



Kelp Restoration and Management Plan

Pacific States Marine Fisheries Commission
Annual Meeting

Monday, September 9, 2024

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California Department of Fish and Wildlife



Overview

- Introduction to kelp in California
- Overview of current management of kelp
- Kelp protection and recovery
- Kelp Restoration and Management Plan
 - Goals
 - Core components
 - Development approach
 - Timeline

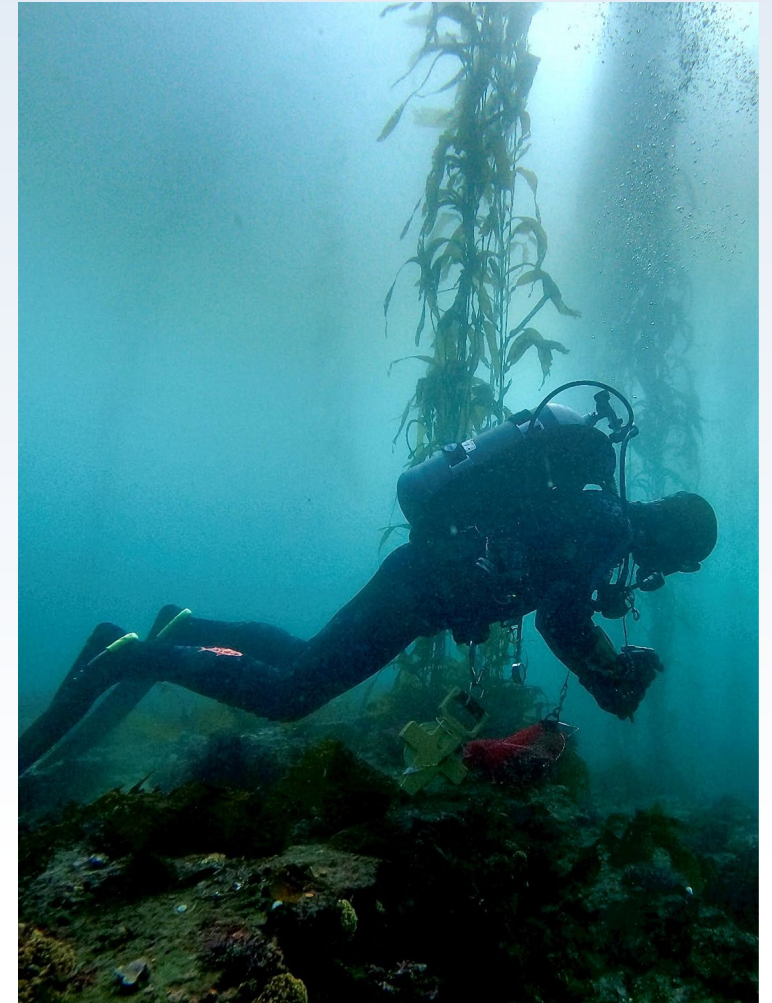


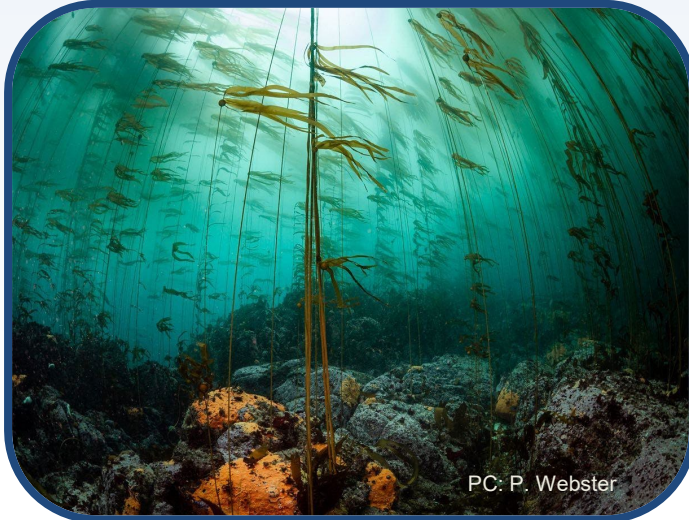
Photo by Shelby Kawana, CDFW



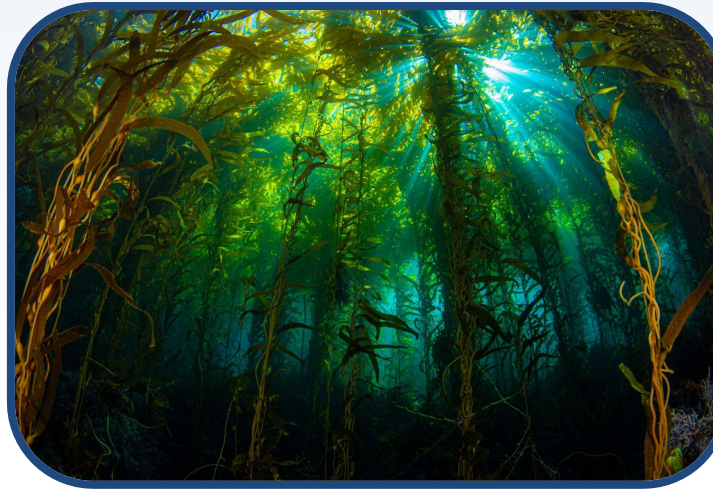
California's canopy-forming kelp

Two canopy-forming species dominate the state's waters

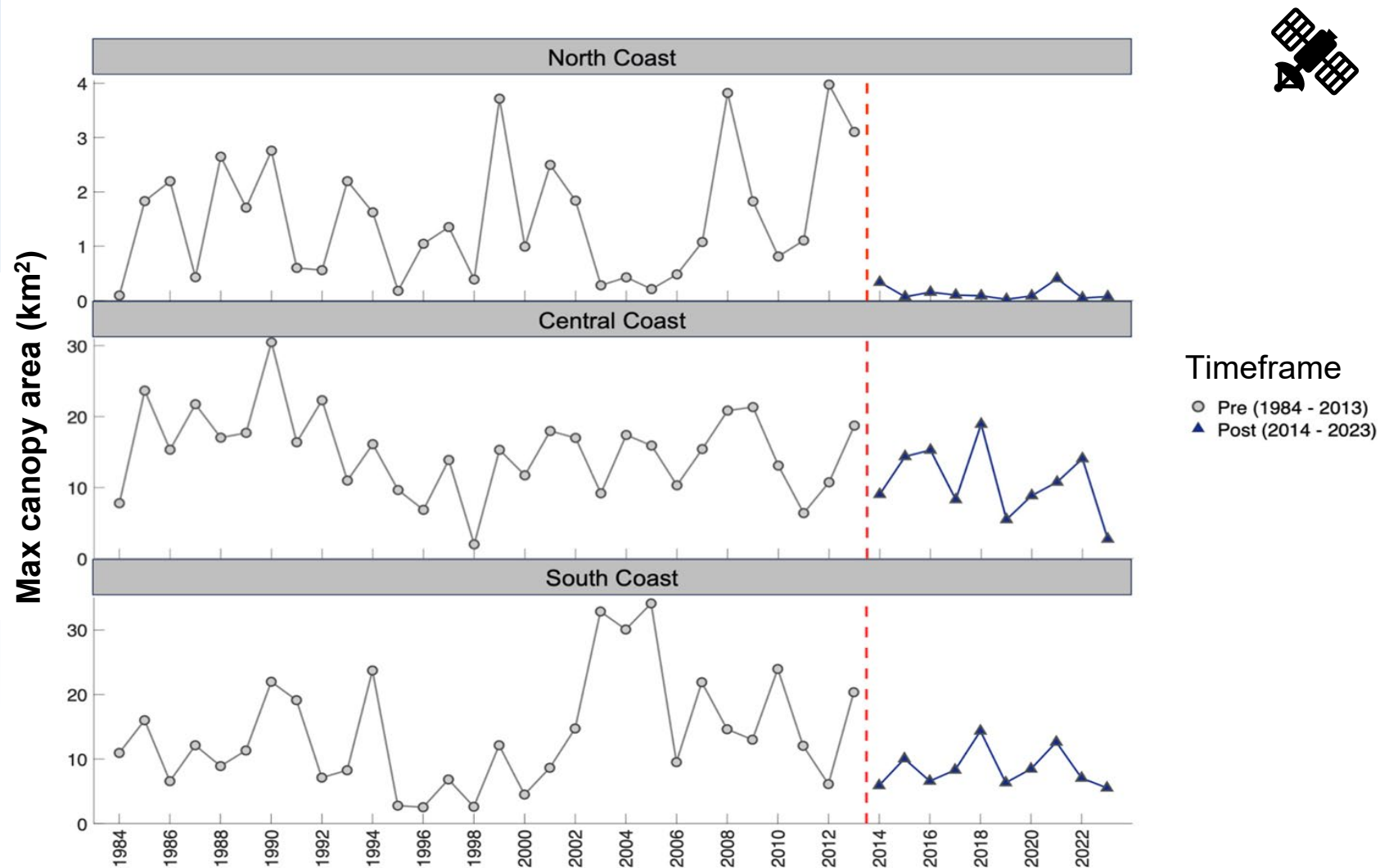
Bull Kelp



Giant Kelp



Kelp canopy cover by Region



Data Source: Santa Barbara Coastal LTER et al. 2023





Current management of kelp in California

Regulatory authority:

California Fish and Game Code (enacted by California legislature)

California Code of Regulations: Title 14 - Natural Resources (enacted by California Fish and Game Commission)

Kelp is managed by California Department of Fish and Wildlife

Commercial harvest managed across multiple spatial scales, depending on use

Exclusive administrative kelp bed harvest rights obtained from California Fish & Game Commission

Recreational harvest has a daily bag limit of 10 lbs. wet weight

Cutting or harvesting prohibited in some Marine Protected Areas (MPAs)





Bold action to protect & restore kelp forests

- Sonoma-Mendocino Bull Kelp **Recovery Plan** (2019)
- OPC **Kelp Action Plan** (2021)
- Giant Kelp and Bull Kelp **Enhanced Status Report** (2021)
- **Precautionary 3-year closure** of bull kelp commercial harvest in Sonoma & Mendocino Counties
- Investment of more than **\$10 million** to:
 - monitor kelp forest health
 - improve scientific understanding of kelp loss
 - test potential kelp restoration approaches
- Launch of the science-based and community-informed **Kelp Restoration and Management Plan**





Broad, collaborative efforts across the state





Kelp Restoration and Management Plan

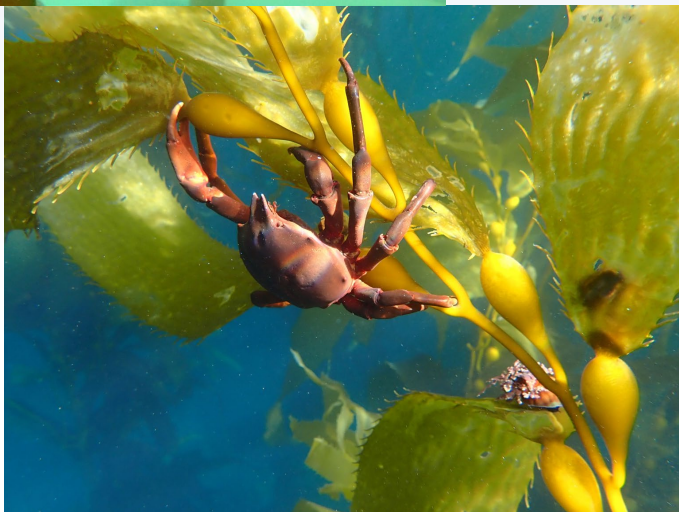


Photo by Shelby Kawana, CDFW

- Goals and Objectives:
To develop a robust, adaptive, **climate-ready** approach to **managing, protecting, and restoring** giant and bull kelp forest ecosystems **statewide** for consideration and adoption by the Fish and Game Commission.



Kelp Restoration and Management Plan



- Core Components
 - Overarching ecosystem-based management approach
 - Adaptive kelp harvest framework
 - Restoration toolkit



KRMP Development Approach

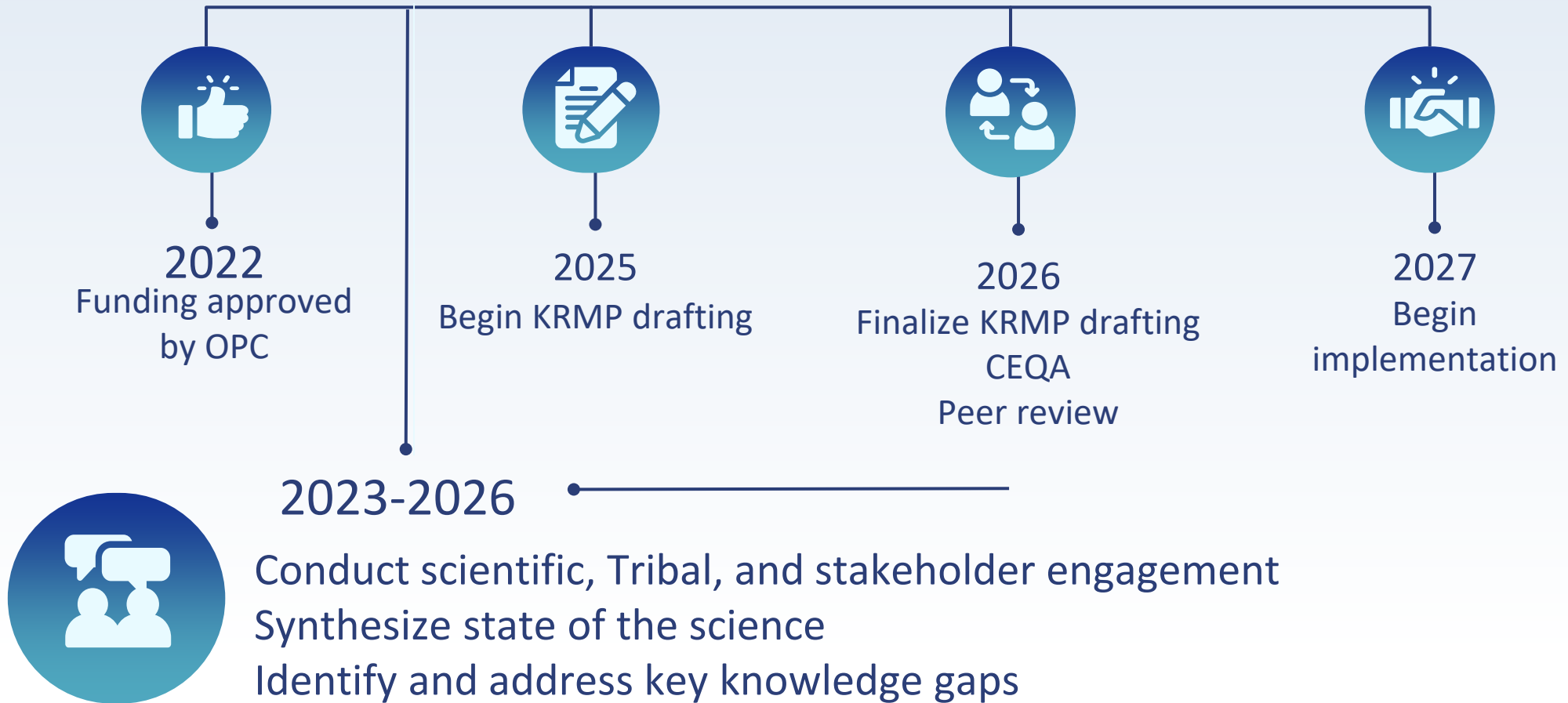
- Solicitation, establishment, and convening of **Community Working Group (CWG)**
- Establishment and convening of **Science Advisory Committee (SAC)**
- **Tribal Engagement**
 - Tribal Roundtable Listening Sessions
 - Tribal Community Forums
 - Representatives from several California Native American tribes to site on the CWG and SAC

With Support from:





KRMP Development Timeline





Thank you!



Updates, Informational Materials, Upcoming Opportunities and Events:

Visit the KRMP Website: <https://wildlife.ca.gov/Conservation/Marine/Kelp/KRMP>



Request additional KRMP information



Questions and Comments



Tribal Specific Engagement Opportunities

Email kelp@wildlife.ca.gov





Additional slides



Kelp Restoration

- To the extent possible, the goal is to promote ecosystem resilience and natural recovery, however, assisted recovery (i.e., restoration) may be needed under certain circumstances.
- **Restoration** is the process of repairing or assisting the recovery of an ecosystem that has been degraded or destroyed as a means of promoting ecosystem functioning and resilience, conserving biodiversity, and maintaining sustainable use and enjoyment by the public.

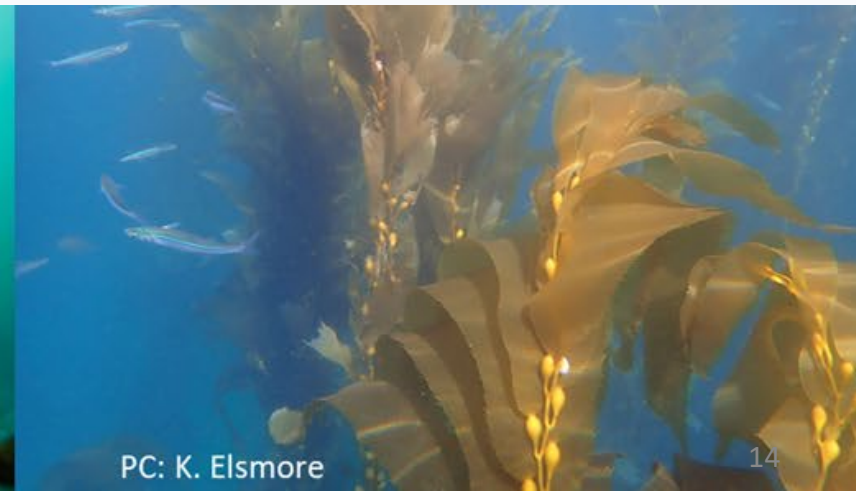
*These goals and definitions may be refined throughout the KRMP development process, to incorporate scientific, tribal, and community perspectives.



PC: S. Kawana



PC: A. Dias



PC: K. Elsmore



Kelp Restoration - Toolkit

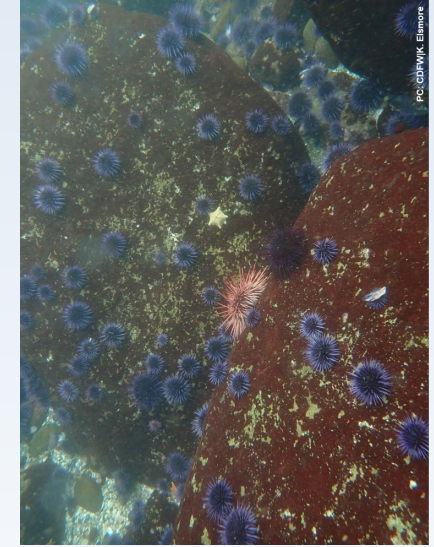
- Suite of scientifically-tested kelp restoration techniques that will be incorporated into the management strategy for the KRMP
 - tools and approaches that have documented and demonstrated efficacy
 - science-based success metrics for different methods of kelp restoration
 - evaluation of the ecological and socioeconomic conditions under which the various options are likely to be most effective
 - strategic decisions on when and how to deploy a given tool or set of tools
- Incorporates knowledge of:
 - natural history, ecology, and oceanography
 - Traditional Ecological Knowledges and other ways of knowing
 - ecological and oceanographic stressors driving decline
 - ecological, cultural, and socioeconomic values
 - cost effectiveness of the restoration action(s)





Kelp Restoration - Toolkit Exploration

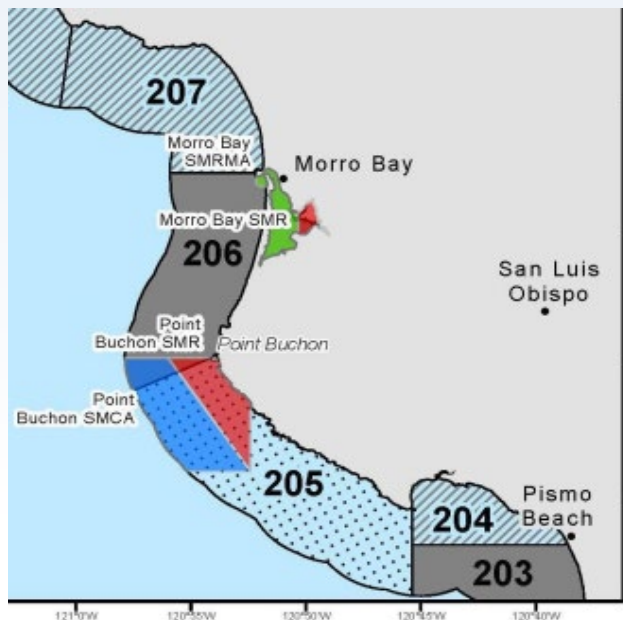
- Grazer suppression techniques
 - urchin culling by commercial divers
 - urchin culling by recreational divers
 - urchin hand-harvest by commercial divers
 - experimental traps
- Kelp enhancement techniques
 - spore bags
 - seeded substrates and lines
 - concentrated spore solution (“spore dusting”)





Spatial management of commercial kelp harvest

- Harvest for uses other than human consumption is managed by **Administrative Kelp Beds**



Administrative Kelp Beds (n = 87)	
Status	Management Category
Open	Available to harvest by all licensed commercial kelp harvesters (n = 33)
Closed	Commercial harvest of kelp is prohibited (n = 18 closed)
Leasable	Open to harvest by all licensed commercial kelp harvesters until leased (n= 31 leasable, n= 2 leased)
Lease Only	Closed to harvest until leased (n = 3 lease only, all temporarily closed)

- Harvest for human consumption is managed by **Commercial Fishing Blocks**

