

## CALIFORNIA COASTAL COMMISSION

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# F12a

**CC-0003-21 (Ocean Rainforest, Inc.)**

**September 23, 2021**

### **EXHIBITS**

- Exhibit 1 – Proposed Project Location
- Exhibit 2 – Schematic Diagrams of Proposed Facility
- Exhibit 3 – CRFS and CPFV density
- Exhibit 4 – Letter of Support from CFSB
- Exhibit 5 – ORI Proposed Mitigation Measures

Exhibit 1



## Exhibit 2

Kelson Marine Co. | Engineering Evaluation of the Ocean Rainforest USA Offshore Grid

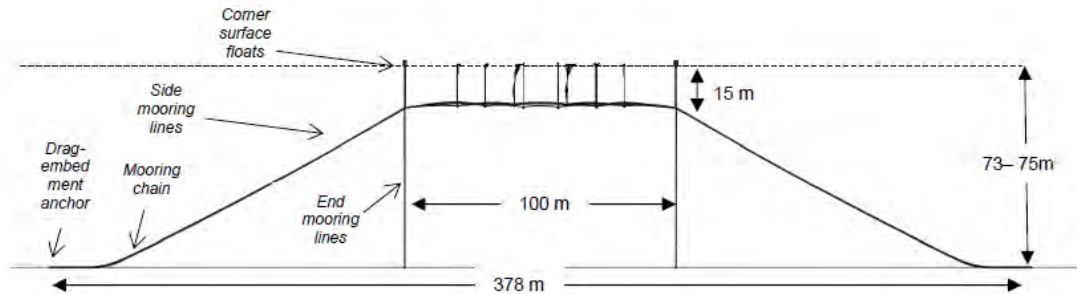


Figure 5. Farm system and dimensions. End view. Component specifications are given in Table 3.

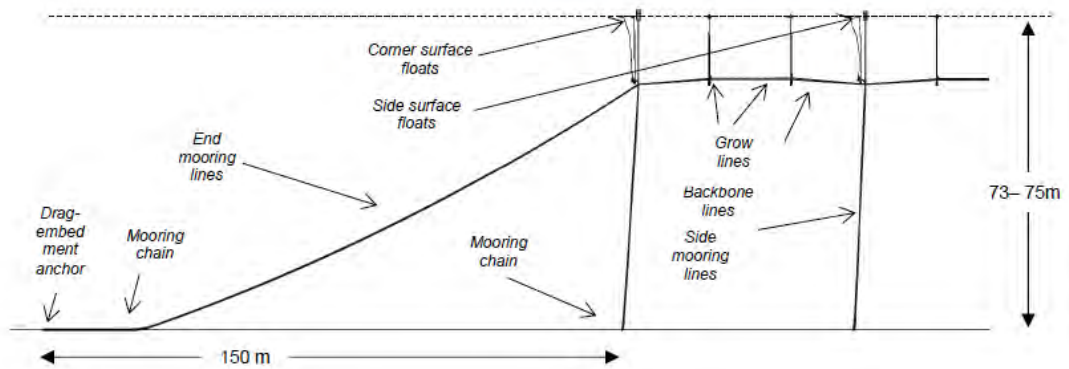


Figure 6. Farm system and dimensions. End view. Component specifications are given in Table 3.

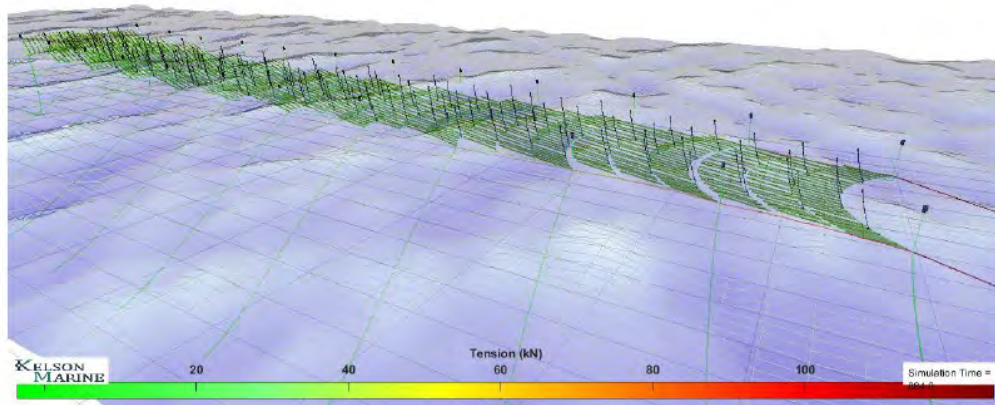


Figure 7. Hydro-/Structural Finite Element Analysis model of the proposed structure 100-year storm conditions. The model computes the motions and the forces on each element of the farm (elements of the ropes, buoys, nets, and biomass) at each instant in time, as a function of relative fluid velocity, acceleration, buoyancy, and internal forces.

### Exhibit 3

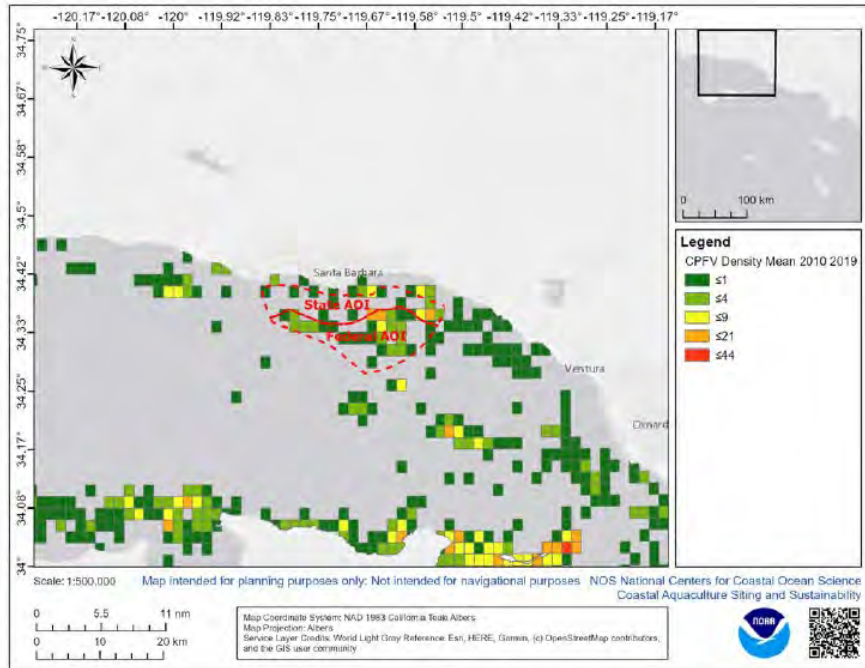


Figure 12. Characterization of recreation fishing in and around the AOI. CPFV density annual mean 2010 – 2019.

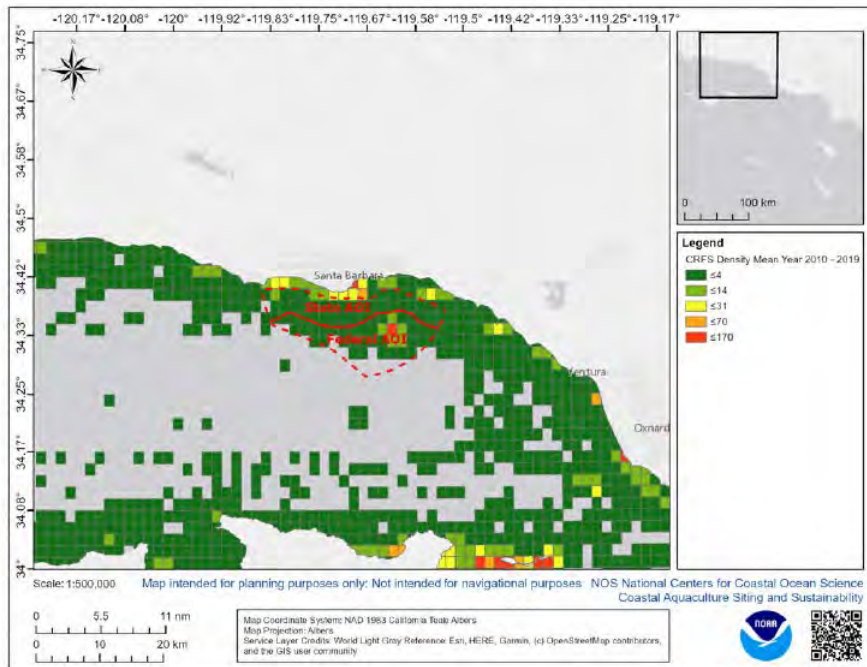


Figure 13. Characterization of recreational fishing in and around the AOI. CRFS density annual means 2010 – 2019.



Lia Protopapadakis  
Regulatory Project Manager  
U.S. Army Corps of Engineers  
Office: 213-452-3372  
Cell: 213-320-8990

November 9, 2020

Dear Ms. Protopapadakis –

This letter is intended to comment on Ocean Rainforest's recent Individual Permit application to the U.S. Army Corps of Engineers (SPL-2020-00585-LP) to conduct a short-term seaweed cultivation demonstration project in federal waters off the Santa Barbara coast.

The Commercial Fishermen of Santa Barbara has been aware of Ocean Rainforest's proposed effort to develop an innovative, cost effective, and sustainable approach to offshore kelp cultivation along the southern coast of California since January 2020.

As a 501(c)(3) organization, the Commercial Fishermen of Santa Barbara (CFSB) is committed to making our local fishing community resilient and effective by providing healthy, high quality seafood to local and global markets, ensuring the economic and biological sustainability of fisheries, and maintaining California's fishing heritage. CFSB is a highly-respected organization within the Southern California fishing community and represents the interests of a diverse set of highly experienced fishermen, trawlers, and seafood producers, among a host of other leaders in the commercial fishing community.

In response to concerns expressed by CFSB representatives over the past eleven months, Ocean Rainforest has reached out to our organization to gather feedback from our members about the site placement in the Santa Barbara Channel. Ocean Rainforest has proposed a site for the temporary demonstration project that is in federal waters, avoiding Halibut trawl areas, and will have a low (although not zero) impact on our local fisheries. While the site may overlap with an area used for sea cucumber trawling, it avoids other fishery activities. As a result, we are not seeking to oppose the proposed demonstration project. We are hopeful that Ocean Rainforest will continue to be responsive and reasonable in problem-solving any conflicts that may arise once installation commences.

Thank you in advance for your consideration of their application.

Kind regards,

Kim Selkoe, Ph.D.  
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## Appendix I - Mitigation Measures

**MM BIO-1 Marine Wildlife Entanglement Plan.** No less than twice per month, ORI shall visually inspect all ropes, cables, and equipment via depth/fish finders or Remotely Operated Vehicles (ROV) to determine if any entanglement of a marine mammal has occurred and to ensure that (a) no lines have been broken, lost or removed; (b) all longlines, anchor lines, and buoy lines remain taught and in good working condition; and (c) any derelict fishing gear or marine debris that collects in the growing gear is removed and disposed of at an identified onshore facility. All equipment and materials accidentally released or found to be missing from the facility during monthly inspections, including buoys, floats, lines, ropes, and chains shall be searched for, collected, properly disposed of onshore, and documented in the annual inspection report. Monitoring shall occur monthly following deployment and continue throughout the length of the project.

Inspections shall include recordings by depth/fish finder or ROV surveys of lines and/or monitoring performed by SCUBA divers. Recorded video shall be provided along with the annual report described above. Any maintenance issues including wear, loosening, or fatigue of materials shall be remedied as soon as possible. All incidents of observed whale entanglement shall be immediately reported to SOS WHALe. Any other marine wildlife (i.e., other marine mammals, turtles) observed to be entangled will be immediately reported to NOAA Fisheries Marine Mammal Stranding Network Coordinator, West Coast Region, Long Beach Office. Only personnel who have been authorized by NOAA Fisheries and who have training, experience, equipment, and support will attempt to disentangle marine wildlife. If possible, ORI shall document and photograph entangled wildlife and the entangling gear material so as to modify gear and avoid any future entanglements.

**MM BIO-2 Entanglement Prevention.** Grow line ropes will have a breakaway strength of 1,700 lbs., and the structure will be under high tension not conducive to entanglement.

**MM BIO-3 Marine Wildlife Observer.** A Marine Wildlife Observer shall be present on each project construction vessel during all construction activities, including the installation of long lines and anchoring systems. The observer shall monitor and record the presence of all marine wildlife (marine mammals and sea turtles) within 100 yards of the work area. The observer shall have the authority to halt operations if marine wildlife is observed or anticipated to be near a work area and construction activities have the potential to result in injury or entanglement of marine wildlife. In addition, all work (including vessel motors) will be halted if a cetacean is observed within the monitoring area or if a pinniped or sea turtle is observed within 50 yards of the work area. Work may commence after the observed marine wildlife has moved out of the monitoring area.

Observers' reports on marine mammal monitoring during construction activities shall be prepared and submitted to NOAA Fisheries on a monthly basis. Reports shall include such information as the (1) number, type, and location of marine mammals observed; (2) the behavior of marine mammals in the area of potential sound effects during construction; (3) dates and times when observations and in-water project construction activities were conducted; and (4) dates and times when in-water construction activities were suspended because of marine mammals.

ORI shall prepare a list of qualified marine wildlife observers who meet the following minimum qualifications: visual acuity in both eyes (correction is permissible) sufficient to discern moving targets at the water's surface with ability to estimate target size and distance; (2) use of binoculars or spotting scope may be necessary to correctly identify the target; (3) advanced education in biological science, wildlife management, mammalogy, or related fields (bachelor's degree or higher is preferred); (4) experience and ability to conduct field observations and collect data according to assigned protocols (this may include academic experience); (5) experience or training in the field identification of marine mammals (cetaceans and pinnipeds) and sea turtles; and (6) ability to communicate orally, by radio or in person, with project personnel to provide real time information on marine wildlife observed in the area, as needed.

**MM BIO-4**     **Cultivation of Seed.** Only hatchery-reared seed grown at the ORI facility co-located with The Cultured Abalone Farm will be used in order to ensure that seed are free of introduced invasive species, parasites, and pathogens of concern.

**MM BIO-5**     **Marine Wildlife Education.** ORI will be required to provide marine wildlife education to its employees regarding proper procedures relating to marine wildlife. The training curriculum will include identifying the presence of specified marine wildlife and procedures for avoiding impacts to marine wildlife during operations. These procedures will include (1) reducing speed and observing the distances from marine life specified in MM BIO-6; (2) providing a safe path of travel for marine mammals that avoids encirclement or entrapment of the animal(s) between the vessel and growing apparatus; (3) if approached by a marine mammal, reducing speed, placing the vessel in neutral and waiting until the animal is observed clear of the vessel before making way; (4) avoiding sudden direction or speed changes when near marine mammals; (5) refraining from approaching, touching or feeding a marine mammal; and (6) immediately contacting their supervisor and other identified parties/agencies identified in MM BIO-1 should an employee observe an injured marine mammal.

**MM BIO-6**     **Vessel Management.** Vessels in transit to and from the growing area shall maintain a distance of 100 yards from any observed cetacean and 50 yards between any observed pinniped or sea turtle. If cetaceans are observed within 100 yards or pinnipeds or sea turtles observed within 50 yards, the vessel shall reduce speeds to 12 knots or less until it is the appropriate distance (as required by this

condition) from the particular marine life. If a cetacean is heading into the direct path of the vessel (i.e., approaching a moving vessel directly into the bow), the vessel shall shut off the engine until the cetacean is no longer approaching the bow and until a greater separation distance is observed. If small cetaceans are observed bow-riding, and the vessel is operating at speeds of 12 knots or less, the vessel shall remain parallel to the animal's course and avoid abrupt changes in direction until the cetaceans have left the area.

Each sighting of a federally listed threatened or endangered whale or turtle shall be recorded and the following information shall be provided:

- a. Date, time, coordinates of vessel
- b. Visibility, weather, sea state
- c. Vector of sighting (distance, bearing)
- d. Duration of sighting
- e. Species and number of animals
- f. Observed behaviors (feeding, diving, breaching, etc.)
- g. Description of interaction with aquaculture facility

**MM BIO-7 Spill Prevention and Response.** Discharges of feed, pesticides, or chemicals (including antibiotics and hormones) in ocean waters are prohibited. Fuel, lubricants and chemicals must be labeled, stored and disposed of in a safe and responsible manner, and marked with warning signs. Precautions shall be taken to prevent spills, fires and explosions, and procedures and supplies shall be readily available to manage chemical and fuel spills or leaks. ORI shall comply with the Spill Prevention and Response Plan (SPRP) for vessels and work barges that will be used during project construction and operations. Each individual operating in the project area shall be trained in, and adhere to, the emergency procedures and spill prevention and response measures specified in the SPRP during all project operations. The SPRP shall provide for emergency response and spill control procedures to be taken to stop or control the source of the spill and to contain and clean up the spill. The SPRP shall include, at a minimum: (a) identification of potential spill sources and quantity estimates of a project specific reasonable worst-case spill; (b) identification of prevention and response equipment and measures/procedures that will be taken to prevent potential spills and to protect marine and shoreline resources in the event of a spill. Spill prevention and response equipment shall be kept onboard project vessels at all times; (c) a prohibition on at-sea vessel or equipment fueling/refueling activities; and (d) emergency response and notification procedures, including a list of contacts to call in the event of a spill; (e) assurance that all hydraulic fluid to be used for installation, maintenance, planting, and harvesting activities shall be vegetable based.



- MM BIO-8 Invasive Species.** Individuals operating in the project area shall be required to receive training from NOAA Fisheries to identify potential invasive species and how to properly dispose of such invasive species if discovered.
- MM BIO-9 Sediment Quality Monitoring Plan.** A Sediment Quality Monitoring Plan shall be developed requiring monitoring of sediment conditions within the project area, including monitoring if any biological material accumulates on the seafloor. Monitoring will also include an evaluation of any changes to oxygen demand of benthic infaunal and epifaunal communities, and changes to the chemical and biochemical conditions of seafloor sediments along with a description of performance standards to meet.
- If performance standards are not met, corrective actions will be outlined. The Plan will include reporting requirements, including annual report submittals to NOAA Fisheries for review. If performance standards are met for a period of time, the plan will provide for appropriately scaling down monitoring and intervals over time.
- MM BIO-10 Aquaculture Gear Monitoring and Escapement Plan.** Include in overall management plan an aquaculture gear monitoring and escapement plan. Any farm gear that has broken loose from the farm location shall be retrieved. The farm site shall be visited at minimum twice per month to examine the aquaculture gear for potential loss or non-compliant deployment, including inspections for fouling organisms. Any organisms that have a potential to cover the sea floor will be removed and disposed of at an identified upland facility. A Marine Debris Management Plan shall also be prepared that includes (a) a plan for permanently marking all lines, ropes, buoys, and other facility infrastructure and floating equipment with the name and contact information for ORI; (b) a description of the extent and frequency of maintenance operations necessary to minimize the loss of materials and equipment to the marine environment resulting from breakages and structural failures; and (c) a description of the search and cleanup measures that would be implemented if loss of shellfish cultivation facility materials, equipment, and/or infrastructure occurs.
- MM BIO-11 Decommissioning Plan.** A decommissioning plan for the timely removal of all seaweed, structures, anchoring devices, equipment, and materials associated with the seaweed farm and documentation of completion of removal activities will be a requirement of ORI Financial assurances to guarantee implementation of the plan will be in place.
- MM BIO-12 Lighting.** All operations shall be completed during daylight hours. No permanent artificial lighting of the seaweed farm shall occur, except for that associated with the use of navigational safety buoys required by the U.S. Coast Guard.
- MM NAV-1 Update NOAA Charts.** ORI to submit to the NOAA Office of Coast Survey: (a) the geographical coordinates of the facility boundaries obtained using a different geographic position unit or comparable navigational equipment; (b) as-built plans of the facility and

associated buoys and anchors; (c) ORI's contact and telephone number; and (d) any other information required by the NOAA Office of Coast Survey to accurately portray the location of the shellfish cultivation facility on navigational charts.

**MM NAV-2 Notice to Mariners.** No less than 15-days prior to the start of in-water activities associated with the installation phase of the project, ORI shall submit to (a) the U.S. Coast Guard (for publication in a Notice to Mariners); and (b) the harbormasters (for posting in their offices of public noticeboards), notices containing the anticipated start date of installation, the anticipated installation schedule, and the coordinates of the installation sites. During installation, ORI shall also make radio broadcast announcements to the local fishers' emergency radio frequency that provide the current installation location and a phone number that can be called for additional information.