

The background of the slide is a composite of two underwater photographs. The top portion shows a dense kelp forest with tall, brown stalks reaching towards the surface. The bottom portion shows a rocky seafloor covered with numerous purple sea urchins. The entire slide is framed by a solid purple border.

CALIFORNIA FISH AND GAME COMMISSION

PROPOSED EMERGENCY REGULATORY LANGUAGE

FOR MONTEREY CALIFORNIA

Request for Emergency Action to
Add Section 29.12,
Title 14, California Code of Regulations
Emergency Regulation to Raise Recreational Purple Sea Urchin Daily Bag Limit
at Tanker's Reef

Date of Statement: January 31, 2019

Statement of Facts Constituting the Need for Emergency Regulatory Language

A combination of unprecedented environmental and biological stressors has caused the giant kelp (*Macrocystis pyrifera*) forest, an important habitat for young of the year rockfish, to [collapse](#). Today, the once abundant kelp is severely depleted due to openly grazing purple urchins (*Strongylocentrotus purpuratus*) dominating the nearshore ecosystem. Of the 16 sites that Reef Check California (RCCA)



Figure 1: Reef Check California 2018 Monterey Survey Sites. Purple indicates urchin barrens and green indicates non-urchin barrens. Blue areas are MPA Reserves and orange areas are MPA Conservation Areas

monitors around the Monterey Peninsula annually, 9 of those have become urchin barrens. Restoration is complicated by the nearly contiguous network of Marine Protected Areas that prohibit recreational take of urchins in areas that are accessible from shore and/or not exposed to the typical NW swell.

The alternative state of urchin dominant ecosystems (Karen Filbee-Dexter, 2014) has reduced the normally thick and robust kelp forest to a thin nearshore canopy that is further reduced annually as urchins recruit to hard substrate and kelp recruits are eaten by starving urchins. Over the winter the kelp canopy recedes due to reduced daylight and winter storms, but the openly grazing urchins survive the

winter and devour kelp recruits in the spring. Since 2015 in Monterey Bay, there has been a steady loss of kelp forest and increased urchin barren conditions progressing from Point Pinos eastward towards Cannery Row.

Central Coast Kelp Restoration Efforts

RCCA and Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) has petitioned and received permission to perform an experiment in the Pacific Grove Gardens Marine Conservation Area (State of California – Department of Fish and Wildlife, SC-005486) to manipulate urchin densities to determine at what urchin density will giant kelp successfully recruit and form a kelp canopy. This experiment is being performed by RCCA in partnership with the Monterey Bay Aquarium (MBA) and the Monterey Abalone Company (MAC). If the experiment is successful, it should inform a larger scale removal experiment to determine if algae recruitment and subsequent rock fish recruitment is possible in the MPAs. This will align with the goals of the Marine Life Protection Act to ensure species diversity in the nearshore nursery that, by design, sustain fish populations along the unprotected remaining 86% of the California coast (Council, 2018).

The other question that is particularly relevant to this type of recovery effort is if recreational SCUBA and freedivers can be successful in persistent efforts to reduce urchin densities. Recreational divers on the north coast have shown great interest in this activity and 75 - 100 divers have participated in bi-monthly events since the summer of 2018. The Monterey Bay National Marine Sanctuary Advisory

Council conducted a survey of divers and found that 92% of divers are in favor of and would participate in efforts to reduce urchin densities (MBNMSAC, 2018). If north coast volunteer diver turnout in the difficult to access and sparsely populated Sonoma and Mendocino counties is an indication, we should expect 100-200 divers to participate in removal events in Monterey.

The dive site we propose for this action is called Tanker's Reef (aka: Tanker Reef) in Monterey and is located east of Municipal Wharf #2 in Monterey and it has historically been a *Macrocystis* kelp forest. This area is not in a Marine Protected Area. The reef is atypical from other reefs around the Monterey Peninsula because of the low-lying shale substrate. This area became an urchin barren in 2016. Bull kelp recruited on a portion of the reef in 2017, but was washed ashore that winter. Kelp did not recruit on this reef in 2018.



Figure 2: Tanker's Reef Summer of 2018 - Photo by Andrew Kim

Emergency Regulatory Language and Justification

Due to the thirty-five (35) sea urchins per-person daily bag limit ([14 CCR § 29.05\(a\)](#)) there is not a practical ability for recreational divers to remove urchins efficiently. Similar to what was proposed and approved for recreational divers in Sonoma and Mendocino counties under Emergency Regulatory Language [29.11](#) and subsequent Proposed Regulatory Language [29.06](#) applicable to Sonoma, Mendocino, Humboldt and possibly Del Norte counties, we propose that the Fish and Game Commission adopt Emergency Regulatory Language to allow recreational divers to remove 40 gallons of purple urchins per person daily at this singular reef in Monterey Bay. We also seek a no-possession limit to allow for better utilization and easier transportation to where they can be disposed of in mass. The suggested text is as follows:

Emergency Regulatory Language

Section 29.12, Title 14, CCR, is added as follows:

§ 29.12. Purple Sea Urchin

- (a) The daily bag limit for purple sea urchin taken while skin or SCUBA diving at Tanker's Reef in Monterey County is forty (40) gallons.
- (b) Tanker's Reef is defined as the area between the following coordinates:
36°36'4.54"N, 121°53'13.47"W;
36°36'19.70"N, 121°53'13.45"W;
36°36'42.67"N, 121°52'20.15"W; and
36°36'20.33"N, 121°52'4.06"W.
- (c) There is no possession limit for purple sea urchin.

Authority cited: Sections 200, 205 and 399, Fish and Game Code.

Reference: Sections 200, 205 and 399, Fish and Game Code.

"To determine whether an emergency exists, the Department considered the following factors: The magnitude of potential harm; the existence of a crisis situation; the immediacy of the need; and whether the anticipation of harm has a basis firmer than simple speculation. All available information points to a highly volatile and adverse condition for [Monterey] kelp forests and the resident nearshore fishery, and extraordinary measures must be taken immediately to help restore important but vulnerable habitats" (CDFW, 2018) .

Tanker's Reef Uniquely Qualified

[Tanker's Reef](#) has excellent characteristics making it an ideal candidate for removal efforts. The site is just offshore from a long wide sandy beach, parking is available within easy walking distance and there are not nearshore tidepools or protected areas that might be disturbed or trampled by increased use. It is immediately adjacent to the Monterey Municipal Marina and is at the south end of the bay that is normally in the [wave shadow](#) of Point Pinos and also behind the San Carlos Breakwater jetty. This area is diveable in all but the most severe conditions from boat or from shore, normally 50 weeks out of the



Figure 3: "Tanker Reef" September 24, 2005 - Photo by Kawika Chetron

year. The urchin barren is in only 20 to 40 feet of depth which makes it an easier and safer dive for task loaded recreational divers. Because the reef is surrounded by sand, and urchins do not tend to traverse sand, the area, once cleared, should not be repopulated quickly by migrating urchins from the nearest adjacent [reef](#) over half a mile away.

The dive community is eager to work on an urchin removal project (MBNMSAC, 2018) as they have watched in horror as their favorite dive sites in Monterey and Carmel go from lush kelp forests with diversity to urchin barrens. Allowing urchin removal in this limited area would be beneficial to giving the divers a way to improve the diving conditions they enjoy. Kelp recruitment occurs in the spring and if this proposal is enacted urchin removal events would be planned for April and May of 2019.

Planned Urchin Removal Activities Means and Methods

Before any urchin removal event occurs, the area of the urchin barren will be accurately mapped by GPS and RCCA will perform a site survey and a gonad index (GI) test. Taking cues from north coast urchin removal events, large fishing vessel(s) will be

anchored on the site. Recreational divers will meet on the beach and be provided a briefing of best methods of removal and proper identification of urchin species. A shore marshal shall assign each diver a number and record each diver's GO ID and contact information.

Urchin removal will be accomplished by directing divers to concentrate their efforts around surface marker buoys and rake them into large gear bags. When a bag is full, divers will surface with them and the bags will be handed over to non-motorized kayak watercraft. [Monterey Bay Kayaks](#) is located at this site and over 100 kayaks are available for rent. The kayakers will deliver the bags to the awaiting fishing boat(s), who will record the diver number and the empty bags will be returned to the kayak, who will make them available again to the divers. If a diver reaches the bag limit, they will be told to stop collecting urchins.



Figure 4: Reef Check diver David Chervin hands off urchins to kayak shuttle, Ocean Cove, CA, May 24, 2018 - Photo by John Burgess, The Press Democrat

When the event is over or there is a break in the activity, the fishing boat(s) shall dispose of the urchins. There is a token operated 3-ton public hoist at the Monterey Municipal Harbor for off-loading onto trucks. On the north coast the urchins were delivered to a composter and we will find a suitable composter in agriculturally rich Monterey County that will accept and use them. These removal events will be repeated until the reef urchin density is sustained at less than 2 urchins per square meter (The Bay Foundation, 2015). After the removal events RCCA will again survey the site to determine the effectiveness of the removal effort and the resulting fish and invertebrate assemblies.

Because the site is easily accessible and in relatively shallow water, certified recreational divers of all abilities will be able to participate. The dive community wants to make this a safe event for all involved and we will make sure that CA State Parks and Recreation lifeguards, the Monterey Fire Department, and certified instructors are on site and on the water. CDFW marine biologists Dr. Cynthia Catton and Dr. Laura Rogers-Bennett will be invited to perform GI tests and collect data on the removal activity. We will ask Robert Puccinelli, Captain, Law Enforcement Division to be on-hand to ensure that the laws are properly explained and answer any questions divers may have. The Monterey Bay National Marine Sanctuary has expressed their willingness to work with and coordinate with the CDFW (Sanctuary, April 2018) and they shall be consulted, and we will obtain a sanctuary permit. An emphasis will be placed on educating divers on proper methods of removal that are non-destructive to the substrate and that culling or taking urchins anywhere in Monterey county except this site will not only be ineffective, but unlawful. Because we are sharing a common [pool](#) of divers, we will coordinate and deconflict with Josh Russo and north coast removal events.

Unlike the Reef Check SCP work where only RCCA certified divers may participate, and because the State is collecting fishing license fees and the divers are all certified by a nationally recognized diving certification agency, liability will rest with individual divers exercising their fishing license and not a diving organization. This will allow non-scientific recreational divers of all abilities to participate and will promote diving safety, scientific diving, sustainable fishing, and marine conservation. The events will be publicly held and be accessible for educational purposes and media reporting.

Tanker's Reef Specific Description

The area of Tanker's Reef to be considered and the limits of this proposed emergency regulatory language action is (Earth, 2019):

1. Starting at a point due south of the yellow can #3 marking the NE corner of the east mooring field of the Monterey Municipal Wharf #2 and the mean high tide line called "Corner 1" at 36°36'4.54"N, 121°53'13.47"W
2. Proceeding 1,532 feet at a heading of 0 degrees to yellow can #3 marking the NE corner of the east mooring field of the Monterey Municipal Wharf #2, a point called "Corner 2" at 36°36'19.70"N, 121°53'13.45"W
3. Proceeding at a heading of 118 degrees a distance of 4,932 feet to a point called "Corner 3" at 36°36'42.67"N, 121°52'20.15"W
4. Proceeding at a heading of 30 degrees a distance of 2,619 feet to a point called "Corner 4" at the westmost corner of the Ocean Harbor House Condominiums seawall at 36°36'20.33"N, 121°52'4.06"W
5. Returning 5,887 feet to the starting point along the mean high tide water line.

An area encompassing approximately .33 square nautical miles or 283 acres.



Figure 5: Area of Emergency Regulation Change. Coordinates available as Tanker's Reef.kmz

Impacts:

The Monterey County Convention and Visitor's Bureau regularly conducts surveys of hotel guests and tourists and the number one reason people come to Monterey county is "Scenic Beauty" (Monterey County Convention and Visitors Bureau, 2017). Tourism in Monterey County injected \$2.85 billion into the local economy in [2018](#). The adverse economic impact due to lack of kelp forests, collapse of the



Figure 6: Photo: The Monterey County Convention and Visitors Bureau

nearshore fishery, and loss of habitat for the endangered Southern Sea Otter (*Enhydra lutris nereis*) population would be obvious to even a casual observer eating lunch on the wharf or visiting the Monterey Bay Aquarium and looking out from the back deck. While the north coast abalone fishery is valued at [\\$44 million](#), the larger population and visiting tourism in Monterey means the economic impact to this area due to inaction would probably be far greater.

Furthermore, allowing recreational divers to participate in removal activities will be of economic value to Monterey as divers come and stay in hotels, eat meals, and purchase diving equipment from dive shops. An abundant and robust kelp forest will ensure that divers have a protected dive site where they can experience an easily accessible kelp forest ecosystem with plentiful and diverse rockfish populations. This will provide a viable dive site for the displaced north coast SCUBA diving market in Monterey. The attraction of Tanker's Reef for diving will also reduce diving and fishing pressure on other popular dive [sites](#) that are already under threat by urchin dominance. By spreading the word and recruiting divers interested in this activity, more divers may become interested in furthering their conservation efforts on the north coast, adding to the available diving [pool](#) for Josh Russo's events north of San Francisco.

Collection of urchins will cultivate interest in urchins as a food source. There are urchin industries forming to collect, rehabilitate, and harvest urchins as [uni](#), a type of sushi. There are numerous collegiate institutions in the Monterey Bay area: UCSC, CSUMB, Hopkins Marine Station, and Moss Landing Marine Labs that can be of assistance in researching "[Urchinomics](#)". Already on display at the Eighth Annual Whalefest 2018 event in Monterey were ROVs capable of mapping and/or removing urchins. Looking forward, by developing ROV technology, offshoots for other uses can be expanded upon such as golf ball pollution, whale entanglement, and marine debris removal.

The Monterey Abalone Company has been farming red abalone on the commercial wharf for over 30 years, but with the lack of kelp in Monterey, they are unable to harvest enough kelp locally to feed and grow the abs hanging in cages below the wharf (Seavy, 2019). A plentiful and mature kelp forest adjacent to the wharf would be beneficial to their farmed abalone business and ensure that the abalone delicacy is still available to consumers especially since the abalone fishery on the north coast is closed until [2021](#) and the SoCal green abalone population [recovery](#) is just beginning while the demand for abalone is increasing.



Figure 7: Monterey Abalone Company, Municipal Wharf #2, Monterey California - Photo: Keith Rootsart

The continued presence of a *Macrocystis* forest in Monterey is essential for a spore bank to seed adjacent areas should the urchin dominant state return to a kelp dominated ecosystem due to urchin disease or other natural means. In Orange County, the lack of kelp spores made the reefs difficult to recover so kelp was grown in labs and was planted by 130 volunteer [divers](#). This artificial method could be avoided if existing kelp forests are partially preserved.

Regulatory Language Amendment vs New Emergency Regulatory Language

We had considered petitioning the F&GC to consider this proposed Emergency Regulatory Action as an amendment to the permanent regulatory language change [29.06](#) that is on the F&GC agenda for the February 6th F&GC meeting. However, the timing is bad and to modify that language to include the site in Monterey would delay adoption and the effective date for the [29.06](#) regulatory language change. That delay would adversely affect Josh Russo's removal events which would return to non-emergency regulatory language on February 7th (35 urchin bag limit), until the amended language would be adopted and enacted in July. That is why we are proposing a new stand-alone emergency regulatory language so that both north coast and central coast kelp restoration projects can commence when kelp recruits in April 2019.

The Emergency Regulatory Language Action is appropriate because the urchin barren condition is an emergency. Our hope is that kelp can be successfully restored within the legal framework of California Fish and Game Regulations.

Respectfully submitted,

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Art Seavey, Monterey Abalone Company
Trevor Fay, Monterey Abalone Company

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