

# Gulf of Maine Geoform Project October 2021 Update

NOAA's Office for Coastal Management State Partners: Maine Coastal Program Maine Geological Survey New Hampshire Coastal Program Massachusetts Office of Coastal Zone Management Tetra Tech

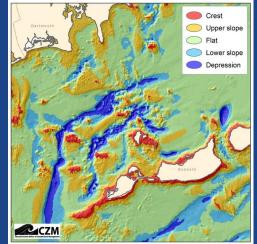




### **Project Goal**

Landscape scale depiction of seafloor structures, or geoforms, using a uniform base layer and classification criteria, created with a process that allows updating, for the purpose of initially understanding the intersection of important habitat areas and proposed projects that are within or cross the Gulf of Maine.

**Why?** A standardized technique to incorporate data that uses an agreed upon habitat classification system (CMECS) provides clarity for all stakeholders involved in project review.





# Key Contributors

Data Source Material - Office of Coast Survey

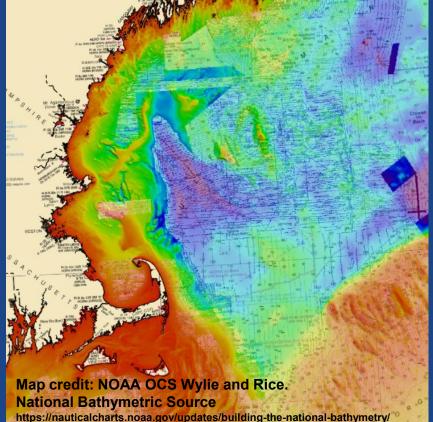
Model Script and Guidance - NOAA OAR and UNH/CCOM

Technical Advisory Team (Process and Review Guidance)

- ACOE
- INSPIRE Environmental
- MA DMF
- NOAA NMFS
- NOAA NCCOS

- NOAA OAR
- NPS
- NROC
- UNH/CCOM
- USGS

Policy and Management Advisory Team (Project Applicability)



• NMFS



### How will this project be used?

Evaluating and reviewing potential projects.

Shaping data acquisition plans through use of data uncertainty model.

Stepping stone for creating even more informative maps; e.g., through adding sediment texture to the morphological features or nesting finer-scale details on/within the larger features.



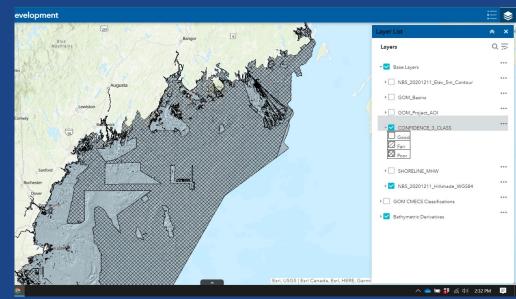


### **Guiding Principles**

Data quality varied across the region, and currently supports a landscape understanding of features

Methods used were deliberately chosen for their repeatability.

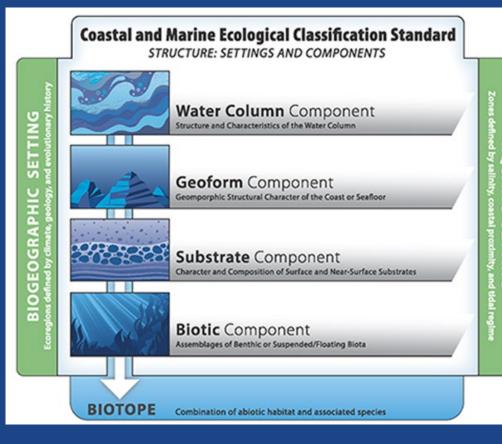
This project complements other data available in the Northeast Ocean Portal for understanding project coordination and avoiding potential conflicts; it is expected to inform data review requirements.



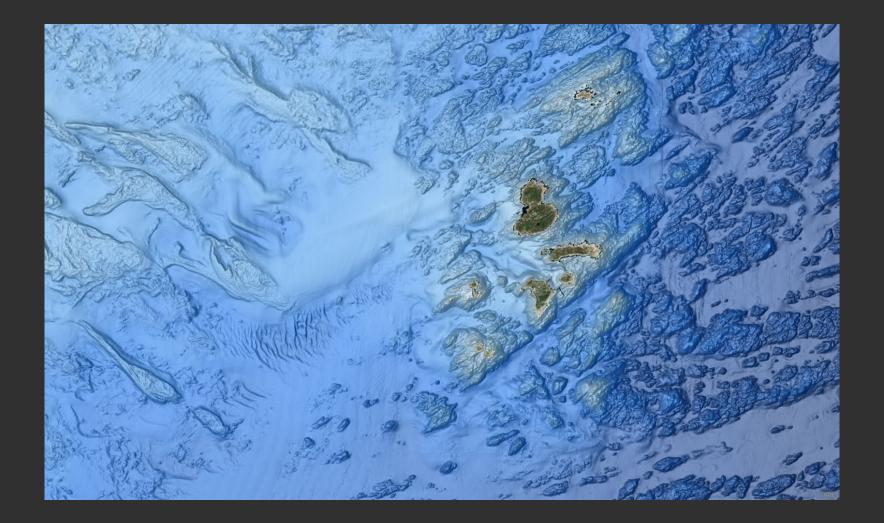


### What is CMECS?

The Coastal and Marine Ecological Classification Standard (CMECS) is a structured catalog of ecological terms that provides a framework for interpreting and classifying marine habitat information.







## Need for a Regional CMECS Model

UNITED STATES DEPARTMENT OF THE INTERIOR Bureau of Ocean Energy Management Office of Renewable Energy Programs

### June 2019

<u>Guidelines for Providing Benthic Habitat Survey Information for Renewable</u> <u>Energy Development on the Atlantic Outer Continental Shelf</u> <u>Pursuant to 30 CFR Part 585</u>

### VI. Survey Results and Supporting Data



To ensure the accuracy and quality of survey results, the following data elements should be provided with the benthic habitat surveys. However, individual benthic survey plan elements should be discussed with BOEM on a case-by-case basis. Benthic habitat data should be classified according to the Coastal and Marine Ecological Classification Standard (CMECS) to the lowest taxonomic unit practicable.

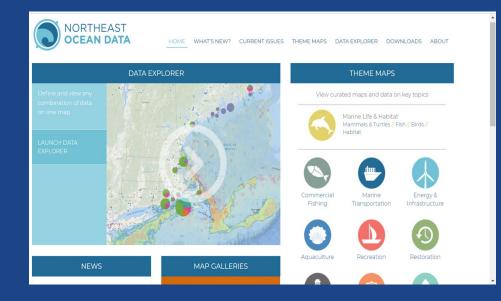
# What are geoforms?

Geoforms describe the physical structure of the environment across multiple scales

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### Sulf of Maine CMECs Development

### Geoform Potential Role in Project Planning



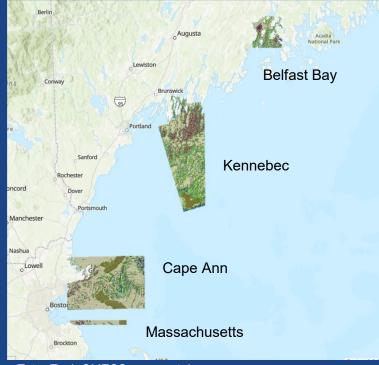
Anticipated to be used in preliminary assessment of ocean landscape in conjunction with other data available through the Northeast Data Portal

(Note: Formal project review, e.g. Essential Fish Habitat, requires more detailed analysis as outlined in the NMFS Project Review Guidelines)



### **Project Status**

- Pilots developed to represent differing geomorphic areas
- Classification system established
- Bathymetric derivatives (slope and roughness) completed
- Geoforms complete
- Data quality/reliability mapped



Tetra Tech CMECS map portal

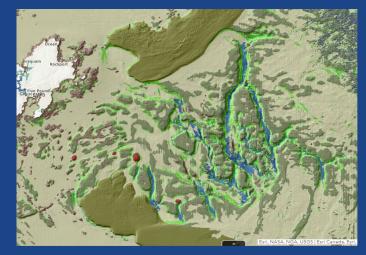
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### **CMECS** Outcome

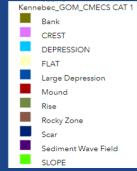
CMECS classification has been modified to fit with results of the automation process and quality:

- Bar and Shoal merged
- Ridge not used (Crest used instead)
- Rises used for generic bathymetric highs
- Rocky Zone added
- Four upper level categories established:
  - Flats
  - Rises
  - Slopes
  - Depressions
- Geologic terms applied as descriptors (ex. Moraine, drumlin, etc.)

We recommend exploring this for a general standard for the Northeast and possibly elsewhere.

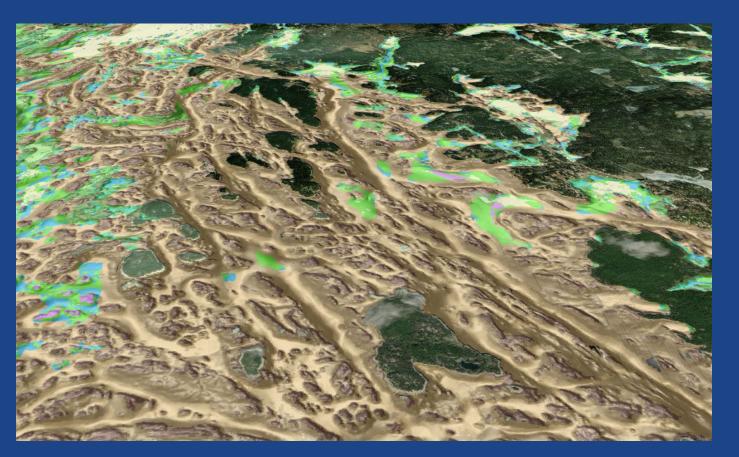


Tetra Tech CMECS map portal - DRAFT





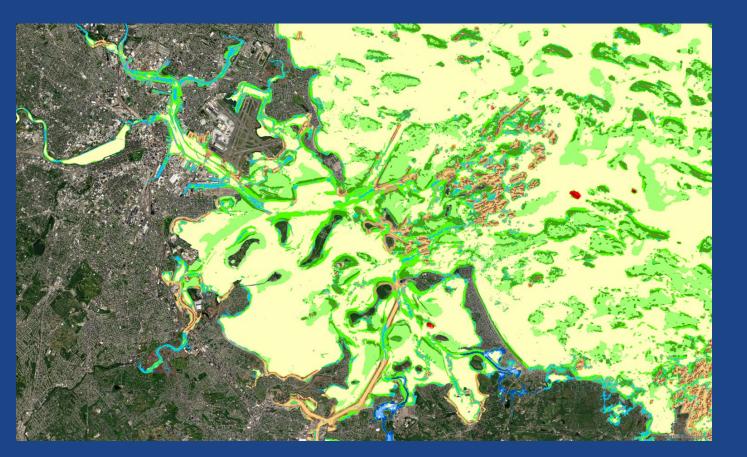
### CMECS examples...







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## Next Steps

**Complete Project** 

- Comprehensive review currently underway for final CMECS regional geoforms
- Provide the ability for updating with new data through clear methods documentation, spatial models and scripts.

### Make Data Available and Share Availability

- Products will be available on Marine Cadastre and Northeast Ocean Data Portal
- Provide information on project through forums including NROC, Gulf of Maine Council, and CERF

Leverage Project

- Methods will be shared nationally and used for CMECS updates and implementation guidance
- Discuss lessons learned in regional and national forums