Coastal and Marine Ecological Classification Standard (CMECS 101)

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SECART Habinar Series

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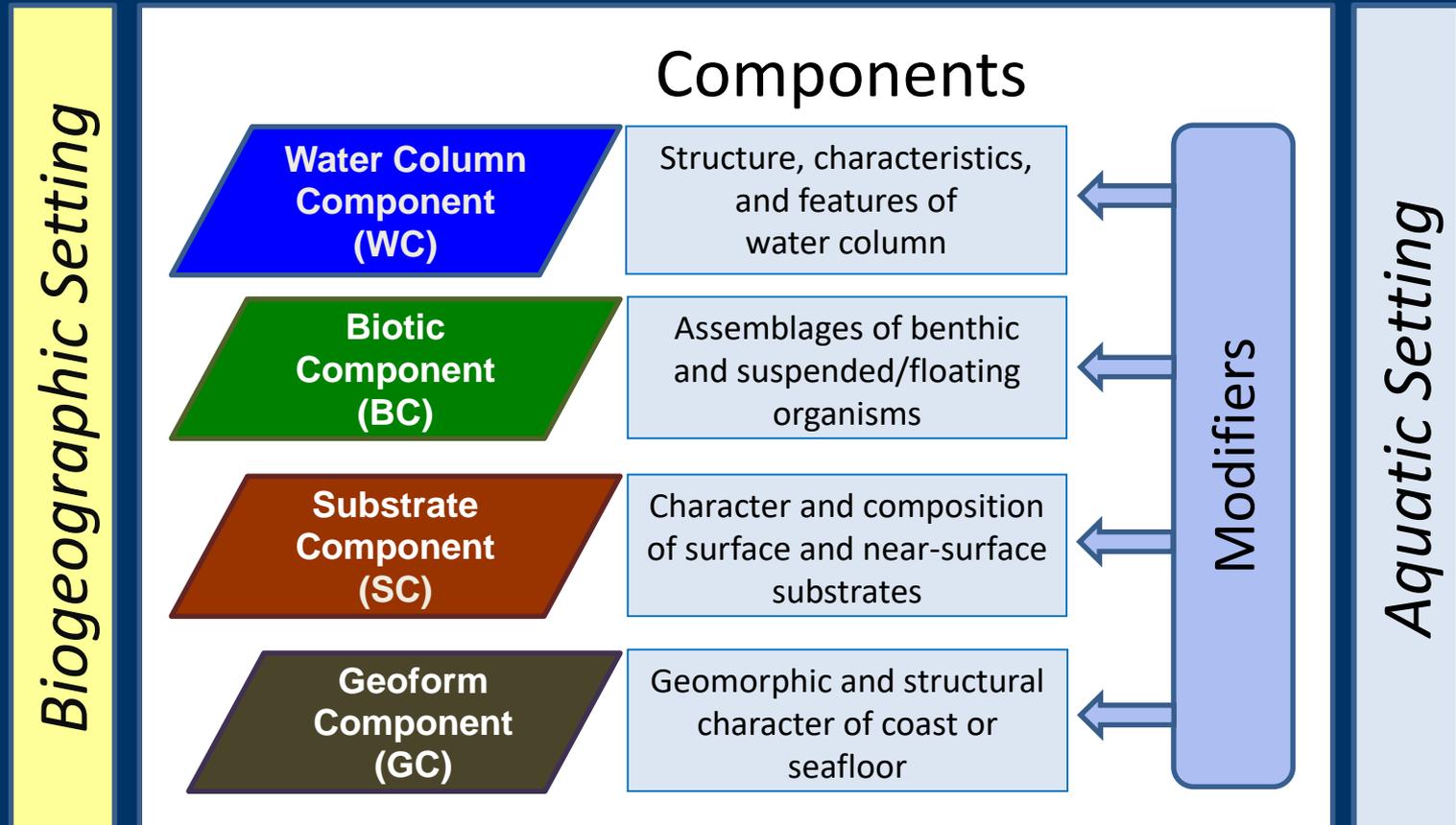
What Is CMECS?

What CMECS is:

- A catalog of terms
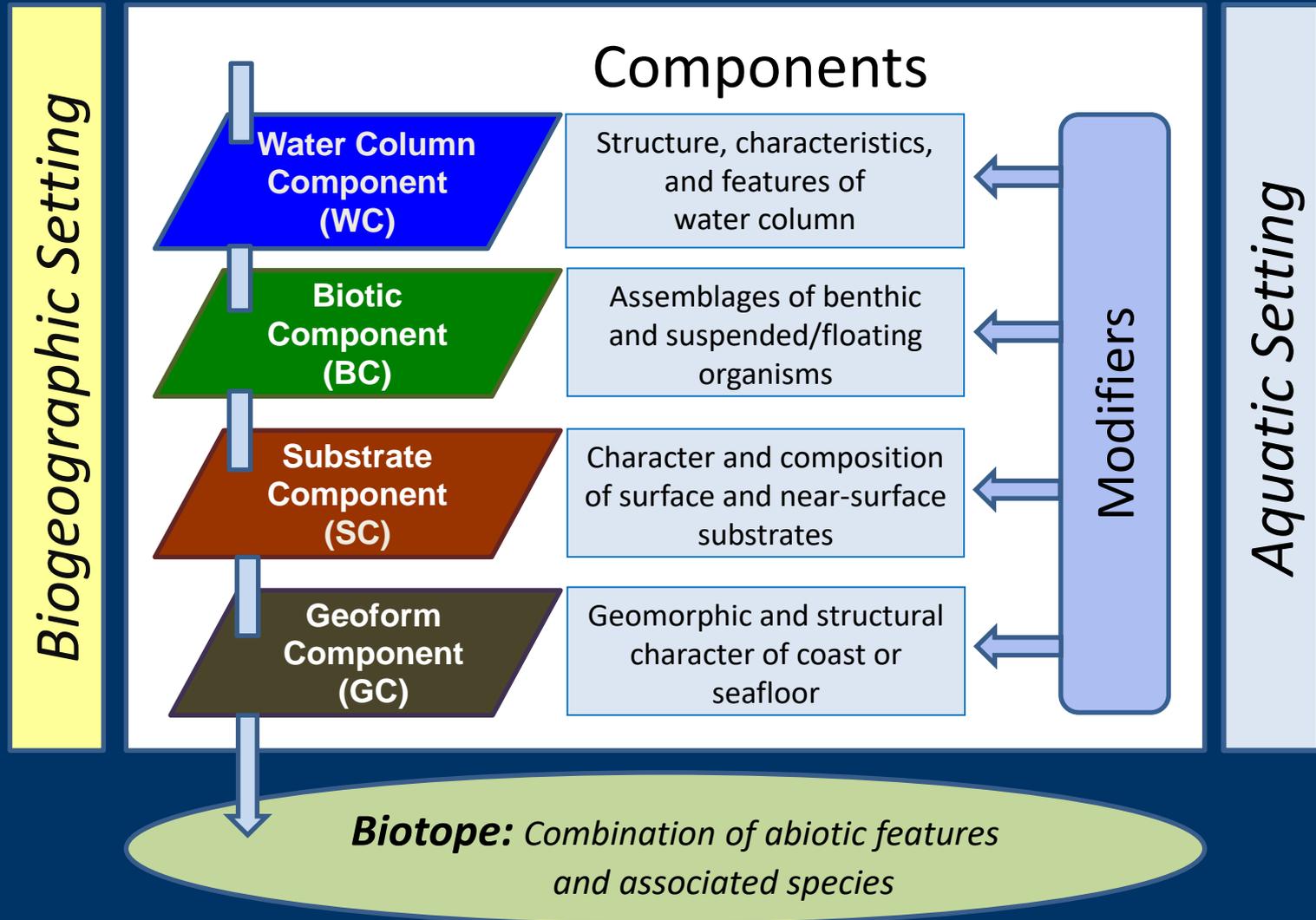- A framework for organizing observational information

What CMECS is not:

- A mapping protocol
- An analytical method for comparing ecosystem units

CMECS Structure

Components

Water Column Component (WC)	Structure, characteristics, and features of water column
Biotic Component (BC)	Assemblages of benthic and suspended/floating organisms
Substrate Component (SC)	Character and composition of surface and near-surface substrates
Geoform Component (GC)	Geomorphic and structural character of coast or seafloor

Biogeographic Setting

Aquatic Setting

Modifiers

CMECS Structure

Biogeographic Setting

Components

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Modifiers

Aquatic Setting

Biotope: *Combination of abiotic features and associated species*

Underwater Video Example

Biogeographic Setting:
Northern Gulf of Mexico

Aquatic Setting:
Marine Nearshore Subtidal

Biotic Component (BC):
Class: Aquatic Vegetation Bed
Subclass: Rooted Vascular Vegetation
Biotic Group: Seagrass Bed
Biotic Community: *Thalassia Seagrass*
Co-Occurring Element: Leathery or Leafy Macroalgae

Substrate Component (SC)**:**
Class: Unconsolidated Mineral Substrate
Subclass: Fine Unconsolidated Substrate
Group: Sand

Geoform Component (GC):
Physiographic Setting: Coastal Complex
Level 1 Geoform: Lagoon

Water Column Component (WC):   Not used

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Gulf of Mexico
Image: C. Moses

Where Would You Use CMECS?

All waters, substrates, biotic communities, and structural features of the coastal and marine realms extending:

- *Landward* – To tidal splash zone of coasts, intertidal and brackish wetlands, and deep waters of Great Lakes

- *Up river or estuary* – To head of tide, where tide is $\geq$ 0.2 ft (0.06 m) for at least part of month

- *Seaward* – To deep ocean, including all continental and oceanic waters and bottom areas

Why CMECS

- Accommodates biological, geological, chemical, and physical data in single structure

- Complies with Federal Geographic Data Committee standards and other accepted approaches

- It's scale and sensor-independent and suitable for multiple methods

Facilitates data sharing and integration

Source Data Accomodated by CMECS

- Multi-spectral Imagery
- Acoustic Backscatter
- Grabs/Cores
- Satellite Oceanographic Data
- LIDAR Elevation and Intensity
- Videography
- Bathymetric DEMs
- Buoy Data
- CTD Samples
- ADCP

Attributing Observations and Mapping

- Spatial Dominance

- Co-occurring Elements

- Scale or Minimum Mapping Unit

- Provisional Units

- Ephemeral Units

No requirement to use units or components for which you don't have data

No requirement to remove more detailed information

Source Data Information (Metadata) Relevant to CMECS

- Date/Time
- Coordinates
- Spatial Reference
- Depth
- Spatial Resolution
- Wavelength/Frequency
- Observational Method/Technology
- Pre-processing Steps
- Point of Contact

Integrating Components

Geodatabase (example CA_sfb11.gdb)
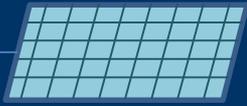
Water Column Component (ex. Continuous or Thematic Raster)

Substrate Component (ex. Point Vector)

Biotic Component (ex. Polygon Vector)

Geoform Component (ex. Polygon Vector)

Aquatic Setting (ex. Line Vector)

Biogeographic Setting (ex. Polygon Vector)

Multiple Component Layers in Single Project
Humboldt Bay , California
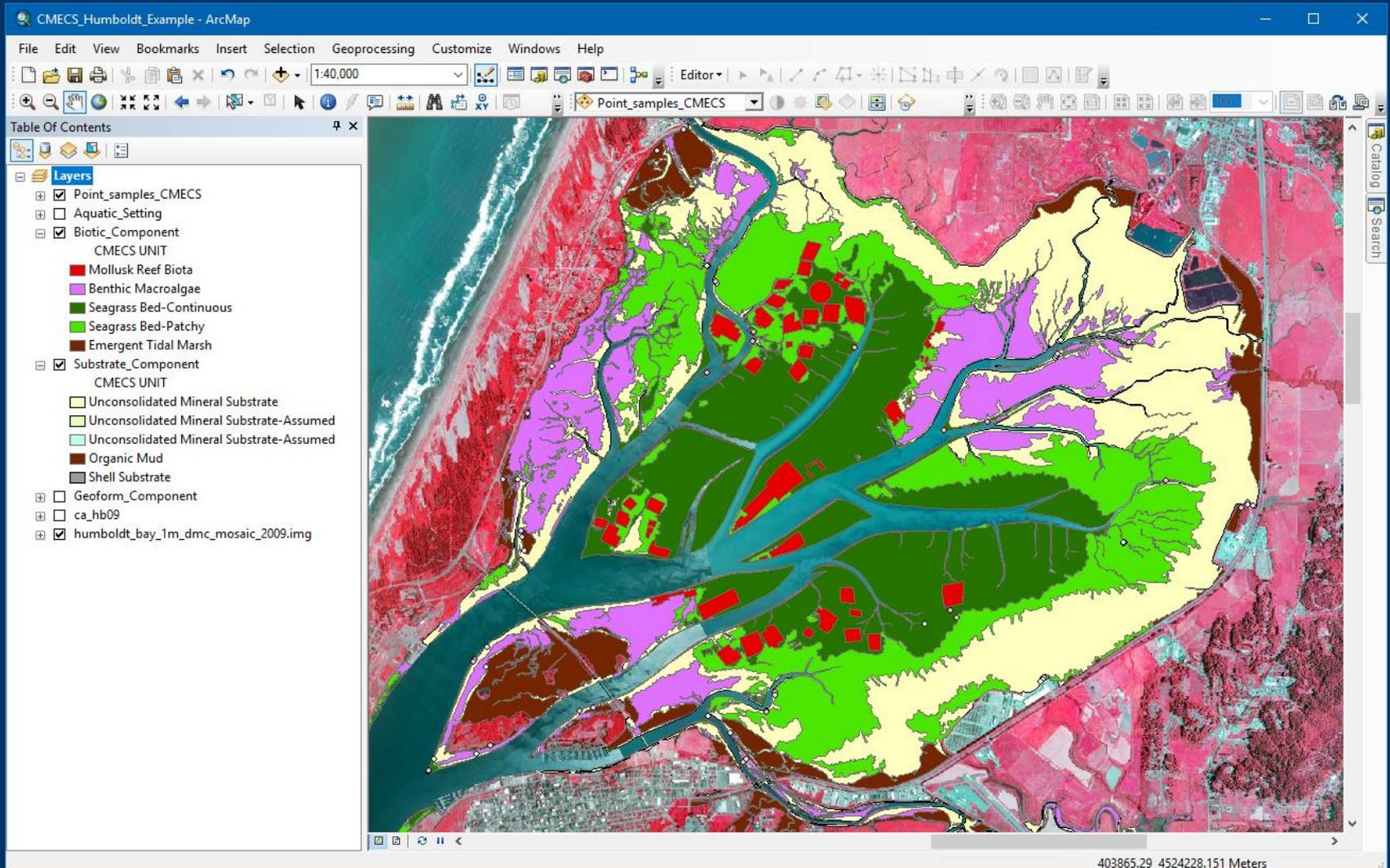
Integrating Seagrass Data from Many Projects

Supporting Users

Technical support
- Technical guidance documents
- Coding system
- Crosswalks to other commonly used classifications
- Crosswalk tool

CMECS update process
- Web-based comment logging
- Peer-review process outline developed
- Comment/modification review guidance completed

Supporting Users

Products
- New data sets available on Digital Coast

Contract specifications*
- SOW language
- Example deliverables
- Metadata guidance

Resources

CMECS Web Site
iocm.noaa.gov/cmecs

CMECS Unit Catalog
www.cmecscatalog.org

Contact Information
nos.ocm.cmecs_ig@noaa.gov

User Community List-Serve
nos.ocm.cmecs_list@noaa.gov