Non-native invasive marine kelp and algae

10 Nov 2020

Presented to:

Marine Resource Committee

Fish and Game Commission

Presented by:

CDFW Marine Region

What is Restoration?

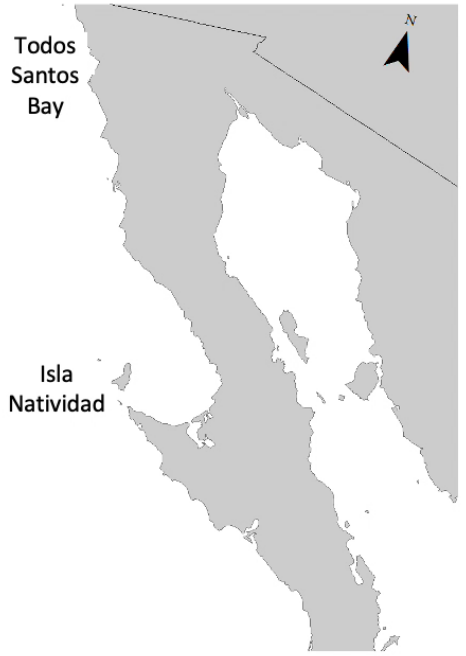
- Focal Areas
  - Species
  - Habitats
  - Ecosystems
- Goals
  - Restoration and Enhancement
  - Habitat creation
  - Mitigation
- Costs vs. Risks vs. Benefits

History of *Sargassum horneri* invasion

Central CA

Southern CA

Baja CA, MX



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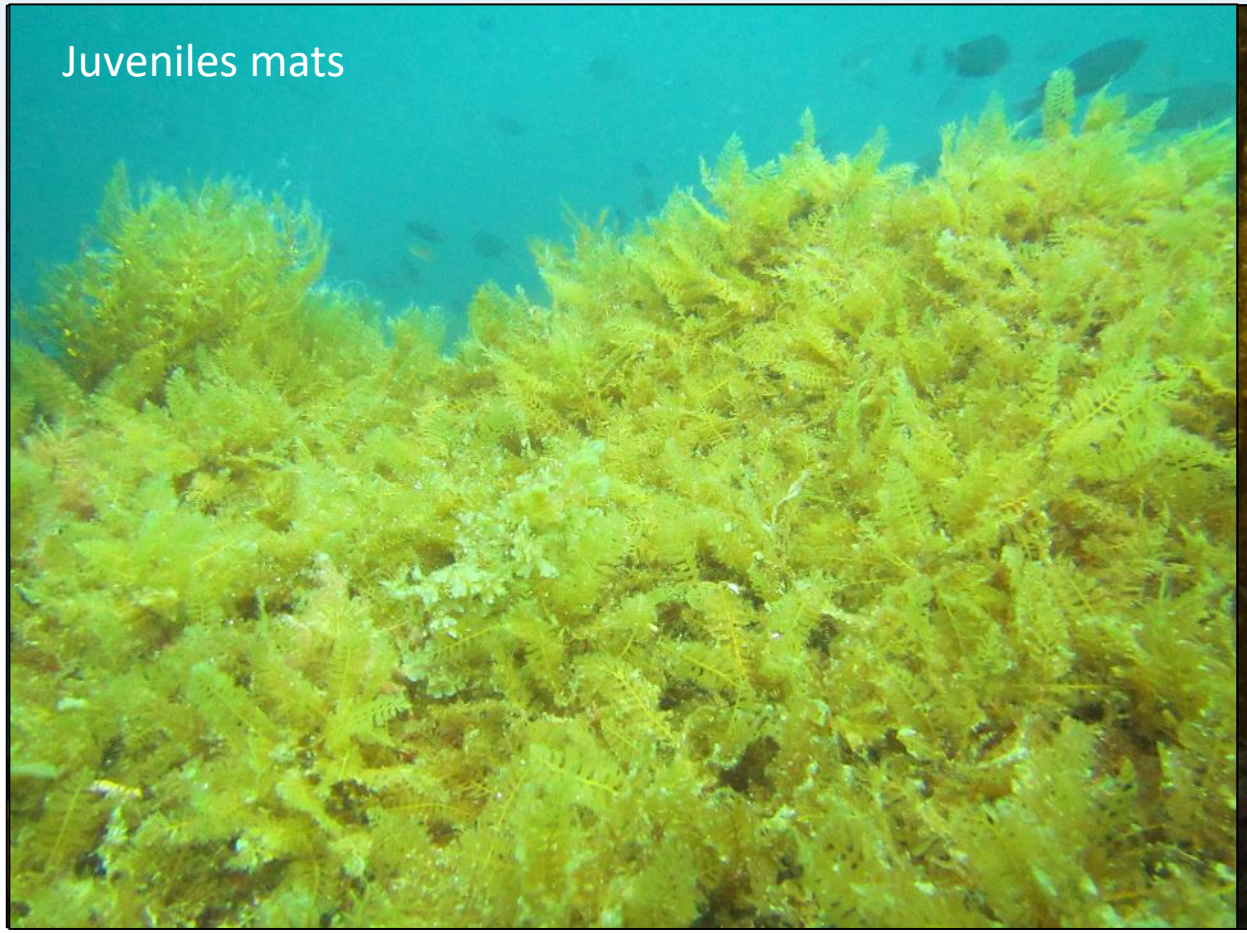
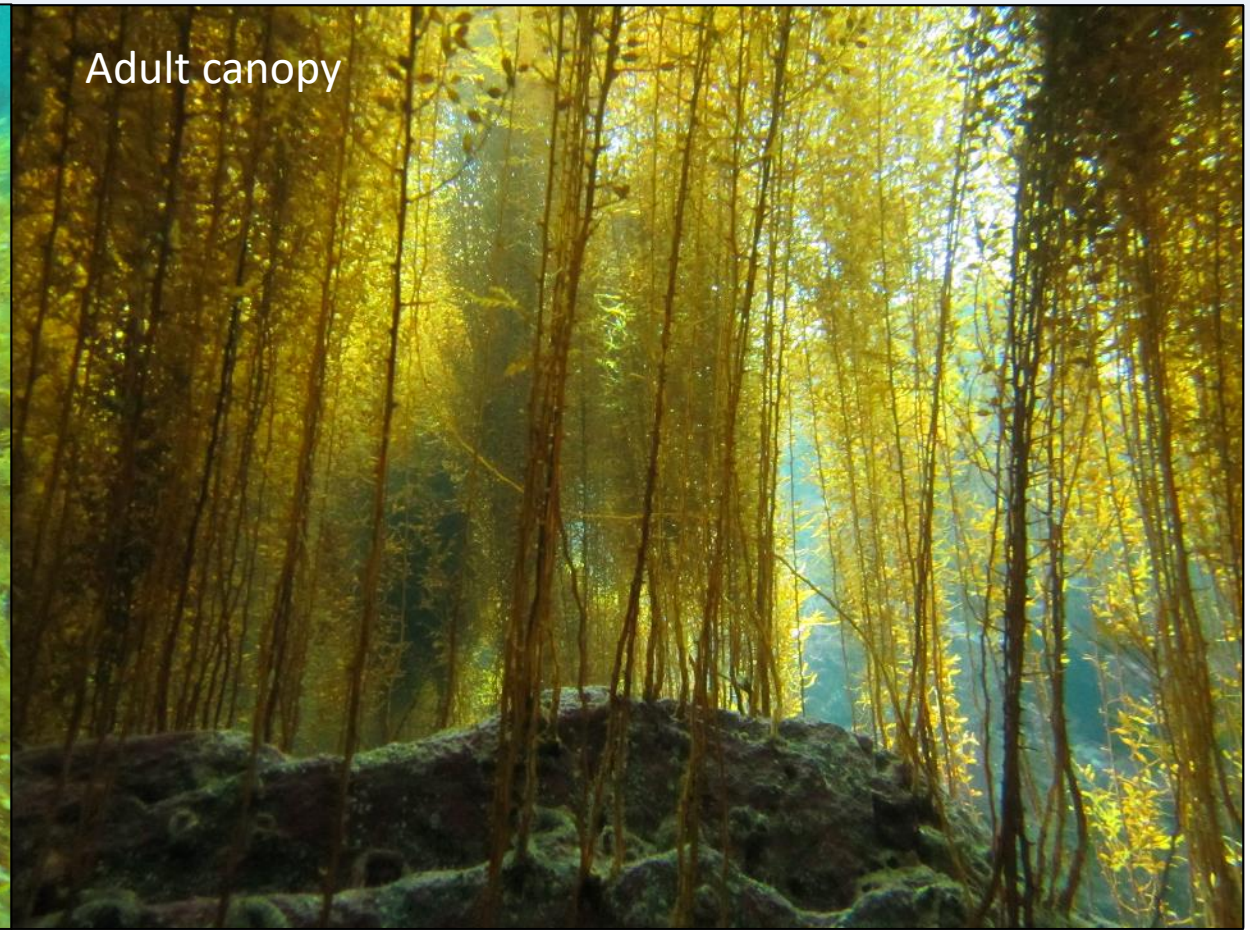
Sargassum horneri ecological concerns

- Forms dense stands that may displace native algae





Sargassum horneri ecological concerns

- Life history
  - Annual life cycle: reproduction early winter – late spring
  - Copious localized dispersal leads to dense patches
  - Long-distance dispersal possible when fertile plants are dislodged from the reef and float on ocean currents
- Herbivores prefer to eat native kelp over *Sargassum*
- Ecological services not equivalent to native kelps
- Healthy kelp forests (e.g. historic MPAs) may resist invasion

Sargassum horneri removal concerns

- Efficacy of removal
  - Before populations become well-established
  - Prior to reproductive season of *S. horneri*
  - When ocean conditions favor recolonization of native kelp
  - Limit re-establishment (e.g., area cleared, vectors controlled)
- Risk of inadvertent spread
  - Plants removed from the reef should be quickly extracted from the water and disposed of on land to prevent dispersal
- Effort vs. benefits
  - Management goals need to be identified (eradication not feasible)
  - Benefits to be weighed against costs and risk

Sargassum horneri Proposals

- Proposal 1
  - Modify Fish and Game Code (FGC) Section 2300 (a) and (b) to include *Sargassum horneri* and the bryozoan *Watersipora subtoquata* to allow removal of the invasives during outbreaks and for scientific research
  - Petition withdrawn

Sargassum horneri Proposals

- Proposal 2
  - Modify CCR, Title 14, Section 30 kelp sportfishing regulations to include unlimited take of *S. horneri* from April to October
  - Modify CCR, Title 14, Section 632 Crystal Cove SMCA to allow unlimited recreational take of *S. horneri* from April to October.
  - Allow year-round removal of *S. horneri* for three years as a research project in Crystal Cove SMCA under Scientific Collecting Permit

Sargassum horneri Proposals

- Proposal 3
  - Request to commercially harvest *S. horneri* under the commercial regulations CCR, Title 14, Section 165(f) All Other Species of Kelp at Anacapa and Santa Rosa Islands while diving.

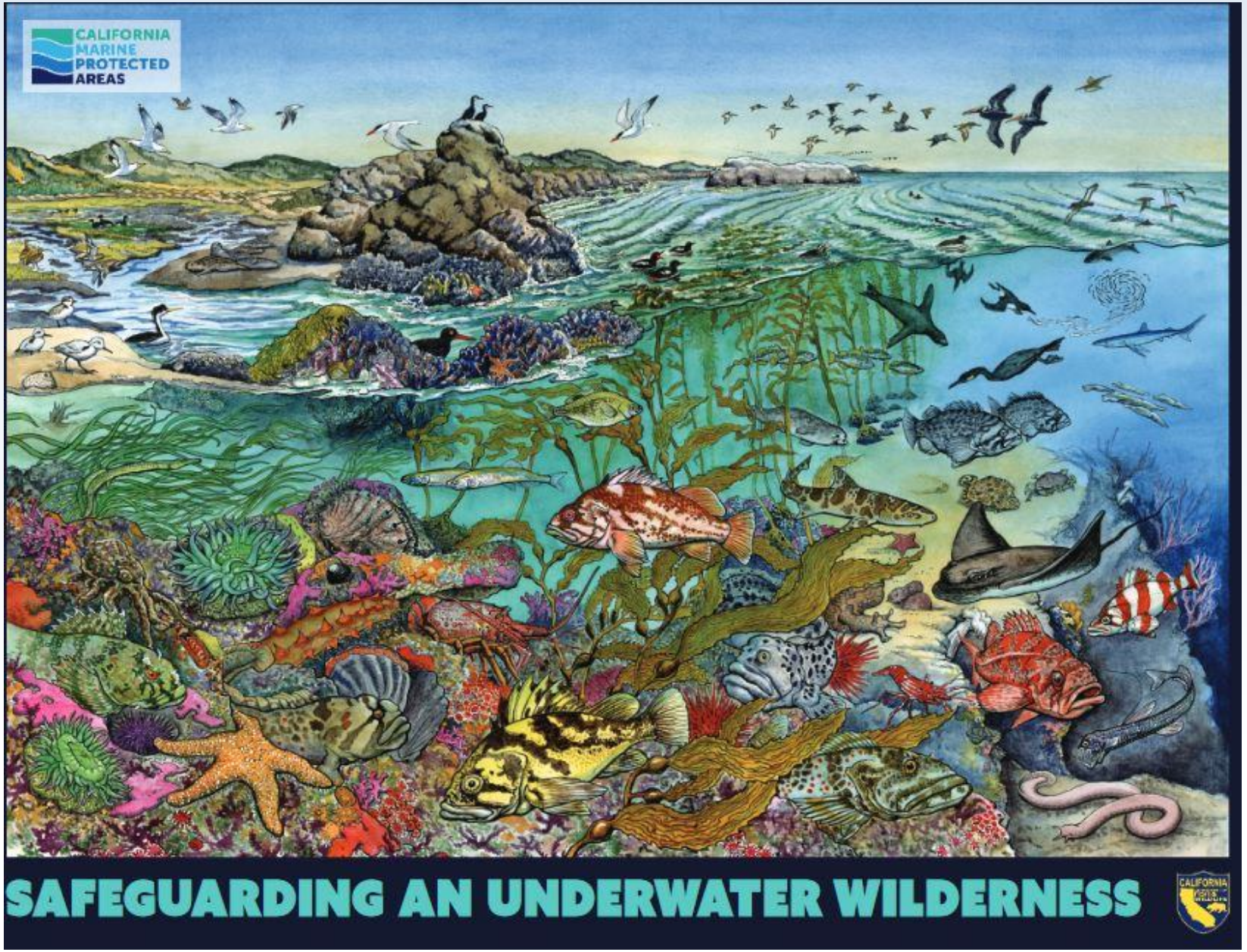
Sargassum horneri Proposals

- Evaluation Questions
  - What are the goals?
  - What is the timeframe, is it urgent?
  - What are the costs?
  - What are the potential benefits?
  - What can be learned?
  - What are the potential risks?
  - Other?

Summary

- What is Restoration
- History of *Sargassum horneri* spread
  - Ecological concerns
  - Removal concerns
- Current petitions to address *S. horneri*
  - Evaluation Questions
- Next steps

Discussion


CALIFORNIA
MARINE
PROTECTED
AREAS
SAFEGUARDING AN UNDERWATER WILDERNESS

Regulations: Sportfishing and Commercial

- Marine algae sportfishing regulations allow a daily bag limit of 10 lbs per day with few species restrictions, MPA restrictions apply. Title 14, Section 30
- Commercial marine algae regulations for all other species of kelp may apply to the Commission. Title 14, Section 165(f)

Regulations: *Caulpera* spp., MPA, and SCP

- *Caulpera* spp. aquatic invasive species regulations prohibit sale, possession, import, transport, transfer, release alive in the state, or given away. Allows scientific research. Penalties for violations. FGC Section 2300
- Crystal Cove SMCA does not allow marine algae take. Title 14 Section 632(b)(133)
- Scientific Collecting Permits are required to remove invasive species to improve or restore ecosystem or habitat conditions. Title 14, Section 650(c)(3)(c)