle, the loggerhead, green and olive ridley sea turtle, also have the potential to be found within the project site, along with numerous seabird species associated with coastal and offshore habitats of the Southern California Bight.

The area's significant marine ecological and cultural value is reflected in the Channel Islands National Marine Sanctuary and Channel Islands National Park, and their adjacent network of state and federal marine reserves and marine conservation areas have been established over the past several decades. The Sanctuary encompasses approximately 1,470 square miles surrounding the Channel Islands, including 13 state designated marine protected areas covering approximately 240 square nautical miles within its boundaries. Anacapa Island State Marine Reserve and State Marine Conservation Area are located approximately eleven miles from the project area. An additional five State marine protected areas are located along the mainland coast between Point Concepcion and Point Dume.

The project site overlaps with humpback whale parent feeding Biologically Important Areas (BIA), gray whale migration BIAs, and an Important Bird Area that encompasses the Santa Barbara Basin. BIAs are identified by NOAA as areas that are important to cetaceans for activities such as feeding, reproduction, and migration, as well as areas that encompass the known ranges of small or resident populations. Similarly, Important Bird Areas are identified by NOAA as being critical for bird populations and usually provide essential habitat for feeding, nesting, migrating, or breeding. The project area is also located approximately two kilometers from critical habitat designated for the threatened Mexico and endangered Central America Distinct Population Segments (DPSs) of humpback whales ([Exhibit 6](#), **Figures 25-30**).

The proposed project has the potential to adversely affect these whales, sea turtles, and seabirds in the project area in several ways, including through entanglement with the facility, strikes from project vessels, and disturbance from operational activities.

Marine Wildlife Entanglement

The project would install a network of nearly 800,000 feet (over 150 miles) of cultivation and mooring lines several dozen feet below the ocean surface across the 2,000 acre project site. Each Offshore Cultivation Unit (OCU) would include approximately 38,000 feet of cultivation line, 42 chained flotation buoys, and 26 anchors. The presence of this gear introduces potential entanglement risk, particularly for large whales. Entanglement,

when an animal becomes encircled or snagged in manmade gear, can impair movement, alter behavior, cause injury, and in severe cases result in mortality. Entanglement may occur through direct interaction with intact aquaculture gear, through contact with aquaculture gear that has become dislodged and turned into marine debris, or through secondary entanglement when an animal already carrying gear encounters the facility or fishing gear or lines snagged on it (NOAA BiOp, 2025).

Entanglement in ropes, fishing gear, and other marine debris is a significant source of injury and mortality for several marine mammal populations. Between 2015 and 2024, 347 confirmed whale entanglements occurred off the U.S. West Coast, with roughly one-third (110) documented in Southern California; half of these (55) involved humpback whales (NOAA BiOp, 2025). Entanglement materials included commercial and recreational fishing gear and other non-fishery sources. NMFS estimates that approximately 9% of West Coast entanglement cases each year involve more than one set of gear, indicating that some whales encounter additional gear after becoming initially entangled, increasing the severity and complexity of the situation and lowering the likelihood of survival.

While entanglement in marine debris is well documented, entanglement with aquaculture gear is relatively rare (Bath et al., 2023). Globally, no marine animal entanglements have been documented in kelp aquaculture facilities (NOAA BiOp, 2025), however there are very few open-ocean kelp aquaculture facilities in the world, especially in areas with high densities of large whales. A review of interactions between protected species and aquaculture gear found documentation of 10 cetacean entanglements or entrapments in mussel farms globally (Bath et al., 2023). Longline mussel farms use taut horizontal lines similar to Ocean Rainforest's proposed kelp system, but typically incorporate flexible loops that may elevate entanglement risk (Keeley et al., 2009). One of the documented aquaculture entanglement cases involved secondary entanglement of a humpback whale calf that was initially entangled in craypot fishing gear and then subsequently became entangled in the mussel farm lines (Bath et al., 2023).

Monitoring during Ocean Rainforest's demonstration project documented regular occurrence of marine mammals near or within the project cultivation area. Dolphins and sea lions were most frequently observed, including occasional large dolphin "super pods" (>150 individuals). Minke and humpback whales were also observed. Marine mammal presence changed seasonally, peaking in spring and early summer with only a few individuals observed in late fall and winter. Ocean Rainforest reported no instances of primary or secondary entanglement for the duration of the demonstration project.

In its Biological Opinion, NMFS identified humpback and gray whales as the species most likely at risk of entanglement with any gear deployed in the project area ([Exhibit 6](#)). This is due to their higher rates of reported entanglement, both in the area and coastwide, and their known presence in nearshore and shelf waters along the Southern California Bight. NMFS determined the project is 'Not Likely to Affect' all species except certain populations of humpback whales. NMFS acknowledged uncertainty about the risk of entanglement to whales from the project, noting that 'Kelping' behavior—where

humpbacks seek out, roll and rub against floating seaweed such as giant kelp—could increase the potential for entanglement of humpback whales with the aquaculture facility. NMFS determined the probability of entanglement to be very low but not discountable because the project is proposed to operate for an extended duration. NMFS ultimately determined the project is “not likely to jeopardize the continued existence” of either listed humpback whale populations or adversely modify their designated critical habitat in the project area. However, NMFS’ analysis was focused on assessment of risks at the population level (i.e. the number of whales that could be lost in order for the viability of the population to decline) and did not evaluate risk to individual whales.

To address whale entanglement risks, Ocean Rainforest has incorporated mitigation measures and adopted all NMFS conservation recommendations designed to minimize such risks. These measures fall into the broad categories of maintaining the facility in good condition, providing a rapid response to equipment failure at the facility, use of marine wildlife observers to minimize risks during construction, full facility removal at the end of project life, and rapid notification and reporting of any detected entanglements. The project design also includes elements that would reduce the likelihood of wildlife entanglement. It relies on thick lines, which are less susceptible to looping, and calls for baseline tension to be maintained in mooring, cultivation, and support lines (taught lines are less likely to entangle wildlife). Tension will be confirmed after installation and maintained through regular inspections as described in the Aquaculture Gear Inspection, Monitoring, and Marine Debris Management Plan provided by Ocean Rainforest with its consistency certification. [Condition 1](#) memorializes Ocean Rainforest’s commitment to implement this plan and specifies several specific elements for it to include. The combination of heavy chains and partially submerged floats is also expected to prevent slack conditions that could create entanglement risk. Any structural issues identified through monitoring would also be promptly corrected, and gear would be required to be maintained and replaced prior to failure, consistent with [Condition 1](#).

Ocean Rainforest will also mark and inventory all deployed gear to support NMFS’ ability to identify gear sources in any entanglement event and to ensure accountability for lost gear. Consistent with [Condition 1](#), the company will track unrecovered gear and remove an equivalent weight of marine debris annually, maintaining a commitment to avoid contributing to a net increase in marine debris. Ocean Rainforest has also developed entanglement-response protocols, incorporated into the Environmental Monitoring Plan submitted with its consistency certification (implementation of which would be required through [Condition 3](#)). If an entanglement is observed, the company would immediately notify the appropriate hotline or the U.S. Coast Guard and monitor the animal from a safe distance. Ocean Rainforest would not attempt disentanglement and would rely solely on qualified personnel with appropriate training. All incidents would be promptly reported to the Commission and USACE.

The project’s phased development and monitoring requirements will help validate design and operational practices that effectively minimize entanglement risk. [Conditions 8 and 9](#) memorialize Ocean Rainforest’s commitment to full facility removal upon decommissioning and provide financial assurance for removal. Ocean Rainforest

will have a marine wildlife observer on board project construction vessels and has also developed a Marine Wildlife Education and Training Curriculum ([Exhibit 8](#)) to ensure all employees and contractors working on the proposed project are aware of procedures to take if entanglement in any gear (project or otherwise) is observed.

Ship Strikes

Construction and installation of the OCUs, followed by ongoing operations, will require the use of utility and project vessels that transit between their berth harbors and the project site. This increase in vessel activity would correspondingly increase the potential for vessel collisions with marine wildlife. For OCU installation, Ocean Rainforest anticipates using one utility vessel (roughly 80 feet in length) and several smaller support boats. These vessels would travel daily from Santa Barbara or Ventura Harbors during the approximately four-day installation window for each OCU. During project operations, annual vessel trips are expected to scale with project buildout, from approximately 95 trips per year during initial operations to roughly 800 trips per year at full buildout (Table 2) Ocean Rainforest would berth its operation vessels in Ventura Harbor which is a 6.3 miles transit to the project area.

Table 2 Projected operational vessel use across the four development phases.

Phase	OCUs (max)	Annual Harvest (t WW)	Peak harvest fleet	Peak harvest week crew	Annual vessel-trips
Phase 1	2	600	1 vessel	6 to 8	~95
Phase 2	8	2,400	2 vessels	10 to 14	~320
Phase 3	15	4,500	3 vessels	16 to 20	~600
Phase 4	21	6,300	4 vessels	22 to 26	~800

Vessel strikes pose a known hazard to multiple marine species, particularly large whales. Regional increases in vessel traffic, combined with the recovery of several whale populations, have elevated the potential for vessel-wildlife interactions. The severity of injury resulting from a vessel strike varies with vessel size and speed ([Exhibit 6](#)). Research indicates that severe or fatal injuries to large whales are most often associated with vessels over 262 feet (80 meters) in length traveling at speeds of 14 knots or greater (Laist et al., 2001). The project area falls within NOAA's voluntary Southern California Vessel Speed Reduction (VSR) Zone, where vessels over 300 gross tons are requested to travel at 10 knots or less to reduce the likelihood and severity of whale strikes.

Although most fatal vessel strikes involve larger, faster-moving ships, Ocean Rainforest acknowledges that smaller vessels can also pose a risk. To avoid and minimize the potential for vessel strikes, Ocean Rainforest has incorporated a number of protections into the project. Ocean Rainforest would provide marine wildlife education for all staff, including training on appropriate responses and vessel maneuvering when marine mammals are observed ([Exhibit 8](#)). In addition, Ocean Rainforest has committed to

having a Marine Wildlife Observer onboard all construction vessels during installation and removal activities and to conducting all operations during daylight hours, when marine wildlife is easier to detect at greater distances. Through [Condition 6](#), and in alignment with NOAA's conservation recommendations, Ocean Rainforest would comply with NOAA's Vessel Speed Reduction program, including seasonal and temporary VSR zones, by limiting vessel speeds to 10 knots or less when VSR measures are in effect for example during periods where high whale densities are reported in the area.

Disturbance from Operational Activities

Lighting and vessel noise have the potential to result in disturbance to marine wildlife. Artificial night lighting can attract and entrap sea birds in the area of illumination and adversely impact foraging and susceptibility to predation. To address this potential source of operational disturbance to marine wildlife and resulting reductions in marine biological productivity that may result, Ocean Rainforest has committed to only operating during daylight hours and will not install artificial lighting in the project area except on navigational buoys as required by the U.S. Coast Guard for safety.

Vessel activity and the deployment of anchor chains during construction of the OCUs will generate underwater noise in and around the project area. Based on NMFS's analysis ([Exhibit 6](#)), noise associated with both construction and operational vessel use is expected to remain well below levels that could cause injury or significant behavioral disturbance to marine mammals or other protected species. Continuous sound levels that could elicit behavioral responses in low-frequency cetaceans generally exceed 120 decibels root mean squared (dB RMS), and injury thresholds are substantially higher (e.g., 222 dB peak); project-related vessel noise is anticipated to remain below these levels. Although broadband vessel noise can range from approximately 140 dB for small pleasure craft to over 200 dB for large commercial ships, vessels used for this project are expected to fall on the lower end of this range and well below the output of deep-draft commercial traffic. Consequently, NMFS determined that vessel noise generated under the Proposed Action would not reach levels likely to cause injury or meaningful behavioral effects. Even at full build-out, the estimated 800 vessel trips per year represents a small addition to existing regional vessel activity and is therefore not expected to result in a measurable increase in underwater noise within the Southern California Bight

The project has the potential to adversely affect the marine wildlife by creating and then removing kelp habitat. NMFS determined that adverse effects could occur if the project attracts rockfish or other species to temporary habitat. The project could create a population sink if fish spawn on the kelp and the kelp is then harvested prior to juvenile development. Ocean Rainforest has committed to avoiding these impacts by conducting pre-harvest surveys to look for fish eggs on the kelp at the project site and postponing kelp harvest if fish eggs are present. Ocean Rainforest has further committed to monitoring, recording and reporting the presence of fish in and around the project area. Both of these commitments are memorialized as part of [Condition 3](#).

Benthic Habitat

The placement of anchors and associated hardware, as well as continual deposition of biologic materials from the aquaculture facility, may adversely affect benthic habitat through physical disturbance, displacement of organisms, and reduced oxygen availability caused by the respiration of deposited organic carbon.

Anchor placement

Placement of anchors would result in localized disturbance of soft-bottom seafloor habitat, including temporary displacement or potential injury or mortality of benthic organisms within the footprint of each anchor and any associated seafloor contact from chains or hardware. The proposed use of 26 anchors per OCU would result in approximately 2,000 square feet of bottom disturbance per OCU. Organisms occupying the soft-sediment habitat beneath the OCUs may also be displaced due to the presence of the overlying structure and deposition of biofouling materials such as mussel shells.

Even under full buildout, the physical disturbance effects associated with the aquaculture infrastructure are anticipated to be minimal. The 2,000-acre project area is composed of soft-bottom habitat with a mixture of sand and mud, as documented in the NOAA PEIS³ for the Aquaculture Opportunity Areas and the Biological Opinion prepared for this project ([Exhibit 6](#)). Through the Sediment and Water Quality Monitoring Plan ([Exhibit 7](#)), which is required to be finalized and implemented through [Condition 4](#), Ocean Rainforest has committed to conducting pre-construction surveys prior to each phased OCU installation to verify the continued absence of sensitive habitats (e.g., hard bottom, reef, or biogenic structure) at the installation site and confirm that anchoring would occur exclusively in soft sediments. Soft-bottom habitats are generally resilient to physical disturbance, and benthic infauna in these environments typically recolonize disturbed areas relatively quickly once activity or disturbance ceases.

Some species that prefer unobstructed soft-bottom habitat may avoid areas directly beneath or immediately adjacent to the infrastructure. However, these effects are expected to be minor given the extensive availability of contiguous soft-bottom habitat in the surrounding region. The overall disturbance footprint from the proposed anchors represents a very small proportion of the soft-bottom habitat within the Santa Barbara Channel. Considering the limited areal extent of disturbance, the naturally dynamic nature of soft-bottom communities, and the requirement for pre-construction habitat verification, the physical effects of anchor placement are not expected to result in disturbance or damage to sensitive marine habitats or regionally significant loss or degradation of more common soft-bottom habitats.

³ Final Programmatic Environmental Impact Statement for the Identification of Aquaculture Opportunity Areas in U.S. Federal waters off of Southern California. National Marine Fisheries Service, West Coast Region. September 19, 2025.

Accumulation of biological material

Material originating from cultivated kelp, as well as from biofouling communities that develop on aquaculture infrastructure, can settle on the seafloor and influence benthic habitat conditions. Ocean Rainforest anticipates that each OCU will produce 170-250 wet tons of kelp per year under favorable growing conditions. During the growing season, portions of cultivated kelp may break off and settle on the seafloor below and downstream of the cultivation area. High organic deposition rates under some aquaculture facilities have been shown to alter sediment structure, chemistry, and benthic community composition (Cranford et al., 2022; Wilding, 2012; Wilding and Nickell, 2013). These changes are most commonly documented beneath finfish and mussel farms, which typically generate much higher organic deposition rates than kelp farms. Where impacts have been observed, they generally occur within and up to 100 meters beyond facility boundaries and often peak just prior to harvest when biomass is greatest.

Benthic monitoring conducted for Ocean Rainforest's demonstration project indicated some benthic effects. Beginning in the spring of 2024, monitors noted the occurrence of giant kelp stipes and blades on the benthos under and near the project area. In the spring of 2025 monitors noted the presence of mussel shells around the perimeter of the facility and indicated they likely fell from the facility. Each monitoring event recorded a variety of benthic fauna including fish, and a range of invertebrates. The identity and distribution of fauna did not appear to differ between the perimeter and reference stations throughout the duration of the demonstration project.

As observed in the demonstration project, biofouling on project infrastructure can be deposited on the benthos. Biofouling assemblages typically include mussels, tunicates, hydroids, and other invertebrates. Mussels, in particular, can contribute organic-rich biodeposits (feces and pseudofeces) and shell debris when individuals detach, die, or are dislodged during storms or maintenance activities. Similar "shell fall" is well documented beneath oil platforms in the Santa Barbara Channel, where periodic detachment of mussel biofouling over many years creates localized patches of coarse substrate within soft-bottom areas.

In contrast to kelp, biofouling mussels have the potential to contribute more concentrated deposition of organic matter. Ocean Rainforest reported mussels as the primary biofouling organism in its demonstration project and documented shell fall directly beneath the cultivation facility. Research on mussel aquaculture and biofouled structures (e.g., (Cranford et al., 2022; Wilding, 2012; Wilding and Nickell, 2013) shows that high densities of mussels can increase sediment organic content, reduce oxygen penetration, and alter benthic community composition. Where observed, these effects are typically localized within tens to hundreds of meters of the structures and depend on mussel density, hydrodynamic conditions, water depth, and facility scale.

Several project-specific factors reduce the potential for sinking kelp or biofouling organisms to adversely affect the benthic community beneath and near the proposed facility. The location of the project in open-ocean waters at approximately 115 feet deep

would facilitate dispersal of dislodged buoyant kelp over a broad area and supports high water exchange through the facility. The flux of organic matter is likely to be relatively low compared to that of mussel aquaculture facilities in more protected waters and the flux of organic matter and shells is likely to be substantially lower than that associated with mussel aquaculture. Studies in the Santa Barbara Basin indicate that shell accumulations beneath offshore structures are generally patchy and limited in extent, and do not lead to broad transformation of regional benthic habitat.

Nevertheless, the proposed project is much larger than any existing kelp cultivation operation in the United States and is intended to operate over a far longer time period than the demonstration project. Increased structure from multiple OCUs and long operational periods could support a greater total biomass of biofouling organisms and contribute more kelp deposition than documented in the demonstration project. Large-scale kelp farms elsewhere (e.g., thousands of acres in China) have been shown to alter hydrodynamic conditions and benthic habitats, though long-term studies (10 years) indicate that benthic habitat quality generally remains within acceptable ecological thresholds (Shi et al., 2011; Zhang et al., 2020).

While significant adverse effects to benthic habitats from kelp or biofouling deposition associated with the proposed project are unlikely, the unprecedented scale of the proposed project in U.S. waters raises uncertainty as well as concerns about potential cumulative effects as the project is expanded over time. To address these potential issues, Ocean Rainforest has committed to implement a phased expansion of its project (memorialized and required through [Condition 2](#)) and conduct ongoing sediment chemistry and benthic habitat monitoring at near-field and reference sites (further required through [Condition 4](#)). The results of this monitoring would be provided to the Executive Director for review and progression to each subsequent phase would occur only if monitoring shows no significant changes in sediment chemistry and benthic communities relative to natural variability.

Water Quality and Primary Production

The proposed project would cultivate approximately 170 to 250 wet tons of kelp per OCU per year, with an anticipated total annual yield of 5,000 to 6,000 wet tons per year at full buildout, as described by Ocean Rainforest in its response to Commission staff's questions about anticipated yield. Kelp growth depends on ambient light and nutrient availability, and because Ocean Rainforest would not apply fertilizers, kelp would rely solely on naturally occurring nutrients in the surrounding waters. Nutrient concentrations in offshore surface waters can be limited, and large-scale kelp cultivation has the potential to reduce nutrient availability for resident phytoplankton within and downstream of the project area. Alterations in phytoplankton abundance or distribution could affect pelagic food webs that rely on these primary producers. Large-scale kelp aquaculture in open-ocean environments has never been pursued off of the U.S. West Coast, and therefore some uncertainty exists regarding the magnitude and spatial extent of potential primary production responses.

Available modeling and empirical studies provide insight into the potential magnitude of such effects. Fine-scale hydrodynamic modeling of Ocean Rainforest's previous demonstration project indicates that currents and nutrient fields can be modified within the farm and that these changes may extend up to 20 kilometers downstream (Frieder et al., 2022). Studies from large kelp aquaculture facilities in China document seasonal decreases in dissolved nitrogen and phytoplankton abundance during periods of peak kelp biomass (Shi et al., 2011). The Chinese facilities are located in a partially enclosed bay where circulation is reduced, however, which likely amplified nutrient depletion relative to what would occur in an open-ocean setting.

While Ocean Rainforest is proposing a large-scale facility, its location three miles offshore in the open waters of the Santa Barbara Channel is expected to reduce nutrient-related impacts. Circulation in this region is comparatively high, and seasonal upwelling enhances nutrient availability in surface waters during the spring and early summer. These factors would facilitate frequent flushing of water through and around the farm, reducing the likelihood of sustained nutrient limitation. As a result, while changes in phytoplankton abundance and distribution may occur, such changes are likely to remain limited in extent, within the range of natural seasonal variability, and would be unlikely to result in significant adverse effects on coastal food webs and marine productivity.

To help ensure such effects are understood and considered during each proposed phase of expansion, Ocean Rainforest has proposed a water quality monitoring program to assess and quantify potential project effects on the surrounding pelagic environment. [Condition 4](#) memorializes Ocean Rainforest's commitment to carry out a water quality monitoring program and requires its implementation with a design capable of evaluating conditions prior to installation, during operation, and following decommissioning. To achieve this, monitoring stations would be located within the project footprint and downstream of the facility. Data collected during operation would support early identification of any unanticipated changes, and if monitoring identifies persistent, project-related reductions in phytoplankton abundance or nutrient availability, further phases would be reconsidered and the Executive Director may seek a supplemental consistency certification or other actions. This could include measures such as adjustments to cultivation density or operational practices to ensure continued protection of marine resources. Post-decommissioning sampling would be used to confirm that water quality and sediment conditions have returned to pre-project baselines. As required in [Condition 4](#), a more detailed description of the Sediment and Water Quality Monitoring plan including information about the number and locations of samples and parameter sampled will be submitted to the Executive Director for review and approval prior to construction.

Biofouling and non-native species, parasites, and pathogens

Kelp aquaculture presents several potential pathways for the introduction or spread of non-indigenous species,⁴ parasites, and pathogens in the marine environment. Potential vectors include: introduction through hatchery operations and transfer of seeded cultivation lines; vessel movements between regions that may carry fouling organisms or larvae; and the creation of new artificial structures that can serve as substrate for colonization and establishment of non-indigenous species. The introduction or expansion of non-indigenous species, including fouling organisms, parasites, and pathogens, can adversely affect native species and marine ecosystems by competing for space, altering habitat structure, or transmitting disease.

Surveys of submerged structures on nearby offshore oil platforms have documented a diverse assemblage of invasive marine species, including several known to pose ecological and economic risks along the West Coast. Many of these organisms are fouling species—algae and invertebrates that readily colonize hard substrate. Maintenance or cleaning of vessels and structures without proper containment can unintentionally disperse these species. Certain taxa, such as didemnid tunicates and some macroalgae, fragment easily when disturbed; each fragment may remain viable and capable of independent colonization and reproduction, increasing the risk of spread.

The project avoids the introduction of non-indigenous species by limiting cultivation to the native kelp species, *Macrocystis pyrifera*. Ocean Rainforest would collect gametophytes (i.e. kelp seed material) under a CDFW Broodstock Collection Permit which will specify geologic region of collection, how much material is collected and specify provisions for ensuring the local genetic diversity of kelp is preserved. Seed material would then be propagated in a controlled hatchery environment using filtered and UV-treated seawater. Accidental introduction of non-native species would be minimized by visually inspecting seeded lines for pathogens and fouling organisms; any unhealthy or contaminated material would be sterilized and disposed of appropriately. Seeded lines would be maintained in sterile conditions and visually inspected for invasive species, parasites, and pathogens prior to deployment in the OCUs offshore. These measures minimize the likelihood of introducing non-native organisms at the hatchery stage.

Aquaculture facilities and other offshore structures can provide three-dimensional habitat for fouling organisms (Coasta-Pierce and Bridger, 2002; McKindsey et al., 2006). At full buildout, the project would introduce more than 150 miles of cultivation line, over three miles of chain, and numerous buoys and anchors. These structures could be colonized by fouling organisms from nearby sources or transported by project vessels. Results from Ocean Rainforest's demonstration-scale project show that biofouling can occur within the first year of deployment and that mussels are likely to be

⁴ Non-indigenous species, which are organisms introduced by humans into areas where they do not naturally or historically occur (Scianni et al., 2017).

the dominant fouling organism. Unmanaged biofouling can affect crop performance, create safety or operational hazards, and contribute to the regional spread of non-indigenous species. To address these concerns, Ocean Rainforest has incorporated biofouling inspection and removal into its infrastructure monitoring plan ([Exhibit 3](#)), the plan is required to be updated and finalized through [Condition 1](#). Removal of biofouling organisms would be performed in-water by deck crews or qualified divers. Fouling organisms would be removed, collected, and disposed of appropriately at a land-based facility in order to minimize the spread of non-indigenous fouling species.

To further ensure that project maintenance activities do not contribute to the spread of non-indigenous species, Ocean Rainforest would carry out regular inspections of the proposed cultivation facility. In the event that non-naturalized, invasive species are found, Ocean Rainforest would remove and bag the organism for handling at a land-based facility in coordination with a qualified marine biologist or staff from the California Department of Fish and Wildlife. The event would be reported to USACE, the Executive Director, and NMFS within 14 days of identification ([Exhibit 13](#)).

Conclusion

With the proposed phased development of the offshore kelp aquaculture facility and protective measures included in the Aquaculture Gear Inspection, Monitoring, and Marine Debris Management Plan ([Exhibit 3](#)), Environmental Monitoring Plan ([Exhibit 13](#)), Sediment and Water Quality Monitoring Plan ([Exhibit 7](#)), Decommissioning and Facility Removal Plan ([Exhibit 9](#)) provided as part of Ocean Rainforest's consistency certification, as well as the those required in [Conditions 1-9](#), including vessel speed reductions and financial assurance for full facility removal, the Commission finds the project consistent with marine resource policies of the CCMP. As conditioned, the project would be conducted in a manner that sustains the biological productivity of coastal waters and maintains healthy populations of marine organisms.

F. Commercial and Recreational Fishing

Section 30234 of the CCMP 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.

Section 30234.5 of the CCMP states:

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

As proposed, the project has the potential to adversely affect commercial fishing activities by increasing demands on existing harbor infrastructure, introducing new in-water structures that may create navigation and safety concerns, and displacing fishing efforts from the area within and around the cultivation site. Recreational fishing activities may benefit from the project due to aggregation of fish around the facility. Project vessels and shoreside logistical activities for the proposed project would be accommodated within Ventura Harbor, which also supports extensive commercial and recreational fishing operations. Fishing-related activities in Ventura Harbor include berthing, offloading, and staging, with the market squid fishery being the most prominent in the harbor. The offshore cultivation arrays would occupy ocean space presently used by the fishing community and would require adaptation from several fisheries, as described below.

Harbor Operations

CCMP Section 30234 requires that facilities serving the commercial fishing and recreational boating industries be protected. As defined in the Coastal Act, aquaculture is not a fishery, but rather an agricultural use. The addition of Ocean Rainforest's vessels and associated use of Ventura Harbor facilities, including offloading and fueling, has the potential to adversely affect commercial fishing operations, particularly during periods of high activity such as the market squid season. Ventura Harbor is one of the primary centers for market squid landings in California and is presently working to expand its capacity to accommodate squid landings historically received at Port Hueneme, which is phasing-out its squid-landing capacity.

Market squid fishing activity is seasonally intensive with most landings in southern California occurring between October and December⁵. Because the fishery is focused on nighttime hours, offloading of catch generally takes place during the late evening and early morning hours, and according to the Ventura Harbor General Manager, is typically completed by midafternoon, after which vessels return to fishing grounds around sunset. Offloading activities are further influenced by regulatory constraints, including California's prohibition on commercial squid fishing on weekends, which reduces weekend landing activity⁵.

Ocean Rainforest's highest demand for harbor facilities would occur during kelp harvest periods, which take place between April and September when biomass peaks. Harbor representatives informed Commission staff that Ventura Harbor currently has sufficient capacity to offload moderate volumes of kelp but would require additional capability to handle the anticipated 5,000 to 6,000 wet tons of kelp landings expected at full buildout. Ventura Harbor is planning improvements to the commercial fish pier that will expand offloading capacity for both squid and kelp; the project is estimated to be approximately five years from completion. Because kelp production would scale up gradually, Ocean Rainforest would be able to coordinate with Ventura Harbor on incremental capacity

⁵ California Department of Fish and Wildlife Marine Region, Market Squid Fisheries Management Plan, August 14, 2025. [Revised Amended MSFMP](#)

needs. As a result, the proposed project is not expected to adversely affect facilities supporting the commercial fishing industry or reduce harbor space available for fishing-related activities.

Although the primary kelp harvest season and the peak market squid season are unlikely to overlap, both are influenced by environmental conditions that may shift timing from year to year. In years where peak kelp biomass coincides with peak squid fishing activity, Ocean Rainforest's use of harbor infrastructure could contribute to congestion or scheduling conflicts with commercial fishing operations. To minimize such potential interference, Ocean Rainforest has committed to coordinating closely with Ventura Harbor staff and the local fishing community on adjusting offloading schedules to minimize impacts to commercial fishing. [Condition 10](#) memorializes this commitment and requires it to be implemented by Ocean Rainforest.

With these coordination and communication measures, disruption to harbor operations and facilities serving commercial fishing is expected to be minimal and temporary.

At-Sea Safety and Loss/Damage to Fishing Gear

Commercial and recreational fishing activities could experience adverse impacts if fishing gear becomes entangled or if vessels collide with the proposed aquaculture facility. The buoys, ropes, and anchors associated with the kelp farm introduce navigational hazards, and the facility could snag or damage various types of fishing gear, including hook-and-line gear, trawl gear, nets, and traps. Gear could encounter the facility through intentional deployment, drifting from nearby areas, or being dragged or towed during fishing operations. Construction and operation project vessels may inadvertently damage fishing gear while transiting to the project area. These types of vessel and gear interactions pose safety risks at sea and could lead to financial losses for fishermen, as well as the potential creation of marine debris if gear or facility components are lost.

Although it was only in place for roughly two years and was a small fraction of the size of the proposed facility, no adverse interactions were reported between fishing activities and the Ocean Rainforest demonstration project offshore of Santa Barbara. Commercial fishing activity was observed seven times within one mile of the project over the two years of operations. Additionally, Ocean Rainforest did not receive any claim requests for lost or damaged fishing gear due to interactions with the project infrastructure nor did monitoring efforts observe lost or abandoned fishing gear within or around the project area. This indicates that in some cases, conflicts between offshore aquaculture facilities and fishing activities can be avoided.

The design of the current project includes several elements to reduce such conflicts. These include its siting outside vessel transit routes and areas with high fishing activity (Morris et al., 2021; NMFS, 2025) and engineering it to withstand 100-year storm conditions. Ocean Rainforest would also coordinate with the U.S. Coast Guard to permit and install Private Aids to Navigation (PATON) buoys clearly marking the facility's perimeter. In addition, NOAA nautical charts would be updated during each

development phase to accurately reflect the location and configuration of the aquaculture site.

Further, [Condition 1](#) requires regular inspections and maintenance, including prompt correction of loose lines and removal of derelict debris. GPS-enabled buoys that alert operators when an OCU moves outside its designated footprint further reduce fishing gear entanglement risk. Ocean Rainforest has also committed to full removal of the facility, including anchors, structures, and all materials, at the end of the project or after any prolonged lapse in operations. These commitments are secured through [Conditions 8 and 9](#), including financial assurance for full removal and restoration.

Finally, Ocean Rainforest has developed a Lost or Damaged Fishing Gear Recovery Plan ([Exhibit 10](#)) that would be finalized and required to be implemented through [Condition 11](#). This plan defines the process for compensation for lost or damaged fishing gear. In the event that fishing gear is lost, damaged, or rendered unusable as a result of contact or interaction with the proposed project, commercial and recreational fishermen would submit a claim to Ocean Rainforest to compensate for the cost of the gear and foregone harvest. The Lost or Damaged Fishing Gear Recovery Plan includes a description of the claims process, a claim form, and dispute resolution procedures. Ocean Rainforest would review and investigate the incident within 30 days of receiving the claim and provide a resolution to the claimant. Records of claims received and resolutions would be reported to the Executive Director as part of Ocean Rainforest's annual reporting through [Condition 2](#).

With the implementation of [Conditions 1, 8, 9 and 11](#), and the mitigation measures proposed by Ocean Rainforest, potential hazards to navigation and fishing gear loss are expected to be minimal.

Displacement from Fishing Grounds

The Santa Barbara Channel supports a wide range of commercial and recreational fisheries that contribute substantially to the regional coastal economy and its working-waterfront identity. Fishing effort and landings vary throughout the Channel in response to environmental conditions, stock cycles, regulations, and market dynamics. To track catch trends spatially, the California Department of Fish and Wildlife (CDFW) requires commercial fishermen to report the Fishing Block in which fish are caught. Fishing Blocks are standardized 10-minute latitude by 10-minute longitude grids that allow landings to be evaluated at a uniform spatial scale that helps identify geographic areas that support major fisheries.

The proposed project area lies near the center of CDFW Commercial Fishing Block 665, which covers roughly 104 square statute miles after accounting for the area that overlaps the mainland coastline ([Exhibit 11](#)). Block 665 encompasses fishing grounds west of Ventura Harbor and includes a mix of nearshore rocky reefs and kelp beds, as well as extensive sandy-bottom habitat that supports diverse pelagic and demersal fisheries. Roughly 15 percent of all squid landed in California between 1980 and 2024 were caught in Block 665. According to the commercial fishing analysis prepared for Ocean Rainforest as part of its consistency certification (included as [Appendix A](#)),

seine gear accounts for more than 80 percent of historical landings in Block 665, primarily northern anchovy, sardine, Pacific mackerel, and market squid. Gillnet fishermen target California halibut, white seabass, thresher shark, and Pacific angel shark. Trap fisheries land rock crab and California spiny lobster, while trawl fisheries harvest ridgeback prawn and California halibut. Many of these fisheries target soft-bottom habitat in depths around 100 feet, which overlaps portions of the project area.

Ocean Rainforest selected the project site, located within NOAA's Aquaculture Opportunity Area (AOA) N2-D, to reduce potential conflicts with existing ocean uses. The AOA siting process concluded in 2021 and used a marine spatial planning analysis that included commercial fishing data from 23 fisheries and applied setbacks from sensitive habitats to identify areas with relatively lower levels of conflict. However, overlap could not be completely avoided and the AOA Final Programmatic Environmental Impact Statement (PEIS) and the commercial fishing analysis prepared for Ocean Rainforest indicate that commercial and recreational fishing activity does occur within and adjacent to the proposed project footprint. The PEIS notes that while fishing intensity within the Santa Barbara Channel is unevenly distributed, often highest around the Channel Islands and in certain offshore corridors, fixed aquaculture structures can still disrupt commercial fishing operations and displace effort when located within actively used grounds.

Fishing Vessel Monitoring System (VMS) data, which records some fishing activity, was visualized by the National Centers for Coastal Ocean Science (NCCOS) as part of the AOA identification process to show fishing vessels use within and around the proposed project site. NCCOS provided a supplemental, detailed characterization of the site option N2-D for Ocean Rainforest using the data sources that contributed to the AOA siting model ([Exhibit 5](#)). VMS fishing data show that the highest number of transits around N2-D occurred from the non-groundfish trawl gear for ridgeback prawn (Figure 5), non-groundfish trawl gear for California halibut (Figure 6), California gillnet complex gear (Figure 7), and other gear types not listed (Figure 8).

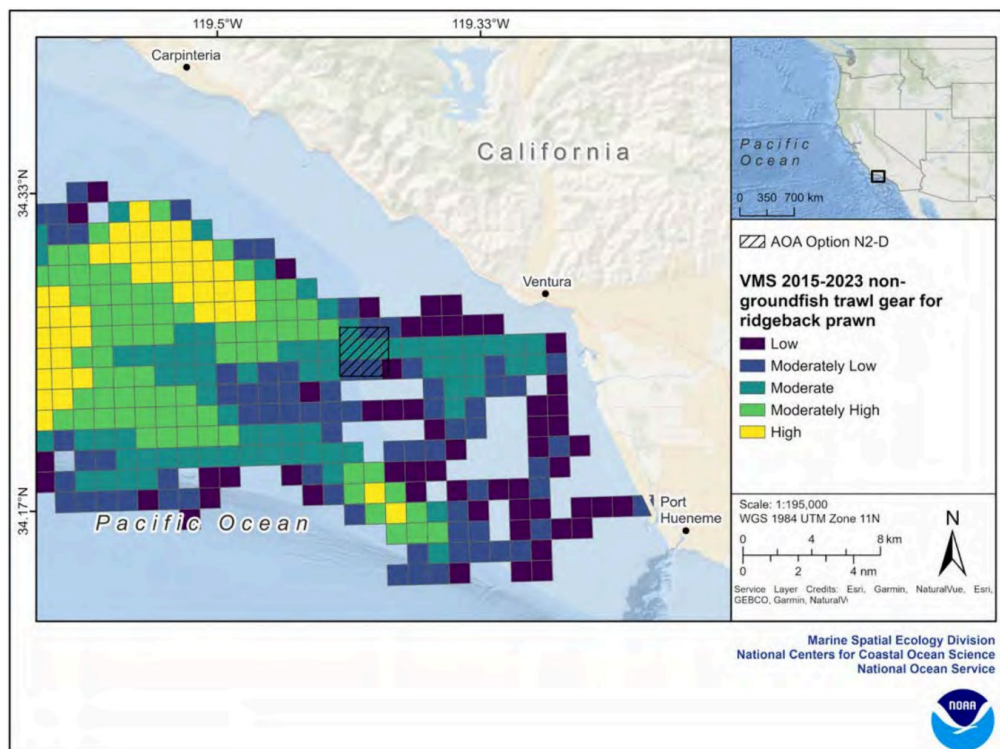


Figure 5 VMS fishing for non-groundfish trawl gear for ridgeback prawn from 2015-2023 in relation to Ocean Rainforest's proposed project location (AOA option N2-D) shown with hashed lines, from Exhibit 5.

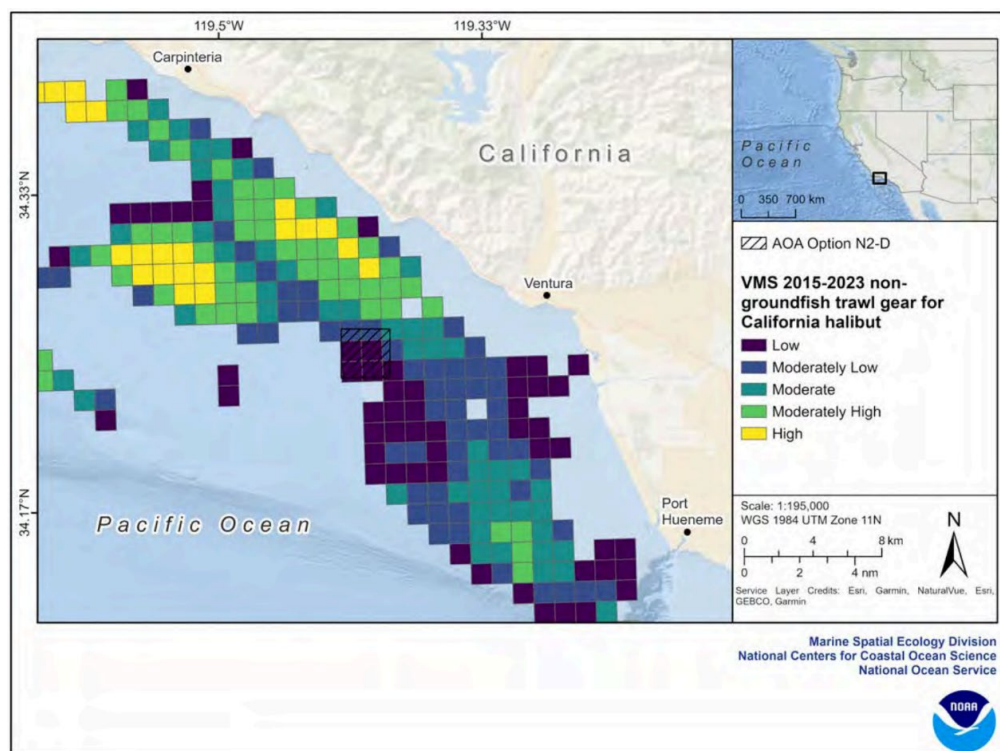


Figure 6 VMS fishing for non-groundfish trawl gear for California halibut from 2015-2023 in relation to Ocean Rainforest's proposed project location (AOA option N2-D) shown with hashed lines, from Exhibit 5.

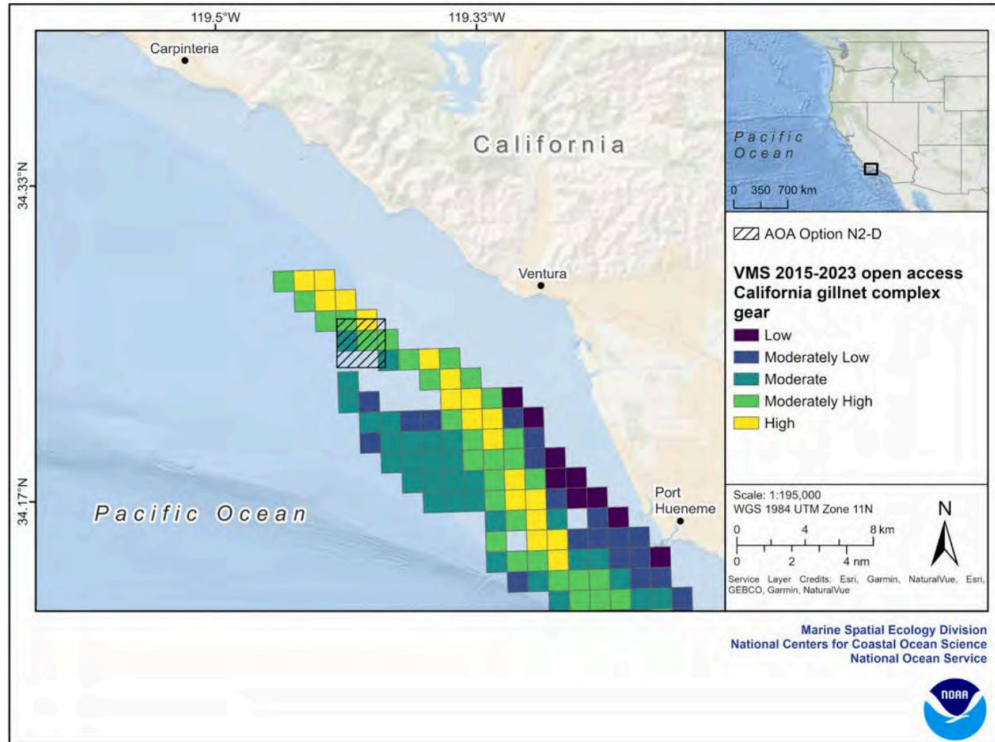


Figure 7 VMS fishing for open access California gillnet complex gear from 2015-2023 in relation to Ocean Rainforest's proposed project location (AOA option N2-D) shown with hashed lines, from Exhibit 5.

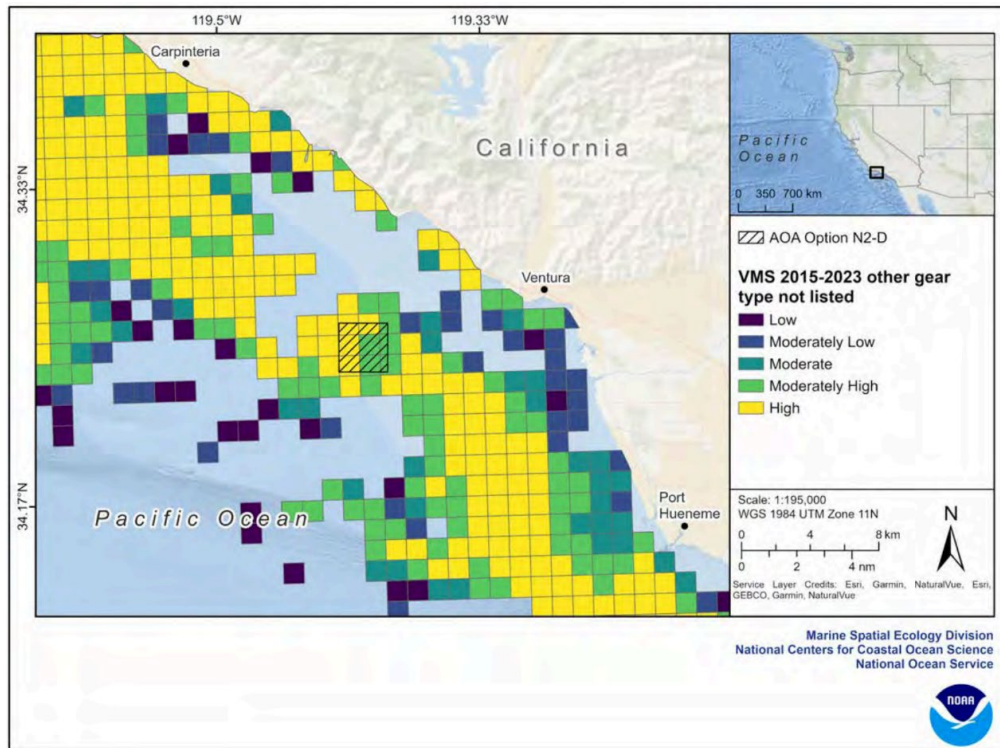


Figure 8 VMS fishing for other gear types not listed from 2015-2023 in relation to Ocean Rainforest's proposed project location (AOA option N2-D) shown with hashed lines, from Exhibit 5.

At full buildout, the 2,000-acre project footprint would occupy approximately 3 percent of Fishing Block 665. However, functional displacement would extend beyond the facility footprint because fishermen avoid deploying gear near fixed structures in order to protect gear and vessel safety. Fishermen operating trawl gear reported avoiding fixed infrastructure by roughly 0.5 miles due to the need for long, unobstructed tow paths and wide turning radii. Purse seine fishermen reported avoiding fixed structures by approximately 0.25 to 3 miles to ensure adequate space for net deployment. The suggested guidance for fishing around offshore infrastructure such as oil and gas platforms, offshore wind turbines, and seafloor cables generally ranges from 0.3 to 1.2 miles (0.5-2 km).

When such a buffer is applied, the displaced area increases proportionally and results in greater operational constraints for gear types most sensitive to fixed structures. For the sake of analysis, staff has incorporated a general 0.5-mile buffer around the project site. The resulting area of restricted commercial fishing overlaps with some of the only trawlable grounds available during the seasonal California halibut trawl closure in state waters, resulting in higher displacement potential during those closure months. The overlap between the project site and soft-bottom habitat used by trawl, gillnet, and seine fisheries means these fisheries would experience the most direct displacement. Trap fisheries, generally associated with rocky reefs and kelp beds, are less sensitive to displacement and NCCOS data from VMS trap fishing indicates the project area is used very little or not at all by trap fishermen ([Exhibit 5](#)).

Estimated Economic Effects

Commission staff estimated potential reductions in commercial landings using a proportional-area method (Table 3). This approach builds upon the analysis prepared by Rincon Consultants and provided by Ocean Rainforest as part of its consistency certification ([Appendix A](#)). It uses an 11-year dataset of landings from 2014 through 2024. For each development phase, staff calculated the percentage of Block 665 that would be unavailable to fishing due to the project footprint plus a 0.5-mile buffer. For example, average landings of market squid from Block 665 were 337,581 pounds per year from 2014–2024. If approximately 7 percent of the block becomes unavailable to seine fishermen under full buildout (Phase 4),⁶ the estimated reduction would be roughly 24,829 pounds per year (7% of 337,581 pounds), valued at \$10,331. Similar calculations were completed for all gear types and target species operating within the project area. Under full buildout, the total estimated reduction in landed value across all analyzed fisheries would be approximately \$52,200 per year.

⁶ This figure is provided for illustration purposes only.

Table 3 Potential loss of landings during each phase of the development of Ocean Rainforest's kelp aquaculture facility. The potential loss is calculated from the percent of fishing block 665 that would be covered by the project including a 0.5-mile buffer.

Gear Type	Species	Ave. block landings per year (lbs)	Ave. block US dollars per year	Proportional landings (% of Block 665)			
				Phase 1 (2%)	Phase 2 (4%)	Phase 3 (6%)	Phase 4 (7%)
Seine	Baitfish	56880	\$17,502	\$401	\$735	\$1,045	\$1,287
Seine	Market Squid	337581	\$140,463	\$3,221	\$5,897	\$8,389	\$10,331
Gillnet	Thresher Shark	5451	\$7,047	\$162	\$296	\$421	\$518
Gillnet	White Seabass	38128	\$164,810	\$3,780	\$6,919	\$9,843	\$12,122
Gillnet	Pacific Angel Shark	5425	\$9,227	\$212	\$387	\$551	\$679
Trawl	Ridgeback Prawn	54188	\$148,862	\$3,414	\$6,250	\$8,890	\$10,949
Trawl	California Halibut	14657	\$80,543	\$1,847	\$3,381	\$4,810	\$5,924
Gillnet	California Halibut	28560	\$141,470	\$3,245	\$5,939	\$8,449	\$10,405
Total landings from project area and 0.5-mile buffer				\$16,282	\$29,805	\$42,398	\$52,215
Mitigated landings for each phase; marginal increase				\$16,282	\$13,523	\$12,593	\$9,817

Several factors limit the accuracy of the proportional-area method, and therefore the analysis summarized in Table 3 should be interpreted as a simplified estimate of potential impacts. The method assumes that displaced landings cannot be recovered elsewhere, although fishermen routinely adjust their fishing effort in response to environmental conditions, markets, and spatial constraints. It also assumes that per-vessel value captures the full socioeconomic importance of fishing activities, even though landings value represents only a portion of a fishery's overall contribution to the community (for example, it does not include the service commercial fisheries provide in supplying seafood). Additionally, the approach assumes uniform avoidance behavior among fishermen, though individual practices may differ. Nevertheless, given available spatial data, known fishing patterns, and the limited extent of the project footprint, the proportional-area method provides a reasonable and transparent approximation of potential project effects.

Research on displacement around other offshore infrastructure indicates that economic impacts tend to be greatest during an initial one to three year period as fishermen adapt their fishing efforts (Mangi et al., 2011). The degree of impact depends on the availability of alternative fishing grounds and the level of competition within those areas. Some fisheries mitigation frameworks incorporate this adaptation period into their design. For example, the Bureau of Ocean Energy Management recommends applying a five-year post-construction adjustment period for fixed-bottom offshore wind projects,

during which mitigation gradually decreases as fishermen are assumed to adjust to displacement⁷.

To address potential impacts on fishing activities, Ocean Rainforest and Commission staff developed a Fisheries Mitigation Plan and Funding Agreement. [Condition 12](#) establishes the details of this plan and agreement and requires Ocean Rainforest to implement it. The agreement would create a resiliency fund intended to support the ability of the affected fishing community to adapt and evolve with the development of Ocean Rainforest's commercial kelp aquaculture project. The Fisheries Mitigation Plan and Funding Agreement is designed to mirror the overarching intent of the Commission-approved Statewide Strategy for Coexistence of California Fishing Communities and Offshore Wind (Statewide Strategy)⁸, while tailoring the program to the smaller scale and limited footprint of Ocean Rainforest's project. As described in the Statewide Strategy, resiliency funds may be used by the affected fishing community for activities, projects, or programs that enhance its economic viability and sustainability. Examples include:

- Port infrastructure and improvement projects
- Marine debris and hazards removal
- Safety and navigation equipment for fishing vessels
- Goods and services that help fishing businesses adapt to operational challenges
- Community organization and support programs

Resiliency funds would be held by an administrative entity, to be approved by the Executive Director, while funding decisions would be made by a committee of fishermen representing the fisheries and communities affected by the project.

Under the Funding Agreement in [Condition 12](#), Ocean Rainforest would provide mitigation payments to the resiliency fund in amounts equivalent to the "Mitigated Landings" identified in Table 4 for the first three years of each project phase. These payments correspond to the marginal increase in displaced landings associated with each phase. Thus, as described in Table 4, the mitigation payment would be \$16,282 per year for Phase 1. The increases for subsequent phases are as follows: an additional \$13,523 per year for Phase 2; an additional \$12,593 per year for Phase 3; and an additional \$9,817 per year for Phase 4. If Ocean Rainforest advances multiple phases within a three-year period, mitigation for those phases would be paid concurrently. This three-year adaptation period reflects the project's size, location, and phased development approach. Thus, if the full 2,000-acre project is developed, Ocean

⁷ Bureau of Ocean Energy Management, 2025. Guidelines for Providing Information for Mitigating Impacts to Commercial and For-Hire Recreational Fisheries on the Outer Continental Shelf. [Reducing or Avoiding Impacts of Offshore Wind Energy on Fisheries | Bureau of Ocean Energy Management](#)

⁸ https://documents.coastal.ca.gov/assets/upcoming-projects/offshore-wind/Adopted_Statewide_Strategy.pdf

Rainforest would contribute approximately \$156,650 to the resiliency fund. The funding amounts above would also be adjusted for inflation.

[Condition 12](#) memorializes Ocean Rainforest's commitment to develop and implement the Fisheries Mitigation Plan and Funding Agreement and requires it to be provided for Executive Director review and approval. The condition also requires procedures for identifying the administrative entity, establishing the fishermen's committee, and specifying appropriate uses of the fund to benefit the fishing community most directly affected by the project.

In addition to the Fisheries Mitigation Plan and Funding Agreement, the proposed project also incorporates several design and operational measures to reduce potential displacement of commercial fisheries from fishing grounds. These include the project's phased development approach, beginning with approximately 200 acres and expanding in stages to the full 2,000-acre footprint (as required through [Condition 2](#)), as well as the siting of the facility within NOAA's Aquaculture Opportunity Area to avoid the highest-value fishing grounds in the region. The project also incorporates industry-standard navigational markers, clear surface expression of facility boundaries, and installation practices designed to minimize entanglement risk ([Condition 1 and 3](#)).

To minimize long-term impacts, Ocean Rainforest has committed to fully removing the facility and restoring the project area to pre-project conditions, as required by [Condition 8](#). [Condition 9](#) secures a financial surety that can be used to remove project infrastructure and restore the site should the applicant be unable or unwilling to do so. This updated surety responds directly to comments from the fishing community, including past testimony that insufficient financial assurances have contributed to the abandonment of facilities in the Santa Barbara region, resulting in ongoing displacement from productive fishing grounds. For this project, the financial surety will be updated at each project phase and will be based on the cost of removal and restoration at that time.

Recreational Fisheries

Recreational vessels and for-hire recreational fishing are unlikely to be adversely affected from the development of the project because of high opportunities and optionality for fishing within the Santa Barbara Channel. Ocean Rainforest recognizes that offshore cultivation structures can become fish aggregation sites, and that many species of fish rely on kelp canopy for protection, feeding, or growth. Thus, it is possible that recreational fishing may increase in the area around the proposed kelp farm. Ocean Rainforest would not preclude or limit this activity from occurring and to help ensure that it does not adversely affect coastal resources, [Condition 1](#) would ensure that the structure is regularly monitored and maintained and that any gear or debris is promptly removed from the water. [Condition 11](#) finalizes the Lost or Damaged Fishing Gear Recovery plan to compensate fishermen for fishing gear interactions with aquaculture project and vessels. Further, [Condition 8 and 9](#) limit the time of operations and ensure the full removal of the facility at the conclusion of the certification term.

Conclusion

With the phased development of the offshore aquaculture kelp facility and protective measures of [Conditions 1, 8, 9, 11, and 12](#) that require regular maintenance and monitoring, navigational marking and communication, full facility removal, financial surety, procedures for claiming damages or losses of fishing gear, and Fisheries Mitigation Plan and Funding Agreement, the project is consistent with the fishing policies of the CCMP Sections 30234 and 30234.5.

G. Oil Spills Prevention and Hazard Management

Section 30232 of the CCMP states:

Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

The proposed project would use work vessels during installation of offshore cultivation units (OCUs) and would rely on at least one oceangoing vessel for ongoing operations. Vessel collision, mechanical failure, or operational error could result in the release of fuel, lubricants, or hydraulic fluids into marine waters. As described in the Spill Prevention and Response Plan (SPRP) ([Exhibit 12](#)), potential spill sources include diesel fuel, engine oil, hydraulic fluid, and incidental vessel-related chemicals associated with construction, operation, and decommissioning activities. Vessel fuel capacities range from approximately 50 to 150 gallons for small support vessels, 300 to 700 gallons for medium-sized operations vessels, and 4,000 to 5,000 gallons for the larger anchor-handling work vessel used during construction. These volumes inform the project's reasonable worst-case spill scenarios and the scale of required prevention and response preparedness. Section 30232 requires that development (1) incorporate measures to protect against spillage, and (2) provide effective containment and cleanup facilities and procedures for accidental spills.

Spill Prevention

The proposed project location minimizes collision-related spill risk because it is situated outside known vessel transit routes and corridors serving Ventura Harbor. To further protect against spills, Ocean Rainforest has prepared the SPRP ([Exhibit 12](#)) and, pursuant to [Condition 5](#), will develop a Critical Operations and Curtailment Plan (COCP) that will define ocean and weather conditions that would hinder safe vessel operations. Both plans will be updated and submitted for Executive Director approval prior to each construction phase to ensure spill prevention measures scale appropriately with vessel count and operational intensity across Phases 1–4 in accordance with [Condition 5 and 7](#).

The SPRP contains detailed spill prevention requirements, including:

- use of vegetable-based, biodegradable, food-grade hydraulic fluid for all installation, maintenance, planting, and harvesting activities, significantly reducing toxicity risk from hydraulic leaks;
- prohibition on at-sea refueling, limiting fueling to the Ventura Harbor fuel dock or other approved shoreside facilities and requiring absorbent materials during fueling to prevent drips or overflows;
- routine vessel maintenance requirements such as timely replacement of worn hydraulic lines and engine inspections to identify potential leaks before they occur;
- required presence of spill kits onboard vessels at all times, scaled to vessel operations, with construction vessels required to maintain sorbents capable of absorbing at least one-half barrel of oil; and
- use of Marine Wildlife Observers during in-water construction activities to additionally monitor for spill-related risks and report any observed or suspected spill conditions immediately to the vessel master.

With incorporation of the SPRP through [Condition 7](#) and COCP through [Condition 5](#) that add additional protection by defining conditions under which work vessels must cease operations to minimize spill risk, the Commission finds that the applicant has provided adequate measures to protect against the spillage of petroleum products and hazardous substances, consistent with the first requirement of CCMP Section 30232.

Spill Containment and Cleanup

The second requirement of Section 30232 mandates that projects relying on petroleum products provide effective containment and cleanup facilities and procedures for spills that may occur. The SPRP contains comprehensive spill-response protocols addressing all vessel-based hazardous materials. It identifies potential spill sources, estimates project-specific reasonable worst-case spill volumes, and establishes response priorities consistent with state and federal requirements.

The SPRP also provides clear emergency notification procedures, including mandatory reporting to the U.S. Coast Guard, California Office of Emergency Services, National Response Center, and other agencies depending on spill type. Written follow-up reports are required within 7 days when releases meet federal reportable quantities thresholds. Oiled wildlife response protocols are incorporated, including mandatory reporting to the Oiled Wildlife Care Network and restrictions on personnel handling wildlife without authorization.

The SPRP details the project's spill-response approach, including identification of reasonable worst-case spill volumes; description of response equipment and protective measures for marine and shoreline resources; spill-response equipment that will be maintained onboard project vessels; and clear emergency notification and reporting procedures, including contact lists for federal, state, and local agencies.

The SPRP is fully integrated with the Phased Implementation and Adaptive Monitoring Framework such that spill events triggering immediate reporting also trigger the

Framework's supplemental certification procedures, and any required corrective action must be submitted within 60 days of a spill event. This ensures that spill events inform phase-gate review and operational adjustments.

Finally, the COCP will define weather and ocean conditions under which operations must be curtailed in order to ensure that effective containment and cleanup can be carried out, thereby preventing conditions that could amplify spill risk or impair response effectiveness.

With incorporation of the SPRP ([Condition 7](#)) and COCP ([Condition 5](#)), and required reporting, monitoring, corrective actions, and phase-specific updates, the applicant would maintain adequate spill-response capability, comply with all applicable state and federal emergency notification requirements, and curtail operations in conditions that could compromise spill response. Therefore, the Commission finds the project consistent with the second requirement of CCMP Section 30232.

H. Recreational Boating

Section 30220 of the CCMP states:

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

Recreational boating in the project vicinity, which relies on navigable waters, could be adversely affected if vessels were to collide with, or become entangled in, components of the proposed aquaculture facility. The project's buoys, ropes, and anchors introduce potential navigational hazards, and any broken, dislodged, or lost components could create additional safety risks for recreational boaters. The project could potentially diminish the public's ability to safely and effectively engage in recreational boating.

Navigational hazards from an aquaculture project can have serious consequences. In 2019, a recreational fishing vessel's propeller became entangled with a detached longline from an offshore aquaculture operation run by KZO Seafarms/Catalina Sea Ranch.⁹ The vessel capsized and there was one fatality. This event demonstrates how navigational hazards from an aquaculture project could violate Section 30220 by impairing public access to safe water-oriented recreation.

To reduce the likelihood of interactions with recreational vessels and to avoid creation of new boating hazards, Ocean Rainforest has incorporated multiple preventative design, siting, and operational measures that substantially reduce the likelihood of navigation conflicts. The facility would be sited outside major vessel transit routes and areas of high recreational boating activity (Morris et al., 2021; NMFS, 2025), thereby minimizing overlap between farm infrastructure and recreational boating. Project infrastructure is

⁹ The Commission reviewed the KZO Sea Farms/Catalina Sea Ranch project through CC-035-12.

engineered to withstand 100-year storm conditions, reducing the probability of line breakage or gear loss that could pose hazards to boaters.

Ocean Rainforest would also coordinate with the U.S. Coast Guard to permit and install Private Aids to Navigation (PATONs) marking the facility perimeter to provide clear visual cues and navigational aids. NOAA nautical charts would be updated during each development phase so that mariners have accurate and timely information regarding the facility's location.

[Conditions 1, 8, and 9](#) further strengthen consistency with Section 30220. [Condition 1](#) requires regular inspections and maintenance, including prompt correction of loose lines and removal of derelict materials. GPS-enabled buoys provide real-time alerts if any OCU shifts outside its designated footprint, reducing risks of entanglement or collision. [Conditions 8 and 9](#) require complete removal of all infrastructure at project end or after prolonged inactivity, and secure financial assurances to guarantee such removal. These requirements ensure that recreational boating access will not be permanently or cumulatively impaired by abandoned or deteriorating aquaculture infrastructure.

With implementation of these measures and conditions, the project would not adversely affect water-oriented recreational activities and would be consistent with CCMP policy Section 30220.

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