CALIFORNIA FISH AND GAME COMMISSION
FINDING OF EMERGENCY AND
STATEMENT OF PROPOSED EMERGENCY REGULATORY ACTION

Emergency Action to
Amend Section 29.06,
Title 14, California Code of Regulations
Re: 2020 Recreational Purple Sea Urchin Emergency Rule

Date of Statement: January 30, 2020

I. Statement of Facts Constituting the Need for Emergency Regulatory Action

Since 2014, bull kelp (*Nereocystis luetkeana*) in northern California has declined by more than 90%. This decline has been linked to a combination of severe warm water events and multiple ecological stressors, particularly an explosive increase in purple sea urchin (PSU) populations exacerbated by the loss of predatory sea stars due to sea star wasting disease. PSU are a native species in California; however, the species' abundance is now at a 60-fold increase compared to historic levels, which has led to the suppression of bull kelp forests on the north coast, and a regime shift from bull kelp forests to urchin barrens across most of the region. The collapse of bull kelp has had cascading effects resulting in significant losses of kelp forest ecosystem services, contributing to the collapse of the north coast commercial red urchin fishery in 2015 and closure of the recreational red abalone fishery in 2018.

The environmental conditions in northern California have continued to deteriorate. By 2019, divers from the California Department of Fish and Wildlife (Department) observed very few remaining patches of bull kelp in northern California as well as a sustained decline in species diversity that would otherwise inhabit a healthy bull kelp ecosystem; this condition has been corroborated by local divers and research entities such as Reef Check California. The remaining stands of kelp tend to occupy the top of isolated, frequently disturbed boulders and rock formations that are more difficult for PSU to reach. However, Department staff is extremely concerned that the expanding PSU population may soon reach the remaining stands. As annual plants, bull kelp require a large standing spore stock to persist successfully. Preserving the remaining stands is critically important in the effort to rebuild this biogenic habitat upon which a myriad of native species including red abalone rely.

Because of the critical environmental situation on the north coast, the Department is working with multiple partners to develop and assess potential management tools to arrest kelp decline and promote broader ecosystem recovery for species that rely upon the kelp ecosystem. One of the primary tools is creating a network of kelp spore "refuges" in localized areas throughout the north coast by locally controlling PSU presence.

One mechanism to locally control PSU that is being explored is to allow removal by recreational divers. After a series of rulemaking actions starting in 2018, the California Fish and Game Commission (Commission) and the Department expanded recreational divers' take limit for PSU by raising the daily bag limit to 40 gallons of PSU per person per day in the most severely-impacted counties of Sonoma, Mendocino, and Humboldt.

However, the expanded bag limit was not as broadly successful as originally anticipated due to the logistical constraints and physical difficulties of bringing such large and unwieldy quantities of PSU safely back to shore.

Without successful local control of PSU, the north coast is at risk of exhausting its kelp spore banks and with them the capacity for broader recovery of the bull kelp ecosystem and the diverse species it supports. Because of the dire circumstances, the Department and its partners have determined it is necessary to explore the role of in-situ culling of PSU by the recreational diver community. The purpose of this rulemaking is to help restore kelp in the north coast through PSU culling and to evaluate the efficacy of this management tool under highly monitored conditions in a localized area. Research suggests that localized culling of PSU in urchin barrens may be effective only if extensive and concentrated effort is focused on an area. This project is expected to generate valuable data for Department staff, which could be used to evaluate its prospects of helping restore kelp forests elsewhere and ultimately recover impacted fisheries.

Prior Commission Action

In April 2018, the Commission adopted an emergency regulation that temporarily increased the recreational take limit of PSU to 20 gallons per-diver per-day in Mendocino and Sonoma counties. The emergency rulemaking was initiated with strong public interest in controlling PSU populations by taking PSUs out of the water.

In February 2019, the Commission raised the recreation limit to 40 gallons through regular rulemaking and extended the higher limit to Humboldt County as well.

Proposed Action by the Commission

The proposed rule would authorize recreational divers to cull PSU underwater within the area commonly referred to as Caspar Cove, Mendocino County (located seaward of Caspar Headlands State Beach, along Point Cabrillo Drive). Specifically, the rule would temporarily remove the recreational take limit for PSU within Caspar Cove. The rule would also specify that PSUs can only be taken by hand or with manually-operated, handheld tools.

The initial assessment of PSU culling will be limited to Caspar Cove in Mendocino County, which was chosen for a combination of reasons. It is in the epicenter of the PSU overpopulation. Existing infrastructure (e.g., access roads, parking lot, campground) at Caspar Headlands State Beach gives recreational divers easy access to the cove. The area has historically been the site of a large kelp forest, and many pinnacles and rock formations just outside of the cove still contains remnant stands of bull kelp that could help repopulate the cove.

It allows for extensive and concentrated effort to be focused on an area. The Department and its partners will also be able to concentrate their resources on the site to assess the effectiveness of culling and any potential negative impacts. For reasons stated here, Caspar Cove makes a very good candidate site for urchin culling, and concentrated effort in this single location has a higher chance of creating lasting impact.

Existence of an Emergency and Need for Immediate Action

The Commission considered the following factors in determining whether an emergency exists: 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. The current severely-degraded state of northern California's bull kelp ecosystem is well documented (e.g., Rogers-Bennett and Catton 2019) and has resulted in the closure or collapse of valuable commercial and recreational fisheries in the region, with cascading negative effects to other fisheries and ecosystem services anticipated over time.

Department staff originally had two environmental concerns with *in-situ* culling of PSU. First, it was unclear whether culling urchins underwater could accidently trigger spawning events, thereby exacerbating the problem or negating any positive impacts. Second, underwater culling activities beyond simple removal carry some risk of impact to non-target components of the ecosystem (e.g., biogenic habitat or other invertebrate species).

Under the current environmental conditions in Caspar Cove and the north coast generally, neither of these concerns is currently considered high risk. Most available food sources for urchin in the north coast have been consumed, and Caspar Cove itself is devoid of kelp. While it is difficult for PSU to starve completely, most PSU are currently not sufficiently nourished to reproduce; this greatly reduce the risks associated with accidently triggering spawning events. By the same token, community complexity within the urchin barrens has been critically reduced, with most locations now characterized by bare rock reefs dominated by PSU. Therefore, it is unlikely that underwater activities associated with culling PSU will negatively impact non-target species or habitat.

A reduction in PSU populations, even in just one selected location to prevent loss of the remaining bull kelp spore refuges, is critical to the restoration and recovery of the ecosystem, including red urchin and red abalone populations. Controlling urchins through culling with recreational divers may be an important tool in preventing the loss of the remaining stands of bull kelp. However, the effort must begin as soon as conditions allow in spring of 2020 due to the short diving season in northern California. PSU may soon migrate to or settle on the isolated areas where a few kelp stands still persist; once these stands are lost, restoration within the area will become significantly more difficult.

II. Impact of Regulatory Action

The potential for significant statewide adverse economic impacts that might result from the proposed regulatory action has been assessed, and the following determinations relative to the required statutory categories have been made:

(a) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State: None.

(b) Nondiscretionary Costs/Savings to Local Agencies: None.

(c) Programs Mandated on Local Agencies or School Districts: None.

(d) Costs Imposed on Any Local Agency or School District that is Required to be Reimbursed Under Part 7 (commencing with Section 17500) of Division 4, Government Code: None.

(e) Effect on Housing Costs: None.

III. Technical, Theoretical, and/or Empirical Studies, Reports, or Documents Relied Upon

Bernard, F. R. (1977). Fishery and reproductive cycle of the red sea urchin, *Strongylocentrotus franciscanus*, in British Columbia. *Journal of the Fisheries Board of Canada*, *34*(5), 604-610.

Ling, S. D., Kriegisch, N., Woolley, B., & Reeves, S. E. (2019). Density-dependent feedbacks, hysteresis, and demography of overgrazing sea urchins. *Ecology*, *100*(2), e02577.

Rogers-Bennett, L., & Catton, C. A. (2019). Marine heat wave and multiple stressors tip bull kelp forest to sea urchin barrens. *Scientific reports*, *9*(1), 1-9.

IV. Authority and Reference

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

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

IV. Section 399 Finding

Pursuant to Section 399 of the Fish and Game Code, the Commission finds that adopting this regulation is necessary for the immediate conservation, preservation, or protection of the species that rely upon kelp forest ecosystem in northern California.

Informative Digest (Policy Statement Overview)

Existence of an Emergency and Need for Immediate Action

The California Department of Fish and Wildlife (Department) proposes to temporarily remove the daily bag limit for purple sea urchins (PSU) in the area commonly referred to as Caspar Cove, Mendocino County (located seaward of Caspar Headlands State Beach), for the purpose of bull kelp restoration, provided that such removal is done using hands or manual handheld tools. The proposal would amend Section 29.06, Title 14, CCR through emergency action. The proposal is necessary to facilitate underwater culling activities by recreational divers in Caspar Cove.

Since 2014, extreme oceanographic conditions and ecological stressors have caused a greater than 90 percent decline in bull kelp coverage in northern California and critically degraded the kelp ecosystem in the region. Productive kelp forest habitats have been replaced with monotonic PSU barrens. The grazing pressure from PSU needs to be severely curtailed before the kelp can recover and support the species that depend on kelp to survive. The Department is pursuing multiple approaches to achieve this, including assistance in facilitating control of PSU by recreational divers. Past efforts of raising the bag limit and encouraging recreational divers to bring more PSU out of the water has been limited by logistical challenges.

The proposed emergency regulation will stimulate the recovery of bull kelp in Caspar Cove. The Department and its partners will also be able to evaluate the effectiveness and feasibility of using this activity as a tool to address the environmental crisis on the north coast generally. The limited scope of this regulation allows the Department to concentrate its resources on the site while assessing the feasibility of expanding the project as well as evaluate any potential negative consequences. Time is of the essence for this project. The state is at risk of losing its few remaining kelp stands in northern California. Such a loss would significantly limit the capacity for the future recovery of this resource and all marine life dependent upon it, including red abalone.

To determine whether an emergency exists, the California Fish and Game Commission (Commission) 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. Environmental data since 2014 demonstrate that all these factors have been met.

Benefits of the Regulation to the State’s Environment:

The Commission anticipates benefits to the State’s environment by sustainably managing California’s ocean resources. The environmental risk arising from the proposed activities are not regarded as significant, particularly in light of the advanced state of PSU encroachment and the resulting loss of bull kelp habitat upon which a myriad of native species, including red abalone, rely.

The Department conducted an evaluation of existing regulations and this regulation is neither inconsistent nor incompatible with existing state regulations.