Staff Summary for February 14-15, 2024

6. Recreational Take of Sea Urchin

Today's Item **Information ☐** **Action ☒**

Consider adopting proposed amendments to regulations for the recreational take of sea urchin to extend the bag limit exemption sunset date.

Summary of Previous/Future Actions

• Adopted rulemaking for three years of unlimited recreational take of purple sea urchin in Caspar Cove, and red and purple sea urchin at Tanker Reef	December 9-10, 2020
• Marine Resources Committee (MRC) discussion under general public comment	July 20, 2023; MRC
• Notice hearing	October 11-12, 2023
• Discussion hearing	December 13-14, 2023
• **Today's adoption hearing**	**February 14-15, 2024**

Background

In 2020, facing dire kelp loss in California's north coast, the Commission authorized unlimited urchin harvesting, first at Caspar Cove in Mendocino County and later adding a second location at Tanker Reef in Monterey County in 2020. The aim of the regulations was to gather data on and assess the efficacy of community-led urchin culling in select locations as a potential management tool for kelp restoration and to inform responses to the decline in kelp forests within the state. The regulations only authorize unlimited take until April 2024. For background information and updates on the progress specific to the projects at Caspar Cove and Tanker Reef, see exhibits 1 and 2.

On December 1, 2023, the Commission published a notice of intent to amend regulations to extend Caspar Cove's sunset date, with an option to extend Tanker Reef's sunset date for a period of five years within a portion of the current urchin removal area. At its December 13-14, 2023 discussion hearing, the Commission restated that the intended purpose of the projects was for limited-term experimental culling of urchins and to collect kelp restoration data in areas after culling had stopped.

For today's meeting, the Department has transmitted a memo in lieu of a pre-adoption statement of reasons, which summarizes and provides responses to public comments received by the Commission on the proposed amendments for Caspar Cove and option at Tanker Reef (Exhibit 6). In addition, the Commission received a joint memo from the California Ocean Protection Council, Department, and Monterey Bay National Marine Sanctuary, with comments and a recommendation concerning the Tanker Reef regulations (Exhibit 8). In 2020, the three agencies worked together to evaluate and make recommendations to the Commission regarding the proposal for Tanker Reek that ultimately led to the regulation changes in effect now. The current memo reviews the original purpose for adopting the Tanker Reef regulations and recaps the monitoring plan developed by the three organizations and the project's

principal organizer in concert with Reef Check; the plan laid out specific performance criteria and a data management and reporting framework.

The agency memo states that the Department and Monterey Bay National Marine Sanctuary have collected data independent of the principal project organizer and other partners, to verify monitoring trends and ecological changes at Tanker Reef, and will continue monitoring the site through 2024 to determine the long-term viability of the urchin culling approach to kelp restoration. Consistent with the original intent, the three agencies support the exemption at Tanker Reek sunsetting on April 1, 2024, as reflected in current regulations; this will allow partners to track kelp and urchin changes within the treatment grid, including whether any positive effects persist, informing the evaluation of culling as a restoration tool. However, the Department and Ocean Protection Council support extending the sunset date for Caspar Cove for five years, as travel restrictions due to COVID-19 significantly hindered organized urchin culling efforts by recreational divers for several years, necessitating additional time for a fair assessment.

At today's meeting, the Department's presentation will provide additional rationale to support its recommendation (Exhibit 7).

Significant Public Comments

1. A joint letter from the California Ocean Protection Council, Monterey Bay National Marine Sanctuary, and Department expresses support for Option 1 — to extend the sunset date for Caspar Cove — and recommends expiration of the Tanker Reef regulations as currently scheduled (Exhibit 8). The recommendation for Tanker Reef is based on original commitments among the organizations and the project organizer, collaborative work through the process, and the importance of independent evaluation by the agencies of the efficacy of urchin culling after culling ceases, as outlined in the original joint monitoring plan.
2. Keith Rootsaert, the principal Tanker Reef project organizer and petitioner to extend the provisions, documents comments and questions raised by commissioners at the December 14-15, 2024 Commission meeting and provides responses. He has included an attachment that outlines his group's evaluation of the proposed amendment options and offers two more options for consideration: (1) extend the regulations for five years in the current boundaries, and coordinate with scientists to exclude work from the treatment grid; or (2) authorize the project to resume in the current boundaries for four years after the post-restoration monitoring is complete. (Exhibit 9)

Recommendation

Commission staff: Adopt the proposed regulations under option 1 as recommended by the Department and request that the Department explore options for continuing community-led urchin culling projects through its scientific collecting permit process.

Department: Adopt the regulations as proposed in option 1 in the initial statement of reasons and proposed regulatory language.

Exhibits

1. Staff summary for October 11-12, 2023 Commission meeting, Agenda Item 23 (*for background purposes only*)
2. Staff summary for December 13-14, 2023 Commission meeting, Agenda Item 18 (*for background purposes only*)
3. Initial statement of reasons and informative digest, dated August 25, 2023
4. Proposed regulatory language
5. Economic and fiscal impact statement (STD 399) and addendum
6. Department memo (in lieu of pre-adoption statement of reasons) and attachment, received January 31, 2024
7. Department presentation
8. Joint memo from Jenn Eckerle, Executive Director, California Ocean Protection Council, Dr. Craig Shuman, Marine Regional Manager, Department, and Dr. Lisa Woonick, Superintendent, Monterey Bay National Marine Sanctuary, received January 30, 2024
9. Email and attachment from Keith Rootsaert, received February 1, 2024

Motion

Moved by _____ and seconded by _____ that the Commission adopts Option 1 of the proposed changes to Section 29.06 related to the recreational take of sea urchin.

OR

Moved by _____ and seconded by _____ that the Commission adopts Option 2 of the proposed changes to Section 29.06 related to the recreational take of sea urchin.

STAFF SUMMARY FOR OCTOBER 11-12, 2023
(*For Background Purposes Only*)

23. RECREATIONAL TAKE OF SEA URCHIN

Today's Item **Information ☐** **Action ☒**

Consider authorizing publication of notice of intent to amend regulations for the recreational take of sea urchin to extend the bag limit exemption sunset date.

Summary of Previous/Future Actions

• Adopted rulemaking for unlimited recreational take of purple sea urchin in Caspar Cove and both red and purple sea urchin at Tanker Reef for three years	December 9-10, 2020
• Marine Resources Committee discussion under general public comment	July 20, 2023; MRC
• **Today's notice hearing**	**October 11-12, 2023**
• Discussion hearing	December 13-14, 2023
• Adoption hearing	February 14-15, 2024

Background

Kelp forests are one of the most productive and biodiverse coastal marine ecosystems that harbors many of California's unique, native, marine species; they also acts as a coastline buffer during storms, absorbs carbon dioxide, and supports coastal economies. The severe broad-scale decline of bull kelp (*Nereocystis pyrifera*) forests along California's north coast since 2014 (estimated at more than 90%) has been linked to a combination of severe warm water events and an explosive increase of herbivorous sea urchins, particularly purple sea urchin (*Strongylocentrotus purpuratus*). While a native species in California, by 2019 purple sea urchin abundance increased 60-fold in Sonoma and Mendocino counties alone, resulting in a shift from bull kelp forests to urchin barrens. In addition, independent surveys documented loss of giant kelp (*Macrocystis pyrifera*) and a shift to urchin barrens in many giant kelp beds along the Monterey peninsula, Monterey County.

To address the overabundance of purple urchins detrimental to kelp growth, recruitment, and recovery, in December 2020 the Commission adopted regulations to temporarily remove the recreational bag limit and allow unlimited take of purple sea urchin in Caspar Cove (Mendocino County) and purple and red sea urchin (*S. franciscanus*) at Tanker Reef (Monterey County), including culling in place, for a period of three years. The intent of the regulation changes was to gather data to evaluate the approach and to help understand whether: (1) recreational diver community-led *in situ* urchin control could serve as a mechanism to support bull kelp restoration (via Caspar Cove) or giant kelp restoration (via Tanker Reef) at key locations by promoting natural recovery, as well as (2) environmental impacts of culling activities—including potential negative impacts to other organisms or damage to underlying reef structure—could be characterized.

The regulation changes went into effect on April 1, 2021 with a sunset date of April 1, 2024. The Commission authorized a three-year time frame to allow for recreational dive communities

in Mendocino and Monterey counties to self-organize, execute culling efforts, and conduct monitoring to assess the efficacy of removal efforts in terms of both social and ecological outcomes. Three years was considered the minimum amount of time needed to observe a potential trend in environmental conditions.

Caspar Cove Update

Culling efforts at Caspar Cove were initiated by the public in July 2020 and, as of July 27, 2023, an estimated 130,758 purple sea urchins have been removed. Due to the COVID-19 pandemic, however, mobilization of recreational community effort was more challenging than originally anticipated; coupled with the remoteness of the site, weather constraints, and limited local resources (e.g., closure of local dive shops), removal and monitoring efforts were significantly disrupted. Additionally, the bull kelp forest ecosystem along California's north coast has continued to exhibit very little natural recovery, making it challenging to assess the efficacy of removal efforts. However, the coastal community has continued to stay engaged, by working with local entities to find solutions to these challenges, which has resulted in increased effort and engagement at the site recently.

In light of the delays in commencing operations, the Department believes that providing an extension to continue urchin removal efforts at Caspar Cove for an additional limited term beyond the current sunset date of April 1, 2024 could provide essential data to inform whether urchin removal by recreational divers on the north coast represents a viable option for bull kelp restoration.

Tanker Reef Update

Culling efforts at Tanker Reef were initiated by the public in April 2021. In contrast to Caspar Cove, organizers at Tanker Reef were able to engage more divers, conduct more dives, and remove more urchins including throughout the pandemic; as of July 27, 2023, an estimated 633,211 purple and red urchins have been removed. Culling efforts at Tanker Reef has provided a robust dataset. The Department, in partnership with the Monterey Bay National Marine Sanctuary, documented that urchin culling activities led to a decrease in urchin densities and increase in giant kelp densities within the restoration area, in contrast to high urchin densities and low giant kelp densities at the control site throughout the survey time period. The Department and sanctuary staff determined that data collected to date and through the sunset date will be sufficient and that, after authorization expires on the sunset date, they plan to collect data to document the rate of urchin encroachment on the restoration area after ending the experiment, an important step in reaching conclusions regarding viability of using urchin culling by recreational divers to restore and sustain giant kelp forests.

At its July 2023 meeting under general public comment, the Commission Marine Resources Committee (MRC) engaged in dialogue with the Tanker Reef project principal organizer and many contributing recreational dive participants, who expressed a strong desire for the Commission to authorize an extension not only for Caspar Cove, but also Tanker Reef to leverage the large momentum of engaged volunteer divers and to maintain newly-settled giant kelp. The Department, sanctuary, and MRC emphasized the importance of post-experimental culling monitoring and evaluation for determining long-term efficacy and usefulness of the

method for future giant kelp restoration efforts. However, based on the discussion, the Department committed to including options for Tanker Reef within the proposed regulation changes. MRC supported including options, but requested that one option be included that would only extend the sunset date for a portion of Tanker Reef, to meet the public request to continue culling in a portion of the restoration area, while still allowing the post-culling evaluation to begin without delay.

Proposed Regulation Changes

The proposed regulation changes would amend Section 29.06 for Caspar Cove and Tanker Reef.

1. Caspar Cove. The proposal is to extend the sunset date by five years (to April 1, 2029) to allow the evaluation of whether *in situ* urchin removals by recreational divers can serve as a potential bull kelp restoration tool.

2. Tanker Reef. The proposal is to:
   - Take no action (in which case the regulation sunsets on April 1, 2024), ***or***
   - extend the sunset date for five years *in a portion of the project culling area* (which will allow some continued urchin removal as requested by project proponents *and* post-culling monitoring and evaluation to commence in the remaining area), ***or***
   - extend the sunset date for five years *in the entire project culling area* (which will allow continued urchin removal as requested by project proponents, *but no* post-culling monitoring and evaluation until after the sunset date).

Further details on the background to this topic and the proposed regulatory changes are in the initial statement of reasons and proposed regulatory language (exhibits 2 and 3).

Significant Public Comments

1. A 6th grade class provided 22 letters of support for the Giant Giant Kelp Restoration (G2KR) Project at Tanker Reef, urging the Commission to extend the sunset date for the project (Exhibit 6).
2. The organizer of the G2KR project provided a presentation on the progress of the Tanker Reef project (Exhibit 7).

Recommendation

Commission staff: Authorize publication of notice of intent to amend Section 29.06 concerning recreational take of sea urchin with changes discussed today, providing direction regarding whether to include a sunset extension for Tanker Reef, the duration of any extension, and the area to which any extension would apply.

Department: Authorize publication of a notice of intent to amend Section 29.06.

Exhibits

1. Department memo, received September 13, 2023

2. Draft initial statement of reasons and informative digest
3. Proposed regulatory language
4. Draft economic and fiscal impact statement (STD. 399)
5. Department presentation (to be provided separately)
6. Letters from students at Oasis Charter Public School, received September 25, 2023
7. Presentation from Keith Rootsaert, received September 27, 2023

Motion

Moved by _____ and seconded by _____ that the Commission authorizes publication of a notice of its intent to amend Section 29.06, as discussed today:

For Caspar Cove: _____

For Tanker Reef: _____

STAFF SUMMARY FOR DECEMBER 13-14, 2023
(*For Background Purposes Only*)

18. RECREATIONAL TAKE OF SEA URCHIN

Today's Item **Information ☒** **Action ☐**

Discuss proposed amendments to regulations for the recreational take of sea urchin to extend the bag limit exemption sunset date.

Summary of Previous/Future Actions

• Adopted rulemaking for unlimited recreational take of purple sea urchin in Caspar Cove and both red and purple sea urchin at Tanker Reef, each for three years	December 9-10, 2020
• Marine Resources Committee (MRC) discussion under general public comment	July 20, 2023; MRC
• Notice hearing	October 11-12, 2023
• **Today's discussion hearing**	**December 13-14, 2023**
• Adoption hearing	February 14-15, 2024

Background

In response to severe broad-scale decline of kelp forests along California's north coast, the Commission adopted regulations in 2020 to allow unlimited take of purple sea urchins at Caspar Cove in Mendocino County. In addition, the regulation permitted unlimited take of purple and red sea urchin (*S. franciscanus*) at Tanker Reef. These provisions were intended to support data collection to inform the state's response to the loss of kelp forests within state waters. The regulation changes for Caspar Cove and Tanker Reef took effect on April 1, 2021, with a sunset date of April 1, 2024. For background information and updates on the progress of the projects at Caspar Cove and Tanker Reef, see Exhibit 2.

The inclusion of Tanker Reef in the 2020 regulation changes was the result of a petition submitted by a member of the public who was concerned by the decline in the kelp forest in Monterey. The Department evaluated the petition jointly with the Monterey Bay National Marine Sanctuary (MBNMS) and the California Ocean Protection Council (OPC); the three organizations provided a joint letter to the Commission (Exhibit 1). The letter conveyed conditional support for adding Tanker Reef, provided that outcomes "explicitly inform future management" and the petitioner of the Tanker Reef project (1) evaluate the efficiency of community led efforts at in-water culling activities and to report the findings, and (2) evaluate the potential ecological impacts from such methods, underscoring the intent of the regulations. The letter explicitly recommended a sunset date of three years, "…at which time data collected by the petitioner will be evaluated prior to considering extension and/or broader application of these methods." The Commission adopted the regulations consistent with the conditions outlined in the joint letter.

At the Commission's October 2023 meeting, the Department presented the Commission a proposed extension for the Caspar Cove project and three options for Tanker Reef (see exhibits 3 and 4). The Commission authorized staff to publish notice of intent to amend regulations to extend Caspar Cove's sunset date and included an option to extend Tanker Reef's sunset date for a period of five years within a portion of the current urchin removal area

defined in subsection 29.06(d)(2). The Commission also noted that it may choose to adjust the boundaries of the portion of Tanker Reef or take no action. If no action is taken, the current regulations for Tanker Reef would stand, including the current sunset date. The notice was published in the California Notice Register on December 1, 2023.

Today's meeting provides an opportunity for public discussion of the proposed changes to the regulations. Background and further details on this topic and the proposed regulatory changes are in the initial statement of reasons and proposed regulatory language (exhibits 3 and 4).

Significant Public Comments

1. MBNMS reiterates the original purpose of the Tanker Reef provision in the regulations, which was to evaluate community-led urchin culling as a kelp restoration tool with a sunset date of three years (April 2024). MBNMS supports Option 1 of the proposed regulations for Tanker Reef, letting the provisions expire as originally proposed. MBNMS states the sunset option will allow for tracking kelp/urchin changes at the treatment grid, the petitioner to provide data in a timely manner, and the opportunity to analyze all data collected and produce a report that fully evaluates the suitability of this strategy as an effective restoration tool (Exhibit 6).
2. The Giant Giant Kelp Restoration Project (G2KR) expressed concern that the scientific advisors have proposed a new hypothesis that the kelp will persist after the diver effort stops and that, to test this hypothesis, they want to sunset the diver effort at Tanker's Reef. Members of the G2KR community are opposed to sunsetting the diver effort at Tanker's Reef because they believe it will be counterproductive to the kelp restoration effort. They also argue it is not practical for divers to cull urchins in a kelp forest without underwater navigational aids. They propose continuing the culling effort for five more years and ending culling in a portion of the grid to see how the urchin and kelp density respond (Exhibit 7).
3. The G2KR project submitted 32 letters from divers who support continuing culling urchins at Tanker Reef, stating it is essential for restoring the kelp and reef ecosystem (Exhibit 8).

Recommendation (N/A)

Exhibits

1. Joint letter from OPC, the Department, and MBNMS, received August 5, 2020
2. Staff summary for October 11-12, 2023 Commission meeting, Agenda Item 23 (*for background purposes only)*
3. Revised initial statement of reasons and informative digest
4. Proposed regulatory language
5. Revised economic and fiscal impact statement (STD 399)
6. Letter from Lisa Wooninck, Superintendent, MBNMS, received November 2, 2023
7. Letter from Keith Rootsaert, G2KR, received October 16, 2023
8. Letters from the G2KR Project, received November 29, 2023

Motion (N/A)

State of California
Fish and Game Commission
Initial Statement of Reasons for Regulatory Action

Amend Section 29.06
Title 14, California Code of Regulations
Re: Recreational Sea Urchin Bag Limit Exemption

I. Date of Initial Statement of Reasons: August 25, 2023

II. Dates and Locations of Scheduled Hearings

(a) Notice Hearing

Date: October 12, 2023 Location: San Jose

(b) Discussion Hearing

Date: December 13-14, 2023 Location: San Diego

(c) Adoption Hearing

Date: February 14, 2024 Location: Sacramento

III. Description of Regulatory Action

(a) Statement of Specific Purpose of Regulatory Change and Factual Basis for Determining that Regulation Change is Reasonably Necessary

Unless otherwise specified, all section references in this document are to Title 14 of the California Code of Regulations (CCR). Commission refers to the California Fish and Game Commission unless otherwise specified. Department refers to the California Department of Fish and Wildlife unless otherwise specified.

Kelp forests are biodiverse coastal marine ecosystems which harbor many of California's unique native marine species either as juveniles or adults. The kelp assemblage along the northern and central California coast has seen a sharp decline in recent years. Bull kelp (*Nereocystis luetkeana*) in northern California has declined by more than 90% of its historical level since 2014 (Rogers-Bennett and Catton 2019). This decline has been linked to a combination of severe warm water events and an explosive increase of herbivorous sea urchins, particularly purple sea urchins (*Strongylocentrotus purpuratus*). Purple sea urchins are a native species in California; however, following the severe warm water events, the species' abundance increased 60-fold in Sonoma and Mendocino counties (Rogers-Bennett and Catton 2019), in part due to the loss of the predatory sunflower sea star (*Pycnopodia helianthoides*) from wasting disease (Harvell et al. 2019) and a large purple sea urchin recruitment event. This has led to the overgrazing and suppression of natural recovery of bull kelp forests on the North Coast, resulting in a regime shift from kelp forests to urchin barrens across most of the region (Rogers-Bennett and Catton 2019). Urchin barrens occur when the population of urchins go unchecked by natural predators, which lead to destructive grazing on kelp and other algae, ultimately resulting in a complete loss of kelp forest habitat.

The collapse of the bull kelp forests has had catastrophic cascading effects on industries that rely on the kelp forest ecosystem, such as the commercial red sea urchin (*Strongylocentrotus franciscanus*) roe fishery (i.e., marketable for culinary consumption of both the male and female gonads). The physiology of sea urchins makes them extremely resilient to death by starvation. At the same time, the lack of food places all sea urchins, including red sea urchins, perpetually in a starved state in which they do not develop healthy gonads (Claisse et al. 2013). The lack of quality/healthy gonads makes most of the red sea urchins found on the North Coast unmarketable. Despite being a historically important and lucrative fishery, the red sea urchin fishery in northern California collapsed in 2015, prompting a federal disaster declaration (Newsom G. 2019). In addition, abundance of other grazers and predators relying on kelp for food have decreased rapidly. As a result, the recreational red (*Haliotis rufescens*) fishery, one of the most iconic fisheries in California, was forced to close in 2018 (Commission 2018).

The severe bull kelp decline is further compounded by the annual life cycle of bull kelp, the dominant canopy species in northern California (Springer et al. 2010). Since kelp individuals die off each year, bull kelp's abundance in any given year depends heavily on the abundance of the previous year. A severely diminished spore bank thus significantly limits the capacity for broadscale recovery of the species.

In order to address the declining kelp and increasing sea urchin populations detrimental to kelp growth and recruitment, the Commission adopted an emergency regulation to temporarily remove the recreational bag limit for purple sea urchins taken by hand and handheld tools inside Caspar Cove, Mendocino County, in February 2020. This emergency regulation was designed to provide a science-based assessment of the efficacy of in-water purple urchin culling by recreational divers as a potential kelp restoration tool.

In December 2020, the Commission adopted a Certificate of Compliance for amendments to Section 29.06 to continue the exemption on the recreational bag limit for sea urchins at Caspar Cove (Mendocino County) while also adding Tanker Reef (Monterey County) due to considerable public interest regarding concerns of giant kelp (*Macrocystis pyrifera*) decline along the Monterey Bay Peninsula. The intent of the amendments was to gather data and help inform whether 1) recreational diver community-led *in situ* urchin control could serve as a mechanism to support kelp restoration at key locations through promoting natural recovery, as well as 2) environmental impacts of culling activities, including potential negative impacts to other organisms or whether damage to underlying reef structure could be characterized. A successful pilot restoration effort could directly confer ecological benefits to both Caspar Cove and Tanker Reef, such as allowing abalone to re-colonize areas previously impacted by urchin barrens.

A sunset date for the exemption at Caspar and Tanker Reef was established for April 1, 2024, allowing three years for recreational dive communities in Mendocino and Monterey Counties to self-organize, execute culling efforts, and conduct monitoring to assess the efficacy of removal efforts, both in terms of social and ecological outcomes. Additionally, three years was considered the minimum amount of time needed to observe a potential trend in environmental conditions.

Caspar Cove

Culling efforts at Caspar Cove were initiated by the public in July 2020. As of July 27, 2023, 241 dives have been reported by 110 unique divers, resulting in an estimated removal of

130,758 purple sea urchins. Due to the COVID-19 pandemic, mobilization of recreational effort has been more challenging than originally anticipated, and removal and monitoring efforts were significantly disrupted.

Additional challenges, such as remoteness of the site, weather constraints, and limited local resources (e.g., closure of local dive shops) have imposed hurdles to recreational diver effort. Importantly, however, the coastal community has continued to stay engaged, by working with local entities to find solutions to these challenges, which has resulted in increased effort and engagement at the site. Allowing for continued restoration efforts at Caspar Cove for another five years will provide essential data to inform whether urchin removal by recreational divers on the North Coast represents a viable option for bull kelp restoration.

Tanker Reef

Culling efforts at Tanker Reef were initiated by the public in April 2021. As of July 27, 2023, 1,369 dives have been reported by 187 unique divers, resulting in an estimated removal of 633,211 purple and red urchins. Of the estimate of 633,211 urchins removed, approximately 219,733 (34%) were removed from a 100-meter squared focal restoration area. Ecological monitoring is conducted in partnership with Department of Fish and Wildlife (Department), Monterey Bay National Marine Sanctuary, and Reef Check California staff at restoration and control areas. Restoration and control areas are each 100 square meters in size, although urchin culling also occurs outside of these monitored areas within the broader Tanker Reef regulatory boundary. Table 1 provides urchin and kelp densities from subtidal surveys at the control and restoration areas within Tanker Reef at timepoints prior to the onset of urchin culling by recreational divers (Spring 2021) and at the time of peak kelp density within the restoration area (Summer 2022). Urchin and kelp densities were similar between the control and restoration areas prior to the onset of urchin culling activities. Urchin densities remained high and kelp densities remained low at the control site throughout the survey time period. Urchin densities in the restoration area were reduced below a target threshold of ≤ 2 urchins per square meter between the Spring and Fall 2021 sampling events and remained around the threshold density through Spring of 2023. Kelp densities increased in the restoration area and peaked in Summer 2022.

Table 1: Urchin and giant kelp densities* at Tanker Reef control and restoration areas from subtidal surveys conducted prior to the onset of urchin culling activities in Spring 2021 and during peak giant kelp density which occurred in Summer 2022.**

	Pre-culling (Spring 2021)	Pre-culling (Spring 2021)	Pre-culling (Spring 2021)	Post-culling (Summer 2022)	Post-culling (Summer 2022)	Post-culling (Summer 2022)
Area	Urchin	Kelp Individuals	Kelp Stipes	Urchin	Kelp Individuals	Kelp Stipes
Control	8.7	0	0.01	6.7	0.01	0.02
Restoration	6.8	0.02	0.36	1.8	0.32	1.46

* Mean densities are shown in units per meters squared.
** Mature giant kelp forests in California typically range from 1.9 to 15 stipes per square meter and up to 3 individuals per square meter (North 1971).

Current Regulations:

Current recreational urchin regulations in Section 29.06 specify bag and possession limits and methods of harvest for purple sea urchins. Subsection (d) provides specific exemptions to allow unlimited recreational take of purple sea urchin in Caspar Cove, Mendocino County, and at Tanker Reef, Monterey County, as well as red sea urchin at Tanker Reef, Monterey, until April 1, 2024.

PROPOSED AMENDMENT

This regulatory proposal would amend Section 29.06 to extend the sunset date by five years at Caspar Cove (to 2029) to allow the continued evaluation of whether *in situ* urchin removals by recreational divers can serve as a potential bull kelp restoration tool. This proposal also includes an option to extend a portion of the Tanker Reef area based on stakeholder requests in two regulatory options, as follows:

- Option 1: Extend sunset date by five years (to April 1, 2029) at Caspar Cove only
- Option 2: Extend sunset date by five years (to April 1, 2029) at Caspar Cove and in a portion of the existing Tanker Reef area

Amend Section 29.06:

Option 1: Amend subsection 29.06(d)(1) – Extend sunset date for Caspar Cove to April 1, 2029.

Option 1 would allow Caspar Cove to be extended as described above under subsection 29.06(d)(1) Consistent with existing regulations, the exemption at Tanker Reef would sunset on April 1, 2024 as intended and currently specified in regulations.

Unlike Caspar Cove, removals and monitoring efforts at Tanker Reef have been continuous and extensive. The focused restoration area at Tanker Reef has seen an initial detectable kelp response following urchin removal (See Table 1). Sunsetting the regulations and culling efforts at Tanker Reef in April 2024 will allow for completion of the post-restoration monitoring phase and production of a final report, detailing the restoration methods and results which will inform the development of the statewide Kelp Restoration and Management Plan (KRMP) and any potential future kelp restoration actions for the central coast.

However, there is still some public interest to continue the work at Tanker Reef, and allowing the provision to sunset as originally intended would lead to dissatisfaction by participants who have contributed time and effort to the activities at Tanker Reef.

Option 2: Amend subsection 29.06(d)(1) as reflected in Option 1, and amend subsection 29.06(d)(2) – Extend sunset date for a portion of the existing Tanker Reef area to April 1, 2029.

Option 2 would allow Caspar Cove to be extended as described above under subsection 29.06(d)(1) and a portion of Tanker Reef listed under 29.06(d)(2) to remain open for continued urchin removal, in a section of the reef that is outside of the restoration and control areas to allow for post-restoration monitoring (See Figure 1). Unlike Caspar Cove, removals and monitoring efforts at Tanker Reef have been more extensive (albeit focused in one small area), and an initial detectable kelp response has been observed in the focal restoration area following urchin removal.

There is still public interest in continuing to remove urchins at Tanker Reef. Extending the sunset provision under newly modified boundaries that are a subset of the existing boundaries will still provide opportunities for the public to remain engaged in urchin removals for kelp restoration purposes in a smaller area than what is currently allowed. The proposed boundaries would still ensure that key access points from shore and by vessel remained intact, making this change less burdensome on the public.

If the boundary of Tanker Reef is modified to allow for additional removal of urchins, Department staff would continue to coordinate with the public and existing partners and would begin post-restoration monitoring of the restoration and control areas. The eastern boundary is positioned around 100 meters away from the restoration area, allowing for post-restoration effort monitoring to begin in 2024. The proposed boundary would provide a buffer so post-restoration monitoring would not be impacted by potential urchin culling efforts in the proposed boundary area. Additionally, the proposed modification reduces the footprint for Tanker Reef, which could minimize potential habitat damage during urchin removals.

Please note that the Commission may choose to modify the boundaries proposed by the Department in this option at the discussion or adoption hearing, although the modified boundaries would be constrained to within the existing Tanker Reef area boundaries only. If the Commission chooses to modify the boundaries, a 15-day notice of the proposed changes will be issued to the public.

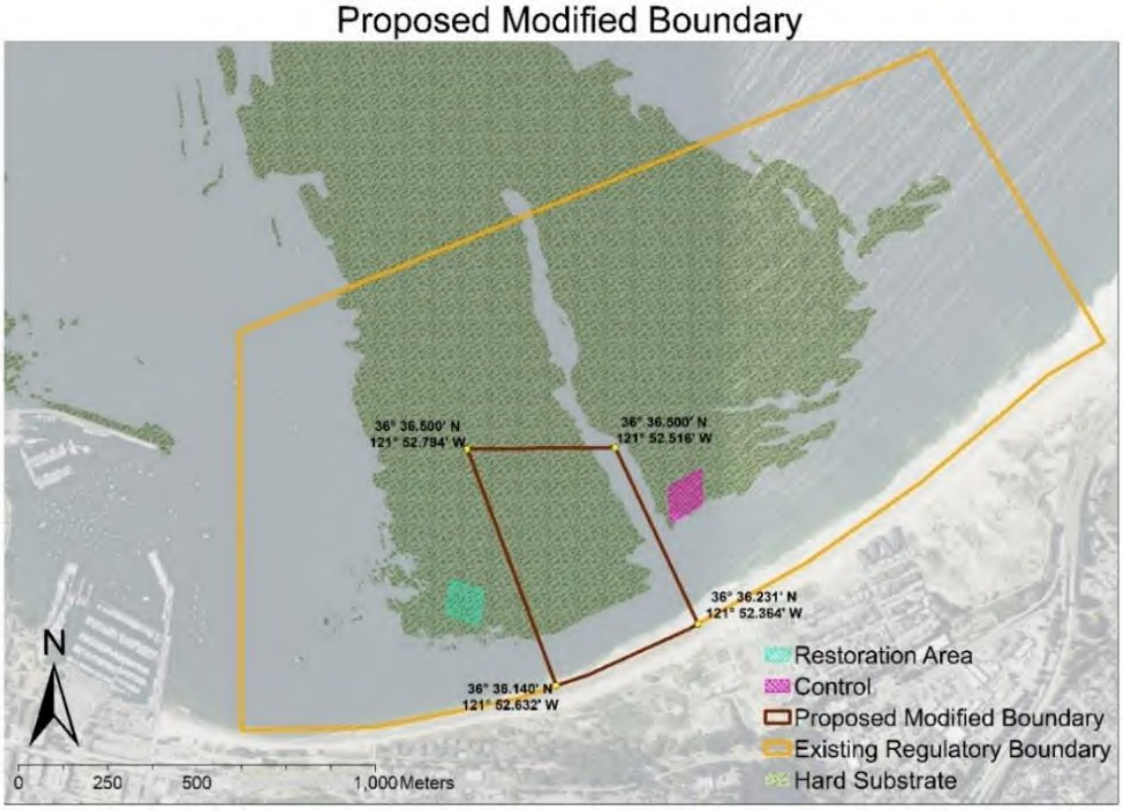


Figure 1. Map depicting the modified boundaries for Option 2 at Tanker Reef. The red polygon are the new proposed boundaries while the orange polygon is the existing boundary that is set to expire on April 1, 2024. Hard substrate data (shown by green hatching) show where kelp could potentially attach to, should urchin eradication be successful.

(b) Goals and Benefits of the Regulation

The policy of this state is "to ensure the conservation, sustainable use, and, where feasible, restoration of California's marine living resources for the benefit of all the citizens of the State" (Fish and Game Code Section 7050(b)). The proposed regulation change would allow five more years to continue the sea urchin removal efforts and associated monitoring assessments at Caspar Cove. The primary goal of the extension is to ensure there is adequate time by the recreational divers to continue their sea urchin removal efforts to better understand the effects urchin removal has on barren reefs and kelp recruitment and growth. These urchin removal efforts are intended to explore the efficacy of restoration tools for statewide restoration of kelp forests in California, which are valuable ecosystems that support our native unique marine species and are economically, and culturally important in California. For instance, kelp supports critical ecosystem services such as recreational and commercial fisheries and eco-tourism, which contribute significantly to the state's $44 billion ocean economy. Additionally, California's Native American tribes, who have inhabited and stewarded the coast since time immemorial, also rely on kelp forest ecosystems for food, medicine, and ceremony. Restoration of kelp could also support species such as abalone, which are vulnerable and are no longer able to support a culturally and economically valuable fishery. Finally, this will also inform possible options for the Department's KRMP, which is currently under development.

For Tanker Reef, two regulatory options have been identified for the Commission, each with their own goals and benefits. Option 1 would allow the existing regulation to sunset, as originally intended. The principal goal and benefit of this option would be to initiate the post restoration monitoring phase in a timelier manner to better inform management of using recreational divers as a tool for kelp restoration. Option 2 would also allow the post restoration monitoring to begin in 2024 following the April sunset date, while keeping a portion of the reef open to the public for continued urchin removals for another five years, as requested by some members of the public.

(c) Authority and Reference Sections from Fish and Game Code for Regulation

Authority: Sections 200 and 205 Fish and Game Code

Reference: Sections 200 and 205 Fish and Game Code

(d) Specific Technology or Equipment Required by Regulatory Change

None

(e) Identification of Reports or Documents Supporting Regulation Change

- 11/09/21 - Department update on kelp restoration and recovery efforts, including initial outcomes of urchin removal projects and status of sunflower sea star (Pycnopodia) - https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=195601&inline
- 03/14/23 – Department update on Giant and Bull Kelp - https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=210955&inline

- Caspar Cove Diver Log - https://docs.google.com/spreadsheets/d/e/2PACX-1vQbkVbQfGkr9yaJ5bj1KUjjHQ9Dq8OfTUrtDU7jpIvcIF3isKSspT_ywCIOUlMI-tbw_-b1iTcyN6Do/pubhtml?gid=1680084585&single=true
- Tanker Reef Diver Log - https://public.tableau.com/app/profile/jack.heffernan7475/viz/CaliforniaCentralCoastKelpRestoration/About

(f) Identification of Reports or Documents Providing Background Information

Claisse, J. T., Williams, J. P., Ford, T., Pondella, D. J., Meux, B., & Protopapadakis, L. (2013). Kelp forest habitat restoration has the potential to increase sea urchin gonad biomass. *Ecosphere*, *4*(3), 1-19. https://esajournals.onlinelibrary.wiley.com/doi/pdf/10.1890/ES12-00408.1.

Fish and Game Commission. (2018). Initial Statement of Reasons for Regulatory Action to Amend Section 29.15, Title 14, California Code of Regulations, Re: Abalone Regulations. http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=160847&inline.

Harvell, C. D., Montecino-Latorre, D., Caldwell, J. M., Burt, J. M., Bosley, K., Keller, A., ... & Pattengill-Semmens, C. (2019). Disease epidemic and a marine heat wave are associated with the continental-scale collapse of a pivotal predator (*Pycnopodia helianthoides*). *Science advances*, *5*(1), eaau7042. https://advances.sciencemag.org/content/advances/5/1/eaau7042.full.pdf.

Gavin Newsom, Governor of California, Letter from, to Wilbur Ross, United States Secretary of Commerce (2019). California Red Sea Urchin Disaster Request. https://www.fisheries.noaa.gov/webdam/download/88698465.

North, Wheeler. J. (1971). The biology of giant kelp beds (Macrocystis) in California. Lehre, J. Cramer.

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. https://www.nature.com/articles/s41598-019-51114-y?sf222971155=1.

Springer, Y. P., Hays, C. G., Carr, M. H., & Mackey, M. R. (2010). Toward ecosystem-based management of marine macroalgae—The bull kelp, *Nereocystis luetkeana*. Oceanography and marine biology, 48, 1. https://farallones.org/wp-content/uploads/2018/09/Ecosystem-Based-Management-of-Bull-Kelp.pdf.

(g) Public Discussions of Proposed Regulations Prior to Notice Publication

The Department first presented the issue to the Marine Resources Committee at its July 20, 2023 meeting, and to the Fish and Game Commission at its August 23, 2023 meeting.

IV. Description of Reasonable Alternatives to Regulatory Action

(a) Alternatives to Regulation Change

The Department considered an option to extend the sunset date for Tanker Reef for five years (until 2029) to allow ongoing urchin removals at the request of participants in the removal efforts at the site. There is still some public interest to continue the work at Tanker Reef and

extension for the entire site would provide a continuation of existing opportunities for the public to continue clearing urchins in the existing regulatory boundary, which maintains a much larger area than as proposed for reduction in Option 2.

If the sunset date at Tanker Reef was extended, Department staff would continue to coordinate with the public and existing partners, and would continue to monitor the existing focal restoration and control areas. However, the post-restoration monitoring would be delayed if the sunset provision at this site is extended. Post-restoration monitoring is needed to inform kelp forest resource management, especially the KRMP. Continuation of urchin culling within the entirety of the existing regulatory boundary at Tanker Reef limits the assessment of the effort, due to an inability to ensure the existing "cleared" quadrant would not be impacted by continual maintenance of recreational divers.

Finally, a study conducted by the Department and Monterey Bay National Marine Sanctuary divers demonstrated that the mudstone substrate at Tanker Reef is friable, and errant strikes can directly damage the soft substrate and some non-target organisms on the underlying reef habitat. However, training on responsible culling practices being implemented by the dive community may mitigate these impacts in the field. Should this be extended, other areas on the reef not previously worked on by recreational divers could see more urchin culling activities on a larger scale, therefore increasing the likelihood of habitat damage.

Note that at the October 2023 notice hearing, the Commission was presented with this third option. After a discussion the Commission directed staff to go to notice with options 1 and 2, only.

No other alternatives have been identified by or brought to the attention of Commission staff to date that would have the same desired regulatory effect.

(b) No Change Alternative

Without the proposed regulation change, unlimited harvest at the two designated areas will no longer be permitted. The recreational bag limit would revert to a daily bag limit of 35 animals per day in Monterey County and a daily bag limit of 40 gallons in Mendocino County. The monitoring and associated data collected on large scale urchin removals from barren reefs would cease, which could hinder management's ability to better understand if this activity is a good tool for future kelp restoration plans for north and central coast reef habitats.

(c) Description of Reasonable Alternatives that Would Lessen Adverse Impact on Small Business

None

V. Mitigation Measures Required by Regulatory Action

The proposed regulatory action will have no negative impact on the environment; therefore, no mitigation measures are needed.

VI. 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 initial determinations relative to the required statutory categories have been made:

(a) Significant Statewide Adverse Economic Impact Directly Affecting Businesses, Including the Ability of California Businesses to Compete with Businesses in Other States

The proposed action will not have a statewide adverse economic impact directly affecting business, including the ability of California businesses to compete with businesses in other states. The proposed action will not introduce compliance costs nor curtail economic activity within the state. The proposal aims to continue an existing exemption for a program run by volunteers that seeks to restore and promote the long-term sustainability of kelp forest communities that are a vital component of recreational and commercial fisheries ecosystems and future marine resource-based economic activity.

(b) Impact on the Creation or Elimination of Jobs Within the State, the Creation of New Businesses or the Elimination of Existing Businesses, or the Expansion of Businesses in California; Benefits of the Regulation to the Health and Welfare of California Residents, Worker Safety, and the State's Environment

The Commission does not anticipate any impacts on the creation or elimination of jobs within the state, the creation of new businesses, the elimination of existing businesses or worker safety. The Commission anticipates generalized benefits to the health and welfare of California residents and benefits to the state's environment. The proposed action continues an existing exemption designed to ensure the long-term sustainability and quality of kelp forest communities by removing a species (sea urchin) that when overpopulated, can have adverse impacts on kelp recruitment and growth. The long-term sustainability of kelp forest communities are a vital component of recreational and commercial fisheries ecosystems and future resource-based economic activity.

(c) Cost Impacts on a Representative Private Person or Business

The Commission is not aware of any cost impacts that a representative or private person or business would necessarily incur in reasonable compliance with the proposed action.

(d) Costs or Savings to State Agencies or Costs/Savings in Federal Funding to the State

No costs or savings to state agencies or impacts to federal funding are anticipated. No change in administration or enforcement costs or savings are anticipated by the Department or other state agencies. Consideration was given to keep administrative and enforcement costs within existing budgets. The Department may experience a continued small increase in license revenue as divers who choose to participate in urchin removal would need to purchase a sportfishing license if they do not already possess one, but the cost of a license is not specifically due to this proposed regulatory change. The requirement to hold a sportfishing license to engage in recreational fishing is established in an existing regulation (pursuant to FGC Section 7145). Sportfishing licenses or 1-Day or 2-Day licenses, etc. are sold at various price points depending on state residence, age, veteran status, disabilities, and other considerations.

(e) Nondiscretionary Costs/Savings to Local Agencies

No nondiscretionary costs or savings to local agencies are anticipated. However, continued positive tax revenue impacts are expected depending on the regulatory option that would be

selected. Recreational urchin diving expenditures in the retail, food and accommodations, automotive service and fuel, outdoor recreational merchandise sales/rent/lease, and recreational services sectors generate local sales and transient occupancy tax for local governments throughout California (See STD399 and Addendum). Overall, if the sunset date is extended in both sites, the continuation of the slightly elevated number of dive visits per year are projected to continue to contribute to local economies in Mendocino and Monterey counties. Only if the sunset for the existing Tanker Reef regulation is not extended could a small reduction in dive visits be expected.

(f) Programs Mandated on Local Agencies or School Districts

None

(g) 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

(h) Effect on Housing Costs

None

VII. Economic Impact Assessment

(a) Effects of the Regulation on the Creation or Elimination of Jobs Within the State

The Commission does not anticipate any adverse impacts on the creation or elimination of jobs, as the proposed regulatory action is not anticipated to substantially increase the number of diver visits, and thus probable diver expenditures in the Mendocino County, Caspar Cove and in the Monterey County, Tanker Reef areas. The proposed extension is designed to further efforts to ensure the long-term sustainability of kelp forest ecosystems that function to ensure the ongoing recreational and commercial fishing and economic activity.

(b) Effects of the Regulation on the Creation of New Businesses or the Elimination of Existing Businesses Within the State

The Commission does not anticipate any impacts on the creation of new businesses or the elimination of existing businesses within the state because the proposed action is for increased recreational sea urchin take that his not likely to involve a substantial consistent increase in the number of diver visits or diver expenditures in the affected Mendocino and Monterey areas. Continuing the restoration program should support the long-term sustainability of the kelp forest ecosystem and the future viability of the marine resources that support fishery-related businesses.

(c) Effects of the Regulation on the Expansion of Businesses Currently Doing Business Within the State

The Commission does not anticipate any impacts on the expansion of businesses currently doing business within the state. Continuing the proposed program to restore the long-term sustainability of kelp forests will lend vital support to a range of fishery-related businesses.

(d) Benefits of the Regulation to the Health and Welfare of California Residents

The Commission anticipates generalized benefits to the health and welfare of California residents.

(e) Benefits of the Regulation to Worker Safety

None. The proposed regulation does not impact working conditions.

(f) Benefits of the Regulation to the State's Environment

The Commission anticipates benefits to the state's environment. It is the policy of the state to ensure "the conservation, sustainable use, and, where feasible, restoration of California's marine living resources for the benefit of all the citizens of the state" (Fish and Game Code subdivision 7050(b)). The proposed regulation will benefit the state's environment by helping to ensure sustainable kelp forests for fishery and ecosystem management.

Informative Digest/Policy Statement Overview

Unless otherwise specified, all section references in this document are to Title 14 of the California Code of Regulations (CCR).

Kelp forms the backbone of many biodiverse subtidal communities along the northern and central California coast. However, its abundance has decreased significantly in northern California and in some parts of central California since 2014, in large part due to the unchecked proliferation of sea urchins. In 2020, the Fish and Game Commission (Commission) amended Section 29.06 to exempt the recreational take of purple sea urchin in Caspar Cove, Mendocino County, and at Tanker Reef, Monterey County, from any take limit until April 1, 2024. The Commission also exempted all recreational take of red sea urchin at Tanker Reef, Monterey, until April 1, 2024. The exemptions were designed to explore the feasibility of kelp restoration through urchin culling from recreational divers, as well as the potential environmental impact from such culling activities.

Since the take limit exemptions first came into effect, culling efforts at Tanker Reef has resulted in the removal of over 600,000 sea urchins, with the restoration area experiencing notable kelp recovery. Culling effort at Caspar Cove, however, faced various challenges due to the remoteness of the site, which were further exacerbated by the ongoing COVID-19 pandemic. As of July 27, 2023, only approximately 130,000 sea urchins have been removed.

The Commission is currently considering extending the sunset date of the exemption at Caspar Cove for another five years until 2029. A five-year extension at Caspar Cove would provide sufficient time to collect additional data to inform the feasibility of urchin removals as a viable tool for kelp recovery. There is enough public interest and support to continue the urchin removals at Caspar Cove to warrant continuing these efforts.

Unlike Caspar Cove, removals and monitoring efforts at Tanker Reef have been continuous and extensive. Sunsetting the exemptions at this location would allow the state to complete monitoring and ultimately incorporating the knowledge into the statewide Kelp Restoration and Management Plan. However, there has been desire from the public to continue the restoration effort. As such, the potential extension for the Tanker Reef exemptions under this proposal includes two options:

1) Allow the existing provision to expire April 1, 2024 as defined in regulation; and
2) Modify the boundaries and continue urchin removals until April 1, 2029.

Benefits of the Proposed Regulation

The proposed amendments to Section 29.06 will provide the state and the public more time to implement and monitor the efficacy of urchin-culling in Caspar Cove. The two options for Tanker Reef would allow the state to complete its assessment of the location and incorporate lessons learned into statewide kelp restoration efforts as soon as possible; extend the current restoration effort; or a combination of both. Urchin culling at both Caspar Cove and Tanker Reef ultimately serve to inform the broader, ongoing kelp restoration effort in California.

Consistency and Compatibility with Existing State Regulations

The Legislature has delegated authority to the Commission to promulgate recreational fishing regulations (Fish and Game Code, sections 200 and 205); no other state agency has the authority to promulgate such regulations. The Commission has reviewed its own regulations and finds that the

proposed regulations are neither inconsistent nor incompatible with existing state regulations. The Commission has searched the CCR for any regulations regarding the adoption of fishing regulations and has concluded that the proposed regulations are neither inconsistent nor incompatible with existing state regulation.

Proposed Regulatory Language

Section 29.06, Title 14 CCR, is amended to read:

Extend sunset date by five years at Caspar Cove only, and allow Tanker Reef to sunset per regulation (Tanker Reef, Option 1)

§29.06. Sea Urchin.

(a) Except as provided in this section, the daily bag limit for sea urchin is 35 individuals for each species.

(b) The daily bag limit for purple sea urchin is forty (40) gallons when taken while skin or SCUBA diving in ocean waters of the following counties: Humboldt, Mendocino, and Sonoma.

(c) There is no possession limit for purple sea urchin.

~~(d) Notwithstanding other parts of this Section and until April 1, 2024:~~

(d) Notwithstanding other parts of this Section and until April 1, 2029: In ocean waters seaward of Caspar Headlands State Beach commonly referred to as Caspar Cove, in Mendocino County, in the area eastward of a straight line connecting points between 39° 22.045' N. lat. 123° 49.462' W. long. and 39° 21.695' N. lat. 123° 49.423' W. long., purple sea urchins may be taken in any number for the purpose of restoring the kelp ecosystem. Purple sea urchins may only be taken by hand or with manually operated hand-held tools.

~~(2) In ocean waters seaward of Fort Ord Dunes State Park commonly referred to as Tanker Reef, in Monterey County, in the area eastward of a straight line connecting points between 36° 36.076' N. lat. 121° 53.225' W. long. and 36° 36.679' N. lat. 121° 53.220' W. long., westward of a straight line connecting points between 36° 36.649' N. lat. 121° 51.594' W. long. and 36° 37.094' N. lat. 121° 51.914' W. long., and shoreward of a straight line connecting points between 36° 36.679' N. lat. 121° 53.220' W. long. and 36° 37.094' N. lat. 121° 51.914' W. long., red sea urchins and purple sea urchins may be taken in any number for the purpose of restoring the kelp ecosystem. Red sea urchins and purple sea urchins may only be taken by hand or with manually operated hand-held tools~~.

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

Extend sunset date by five years at Caspar Cove and a portion of Tanker Reef (Tanker Reef, Option 2)

§29.06. Sea Urchin.

(a) Except as provided in this section, the daily bag limit for sea urchin is 35 individuals for each species.

(b) The daily bag limit for purple sea urchin is forty (40) gallons when taken while skin or SCUBA diving in ocean waters of the following counties: Humboldt, Mendocino, and Sonoma.

(c) There is no possession limit for purple sea urchin.

(d) Notwithstanding other parts of this Section and until ~~April 1, 2024~~ April 1, 2029:

(1) In ocean waters seaward of Caspar Headlands State Beach commonly referred to as Caspar Cove, in Mendocino County, in the area eastward of a straight line connecting points between 39° 22.045' N. lat. 123° 49.462' W. long. and 39° 21.695' N. lat. 123° 49.423' W. long., purple sea urchins may be taken in any number for the purpose of restoring the kelp ecosystem. Purple sea urchins may only be taken by hand or with manually operated hand-held tools.

(2) In ocean waters seaward of Fort Ord Dunes State Park commonly referred to as Tanker Reef, in Monterey County, in the area eastward of a straight line connecting points between 36° 36.~~076'~~ 140' N. lat. 121° ~~53.225~~52.632' W. long. and 36° 36.~~679'~~ 500' N. lat. 121° ~~53.220~~52.794' W. long., westward of a straight line connecting points between 36° 36.~~649'~~ 231' N. lat. 121° ~~51.594~~52.364' W. long. and 36° ~~37.094~~36.500' N. lat. 121° ~~51.914~~52.516' W. long., and shoreward of a straight line connecting points between 36° 36.~~679'~~ 500' N. lat. 121° ~~53.220~~52.794' W. long. and 36° ~~37.094~~36.500' N. lat. 121° ~~51.914~~52.516' W. long., red sea urchins and purple sea urchins may be taken in any number for the purpose of restoring the kelp ecosystem. Red sea urchins and purple sea urchins may only be taken by hand or with manually operated hand-held tools.

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

STATE OF CALIFORNIA — DEPARTMENT OF FINANCE

ECONOMIC AND FISCAL IMPACT STATEMENT
(REGULATIONS AND ORDERS)

STD. 399 (Rev. 10/2019)

ECONOMIC IMPACT STATEMENT

DEPARTMENT NAME	CONTACT PERSON	EMAIL ADDRESS	TELEPHONE NUMBER
Fish and Game Commission	David Thesell	fgc@fgc.ca.gov	916-902-9291

DESCRIPTIVE TITLE FROM NOTICE REGISTER OR FORM 400	NOTICE FILE NUMBER
Amend Sec. 29.06, Title 14, CCR; RE: Recreational Sea Urchin Bag Limit Exemption	Z

A. ESTIMATED PRIVATE SECTOR COST IMPACTS *Include calculations and assumptions in the rulemaking record.*

1. Check the appropriate box(es) below to indicate whether this regulation:

- ☐ a. Impacts business and/or employees
- ☐ b. Impacts small businesses
- ☐ c. Impacts jobs or occupations
- ☐ d. Impacts California competitiveness
- ☐ e. Imposes reporting requirements
- ☐ f. Imposes prescriptive instead of performance
- ☐ g. Impacts individuals
- ☒ h. None of the above (Explain below): No new costs are necessarily incurred in the reasonable compliance with the proposed sunset extension.

If any box in Items 1 a through g is checked, complete this Economic Impact Statement.
If box in Item 1.h. is checked, complete the Fiscal Impact Statement as appropriate.

2. The Fish and Game Commission (Agency/Department) estimates that the economic impact of this regulation (which includes the fiscal impact) is:

- ☒ Below $10 million
- ☐ Between $10 and $25 million
- ☐ Between $25 and $50 million
- ☐ Over $50 million *[If the economic impact is over $50 million, agencies are required to submit a Standardized Regulatory Impact Assessment as specified in Government Code Section 11346.3(c)]*

3. Enter the total number of businesses impacted: 0

Describe the types of businesses (Include nonprofits): See addendum

Enter the number or percentage of total businesses impacted that are small businesses: N/A

4. Enter the number of businesses that will be created: 0 eliminated: 0

Explain: Extension of the sunset date for increased take of purple sea urchins does not impact businesses. See addendum

5. Indicate the geographic extent of impacts:

- ☐ Statewide
- ☒ Local or regional (List areas): Mendocino & Monterey counties, see addendum

6. Enter the number of jobs created: 0 and eliminated: 0

Describe the types of jobs or occupations impacted: N/A, see addendum

7. Will the regulation affect the ability of California businesses to compete with other states by making it more costly to produce goods or services here? ☐ YES ☒ NO

If YES, explain briefly:

STATE OF CALIFORNIA — DEPARTMENT OF FINANCE

ECONOMIC AND FISCAL IMPACT STATEMENT (REGULATIONS AND ORDERS)

STD. 399 (Rev. 10/2019)

ECONOMIC IMPACT STATEMENT (CONTINUED)

B. ESTIMATED COSTS *Include calculations and assumptions in the rulemaking record.*

1. What are the total statewide dollar costs that businesses and individuals may incur to comply with this regulation over its lifetime? $ 0

   a. Initial costs for a small business: $ N/A Annual ongoing costs: $ N/A Years: 1

   b. Initial costs for a typical business: $ N/A Annual ongoing costs: $ N/A Years: 1

   c. Initial costs for an individual: $ N/A Annual ongoing costs: $ N/A Years: 1

   d. Describe other economic costs that may occur: Proposed extension of sunset for current regulation that increased recreational limit for sea urchin take would allow for the continuation of an increase in dive opportunity in affected areas. See addendum.

2. If multiple industries are impacted, enter the share of total costs for each industry: N/A

3. If the regulation imposes reporting requirements, enter the annual costs a typical business may incur to comply with these requirements. *Include the dollar costs to do programming, record keeping, reporting, and other paperwork, whether or not the paperwork must be submitted.* $ N/A

4. Will this regulation directly impact housing costs? ☐ YES ☒ NO

   If YES, enter the annual dollar cost per housing unit: $

   Number of units:

5. Are there comparable Federal regulations? ☐ YES ☒ NO

   Explain the need for State regulation given the existence or absence of Federal regulations: Affected marine resources are within State waters.

   Enter any additional costs to businesses and/or individuals that may be due to State - Federal differences: $ 0

C. ESTIMATED BENEFITS *Estimation of the dollar value of benefits is not specifically required by rulemaking law, but encouraged.*

1. Briefly summarize the benefits of the regulation, which may include among others, the health and welfare of California residents, worker safety and the State's environment: Benefits to the State's environment are anticipated through the restoration of kelp forest habitats to foster and support a diverse balance of species. See addendum.

2. Are the benefits the result of: ☐ specific statutory requirements, or ☒ goals developed by the agency based on broad statutory authority?

   Explain: FGC code section 200 provides the "Commission's Power To Regulate Taking of Fish & Game"

3. What are the total statewide benefits from this regulation over its lifetime? $ potential kelp restoration

4. Briefly describe any expansion of businesses currently doing business within the State of California that would result from this regulation: N/A

D. ALTERNATIVES TO THE REGULATION *Include calculations and assumptions in the rulemaking record. Estimation of the dollar value of benefits is not specifically required by rulemaking law, but encouraged.*

1. List alternatives considered and describe them below. If no alternatives were considered, explain why not: See addendum.

STATE OF CALIFORNIA — DEPARTMENT OF FINANCE

ECONOMIC AND FISCAL IMPACT STATEMENT
(REGULATIONS AND ORDERS)

STD. 399 (Rev. 10/2019)

ECONOMIC IMPACT STATEMENT (CONTINUED)

2. Summarize the total statewide costs and benefits from this regulation and each alternative considered:

Regulation: Benefit: $ +Kelp*+local tax Cost: $ 0**

Alternative 1: Benefit: $ +Kelp*+local tax Cost: $ 0**

Alternative 2: Benefit: $ 0 Cost: $ 0**

3. Briefly discuss any quantification issues that are relevant to a comparison of estimated costs and benefits for this regulation or alternatives: *Difficult to monetize benefits of possible habitat restoration that may be influenced by unknown factors. Local government tax revenue increases. **No new costs. See addendum.

4. Rulemaking law requires agencies to consider performance standards as an alternative, if a regulation mandates the use of specific technologies or equipment, or prescribes specific actions or procedures. Were performance standards considered to lower compliance costs? ☐ YES ☒ NO

Explain: N/A

E. MAJOR REGULATIONS *Include calculations and assumptions in the rulemaking record.*

California Environmental Protection Agency (Cal/EPA) boards, offices and departments are required to submit the following (per Health and Safety Code section 57005). Otherwise, skip to E4.

1. Will the estimated costs of this regulation to California business enterprises **exceed $10 million**? ☐ YES ☒ NO

If YES, complete E2. and E3
If NO, skip to E4

2. Briefly describe each alternative, or combination of alternatives, for which a cost-effectiveness analysis was performed:

Alternative 1:

Alternative 2:

(Attach additional pages for other alternatives)

3. For the regulation, and each alternative just described, enter the estimated total cost and overall cost-effectiveness ratio:

Regulation: Total Cost $ Cost-effectiveness ratio: $

Alternative 1: Total Cost $ Cost-effectiveness ratio: $

Alternative 2: Total Cost $ Cost-effectiveness ratio: $

4. Will the regulation subject to OAL review have an estimated economic impact to business enterprises and individuals located in or doing business in California exceeding $50 million in any 12-month period between the date the major regulation is estimated to be filed with the Secretary of State through12 months after the major regulation is estimated to be fully implemented?

☐ YES ☒ NO

If YES, agencies are required to submit a Standardized Regulatory Impact Assessment (SRIA) as specified in Government Code Section 11346.3(c) and to include the SRIA in the Initial Statement of Reasons.

5. Briefly describe the following:

The increase or decrease of investment in the State: Proposed regulation will not impact investment incentives in the State.

The incentive for innovation in products, materials or processes: Proposed regulation will not impact investment incentives in the State.

The benefits of the regulations, including, but not limited to, benefits to the health, safety, and welfare of California residents, worker safety, and the state's environment and quality of life, among any other benefits identified by the agency: Benefits to the State's environment provided through restoration of kelp forest habitat that fosters and supports diverse species.

STATE OF CALIFORNIA — DEPARTMENT OF FINANCE

ECONOMIC AND FISCAL IMPACT STATEMENT

(REGULATIONS AND ORDERS)

STD. 399 (Rev. 10/2019)

FISCAL IMPACT STATEMENT

A. FISCAL EFFECT ON LOCAL GOVERNMENT *Indicate appropriate boxes 1 through 6 and attach calculations and assumptions of fiscal impact for the current year and two subsequent Fiscal Years.*

☐ 1. Additional expenditures in the current State Fiscal Year which are reimbursable by the State. (Approximate)
(Pursuant to Section 6 of Article XIII B of the California Constitution and Sections 17500 et seq. of the Government Code).

$ _____

☐ a. Funding provided in _____

Budget Act of _____ or Chapter _____ , Statutes of _____

☐ b. Funding will be requested in the Governor's Budget Act of _____

Fiscal Year: _____

☐ 2. Additional expenditures in the current State Fiscal Year which are NOT reimbursable by the State. (Approximate)
(Pursuant to Section 6 of Article XIII B of the California Constitution and Sections 17500 et seq. of the Government Code).

$ _____

Check reason(s) this regulation is not reimbursable and provide the appropriate information:

☐ a. Implements the Federal mandate contained in _____

☐ b. Implements the court mandate set forth by the _____ Court.

Case of: _____ vs. _____

☐ c. Implements a mandate of the people of this State expressed in their approval of Proposition No. _____

Date of Election: _____

☐ d. Issued only in response to a specific request from affected local entity(s).

Local entity(s) affected: _____

_____

☐ e. Will be fully financed from the fees, revenue, etc. from: _____

Authorized by Section: _____ of the _____ Code;

☐ f. Provides for savings to each affected unit of local government which will, at a minimum, offset any additional costs to each;

☐ g. Creates, eliminates, or changes the penalty for a new crime or infraction contained in _____

☐ 3. Annual Savings. (approximate)

$ _____

☐ 4. No additional costs or savings. This regulation makes only technical, non-substantive or clarifying changes to current law regulations.

☐ 5. No fiscal impact exists. This regulation does not affect any local entity or program.

☒ 6. Other. Explain Allows elevated # of diver visits to continue to contribute to local sales tax (est. $27K), and to TOT tax (est. $825) received by governments in the affected coastal areas; and possibly other areas enroute. See Addendum.

STATE OF CALIFORNIA — DEPARTMENT OF FINANCE

ECONOMIC AND FISCAL IMPACT STATEMENT (REGULATIONS AND ORDERS)

STD. 399 (Rev. 10/2019)

FISCAL IMPACT STATEMENT (CONTINUED)

B. FISCAL EFFECT ON STATE GOVERNMENT *Indicate appropriate boxes 1 through 4 and attach calculations and assumptions of fiscal impact for the current year and two subsequent Fiscal Years.*

☐ 1. Additional expenditures in the current State Fiscal Year. (Approximate)

$ _____

It is anticipated that State agencies will:

☐ a. Absorb these additional costs within their existing budgets and resources.

☐ b. Increase the currently authorized budget level for the _____ Fiscal Year

☐ 2. Savings in the current State Fiscal Year. (Approximate)

$ _____

☒ 3. No fiscal impact exists. This regulation does not affect any State agency or program.

☐ 4. Other. Explain _____

_____

C. FISCAL EFFECT ON FEDERAL FUNDING OF STATE PROGRAMS *Indicate appropriate boxes 1 through 4 and attach calculations and assumptions of fiscal impact for the current year and two subsequent Fiscal Years.*

☐ 1. Additional expenditures in the current State Fiscal Year. (Approximate)

$ _____

☐ 2. Savings in the current State Fiscal Year. (Approximate)

$ _____

☒ 3. No fiscal impact exists. This regulation does not affect any federally funded State agency or program.

☐ 4. Other. Explain _____

_____

FISCAL OFFICER SIGNATURE	DATE
DocuSigned by: Dan Reagan 0558B791E2D347D...	11/21/2023

The signature attests that the agency has completed the STD. 399 according to the instructions in SAM sections 6601-6616, and understands the impacts of the proposed rulemaking. State boards, offices, or departments not under an Agency Secretary must have the form signed by the highest ranking official in the organization.

AGENCY SECRETARY	DATE
Melissa A. Miller-Henson Bryan Cash 11/27/2023	11/21/2023

Finance approval and signature is required when SAM sections 6601-6616 require completion of Fiscal Impact Statement in the STD. 399.

DEPARTMENT OF FINANCE PROGRAM BUDGET MANAGER	DATE

Addendum to STD. 399: Economic and Fiscal Impact Statement
Amend Section 29.06,
Title 14, California Code of Regulations
Regarding Recreational Sea Urchin Bag Limit Exemption

This regulatory proposal would amend Section 29.06 to extend the sunset date by five years at Caspar Cove in Mendocino County (to 2029) to allow the continued evaluation of whether *in situ* urchin removals by recreational divers can serve as a potential bull kelp restoration tool. This proposal also includes two options for Tanker Reef in Monterey County which include 1) allowing the existing provision to expire April 1, 2024; and 2) modifying the boundary areas and reducing the footprint where unlimited urchin removals are permitted for an additional five years (sunset in 2029).

The project aims to help ensure the long-term sustainability and quality of the kelp forest ecosystem in Central and Northern California, as well as the coastal economies that rely on productive kelp forest ecosystems.

Affected Parties

The proposed regulations would affect dive opportunity in specific areas of the state, directly affecting an unknown number of recreational urchin divers and other individuals interested in helping to restore kelp forest habitats.

Indirectly Affected Parties

The proposed action would extend the sunset date of an existing exemption on sea urchin recreational take limits in Caspar Cove. Additionally, two options for the Tanker Reef test site are being considered: (1) No action, letting the current regulations sunset on April 1, 2024, or (2) extend the sunset date for the regulation in a portion of the current area of Tanker Reef test site. The extensions of the regulations in both areas will likely result in the continuation of the elevated number of visits to the dive sites (under the existing regulation) by recreational urchin divers, shore support, and other travel companions who may purchase fuel, food, or lodging from local businesses. If Option 1 is chosen, increased take at Casper Cove would be extended and the normal take allowance at Tanker Reef would resume. Dive visits may return to pre-exemption levels at Tanker Reef or remain slightly higher, even with the lower daily bag limit back in place.

Sportfishing-Related Business Impacts

If there is a continued exemption of the bag limit in Caspar Cove and/or for a portion of Tanker Reef, businesses that support sportfishing activities would be indirectly affected through the continued small increase in diver spending for goods and services in route to and within various fishery locales. Such businesses include diving and fishing equipment and supply stores, motels, campgrounds, restaurants, convenience and grocery stores, and fuel stations. These types of businesses fall into the North American Industrial Classification Code System (NAICS) codes for Retail, Food and Accommodations, and Hunting and Fishing. Many (~80%) of the indirectly affected parties are likely small businesses per California Government Code Article 2, Section 11342.610.

Commercial Red Sea Urchin Fishery Impacts

The proposed action may increase the recreational take of red sea urchin. Red sea urchins are a commercial target species; however, red sea urchin have not been commercially landed in Monterey Area ports since a small 176-pound landing in 2015, and there has been no recorded commercial harvest in Caspar Cove. Additionally, stressed red sea urchin (as have been observed in Tanker Reef) have reduced commercial value due to tissue deterioration. These factors support the expectation of no adverse impact to the commercial red sea urchin fishery from the proposed regulatory options.

Expected Effort: Caspar Cove

Events at Caspar Cove, organized by various non-profits prior to the 2021 effective date, drew between 30 and 100 divers and shore support crew. Individuals may also dive on their own or in smaller groups than in the organized urchin removal efforts. Caspar Cove urchin dive efforts data show that from 2021 to 2023, 241 dives have been reported by 110 unique divers; the extension of the sunset date into 2029 is anticipated to result in similar rates of participation.

If the sunset date is extended to 2029, the slightly elevated number of dive visits per year is expected to continue, contributing to the local economy in Mendocino County.

Expected Effort: Tanker Reef

Data for the Tanker Reef location show a pattern in which the number of divers and dive days were higher in the first two years of the program and lower in 2023.

Table 1. Tanker Reef Urchin Dive Activity 2021-2023

Year	Median Travel Distance	Dive Days	Divers
2021	59.4	282	72
2022	64.9	412	110
2023	57.4	106	50
Annual Average	61	267	77

Source: Giant Giant Kelp Restoration Project, 2023.

The proposed extension (to 2029, Option 2) is anticipated to allow for the continued positive economic impacts to businesses that serve ocean divers and other visitors drawn to the vicinity to provide shore support. If either the extension of the existing Tanker Reef area or a truncated zone is adopted, an anticipated 50 to 75 individuals are projected to continue to engage in recreational urchin diving, provide support from shore, or visit the area as travel companions.

If the Tanker Reef regulations are allowed to sunset in 2024 (Option 1), the area may lose the current economic stimulus[1] provided by the continued 50 to 77 visitors drawn into the area for urchin diving by the higher bag limit. However, the number of dive visits may persist at higher

[1] The more remote areas where sea urchin dive areas are located have much smaller multipliers for total economic impact because spending "leaks" out of the area as businesses and individuals purchase inputs that are not produced locally.

than pre-exemption levels as some divers may continue to pursue urchins even with the lower daily bag limit.

Explanation of Responses in STD. 399: Economic Impact Statement

Section A. Estimated Private Sector Cost Impacts

1. Answer: h. The proposed rulemaking introduces no new costs that a representative private person or business would necessarily incur in reasonable compliance with the proposed regulations.

   For those who choose to urchin dive, other discretionary costs may involve expenditures on purchases or rentals of wetsuits, SCUBA tanks and oxygen refills, fuel, food, and accommodations. The most common methods used are SCUBA diving and free diving, which may support the continued small increase in local spending on diving equipment rentals and/or purchases. Additionally, these recreational urchin divers are often accompanied by shore support and other friends and family, who are also likely to spend locally on fuel, food, and accommodations for those who travel larger distances.

2. The Commission estimates that the economic and fiscal impact of this regulation is well below $10 million. For there to be a $10 million change in direct expenditures, approximately 100,000 additional diver visits per year would be needed; participation levels to date in urchin removal at affected areas do not support an expectation of that level of additional participation.

3. The total number of businesses indirectly impacted is difficult to specify because the proposed regulations apply specifically to individuals who may choose to recreationally dive for sea urchins. Those individuals may then engage various sportfish and travel-related businesses for goods and services; in that way, businesses are indirectly impacted by the regulation to the extent that the regulation alters diver spending choices. Some of the businesses that support sportfishing such as: fishing equipment and supply stores; hotels and campgrounds; restaurants; convenience and grocery stores; and gas stations could continue to see small increases in revenues.

4. The Commission does not anticipate any businesses will be created or eliminated within the state because the proposed action is not likely to cause a substantial, consistent increase in number of diver visits or diver expenditures in the affected areas. The proposed revisions are anticipated to result in somewhere between no change to a possible small increase in diving trips to the affected areas of the state throughout the year.

5. The geographic extent of potential economic impacts would be focused within Mendocino and Monterey counties. Although urchin diving is concentrated more in coastal areas of these counties, divers may drive from all over the state (and out of state) to engage in recreational urchin diving, and their expenditures along the way between origin and destination provide some economic impact to businesses and governments along the way.

6. The Commission does not anticipate the creation or elimination of jobs, as the proposed regulatory action is not anticipated to substantially increase the number of diver visits, and thus probable diver expenditures in the Caspar Cove and in the Tanker Reef areas.

7. The regulation will not affect the ability of California businesses to compete with other states by making it more costly to produce goods or services here because the proposed regulation would not affect commercial harvest or compliance costs for businesses.

Section B. Estimated Costs

1. *What are the total statewide dollar costs that businesses and individuals may incur to comply with this regulation over its lifetime?* $0

   The proposed regulation does not impose new costs for compliance on businesses or individuals. No new compliance costs are associated with the proposed extension of the increased bag and possession limits.

   Answer d. Other Economic Costs: Divers who choose to participate in urchin removal would need to purchase a sportfishing license if they do not already possess one, but the cost of a license is not specifically due to this regulatory change. The requirement to hold a sportfishing license to engage in sportfishing is established in an existing regulation (Fish and Game Code Section 7145). Expenditures on purchases or rentals of wetsuits, SCUBA tanks and oxygen refills, fuel, food, and accommodations are some of the types of spending that may continue to be slightly elevated due to the proposed sunset extensions.

Section C. Estimated Benefits

1. *Briefly summarize the benefits of the regulation.*

The Commission anticipates benefits to the State's environment by contributing to the restoration of vital kelp forest ecosystems that support sustainable fisheries and the businesses that serve recreational and commercial marine activities.

Section D. Alternatives to the Regulation

D.1. List alternatives considered

Alternative 1: *Extend Sunset Date for Casper Cove and Tanker Reef*

The Department considered an option to extend the sunset dates for both Casper Cove and Tanker Reef for five years (until 2029) to allow ongoing urchin removals. However, if the sunset provision at Tanker Reef is extended, post-restoration monitoring would be delayed. Post-restoration monitoring is needed to inform kelp forest resource management. Continuation of urchin culling within the entirety of the existing regulatory boundary at Tanker Reef limits the assessment of the effort, due to an inability to ensure the existing "cleared" quadrant would not be impacted by continual culling by recreational divers.

Alternative 2: *No Change – Allow Current Regulations to Sunset*

Without the proposed regulation change, unlimited harvest at the two designated areas would no longer be permitted. The recreational bag limit would revert to a daily bag limit of 35 urchins per day in Monterey County and a daily bag limit of 40 gallons in Mendocino County. The monitoring and associated data collected on large scale urchin removals from barren reefs would cease which could hinder the ability to better understand if this activity is a good tool for future kelp restoration plans for north and central coast reef habitats.

D.*2. Summarize the total statewide costs and benefits from this regulation and each alternative considered.*

Alternatives	Benefit*	Cost**
Regulation (contains two options)	*Ecosystem services + ~$28K in Local tax revenue	0**
Alternative 1 – Extensions for Both Areas	*Ecosystem services + ~$28K in Local tax revenue	0**
Alternative 2 – Allow Sunset	0	0**

*Benefits: Kelp forest restoration ecosystem services are not market traded and the effectiveness of the culling effort may be influenced by many unknown factors outside of this regulation's reach. The regulation is anticipated to have greater benefits than Alternative 1 as it is expected to better refine and advance kelp forest restoration methodologies. Other benefits include increased transient occupancy tax (TOT) and sales tax revenue for local governments. See Fiscal Impact section below for local tax detail.

**Costs: There are no new costs necessarily incurred in reasonable compliance with the extension of increased sea urchin bag limits or the modification of boundaries in one of the kelp restoration sites.

3. Briefly discuss any quantification issues that are relevant to a comparison of estimated costs and benefits for this regulation or alternatives:

The benefits of the intended kelp forest restoration are difficult to monetize because the ecosystem services are not market traded and the effectiveness of the culling effort may be influenced by many unknown factors outside of this regulation's reach. Kelp forests provide essential services for several fisheries as sheltered habitats for juvenile and other fish that furthers recreational and commercial marine resource-based activities.

It could be noted that some of the value of the culling effort is revealed by considering the costs that volunteers undertake to dive for urchins to aid kelp forest restoration. The costs that volunteer divers absorb indicate a "willingness-to-pay" for kelp restoration. Divers reportedly spend about $150 to $300 in start-up costs: diving classes; diver certification; licenses; and dive gear and tools (purchased or rented). The daily costs for: air and nitrox fills; gas; food; and accommodations may average around $90 to $125 (as many divers camp or stay with friends

to avoid hotel expenses). This provides a partial glimpse into the value of kelp restoration projects to state residents.

Explanation of Responses in STD. 399: Fiscal Impact Statement

The proposed regulation is anticipated to have no additional fiscal impact on local government and state government, and no impact on federal funding of state programs. Fiscal impacts are driven by impacts on the spending patterns of individuals and businesses. Spending on various goods and services could be reflected in fiscal impacts by way of local and state taxes, revenue changes for state agencies, and federal funding to the state.

A. Fiscal Effect on Local Government

Answer: 6. Other.

No local government fiscal impact is expected because the proposed regulation (Option 1 or Option 2) would not necessitate additional expenditures, costs, or savings for local entities or programs. Other positive local government revenue impacts are projected.

If the extension for both areas (Option 2) is adopted, the area TOT and local sales tax revenue impacts, are projected to continue as under current (the bag limit exemption) regulation. If the exemption is extended only in Caspar Cove (Option 1), the local government revenue impacts in the Tanker Reef area are projected to level off to pre-exemption levels or persist at slightly elevated levels above historic levels, while the revenue impacts in the Caspar Cove area would continue.

Local Sales Tax – Recreational urchin diving expenditures in the retail, food and accommodations, automotive service and fuel, outdoor recreational merchandise sales/rent/lease, and recreational services sectors generate local sales and transient occupancy tax for local governments throughout California. The California Department of Tax and Fee Administration (CDTFA) reports local sales tax rates for all cities and counties in California. Local sales tax rates vary across cities and counties. The impact is expected to be neutral, however there is a potential for the continued small increase in visitor spending due to urchin diver visits and overnight stays to continue to support local sales tax revenues. If the same 100 divers and 25 travel companions made 166 visits to the affected areas of the state and spent $100 per day (an estimate that includes daily expenditures during travel such as gas and food; and at the dive site such as equipment rentals, air and nitrox refills, and overnight lodging (~1/3 of divers), then the average local sales tax (1.25%) impact could amount to about $27,000 across the affected areas.

Transient Occupancy Tax – No change because this is a proposed extension of an existing regulation. Sport diver surveys reveal that those who travel a greater distance to a fishery area are more likely to choose to stay overnight in the area. Those who live in the closest proximity to fishery sites and those who fish in the earliest hours of the day show a lower likelihood of staying overnight. State or federal campgrounds do not collect TOT; however, overnight stays are often at private campgrounds, motels, and hotels, all of which collect TOT. County treasurer tax collectors report the TOTs, with rates in cities and counties ranging from 8% to 12%. Counties and cities located in tourism-dominated areas may rely quite a bit on TOT revenues for their general funds. If the proposed extension supports the continued elevated

number of visits (~166) by divers and their travel companions to the affected areas of the state and one third or 55 visits include an overnight stay at least one day, then the average TOT tax (10.0%) impact could amount to about $825 within Mendocino and Monterey Counties.

B. Fiscal Effect on State Government

Answer: 3. No fiscal impact exists. This regulation does not affect any State agency or program.

State Tax Revenue: The proposed regulation is not anticipated to induce any change in the typical quantity of state sales tax generated by recreational urchin diving. Typically, a dive visit brings about $100 per day to the affected areas of the state. If the proposed extension serves to perpetuate the average number (~166) of dive visits from 2021-23 , then the state sales tax (currently 7.25%) impact could amount to about $120,350 each year of the extended sunset. However, it must be noted that those same individuals may spend those funds in other areas of the state, leaving total state tax revenue unchanged.

State Agency Revenue: No change in administration or enforcement costs are anticipated by the Commission, Department or other state agencies. Administrative and enforcement costs will remain within existing budgets. Additionally, the proposed sunset extensions are not anticipated to change the existing regulation's probable small impact on the Department's sportfishing license revenue. Some of the urchin divers may already regularly purchase licenses while others may have been and may continue to be spurred by the increased urchin bag limit. If a generous expectation of 100 new entrants to sportfishing, purchased a Resident Annual Sportfishing License at $58.58 each, then CDFW could receive $5,858 in additional license sales revenue. It is likely that some of those new entrants would purchase a 1-Day ($19.18) or 2-Day ($29.42) license rather than a full-priced annual license, which would partially decrease the amount of revenue received. However, the proposed sunset extensions are anticipated to essentially introduce no change to the Department's license revenue.

C. Fiscal Effect on Federal Funding of State Programs

Answer: 3. No fiscal impact exists.

This regulation does not affect any federally-funded State agency or program. No impacts are projected to federal grant funding to Department or any other state agency.

State of California
Department of Fish and Wildlife

Signed original on file, received January 31, 2024

Memorandum

Date: February 1, 2024

To: Melissa Miller-Henson
Executive Director
Fish and Game Commission

From: Charlton H. Bonham
Director

Subject: **Submission of Pre-Adoption Statement of Reasons for February 14, 2024, Fish and Game Commission Meeting Agenda Item Re: Recreational Sea Urchin Bag Limits at Caspar Cove and Tanker Reef**

The Department of Fish and Wildlife (Department) has prepared this memorandum to summarize and provide responses to public comment received by the Fish and Game Commission (Commission) on the proposed amendments to subsection 29.06, Title 14, California Code of Regulations. The proposed amendments included two options for the Commission to consider. Option 1 would extend the sunset date for Caspar Cove for another five years as described in subsection 29.06(d)(1), while the exemption at Tanker Reef would sunset on April 1, 2024 as intended and described in subsection 29.06(d)(2). Option 2 would also extend Caspar Cove another five years while also extending the sunset date another five years for Tanker Reef, although with modified boundaries decreasing the footprint of the area. The Department has received several comments to date, with responses included in Attachment 1. The Department is not recommending any further amendments to the regulatory text based on comments received.

The Department recommends Option 1; adopting the proposed amendment to subsection 29.06(d)(1) and not amending subsection 29.06(d)(2). Additional rationale to support this recommendation will be provided at the Commission's February 14, 2024 meeting.

If you have any questions on this item, please contact Brian Owens, Senior Environmental Scientist Supervisor, at (562) 370-4770.

Enclosure: Attachment 1 (Responses to Comment)

ec: Chad Dibble, Deputy Director
Wildlife and Fisheries Division

Dr. Craig Shuman, Regional Manager
Marine Region

Eric Kord, Assistant Chief
Law Enforcement Division

Joanna Grebel, Env. Program Manager
Marine Region

Kirsten Ramey, Env. Program Manager
Marine Region

Brian Owens, Sr. Env. Scientist Supervisor
Marine Region

Dr. Kristen Elsmore, Sr. Env. Scientist Specialist
Marine Region

Ona Alminas, Env. Program Manager
Regulations Unit

Susan Ashcraft, Marine Adviser
Fish and Game Commission

David Thesell, Program Manager
Fish and Game Commission

Jennifer Bacon, Analyst
Fish and Game Commission

Attachment 1 – 29.06 Urchin Pre-adopt Responses to Comments

Public comment responses to recreational sea urchin bag limits amendments for Caspar Cove and Tanker Reef.

#	Name, Format, Date	Public Comment	CDFW Response
1	Michael Diamond, Written, 11/30/2023	I'm writing to express my strong support for "option 3" to allow the ongoing restoration work at this site to proceed. The commission should not allow their prior efforts to be in vain, nor create unnecessary obstacles going forward, which will discourage participation and harm the project and by extension Monterey Bay. Please don't take for granted this unique group and their desire to continue making a positive impact on California's coast.	The Commission has two options to choose from and may decide to amend the regulations to include a smaller footprint at Tanker Reef for another five years. The Department also recognizes and appreciates the significant effort that has taken place by the recreational dive community to reduce grazing pressure by urchins at Tanker Reef.
2a	Chuck Pugh, Written, 12/03/2023	I urge you to extend the limits of the proposed language westward as the urchin barrens have hit areas of what used to be dense kelp westerly to beyond Lovers Point in Pacific Grove (generally 36° 37.620'N, 121° 54.925'W)	Much of the Monterey Peninsula coastline is protected by a network of Marine Protected Areas, including Lovers Point. This rulemaking does not consider recreational urchin harvest in MPAs. Future petitions to consider recreational urchin harvesting in the MPAs may be submitted to the Fish and Game Commission.
2b	Chuck Pugh, Written, 12/03/2023	Tanker Reef is an isolated reef within sandy habitat and shale beds which are not conducive to kelp beds and kelp growth. If areas are to be considered for kelp forest preservation and urchin harvest it should be in areas that allow for kelp growth and attachment to substrate.	Comment noted. The State is currently developing a Kelp Restoration and Management Plan (KRMP), which will include a cohesive kelp management strategy for bull kelp and giant kelp in California. A key component of the KRMP will be a restoration toolkit that will address identifying areas of the coastline most suitable for kelp restoration. To learn more about the KRMP development process, including ways to engage and share perspectives and priorities regarding California's kelp resources, please visit https://wildlife.ca.gov/Conservation/Marine/Kelp/KRMP and reach out to kelp@wildlife.ca.gov with any questions.
3	Keith Rootsaert, GGKP, Oral Comment, 12/14/2023	Founder of the Giant Giant Kelp Restoration Project, in favor of keeping Tanker Reef open to urchin removals. Provided a presentation explaining that his group has moved to a different site of the reef in anticipation of the modified boundary option being selected by the Commission. He explained that when they stop culling urchins they come back and continue to eat away at the kelp.	The Commission has two options to choose from and will take this comment into consideration during their decision. The Department also recognizes and appreciates all the effort that has taken place by the recreational dive community to reduce grazing pressure by urchins at Tanker Reef.

Attachment 1

Public comment responses to incidental take authorization for work on pre-existing artificial structures within marine protected areas (MPAs).

#	Name, Format, Date	Public Comment	CDFW Response
4	Dr. Steve Lohnhart, MBNMS, Oral Comment, 12/14/2023	Presented results on a study demonstrating the potential impacts to habitat and organisms from the hammers used to cull urchins. He showed various degrees of damage depending on the organism but concluded in most cases hammering causes damage to the reef and organisms.	The study carried out by the Monterey Bay National Marine Sanctuary and Department staff is valuable and will help inform future decisions by the Commission regarding habitat impacts from urchin culling activities. Findings from this study will help inform considerations for the Kelp Restoration and Management Plan, particularly regarding the kelp restoration toolkit.
5	Annie Bauer-Civiello, Reef Check, Oral Comment, 12/14/2023	She has been involved with Tanker and Caspar projects since the beginning. Keith's group is a citizen science organization. Reef Check has put significant resources towards this project, including time and materials. We conducted twelve surveys at Tanker Reef (fish, invert, substrate, and kelp). 28 volunteers have put their time into this project. This project is supported by private funding and with CDFW vessel support. At Caspar, we have longer term monitoring. Tanker is not just an experiment but there's a lot of effort put into this that I want you to consider.	The Commission has two options to choose from and will take this comment into consideration during their decision. The Department also recognizes and appreciates all the effort that has taken place by the recreational dive community to reduce grazing pressure by urchins at Tanker Reef, as well as the monitoring and site maintenance effort that Reef Check has contributed to the project. The Department also recognizes and appreciates the monitoring effort that Reef Check has contributed at Caspar Cove.
6	Josh Russo, Waterman's Alliance, Oral 12/14/2023	Caspar Project- we see new involvement by volunteers. We have new partnerships to help promote the project. Humboldt State will help on the north side of the project. Been talking to the volunteers from Monterey to get them up to Caspar. Thanks to the Commission for their interest.	Caspar Cove is included as an extension of the sunset date in both options and unless the Commission does not take any action, this area is likely to be extended for another five years. The support is appreciated.
7	Carlotto Miotto, Graduate Student SCRIPPS, Oral, 12/14/2023	I'm in favor of extending the take of sea urchins to support kelp forest ecosystems. Kelp forest ecosystems are important, and many organisms depend on it. Sea urchin control is effective to restore kelp forest. As soon as sea urchin control is stopped then they return and cause more damage unless their predators are restored. Two preferred strategies in the studies are shown to be effective- urchin removal and kelp transplants.	The Commission has two options to choose from and will consider this comment during their decision. The Department appreciates the background information shared by this commentor.

Attachment 1

Public comment responses to incidental take authorization for work on pre-existing artificial structures within marine protected areas (MPAs).

#	Name, Format, Date	Public Comment	CDFW Response
8	Tristin McHugh, The Nature Conservancy, Oral Comment, 12/14/2023	Working on Caspar Cove. We support extending the sunset date at Caspar Cove to allow more time to see the program through. Thank you for exploring this opportunity.	Caspar Cove is included in both options and unless the Commission does not take any action, this area is likely to be extended for another five years. The support is appreciated.

PROPOSED: AMEND SECTION 29.06 TITLE 14, CALIFORNIA CODE OF REGULATIONS

Re: Recreational Sea Urchin Harvest at Caspar Cove and Tanker Reef

PRESENTED BY:

Brian Owens

Senior Environmental Scientist, Supervisor
Northern Invertebrate Fisheries Project
California Department of Fish and Wildlife

February 14, 2024

All images CDFW

Overview

- Background
- Proposed Amendments for Caspar Cove and Tanker Reef
- Department Recommendation

PC: CDFW

Background

- 2014-2016 environmental factors significantly impacted kelp forests in northern and central California

- 2020, bag limits temporarily removed for Caspar Cove and Tanker Reef; sunset April 1, 2024 (Title 14, 29.06)

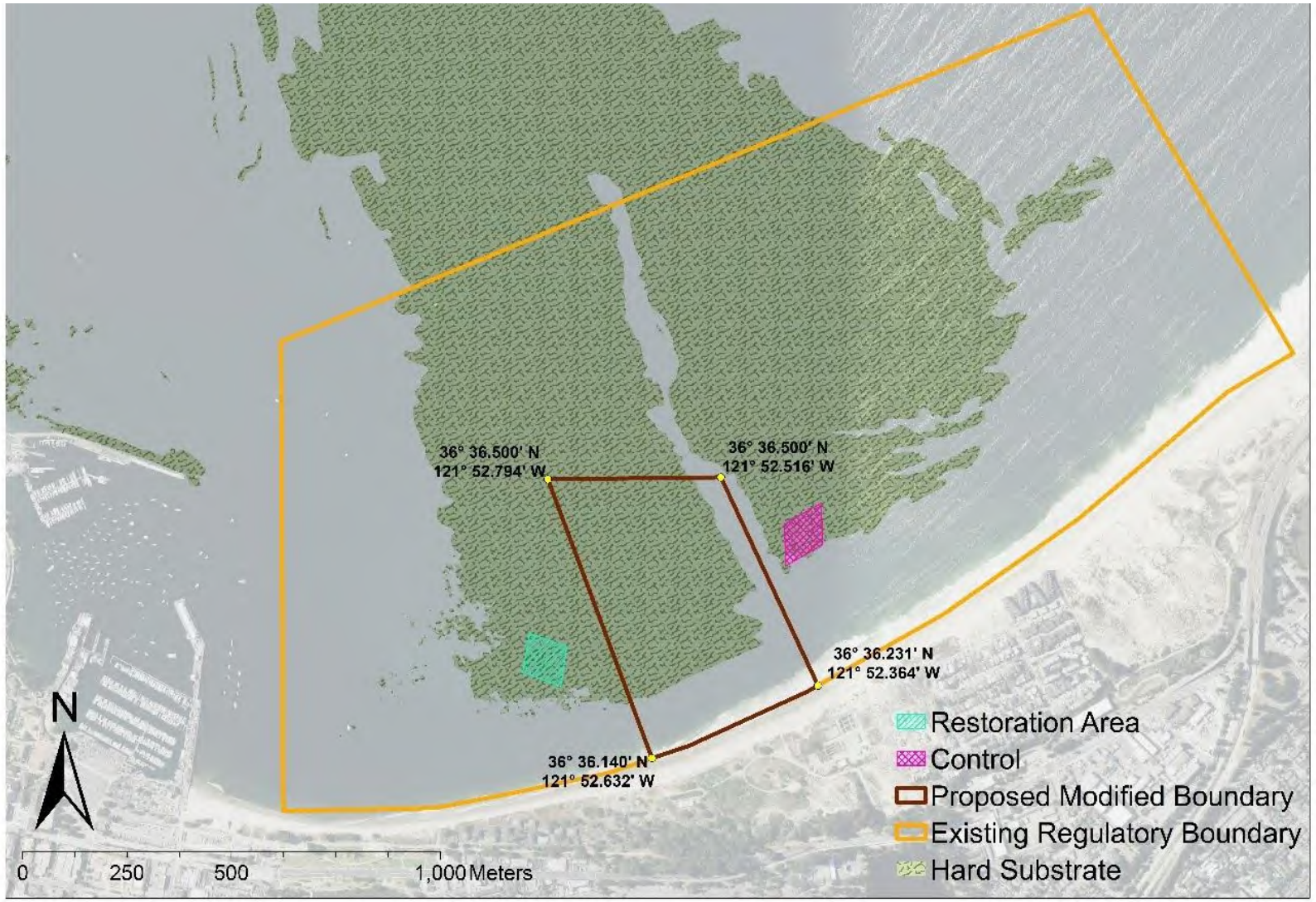
- Investigating a new potential tool for bull kelp and giant kelp restoration

Activities to Date

- Several kelp research and restoration projects implemented across the state; (Report to MRC, CDFW 2023)
- Preliminary results for efforts at Tanker Reef available (Report to MRC, CDFW, 2023)
- Initiated development of Kelp Restoration and Management Plan (KRMP)


PC: CDFW

Proposed Modified Boundary at Tanker Reef (Option 2) Through April 1, 2029



- Modified boundary developed by petitioner
- Boundary may be modified by Commissioners

Proposed Amendments to 29.06

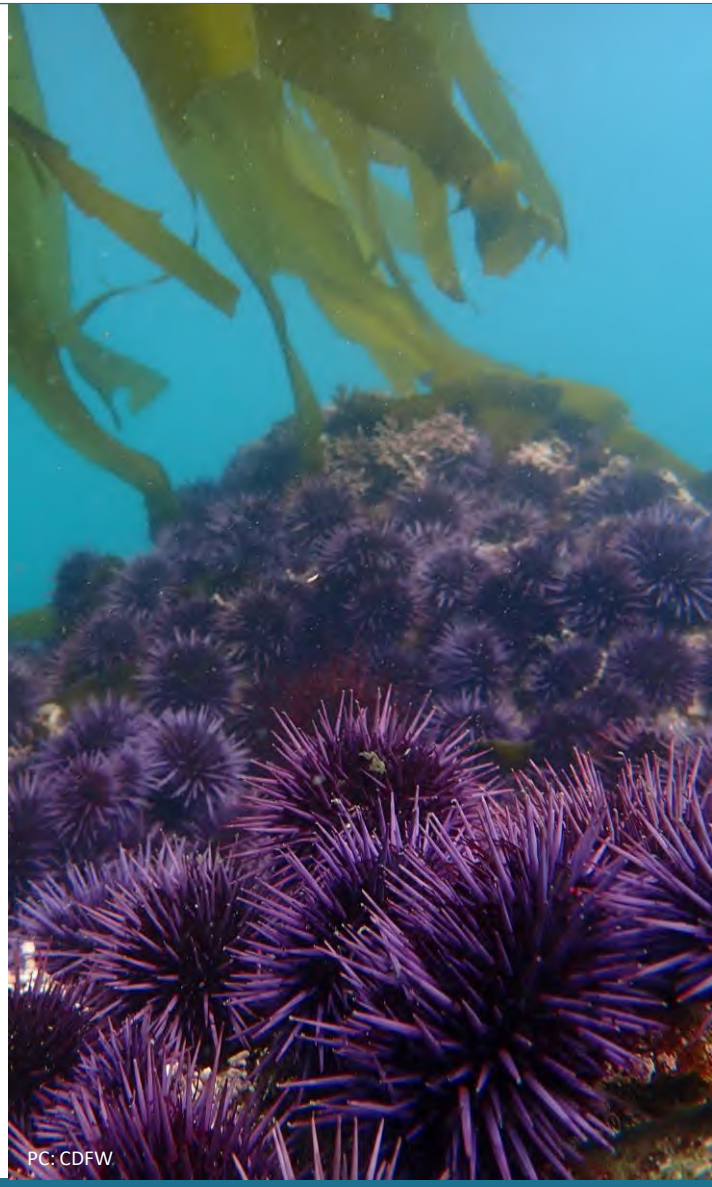
The Commission moved two options forward at the October 2023 meeting:

1. Extend Caspar Cove another five years (2029) and allow existing provision to expire for Tanker Reef on April 1, 2024, as defined in regulation
2. Extend Caspar Cove another five years (2029) and extend Tanker Reef sunset date for a portion of existing boundaries only for five years (2029)


PC: CDFW

Department Recommendation

- Option 1: Extend Caspar Cove another five years (2029) and allow existing provision to expire for Tanker Reef on April 1, 2024, as defined in regulation


PC: CDFW

Pathway for Continued Engagement

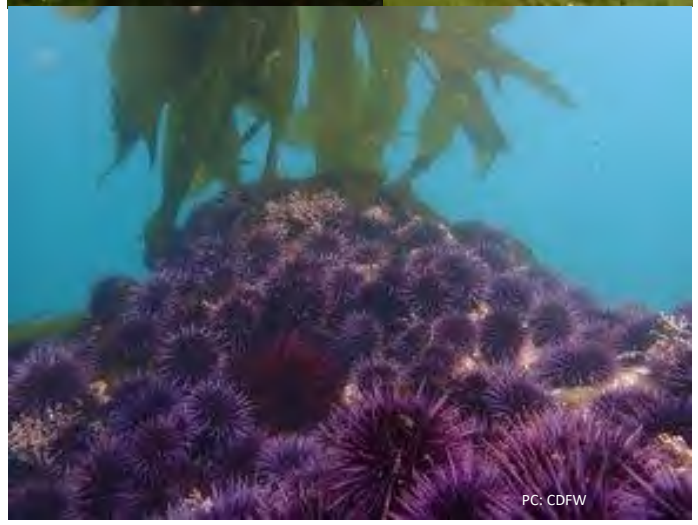
The Department has identified an alternate mechanism for continued engagement via the Scientific Colleting Permit Program that would:

- Enable continued experimentation
- Enable participation of volunteer divers
- Prioritize post-restoration monitoring
- Support sustainable engagement with the Department and project partners


PC: CDFW

Thank you

CALIFORNIA
DEPARTMENT OF
FISH &
WILDLIFE



Memorandum

Date: January 30, 2024

To: Melissa Miller-Henson
Executive Director
Fish and Game Commission

From: Jenn Eckerle, Executive Director
California Ocean Protection Council

Dr. Craig Shuman, Marine Regional Manager
California Department of Fish and Wildlife

Dr. Lisa Wooninck, Superintendent
Monterey Bay National Marine Sanctuary

Subject: **Joint Agency Comments and Recommendation to Amend Section 29.06, Title 14, California Code of Regulations, Re: Recreational take of sea urchins at Tanker Reef.**

The Fish and Game Commission (Commission) authorized publication of its notice of its intent to amend subsection 29.06(d)(1) and (2) of Title 14, California Code of Regulations at its October 12, 2023, meeting regarding recreational take of sea urchins. Current recreational urchin regulations specify bag and possession limits and methods of harvest for purple sea urchins. Subsection (d) provides temporary exemptions to allow unlimited recreational take of purple sea urchins in Caspar Cove, Mendocino County, and at Tanker Reef, Monterey County, as well as red sea urchins at Tanker Reef, Monterey County, until April 1, 2024.

The proposed rulemaking includes two options for Commission consideration. The first option would extend the sunset date for Caspar Cove for another five years as described in subsection 29.06(d)(1) and allow the exemption at Tanker Reef to sunset on April 1, 2024. The second option would extend the sunset date for Caspar Cove for another five years and extend the sunset date for Tanker Reef for all or a portion of the existing boundaries for another five years as described in subsection 29.06(d)(2).

This joint memo addresses urchin removals at Tanker Reef, as both options contain an extension for Caspar Cove. The California Department of Fish and Wildlife (Department) and Ocean Protection Council (OPC) are supportive of extending the sunset date for Caspar Cove for another five years, as travel restrictions associated with the COVID-19 pandemic largely prevented recreational divers from holding organized urchin culling efforts at Caspar Cove for several years. Monterey Bay

National Marine Sanctuary (MBNMS) is not providing input regarding Caspar Cove.

The Department worked closely with MBNMS and OPC to evaluate the original petition (Petition #2020-001) and provided a joint agency memorandum (2020 Memo), dated August 5, 2020, outlining recommended stipulations for the temporary regulation. The 2020 Memo specified that the urchin culling effort at Tanker Reef must inform future management and requested the petitioner: 1) evaluate the efficacy of community-led in-water urchin culling activities and report findings at the end of three years; and 2) evaluate the potential ecological impacts from in-water urchin culling methods. Importantly, the Department, MBNMS, and OPC supported the recommended sunset date of three years (April 1, 2024), after which, data collected by the petitioner and others would be evaluated prior to considering an extension and/or broader application of these culling methods.

To date, the Department, OPC, and MBNMS have worked with the petitioner and Reef Check to develop a monitoring plan, specific performance criteria, and a data management and reporting framework to evaluate the efficacy of urchin culling. The Department and MBNMS staff have also collected a subset of data independent of the petitioner and other partners to verify monitoring trends and ecological changes at Tanker Reef. In addition, MBNMS and Department staff have conducted a study to better understand the potential impacts of culling to the reef and other organisms. Preliminary data from monitoring surveys conducted by agency staff and Reef Check citizen science divers can be found in the report entitled “Status of Research and Monitoring, Restoration Efforts, and Developing Management Strategies for Kelp Canopy Forming Species in California” (CDFW, 2023).

Independent monitoring by agency staff is ongoing and will continue through 2024 to evaluate the efficacy of urchin culling efforts and determine the persistence of kelp. If kelp persists at Tanker Reef through 2024, longer term monitoring may be required to determine the duration of the persistence and efficacy of these efforts.

Consistent with the original intent of the temporary regulations, and stipulations outlined for Tanker Reef in the 2020 Memo, the Department, MBNMS, and OPC, recommend the Commission adopt **Option 1**, which would allow the exemption at Tanker Reef to sunset on April 1, 2024, as intended and currently specified in regulations.

Option 1 enables the culmination of efforts put forth by the petitioner, partners, and Agencies to directly inform management and contribute to the growing body of work that has been underway to address the kelp crisis in the state (CDFW, 2023). Specifically, it also allows:

1) the tracking of changes in kelp and urchins at the treatment grid (before, during, and after) to determine if the kelp patch is resistant or succumbs to overgrazing by urchins;

2) the petitioner and partners to provide data in a timely manner on urchin densities, diver effort, and community-level changes in both algae and benthic invertebrates at the treatment grid; and

3) the opportunity to analyze all data, including impacts from culling to the reef, and produce a final report that fully evaluates the suitability of this strategy as an effective restoration tool.

   The final report will detail restoration methods and results that will inform the development of the statewide Kelp Restoration and Management Plan, contribute to the MBNMS Iconic Kelp Plan, and any potential future kelp restoration actions for the central coast.

The protection and restoration of California's kelp forests is a top priority for the Department, OPC, and MBNMS. In the last several years, OPC and the Department have made unprecedented investments (approximately $10 million total) to monitor, protect, and restore kelp forest ecosystems and enhance the resilience of the coastal communities they support. This has included support of groundbreaking, solutions-oriented science, as well as a "learn by doing" approach to kelp restoration. Ongoing state and federal efforts will advance understanding of effective restoration techniques, enable resource managers to develop solutions to the kelp crisis, and foster meaningful partnerships with California Native American Tribes and coastal communities.

The Department, OPC, and MBNMS appreciate the passion, hard work, time, effort, and resources that the recreational dive community and citizen scientists have put towards culling efforts, monitoring, and site maintenance at Tanker Reef. The Department, MBNMS, and OPC look forward to working with the petitioner, the recreational dive community, and other interested parties to identify and implement ways to advance our understanding of regional kelp forest dynamics, effective techniques to promote kelp recovery and persistence, and accessible ways to engage in addressing the kelp crisis.

If you have any questions on this item, please contact Dr. Craig Shuman, Marine Region Manager, at (805) 568-1246 or by email at R7RegionalMgr@wildlife.ca.gov.

Enclosure: 2020 Memo

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Dr. Steve Lonhart, Research Ecologist and Unit Diving Supervisor
Monterey Bay National Marine Sanctuary

Susan Ashcraft, Marine Advisor
Fish and Game Commission

Memorandum

Date: August 5, 2020

To: Melissa Miller-Henson, Executive Director
Fish and Game Commission

From: Mark Gold, Executive Director
California Ocean Protection Council

Craig Shuman, Marine Region Manager
California Department of Fish and Wildlife

Paul Michel, Superintendent
Monterey Bay National Marine Sanctuary

Subject: **Joint Agency Comments Re: Proposed Amendments to Recreational Sea Urchin Regulations at Tanker Reef, Monterey County.**

The California Department of Fish and Wildlife (Department) has requested the Fish and Game Commission (Commission) authorize publication of notice of its intent to consider amendments to existing regulations in Title 14, California Code of Regulations (CCR) to exempt sea urchins taken by hand and hand-held tools from any recreational bag limit at Tanker Reef, Monterey County.

The Department worked closely with the Ocean Protection Council (OPC) and Monterey Bay National Marine Sanctuary (MBNMS) to evaluate Petition #2020-001 and develop the proposed regulatory change. Research suggests that suppressing urchin grazer pressure by in-water culling may promote localized algal community and kelp regrowth if sufficient focused effort can be sustained and ocean conditions are conducive to algal recovery. However, there is uncertainty about potential ecological impacts of these methods and the efficacy of community-led approaches. While the role of sea urchins in kelp forest deforestation is well documented, purple and red sea urchins are native species in California and their widescale eradication is neither feasible nor desirable. The state and sanctuaries are interested in better understanding how urchin control, either by removal or in-water culling, can strategically support kelp restoration at key locations through promoting natural recovery or in combination with kelp out-planting methods.

Consistent with this approach, the Department has been working with partners to better understand how in-water urchin culling might be used as a restoration tool for kelp. In August 2018, the Department issued a Scientific Collection Permit to Reef Check California (RCCA) to identify a threshold population density of purple sea urchins at which giant kelp can re-establish at Lover's Point, Monterey County. In February 2020, the Commission adopted an emergency regulation to remove the recreational bag limit for purple sea urchins taken by hand and hand-held tools inside Caspar Cove, Mendocino County. This emergency regulation was designed to

provide a science-based assessment of the efficacy of in-water purple urchin culling by recreational divers as a kelp restoration tool and is being monitored by RCCA with funding from OPC[1]. In addition, project partners have developed a self-reporting tool through which divers at Caspar Cove can quantify and report key metrics (e.g., estimated number of urchins smashed, dive time, geographic area covered).

OPC and MBNMS will not oppose the proposed regulatory amendment at Tanker Reef provided the outcomes explicitly inform future management and the petitioners can address the concerns outlined in this joint agency memorandum. To achieve this, the petitioner is requested to: 1) evaluate the efficacy of community-led in-water urchin culling activities and report findings; and 2) evaluate the potential ecological impacts from in-water urchin culling methods.

To ensure relevant information is incorporated into this regulatory amendment, we support the recommended sunset date of three years, at which time data collected by the petitioner will be evaluated prior to considering extension and/or broader application of these methods.

Evaluating the efficacy of community led in-water urchin culling

The petitioner and other proponents must establish a monitoring program that is sufficient to monitor key metrics necessary to determine the effectiveness of the proposed restoration effort including, at a minimum, urchin density, benthic invertebrate and algal community composition at treatment (culling) and control sites before, during, and after culling occurs. Monitoring should also document dive community effort (e.g., estimated number of urchins culled/dive hours). In addition, proponents should have a transparent plan for managing and reporting data to the appropriate agencies, including but not limited to CDFW, OPC, and MBNMS. Extensive state staff resources are currently committed to evaluating urchin control efforts for kelp restoration on the north coast, prohibiting significant involvement in this effort. However, staff from the Department, OPC, and MBNMS will be available to work with the petitioner and other partners to establish a monitoring plan, specific performance criteria, and a data management and reporting framework to evaluate the efficacy of urchin culling. In addition, Department and MBNMS staff will collaborate to provide oversight to independently verify monitoring results and ecological changes at Tanker Reef, as time and budget permit.

Evaluating ecological impacts from in-water urchin culling methods

- *Direct impacts to the seabed and non-target organisms*

  In-water culling of urchins typically involves use of hand tools, such as a hammer, screwdriver, or similar implement to break the urchin test with a striking or jabbing action. The extent to which these actions have negative impacts on reef substrate, associated habitat, or sessile organisms is unknown and should be evaluated before

[1]At the February 2020 Council Meeting, OPC provided $500k to RCCA working with commercial urchin divers to evaluate purple urchin removal as a kelp restoration tool. This funding also includes effectiveness monitoring of in-water culling of purple urchin by recreational divers at Caspar Cove, Mendocino County.

broader application of such methods. Understanding potential alterations to the seabed is also a high priority.

MBNMS and CDFW are currently developing a collaborative study using a variety of handheld tools to evaluate the potential impacts of urchin culling on the reef substrate, associated habitat, and sessile organisms. The results of this study are unlikely to be available prior to the potential adoption of the proposed regulatory amendment; however, as results become available, we may recommend they be incorporated into the activities at Tanker Reef and any associated long-term regulations. In addition, we recommend that any monitoring protocol used at Tanker Reef incorporate observations of direct and indirect impacts to non-target organisms.

- *Disturbance to sea otters*

  Southern Sea otters are fully protected species under California state law and listed as threatened under the Endangered Species Act. Based on discussions between CDFW (Office of Oil Spill Prevention and Response), U.S. Fish and Wildlife Service, U.S. Geological Survey and Monterey Bay Aquarium, culling of urchins in barrens at Tanker Reef is not expected to impact sea otters due to loss of potential prey. Increased and concentrated boat traffic and surface activity at Tanker Reef was identified as a potential source of disturbance to sea otters. However, the proposed activity is not expected to increase boat traffic as most diving will occur from shore and therefore disturbance to sea otters is unlikely. In addition, 2019 sea otter survey data[2] indicated sea otter use of this area was low with no observations of otters on Tanker Reef. However, we recommend petitioners work with local partners to track otter observations and potential impacts to sea otters.

If you have any questions or need additional information, please contact Dr. Craig Shuman, Marine Regional Manager at

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Marine Region

Kirsten Ramey, Environmental Program Manager
Marine Region

James Ray, Environmental Scientist
Marine Region

[2] U.S. Geological Survey 2019 sea otter survey data provide to CDFW Office of Oil Spill Prevention and Response

Mike Esgro, Marine Ecosystems Program Manager
Ocean Protection Council

Karen Grimmer, Resource Protection Coordinator
Monterey Bay National Marine Sanctuary

FGC@FGC

From: Keith Rootsaert [redacted]
Sent: Thursday, February 1, 2024 2:10 PM
To: FGC
Cc: Andy Beahrs
Subject: FGC Meeting 2/14/24 Agenda Item 6.
Attachments: 24.0214 Commisioners Comment Responses and Recomendations - Agenda Item 6.pdf

Dear Commissioners and Staff.

Please find attached our written comments pursuant to the Written Comment Deadline of February 1, at 5:00 PST. These comments are for inclusion in the meeting materials for Agenda Item #6 – Recreational take of sea urchin.

In the spirit of the "discussion meeting", we tried to capture the questions and comments of the Commissioners at the December meeting and provide an answer or response. The last 3 pages outline our evaluation of the proposed amendment options in alignment with our presentation provided in public comments at the December meeting regarding the 6 rules of kelp restoration. We also offer two more sensible options for consideration that would allow the scientific endeavor and the kelp restoration effort to succeed.

A PowerPoint presentation will be provided at or before the Supplemental Comments Deadline at noon on February 9, 2024. I will present in-person at the meeting in Sacramento.

Thank you!

Keith Rootsaert
[redacted]

Giant Giant Kelp
Restoration Project

G2KR Response to Commissioner questions and comments at the "Discussion Meeting" to consider Agenda Item #18 - Recreational take of sea urchins 12/14/23.

*Commissioner comments in **bold**.*

Presently the project is abandoned. – Commissioner Murray.

Presently the divers are continuing to cull urchins to the east of the grid as the weather allows. We were successful in our goal to restore kelp, but the kelp must be sustained or the endeavor becomes contrary to our goal because starving urchins that eat the kelp become more reproductive and spawn more urchins. We are trying to make a kelp forest which has more life but by letting the urchins eat that kelp we are making urchin barrens, quite the opposite of our intentions.

We culled 25 acres of urchin barrens including a 2.5 acre grid, and the result was 11 acres of kelp forests. We were told at the outset by CDFW that if we did well this project could continue. But three years later, without consulting G2KR or Reef Check California, CDFW decided to sunset the project. This is a complete betrayal of the divers. Many of the highest performing divers have stopped participating now that the trust is breached and the future of the project is uncertain.

The culling effort stopped on the grid July 30, 2023. MBNMS, CDFW, and Reef Check have committed to a year of post-restoration monitoring which would end July 30, 2024, four months after the previous amendment ends. If the amendment continued in the same boundary, we could turn off the grid lane assignments until August, and then we could save and defend the kelp that remains for the next 5 years.

We are out on the water nearly every weekend all day and only once have the wardens pull up on a boat and ask what we were fishing for. When we said it was urchins, they thanked us and left. Enforcement boundaries are just not practical, and nobody has ever been cited. The enforcement boundary could be reduced to 25% of it's current size by removing the control side of the side and the deep areas where it is unsafe to cull recreationally. This would still fit the description for option #2. More relevant to the experiment are the coordinated efforts of the volunteers and the science divers on and around an underwater navigable cable grid.

If the new amendment only allows divers to cull urchins 100 meters away it would basically be restarting in a new place but without the benefit of an existing kelp forest to expand. We learned in the treatment area that clearing a big space and wondering what will land there is a poor strategy for a perennial kelp species that expands in area slowly. Starting over in a new place with a difficult substrate and a vast field of urchins all around it is not as desirable to the volunteers as a place with granite rock and intervening sand to slow urchin migration.

Due to the dominant northwest swell direction, we would need to plant kelp in the new space. After 5 months of culling effort on the east side, only a few kelp recruited in the cleared area. Planting kelp would require us to obtain a SCP from CDFW. If we can't keep kelp alive then we shouldn't start growing it or we will just make more food for urchins. We can't ask volunteers to do stupid things. For these reasons and our evaluation of the rules of kelp restoration, we will not be culling urchins in the CDFW proposed modified boundary, Option #2.

Diver participation will improve when we obtain permission to cull urchins in better places, obtain funding, and recruit more divers. If Tanker's Reef was available, we could defend kelp as a second

priority that does not to interfere with post-restoration monitoring. If the FGC elects to sunset this amendment, we may decide to return to defend kelp under DMR Petition 2023-23 in April 2025.

Are the urchins in cracks or going to eat the kelp? I'd like to see what is happening now. Will the urchins come back? – Commissioner Murray.

This is nuanced. Urchins feeding behavior changes with the availability of seasonal algae. Urchins are patchy, nocturnal, and reds are more active than purples. Some urchins are eating drift algae and some are eating kelp holdfasts. Observations are anecdotal snapshots without reference, but by documenting the same locations over the duration of the project we saw dramatic changes in the environment due to the culling effort.

We routinely video document the condition of the reef community by using a GoPro Hero on a scooter maintaining a steady distance and speed running counter-clockwise around the underwater cable grid that guides the divers. These videos taken from the project start to present can be compared side-by-side to show viewers the changes over time. These videos are uploaded to our YouTube site and are available publicly. At Commissioner Murray's request, we performed a perimeter run on January 27 and you can view the collection on our YouTube playlist Grid Perimeter Surveys. Since diver efforts on the grid halted, the urchins have retaken the northern portion of the 5 western lanes and ate the kelp.

I value the experiment. – Commissioner Zavaleta. We are supposed to follow the science. This was an experiment to see if we can turn the tide and if it really doesn't do that at all that's a really important factor for us. – Commissioner Sklar.

We really can turn the tide. The results prove the ecological response is beneficial. The problem is the science experiment is asking a new and inappropriate question and recommending ending our effort! Our goal is 2000 acres of kelp restoration by 2030. We hope to increase participation from 569 dives per year to 5,000 dives per year.

Culling urchins on Tanker's Reef is difficult because of the soft substrate with all the little holes for urchins to hide, but granite substrate at our future sites goes much faster and it is easier to be thorough on each pass. We bring enough effort to do the job-at-hand and our workforce will evolve as the project demands more divers. We need to consider the willingness of the community to do the work. With permission and funding the community effort will increase capacity and while it is important to consider the viability of the diver effort today on shale substrate, we must also consider the future increased diver effort on better granite substrate. Ecological effects and diver work rates learned at Tanker's Reef will not apply to granite substrate. The proposed modified boundary area would not be monitored or scientifically evaluated. Scientific monitoring is a valuable and essential part of urchin culling and it is a poor idea to work unmonitored at Tanker's Reef when Reef Check monitored sites exist nearby on granite substrate.

It is not an extension; it has morphed into something different. The goal has shifted. – Commissioner Murray.

We started from scratch as a non-profit organization. The scientific design of the project grid was for just a handful of divers to participate. When scores of divers joined we cleared the grid below the threshold urchin density design in 5 months. Our effort outside the grid became more productive and needed to keep the urchins from migrating back onto the grid. With the migration controlled the grid

became a maintenance project and the divers were finding very few urchins to cull. The goal shifted from keeping the grid below the threshold to growing a huge kelp forest all around the grid.

Scuba divers prefer to dive in better more persistent kelp forests that need defending around the Monterey Peninsula. We applied for a restoration management permit, a SCP, and petitioned FGC to cull urchins in three State Marine Conservation Areas and Point Lobos. Today our goal is to restore 2000 acres of kelp by 2030 with 1000 volunteers.

The community aspect is important and fosters goodwill. This is an opportunity for people to connect and still care and feel like there is some hope. - Commissioner Zavaleta

This is a story of hope. Ocean stewardship is important and will increase as we gain permission. We are awestruck and inspired by the hundreds of volunteers that paid for training and equipment and came to Monterey to restore kelp. Their personal sacrifice of time and money grew an 11-acre kelp forest in a barren wasteland.

On the other hand, the deliberate destruction of our kelp forest garden will be well documented and may cause people to give up hope in the government's desire to respond to this growing crisis.

We need to be explicit in our mutual understanding and goals. - Commissioner Murray

The community, the state, and federal agencies goals were not aligned or fully shared. The diver's goal is kelp restoration. The scientist's goal is to observe and report. The State discourages volunteer divers by only allowing urchin projects in the worst places. The MBNMS doesn't want the divers to cull the urchins at all and recommends to sunset volunteer efforts.

During the amendment we culled urchins all around the grid where scientists did not survey. The externality of culling outside the treatment area should continue or it introduces controllable variation only in the third year. We won't understand if the influence is urchins missed and/or maturing or the result of increased urchin migration. If allowed to continue, we could coordinate activities around the grid until post-restoration monitoring is complete.

Moving forward G2KR should have a Memorandum Of Understanding with the Department so that expectations are explicit. We need to develop language that ensures that volunteers are not surprised again after the next 5-year amendment ends and an even bigger kelp forest must die.

Reef damage possibility is new information. Possible damage is relevant but the scale is small, but we don't know. - Commissioner Sklar. Scale and proportionality question vs big overall stressors, ie climate change. What are the important things we need to address? - Commissioner Zavaleta.

The scale of the damage to the benthic substrate is certainly offset by the ecological benefit of the kelp restoration. The shale boring clams and the urchins themselves are doing the most damage at this site by making little Swiss cheese holes in the shale bottom that cause the layers of slate to collapse in a pile. We prevent damage caused by dropping boat anchors by captains tying up to one of our 7 buoys on the site. We train divers to prevent damage to the substrate caused by hammers, and we document incidents of damage in our dive logs.

We invite MBNMS & CDFW scientists to measure the actual damage done by our properly trained divers, audit our class materials, or suggest improvements to our tools and/or methods. Our divers are

all Certified Kelp Restoration Divers that have gone through special training with professional diving instructors in the classroom and in two training dives focused on how to cull urchins without damaging the reef and to keep their gear up on their BCD and not drag it and damage the shale. We cull urchins like we are breaking eggs with the hammer held an inch over the urchin before coming down and splitting the urchin open. We spin our hammer heads from point to chisel depending on the urchin size. If the urchin is on another animal or in a place we can't see where the hammer will land, we move the urchin to a better place to cull it. This objective is reinforced with every dive briefing. The damage to the animals and shale by the trained divers is self-reported and uncommon with only 20 incidents of by-catch or reef damage in 1,525 dives, (1.3%). Considering that the divers reported picking up trash 108 times (7%), maybe the divers are providing more benefit than detriment to the reef.

Dr. Lonhart's conclusion to his 3 years study is "The extent of collateral damage due to culling by divers is unknown", which doesn't say anything, but implies widespread reef damage without an alternative method. We found that it is impractical and more damaging to the substrate to collect them by prying sticky urchins from holes, but this alternative was not studied. We also found that small urchins were extremely difficult to collect with thick gloves. In 2022, OPC commissioned Reef Check to study culling vs collecting at Tanker's Reef and reported that it is twice as efficient to cull the urchins.

The scale of the problem is too large to make a difference. The California coastline is 1,100 miles and it is overwhelming to think of culling urchins over the entire length of the coast. - Commissioner Sklar.

It is worse than that! There are 10 million hectares of kelp in the world and 1.5-5 million acres of that kelp are degraded. This is a world-wide endeavor. 27 countries are participating in the Kelp Forest Alliance and California should be a shining example of what can and should be done. Restoring 1,100 miles of coastline in a person's lifetime does seem insurmountable, but in 1870, to the Board of Commissioners, so did killing most of the fish in the ocean. In time, it's all surmountable.

Pete says: You're never going to keep up smashing urchins. - Commissioner Hostler-Carmesin

Pete may be right, but we feel we are obliged to try, and we could try our best if we had permission. He understands through experience that the culling effort must be sustained or don't even start. That is why we want to continue culling the urchins at Tanker's Reef and not let the urchins eat the kelp as proposed. We hope that Pete and other commercial urchin fishermen will join us in a regenerative fishery in Monterey. Ecosystem services may be needed for the next 100 years, so it is important that we begin soon.

What are the cycles of purple urchins? - Commissioner Hostler-Carmesin

Widespread urchin barrens occurred before in Monterey. When the fur trade nearly extirpated the sea otters, the invertebrates like abalone and urchins flourished without sea otter predation and ate the kelp. For 125 years the abalone "carpeted" the reef. First the Chinese immigrants and then Japanese immigrants harvested the invertebrates and the kelp returned. Generations of divers remember kelp in their lifetimes, but few realize the historical context of the kelp forests. Urchin barrens persist for decades until there is another perturbance to shift to a different kelp dominated stable state. The mechanics of kelp restoration are well known, economical, and happened previously in Monterey with a similar overpopulating native species.

The beauty and diversity of the modern kelp forest over the last millennia was not documented by westerners. We need to listen to tribal science and understand the sustainable baseline of this ecosystem and how indigenous people adapted and took care of our mother ocean.

Is there greater urchin recruitment caused by culling? - Commissioner Sklar.

We considered urchin spawning behavior in the winter of 2021. We asked the project scientific advisors if we should stop culling due to the upcoming spawning season in March 2022. They advised that we continue because the amount of spawning an urchin could do would be less if the urchin were culled than if it continued to live.

The origin of this concept that "if you cull the urchins, they will spawn more urchins" was traced to conjecture by Wheeler North in Southern California when they culled urchins in one spot and a barren formed nearby. This was probably not possible because the 30-60 day larval cycle of the urchins would carry the urchins miles away, but this myth lives on and most scuba divers "know" this. This misinformation had a chilling effect on divers dispatching urchins while diving for recreation, which is probably a good idea and dissuades destructive behavior.

Male urchins secrete sperm and this triggers the female urchin to release eggs which are fertilized in the water. In a lab setting with healthy urchins, we can set off a chain reaction and they all start spawning. But in the ocean, we have never seen this happen in 6 years of culling starving urchins. When urchins are culled, the reproductive material is within the gonads of the urchin and are not secreted into the environment. The gonads are eaten by fish, sea stars, snails and cannibalistic urchins.

We found that by culling urchins that are big obvious targets with a hammer, the little urchins are harder targets and are missed. The resulting abundance of small urchins was brought in a mason jar to the FGC meeting in Monterey, April 21, 2022. The result is a net increase in urchin density because the little urchins have more algae to eat and survive to establish the refuge of size. It is imperative to continue culling passes to dispatch urchins as they mature enough to be large targets and before they spawn.

Make sure no harm is done and there are not other negative impacts. - Commissioner Sklar.

Poor decisions by Department of Fish and Game led to overfishing sardines and the collapse of the Monterey sardine fishery. Sardine fishing was done at night by fishermen running without navigational lights because they didn't want other fishermen to spot them on the water. The fishermen would look for a "green flash" of phosphorescence from the turbulence of a sardine school. A quarter mile long net was set out to envelope the school and bring the fish onto the boat. Only 11" and larger sardines that fit the cannery machines were allowed to be brought back to port. The smaller sardines, sometimes the entire catch, died and were dumped at sea. This loss at sea, before the excesses of reduction of delivered fish, is inestimable.

Canning sardines is difficult labor-intensive work and the processors determined that it was more profitable to use steam reduction to make the sardines into fish meal and fertilizer. Rendering first began on reduction ships beyond California's 3 miles legal jurisdiction. The State responded by allowing the canneries to render sardines on land, too. Two-thirds of Monterey sardines never saw a can at all and eventually the inexhaustible sardine fishery collapsed in 1952. Fisheries are powerful and bad decisions can have consequences.

2024 is our 7th year of urchin mongering and we have learned the preferences of these two species and the ecological response to culling them. We like how they aggregate in the winter for ease of culling and how the red urchins come out from hiding during our night dives. We like all the fish, snails, and sea stars eating the culled urchin's carcasses. We don't like all the discoveries. We found that clearing a big space invites anything to colonize the space including invasive bryozoan species and "acid weed" which wraps around the kelp, bleaches it with acid, and stops kelp growth.

We teach the divers how to avoid bycatch and damage to the reef. We show them not to disturb marine mammals like sea otters when approaching the project site. When damage or disturbances happen, the divers report it through the diver data portal. We are trying to help life on the reef and so we teach and practice being careful with our tools and instruct divers to keep their gear tight to their BCD to avoid incidental contact.

There will be harm done. The urchins are griding holes in the rock like Swiss cheese and causes the ledges to break off. Boats drop anchors. Divers tear off kelp with their fin straps. But the scale and proportion of damage is relatively small compared to the amazing benefit to the ecosystem of allowing kelp and hundreds of species that live there to survive. Hand-harvesting fruit, vegetables and urchins is the most selective and gentle method humans can perform at this point in technological development. This is a dramatic improvement over the poor decision to spread quick lime on the urchin barrens in Southern California which killed everything on the reef.

Kelp restoration by grazer suppression is a world-wide endeavor. If there are problems with the methods creating an unexpected consequence, it would be experienced by many others and be widely reported. We will learn more as kelp restoration on earth accelerates and we will reduce the risk of unforeseen and unwanted consequences.

To bake a cake, you must break a few eggs. We will certainly break some eggs, but expecting perfection leaves a lot to ignore.

The ocean is different now and the future is not clear. - Commissioner Murray.

The consequences of climate change are overwhelming and beyond any one person's ability to mitigate so people give up and leave it to others. Our own mortality will resolve climate change for us, but not for our children. We look to the government and community organizations to make our individual efforts count. With the SCP and DMR Petition 2023-23 pathways proposed, we endeavor to guide people to fight climate change with a hammer.

This is a new chapter in the ecological history of California. Now we will learn to listen to the voices of the indigenous people who were the original caretakers of mother ocean. We will learn to consider the ocean as vital to the people who live on the land. We will turn the forces of serial depletion of species into forces for the regeneration of habitat for species. Ocean stewardship begins with allowing people to care. We must own our role as caretakers, or we will destroy the life support system of this planet.

Amendment as noticed

Option 1: Amend subsection 29.06(d)(1) – Extend sunset date for Caspar Cove to April 1, 2029.

Option 2: Amend subsection 29.06(d)(1) as reflected in Option 1, and amend subsection 29.06(d)(2) – Extend sunset date for a portion of the existing Tanker Reef area to April 1, 2029.

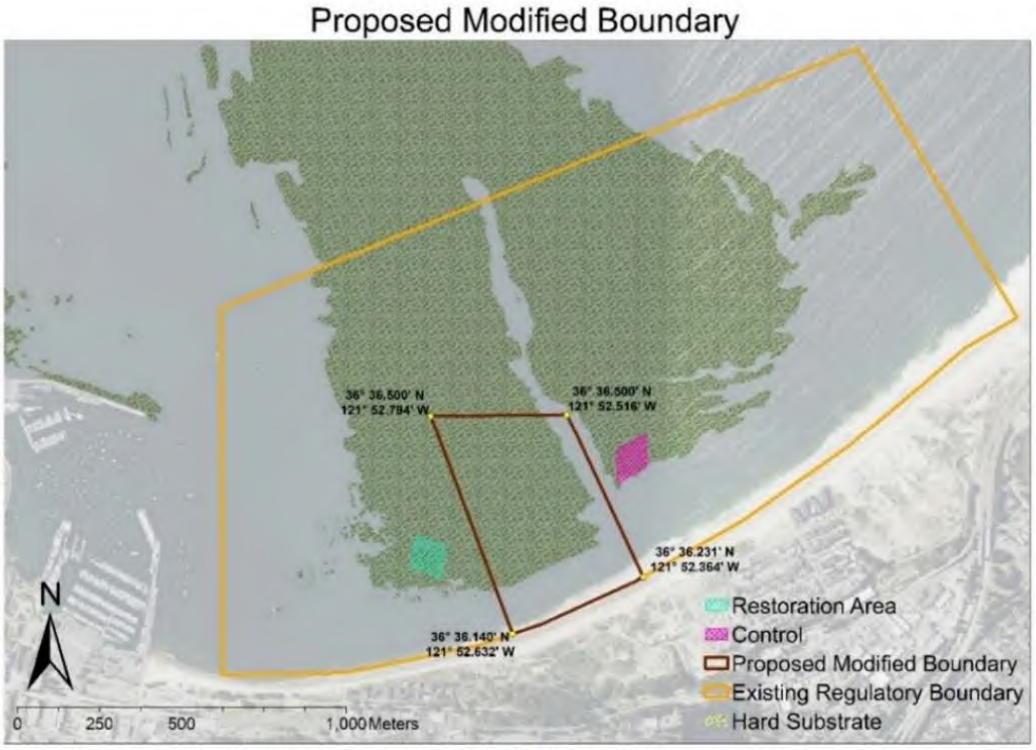

Figure 1. Map depicting the modified boundaries for Option 2 at Tanker Reef. The red polygon are the new proposed boundaries while the orange polygon is the existing boundary that is set to expire on April 1, 2024. Hard substrate data (shown by green hatching) show where kelp could potentially attach to, should urchin eradication be successful.

Note on the caption: The goal of kelp restoration is grazer suppression, not "eradication"

G2KR proposed alternatives.

Option 3- Amend subsection 29.06(d)(1) as reflected in Option 1, and amend subsection 29.06(d)(2) – Extend sunset date for the existing Tanker Reef area to April 1, 2029.

- Coordinate with the scientists to allow post-restoration monitoring on the grid.

Option 4 – Amend subsection 29.06(d)(1) as reflected in Option 1, and amend subsection 29.06(d)(2) – Amend beginning date to 4/1/25 and sunset date for the existing Tanker Reef area to April 1, 2029.

- Possible return to Tanker's Reef after post-restoration monitoring is completed.

G2KR Presentation – Item #13, public comments 12/14/23

Rule 1 – Suppress grazers.

Rule 2 – Grow kelp naturally.

Rule 3 – Don't let urchins eat kelp.

Rule 4 – Monitor results.

Rule 5 – Inform decision makers.

Rule 6 – Change the rules.

Evaluation

Option 1 – Sunset Tanker's Reef

Rule 1 - Divers are prohibited from suppressing urchins.

Rule 3 - Urchins will eat 11 acres of naturally grown kelp the divers defended.

Rule 4 - Ecological surveys reset as an urchin barren.

Rule 5 - Informing decision makers ends after a 1-year post-monitoring period.

Rule 6 - Reduces permissible area for urchin removal 100%.

Option 2 – Extend the sunset date for a portion of the area 100m away from the grid.

Rule 1 - Divers are prohibited from suppressing grazers outside unmarked boundaries.

Rule 2 – Kelp will need to be out-planted.

Rule 3 - Urchins will eat the kelp the divers defended in the old boundary.

Rule 4 - Nobody will be monitoring results of the culling effort in the modified boundary. Post-restoration monitoring in the treatment area will be confounded by errant diver culling activities.

Rule 5 - Decision makers are not informed by unmonitored efforts and corrupted reports.

Rule 6 - Reduces allowable area for urchin removal 91%.

Option 3 – Extend the sunset date for the original boundary for 5 years.

Rule 3 – Urchins will eat the kelp until post-restoration monitoring is complete and culling continues.

Option 4 – Begin amendment 4/1/25 in the original boundary for 4 years.

Rule 3 – Urchins will eat the kelp until post-restoration monitoring is complete and culling continues.

Recommendations

Option #1 is destructive and betrays the intentions of the divers to restore kelp, and makes more urchins. This breaks rules 1, 3, 4, 5, and 6. Deliberately destroying 20% of the remaining kelp forests in South Monterey Bay, occupied by foraging sea otters, during an El Nino year, is not acceptable. We petitioned FGC in 2023-23MPA so we may return in 2025 when we have permission and capacity.

The Option #2 alternative boundary proposed by the Department is an urchin barren moonscape with an infinite supply of migrating urchins, no kelp, and without permission to plant kelp. This breaks all 6 rules of kelp restoration and is unacceptable to us. The condition of the proposed site requires a large continuous effort over multiple years and is beyond the capacity of interested volunteer divers. For these reasons, we will not cull urchins in the modified boundary.

Option #3 is recommended by G2KR and the Certified Kelp Restoration Diver community - continuation for another 5 years *in the original boundary* and coordination with scientists to exclude work from the treatment grid. We have better prospects elsewhere by SCP and 2023-23MPA and we must prioritize our volunteer workforce for defending existing kelp forests on granite where there is diver access to existing Reef Check kelp forest monitoring sites. We are interested in tending and future expansion of the Tanker's Reef kelp forest after post-restoration monitoring is complete and when there is volunteer interest and project capacity.

Option #4 – is the second priority recommendation - continuation for another 4 years *in the original boundary* after the post-restoration monitoring is complete. This proposal prohibits work around the grid in 2024 but allows kelp restoration to continue once the scientific post-restoration monitoring is complete.

In addition – We proposed to CDFW that the enforcement boundary be reduced to only the west half of the site shallower than 50 feet. We should develop a MOU with CDFW so that project objectives are clear and we don't repeat this project-stopping dilemma in 5 years.