

North Coast Kelp Recovery Project

Improving Resilience of Vulnerable Bull Kelp Ecosystems in
The Greater Farallones National Marine Sanctuary

Rietta Hohman
Greater Farallones Association
January 10th, 2018

Outline of Talk

Northern California kelp forests

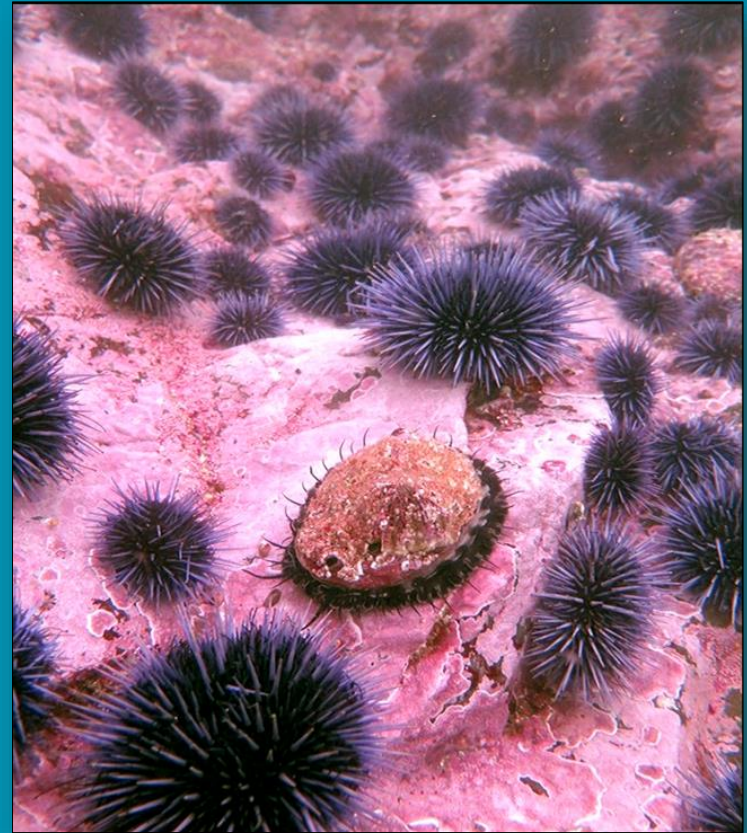
Background on bull kelp decline

Impacts on nearshore ecosystems

Fisheries impacts and regulations

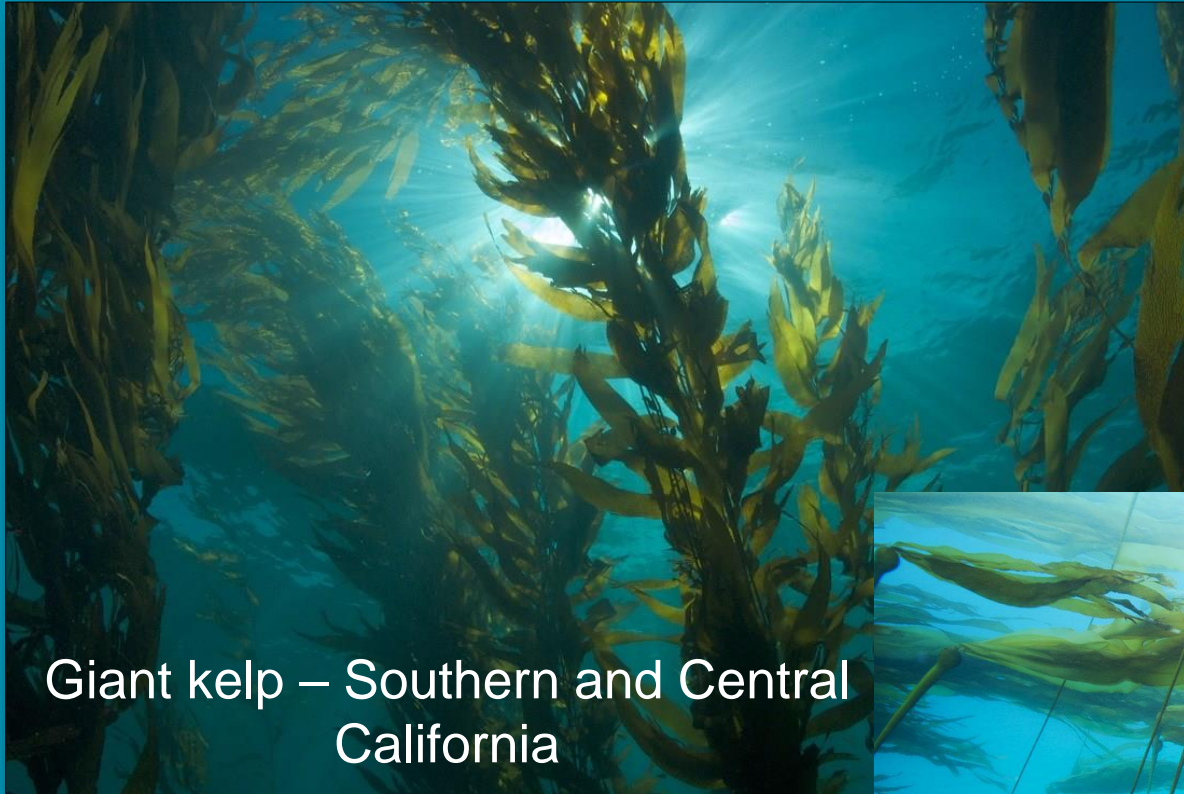
North Coast Kelp Recovery Project

– Proposed working group formation



A. Maguire

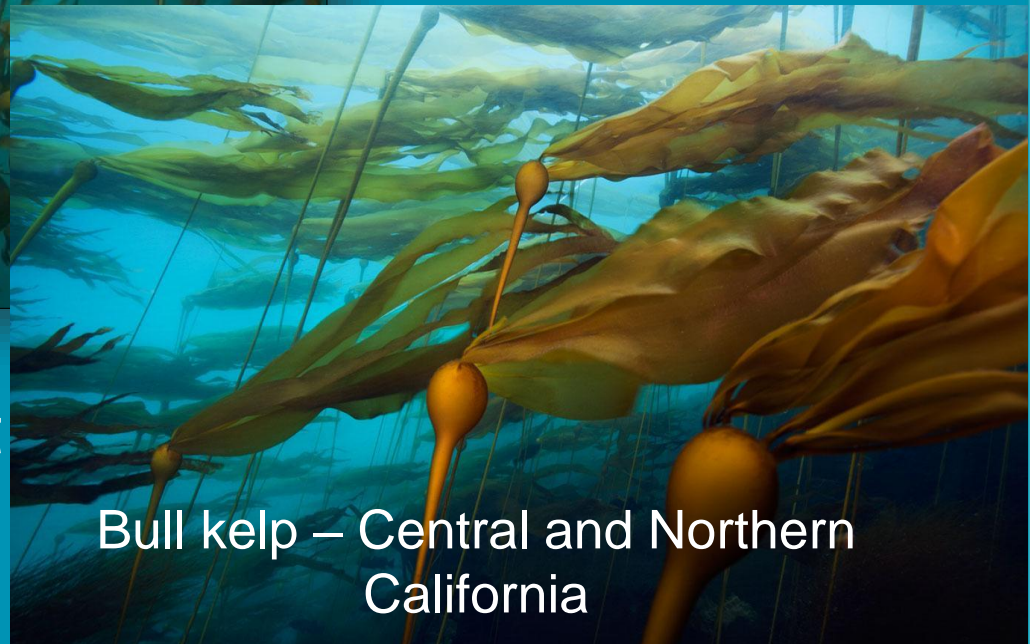
Kelp Ecosystems in California



Giant kelp – Southern and Central California

Riverview Science

Kelp forms essential habitat for nearshore ecosystems



Bull kelp – Central and Northern California

Northern California's Kelp Forests

Dominated by bull kelp
(*Nereocystis leutkeana*)

Challenging conditions

Cold temperatures, wave action,
currents, surge, low visibility,
overall high exposure



K. Joe

Very little data on ecosystem dynamics and responses
relative to other kelp ecosystems (i.e. *Macrocystis*)

“Perfect Storm” Decimates Northern California Kelp Forests (CDFW)

Dramatic changes have occurred in bull kelp forest ecosystems due to compounding multiple regional and large-scale stressors



Total bull kelp habitat area ~15 km²
Key range ~250 km coast
Within GFNMS borders ~100 km

Compounding Stressors

- >60 km • Harmful Algal Bloom (2011)
- >4,000 km • Sea Star Wasting Disease (2013)
- >600 km • Purple Urchin Explosion (2014 -)
- >4,000 km • Warm Water Episodes (2014 - 2015)

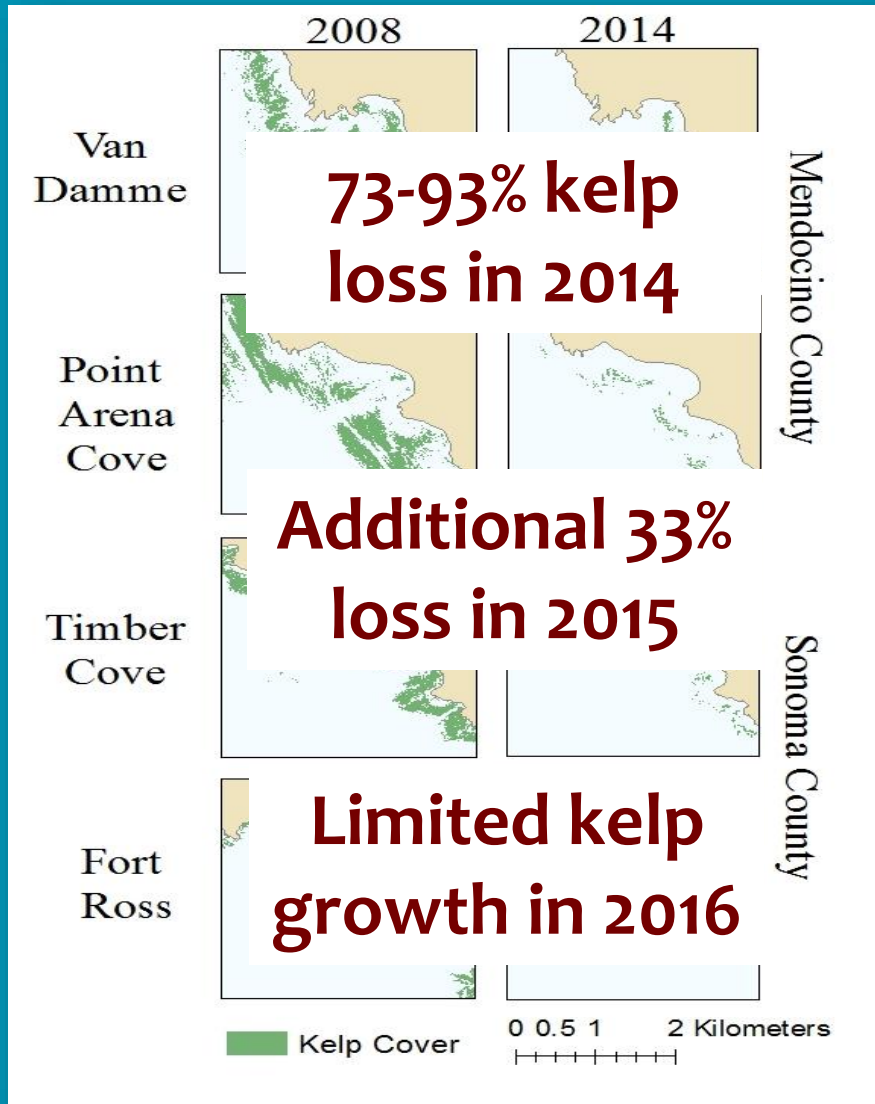


K. Joe



C. Catton

Kelp Fly-Over Data (CDFW)



86-97% of Kelp Biomass Lost

2012



2016



L. Rogers-Bennett (CDFW)

A. Wertz (CDFW)

Near Salt Point, Sonoma County

August 2016 at 8 meter depth

(video)

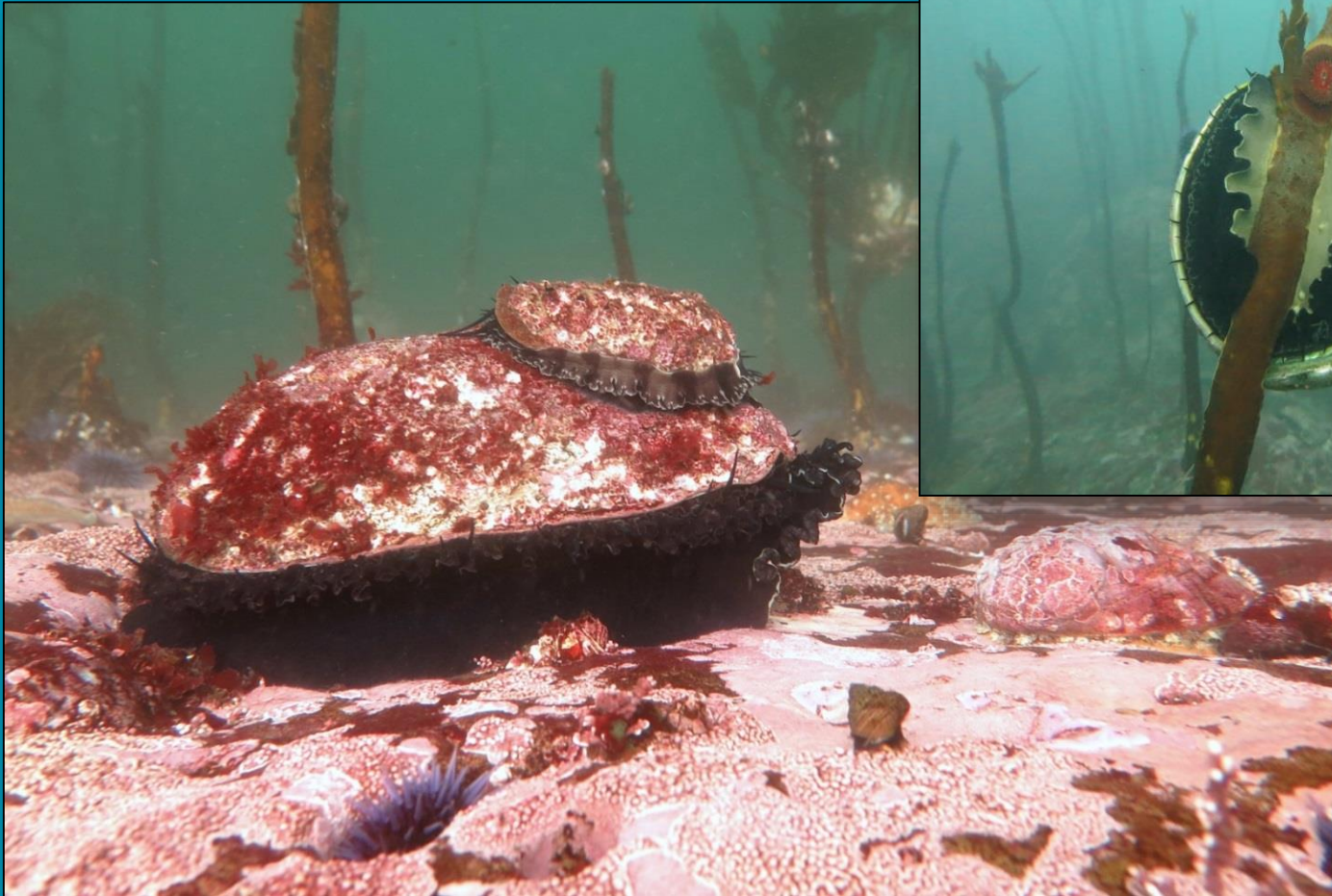
Benthic Algal Impacts



Bare Rock

Urchins are grazing through the calcified coralline crust

Starvation Conditions (2014-2017)



K. Joe (CDFW)

A. Maguire (CDFW)

Economically Important Fisheries

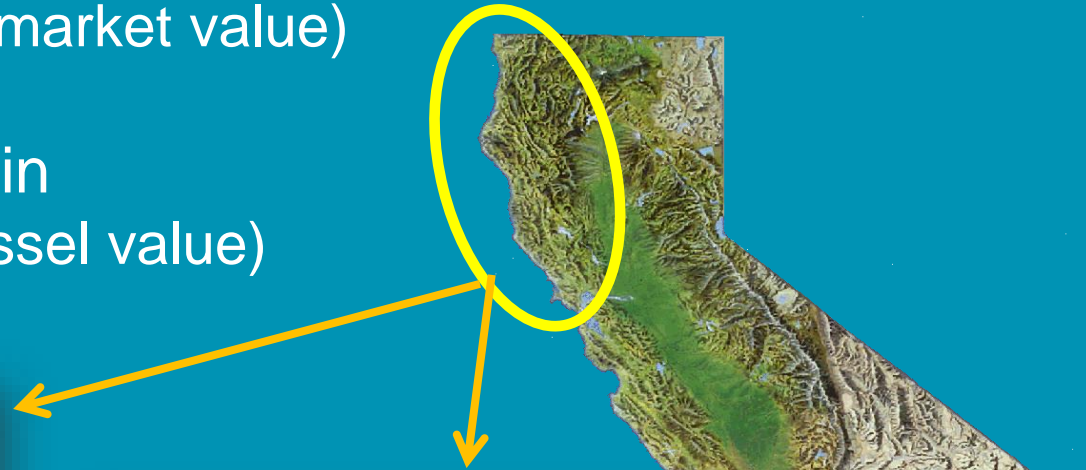
For this region:

Recreational Red Abalone

~\$44 million dollars (non-market value)

Commercial Red Sea Urchin

~\$3 million dollars (ex-vessel value)



CDFW Emergency Regulations

2017

- Shortened season
 - 7 months to 5 months
- Annual limit reduced
 - 18 abalone to 12 abalone

2018

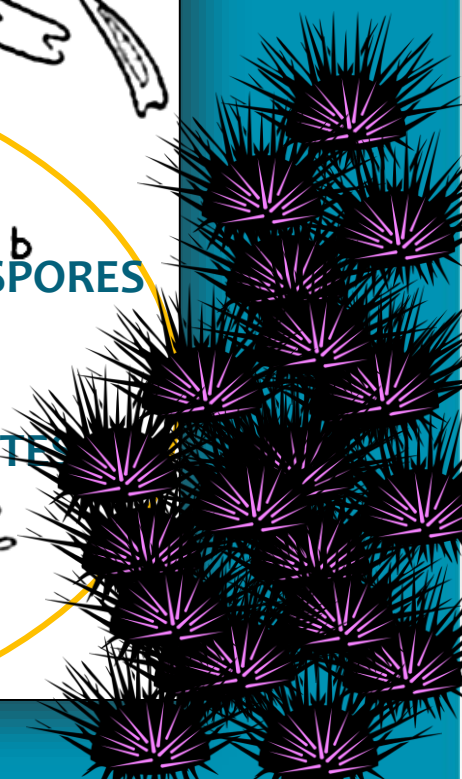
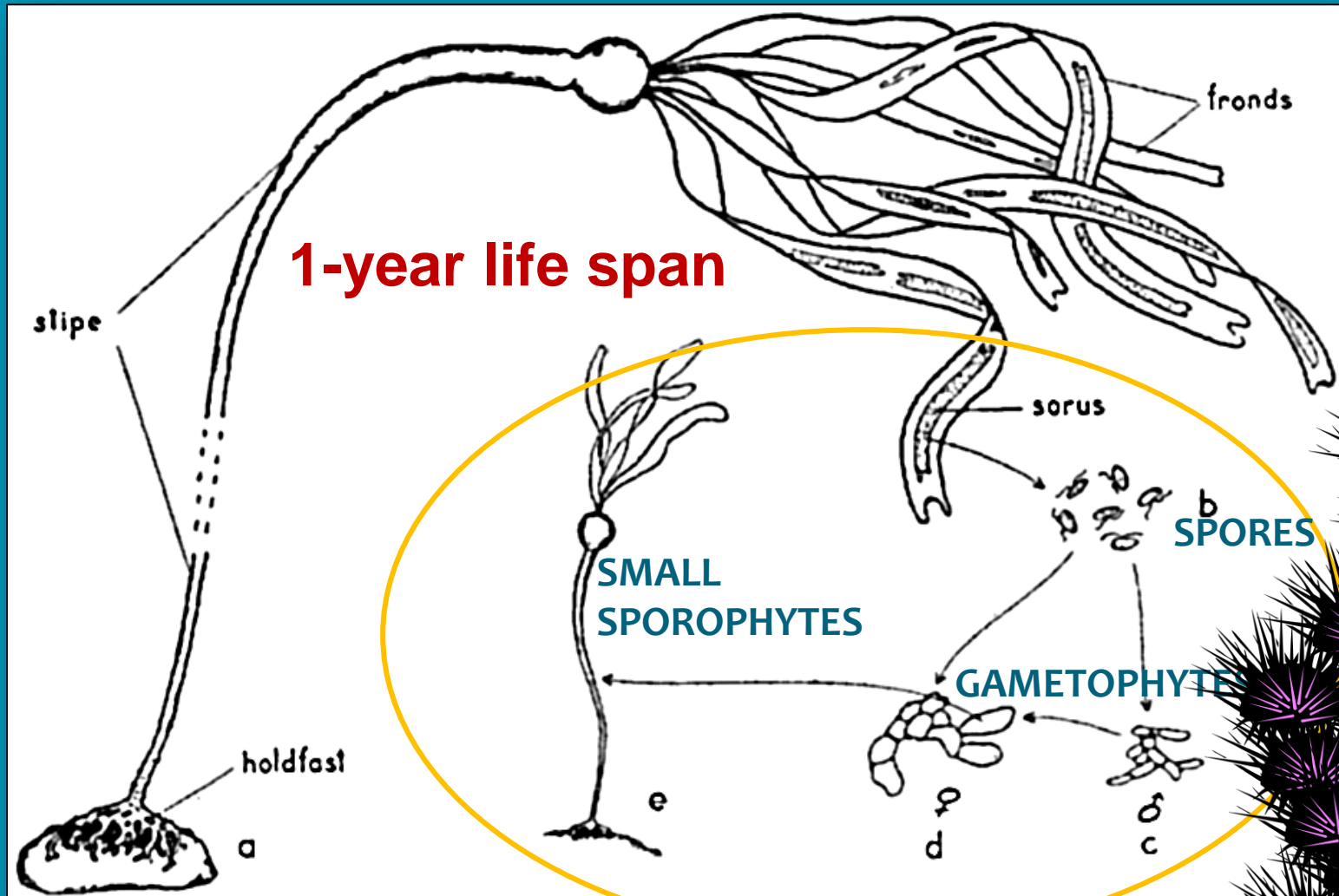
- Complete closure
 - Causes:

- All abalone found in less than 4 meter depth (vulnerable to recreational fishery), >25% in starvation condition
- Population density average of 0.16 per m²; abalone fishery closure trigger is 0.3 per m²

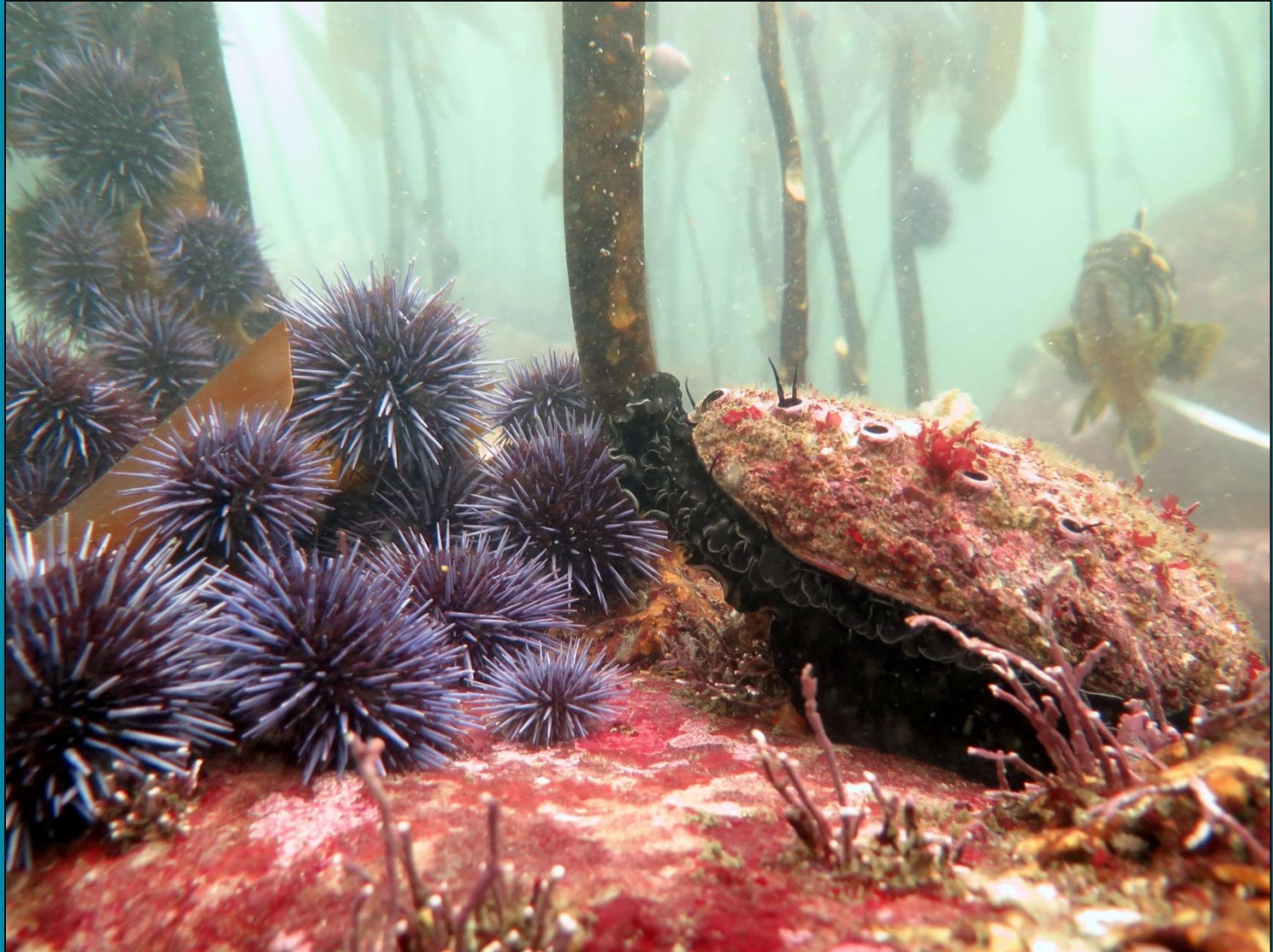


G. Lee

Concern for Bull Kelp Recovery



Moving Forward



North Coast Kelp Recovery Project

Goals would include identifying the management, restoration and research needed to facilitate recovery and increase resilience of bull kelp forests to regional and large-scale stressors.



A. Maguire

Working Group Request

Propose the formation of an interdisciplinary working group through the SAC to address the kelp decline. This working group would:

- Consist of individuals representing interested stakeholder groups.
- Provide comprehensive management recommendations based on available scientific data and community insight.

Timeline & Objectives

Proposed working group would accomplish objectives within a time frame of one year – three meetings proposed in 2018. Members would provide specific expertise on:

- Site selection criteria for restoration and monitoring
- Kelp ecosystem dynamics and responses to stressors
- Restoration methods and Long-term recovery management
- Scientific monitoring protocols
- Socio-ecological impacts

Interested Stakeholders/Groups

California Department of Fish and Wildlife

Reef Check California

The Nature Conservancy Coastal Ocean Program

UC Santa Cruz, Long Marine Lab

UC Davis, Bodega Marine Lab

Partnership for the Interdisciplinary Studies of Coastal Oceans
(PISCO)

California Sea Urchin Commission

Sherwood Valley Band of Pomo Indians

Potential guest speakers from: The Bay Foundation, Northwest Straights Commission, Puget Sound Restoration Fund, Washington State Department of Natural Resources

Thank you!