



# **Humboldt Bay and Eel River Estuary Habitat Goals Project**

**Susan Schlosser**

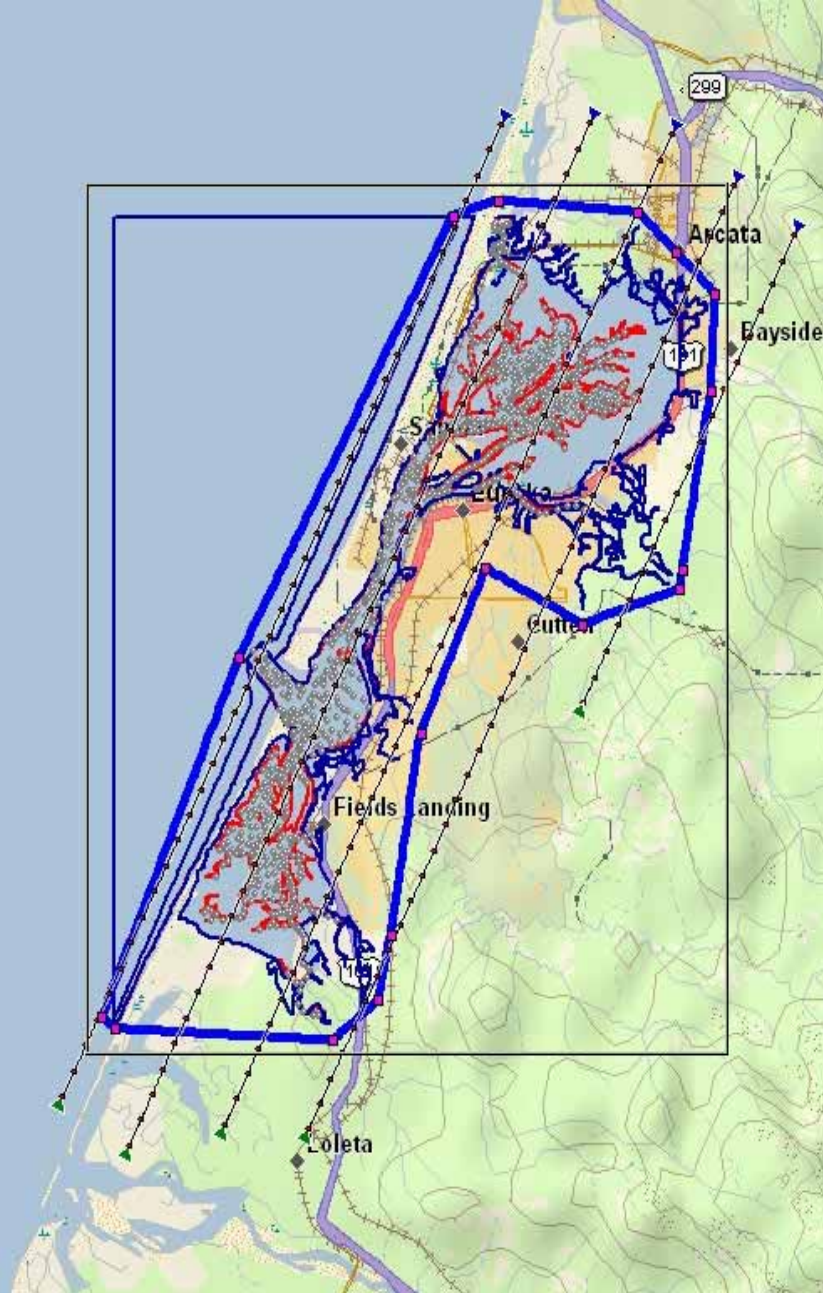
**Coastal and Marine Ecological Classification Standard  
Workshop**

**March 30, 2011**

**Oakland, California**



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# Management Issues

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- Habitat loss and fragmentation
- Shoreline improvements to accommodate climate change consequences
- Comprehensive estuarine restoration plan
- Maintain biodiversity and important habitats



# Management Issues

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# Applications – IMAGES

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- NOAA – Marine Protected Area Center
- USGS – National Geospatial Intelligence Agency
- North Coast Regional Water Quality Control Board
- Coastal Commission
- USFWS – *Spartina densiflora* Control Project
- DFG- European green crab monitoring



# Applications - IMAGES

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- McBain & Trush – Shoreline infrastructure map and inventory
- Pacific Watershed Associates, OSU, Cascadia GeoSciences – Land level and sea level changes in Humboldt Bay
- Ocean Imaging –Sea View Fishing
- Royal Botanical Gardens – Sydney, Australia



# Applications of CMECS - CDFG

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- CEQA review
- Development Project Review
- Riverside Ranch Restoration Design
- Aquaculture planning
- Mapping Shellfish Leases
- Climate change adaptation planning





# Applications of CMECS

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- CA Dept Public Health – Shellfish Sanitation Surveys
- USFWS – rare plant monitoring
- USFWS, Sea Grant, PCJV- climate change adaptation planning
- USFWS – management unit boundary determination
- USFWS – National Wetland Inventory update



# Applications of CMECS

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- USFWS, CDFG, Coastal Commission, and many businesses
  - Plan to use in conjunction with coastal LIDAR
- Pacific Watershed Associates – Eelgrass distribution analysis, Humboldt Bay



# Why Did We Use CMECS?

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- High quality and consistent data
- Habitats represented important to management
- Layer components allow incremental additions
- Integrated well with conservation targets
- Provides common understanding of habitats



# Digital Image Acquisition

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- June 27, 2009 – 9:35 to 10:24 AM
- 0.5 m resolution
- Tide: -1.0 foot or lower
- Sun angle: 25 to 40 °
- No clouds, no haze, no fog







North Spit

Eureka

Indian Island



# Habitat Classification

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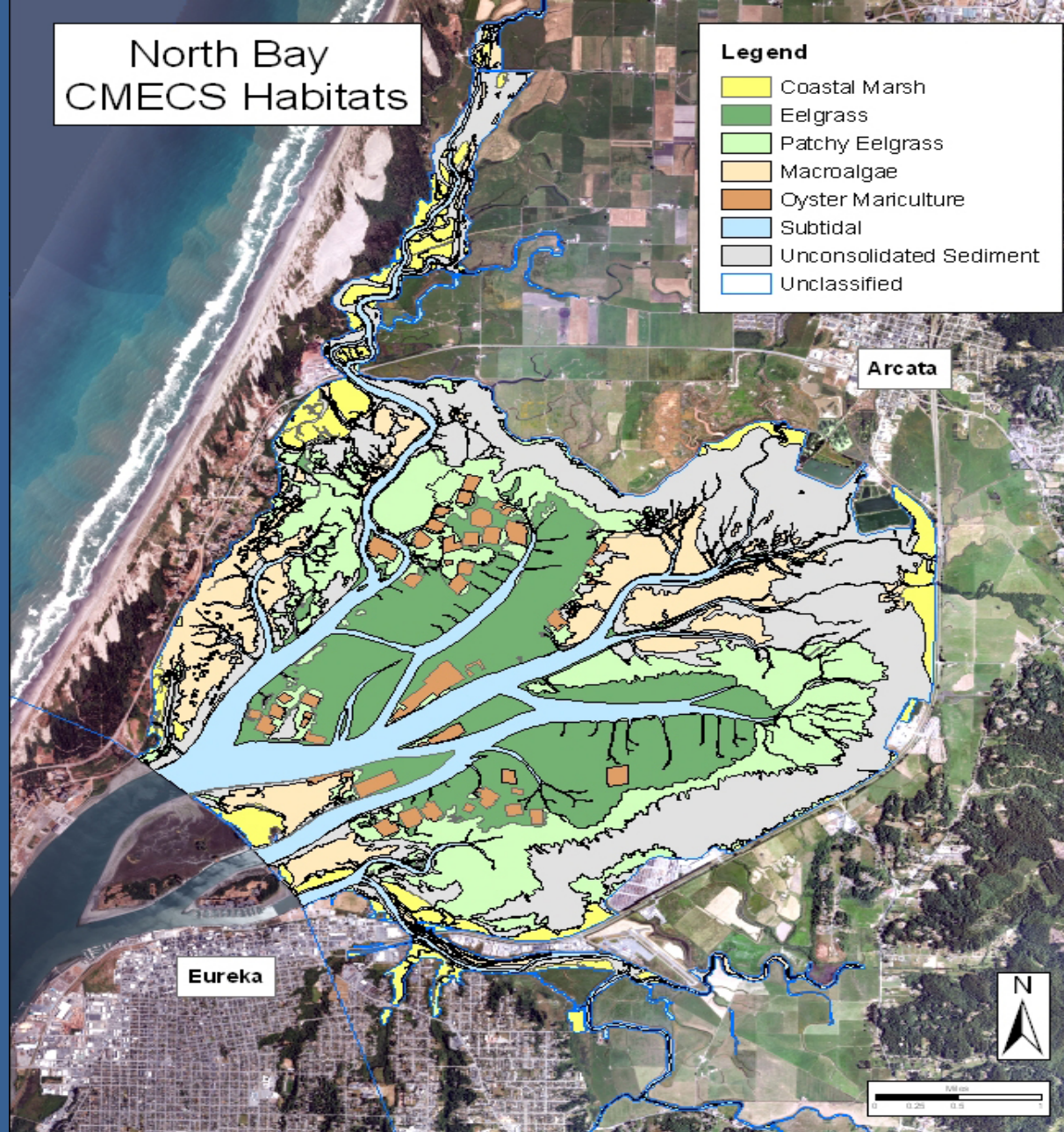
- Horizontal spatial accuracy: +/- 3 m
- Minimum mapping unit: 10 m x 10 m
- Habitat features digitized on screen with ARGIS Geodatabase 9.3



# North Bay CMECS Habitats

## Legend

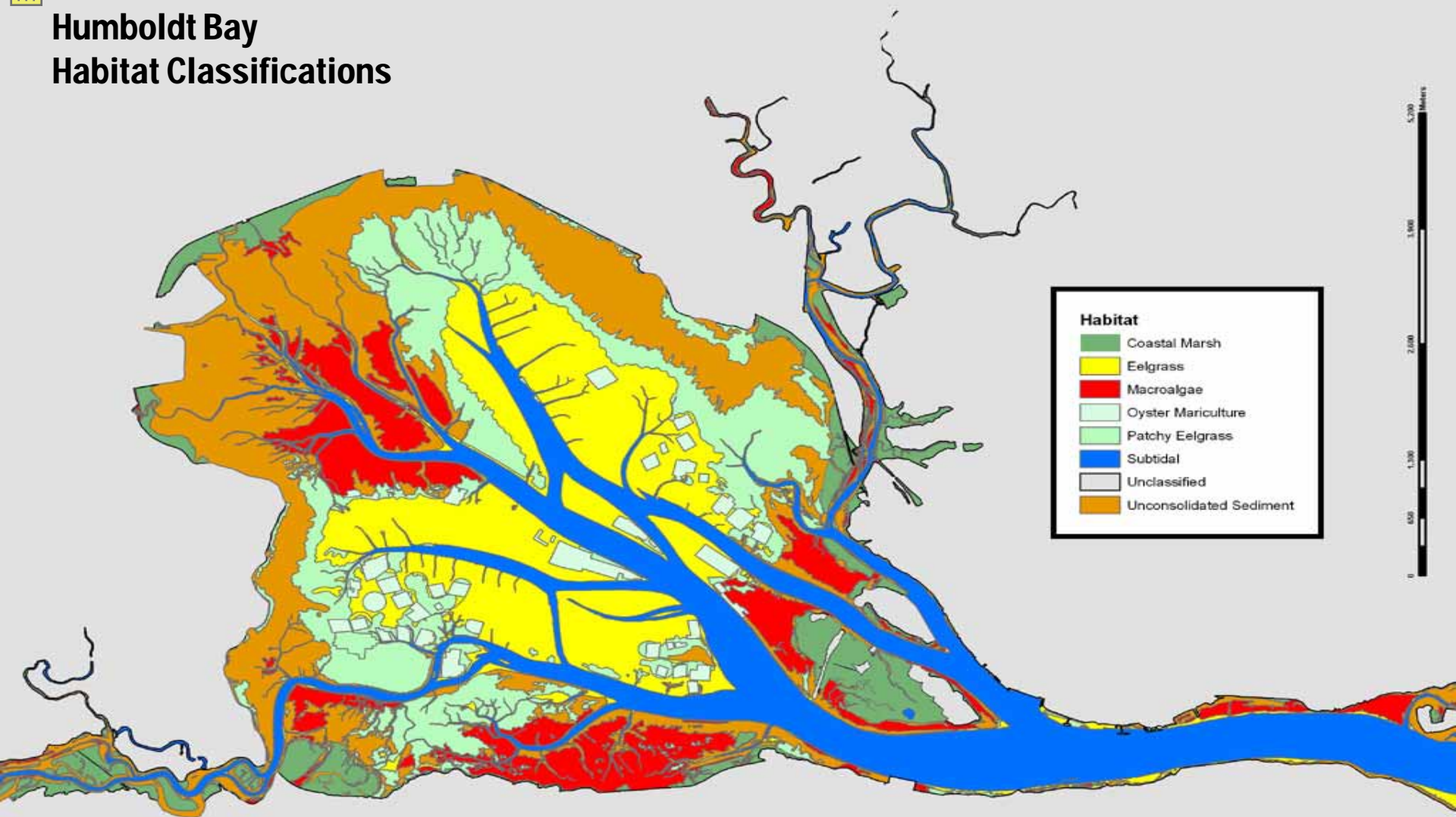
- Coastal Marsh
- Eelgrass
- Patchy Eelgrass
- Macroalgae
- Oyster Mariculture
- Subtidal
- Unconsolidated Sediment
- Unclassified









# Humboldt Bay Habitat Classifications





## Humboldt Bay and Eel River Estuary CMECS Habitats

### Legend

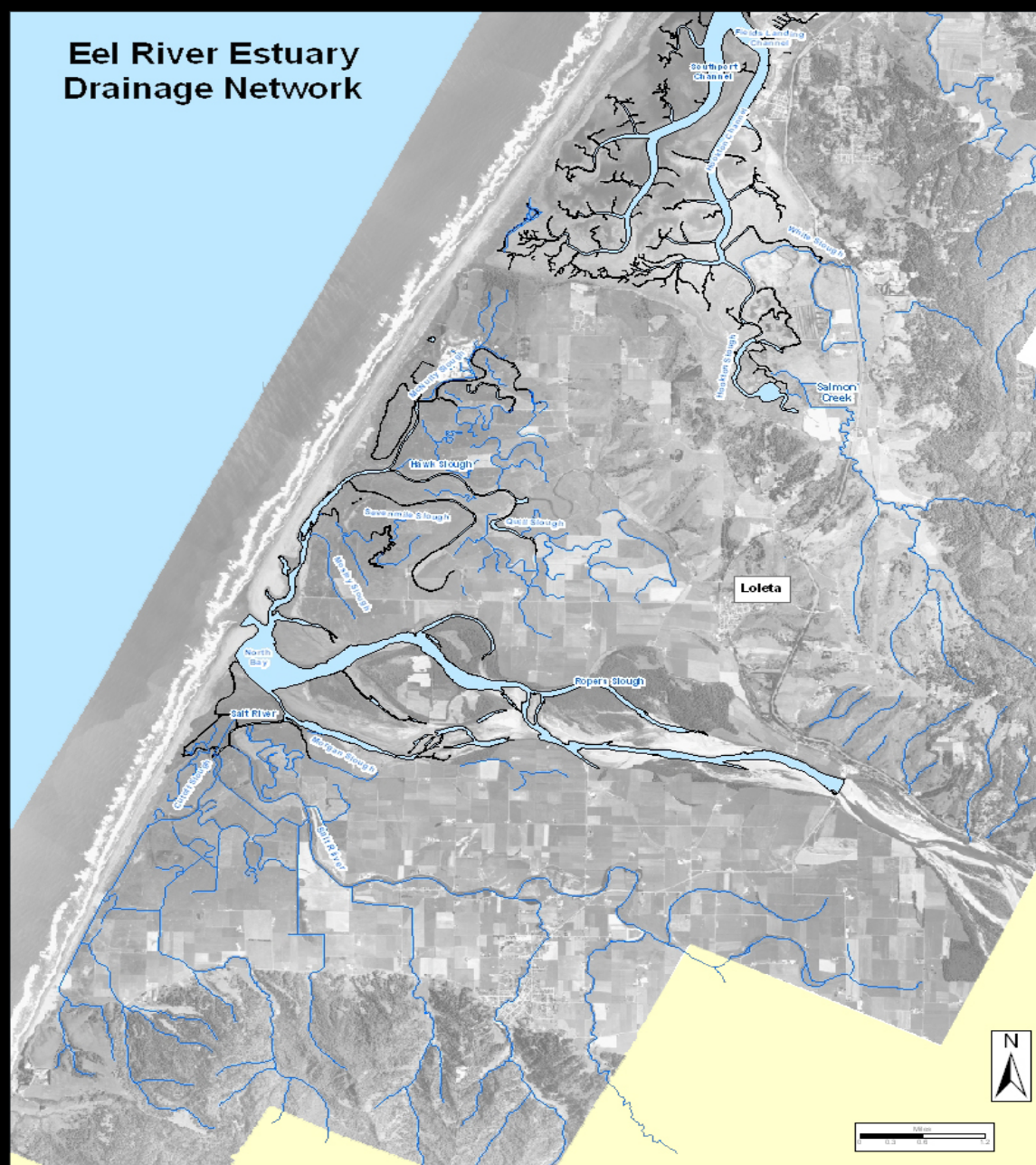
-  Eelgrass
-  Patchy Eelgrass







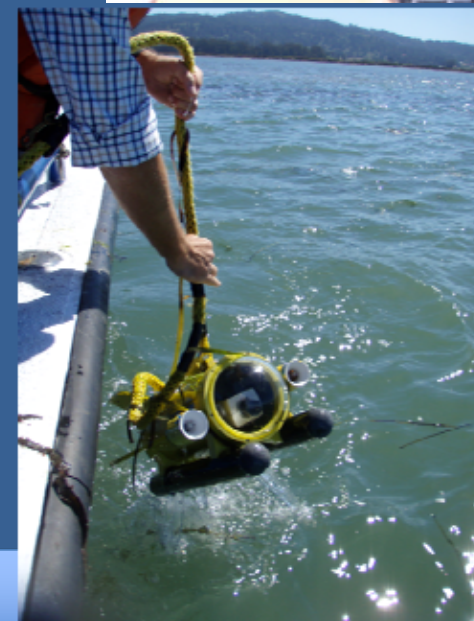
## Eel River Estuary Drainage Network





# Quality Control and Accuracy

- 2 Field visits
- Points manually chosen
- Representative
- Areas of potential confusion
- 84% accuracy





# Microbial Mat

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***Ulva* spp.**



***Vaucheria* sp.**



***Chaetomorpha* sp. &  
*Rhizoclonium* sp.**



***Gracilaria* sp. or  
*Gracilariopsis* sp.**





## More than just data...

The Digital Coast also provides the tools, training, and information needed to turn these data into the information most needed by coastal resource management professionals. [Read more...](#)

Welcome to the Digital Coast. If you have questions or comments, please [take a video tour](#) or [contact us](#).

### Data

Learn more about the kinds of data available and download data.

### Tools

Use these tools to turn data into the useful information your organization needs.

### Approaches

#### Coastal Inundation Toolkit

Understand the basics and get the tools that will help make your community more resilient.

#### Offshore Renewable Energy Planning

Get the data and tools needed to make

### Featured Resources

#### Digital Coast Webinar Series

Features a series of presentations, demonstrations, and discussions on Digital Coast products.

#### State of the Coast

Get a state-level view of how coastal ecosystems, economies, and communities





<http://www.csc.noaa.gov/digitalcoast/>

## Acknowledgements

NOAA Coastal Services Center  
Humboldt Bay Harbor District  
US Fish and Wildlife Service  
California Dept. Fish and Game  
National Weather Service  
Photoscience  
Coastal Conservancy  
Nature Conservancy  
Humboldt State University  
Humboldt Bay Initiative





# QUESTIONS ?

# Unconsolidated Sediment







## Macro-algal mat





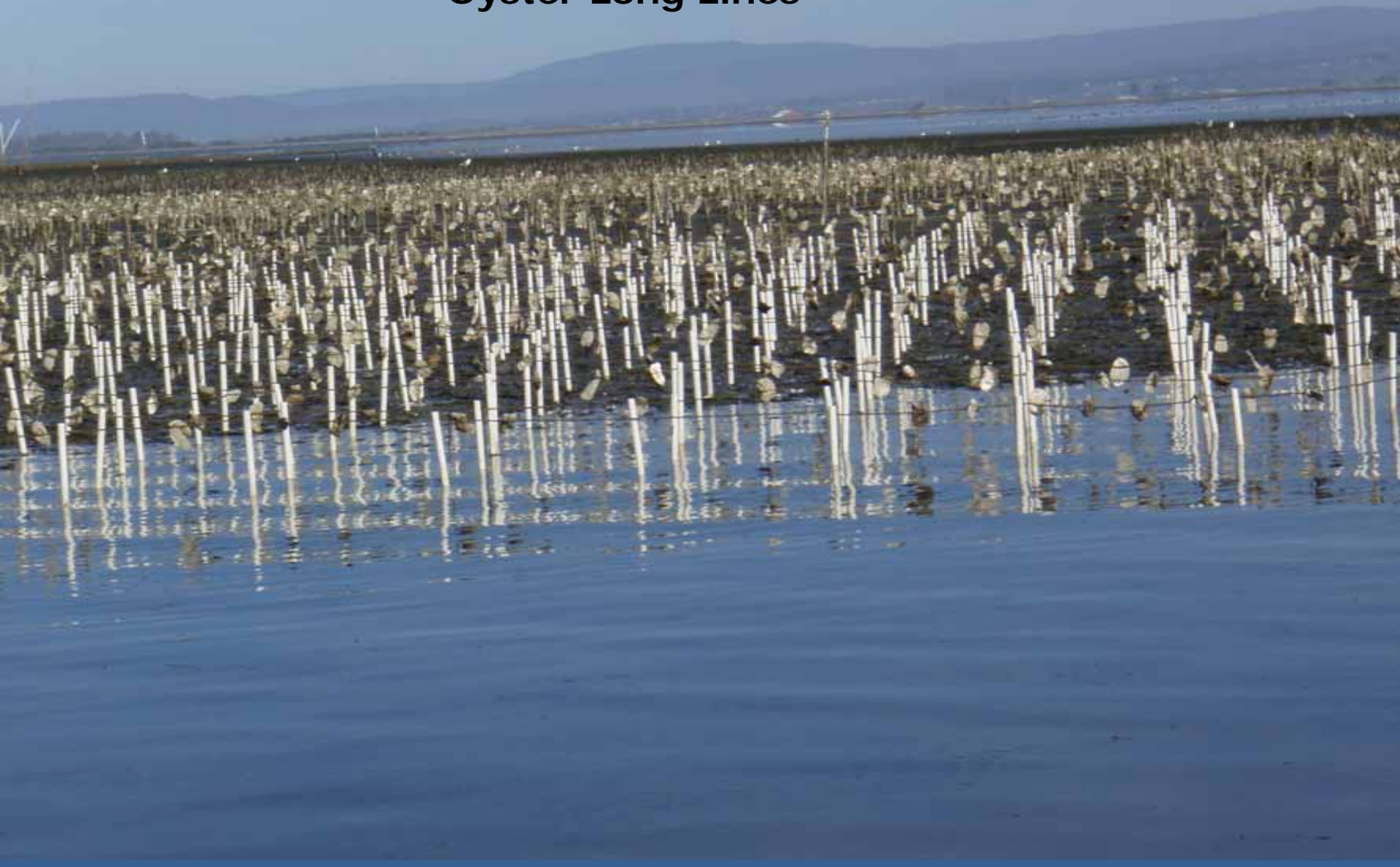
## Spartina marsh, algal mat, subtidal







# Oyster Long Lines





# Eelgrass







## Patchy eelgrass

