

# Gulf of Maine Seascape Mapping

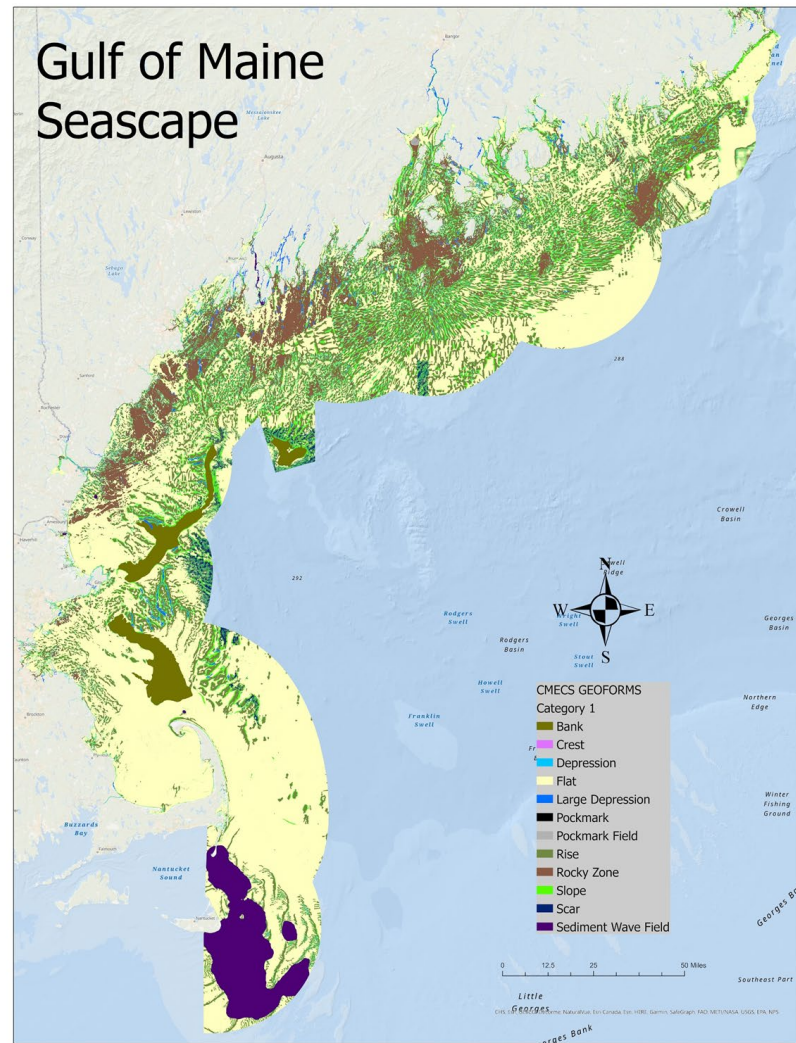
NROC Spring Meeting  
13 April 2023

NOAA Office for Coastal Management

State Partners:

- Maine Coastal Program
- Maine Geological Survey
- New Hampshire Coastal Program
- Center for Coastal and Ocean Mapping
- Massachusetts Office of Coastal Zone Management

Tetra Tech



# Gulf of Maine - A Critical Time for regional management

**Current regional ocean management issues  
necessitate regional maps**

Project Goals:

- 1) A consistent regional geoform product to provide a framework for more detailed surveys.
  - 2) Create methods to update this product as new bathymetric information becomes available.
- 1) Examine the intersection of important habitat areas and proposed projects that span multiple jurisdictions.



# Technical Overview

*What:* Landscape scale depiction of seafloor structures, or *geoforms*

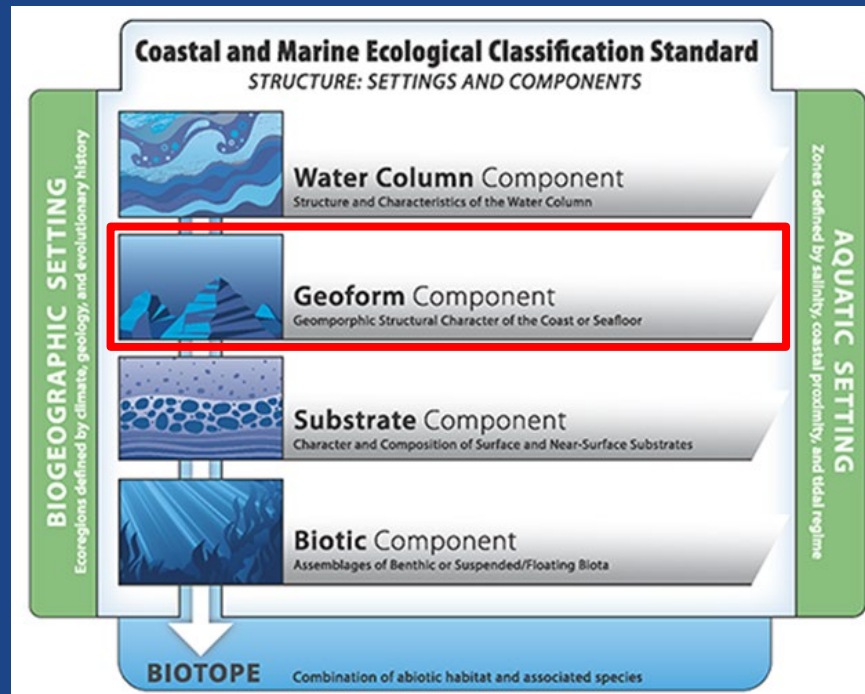
*Where:* Gulf of Maine out 24nm from coast

*Resolution:* 8 meter grid

*Source Data:* BlueTopo (NOAA OCS product)

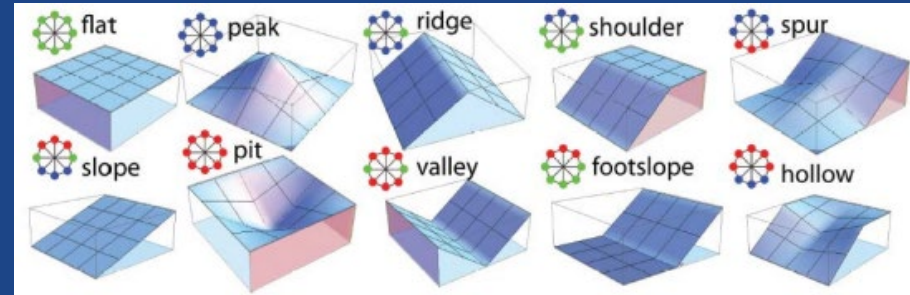
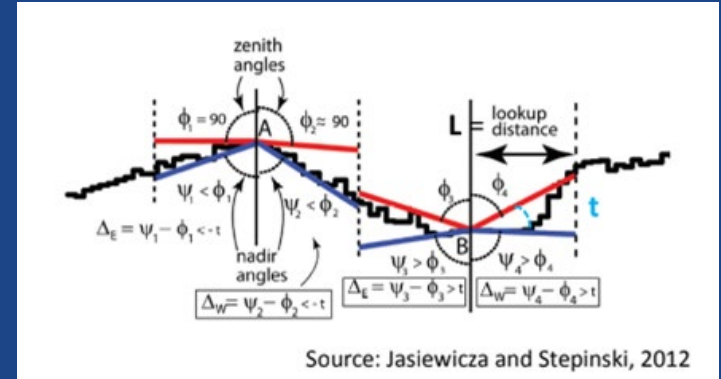
*How:* Automated methods (BRESS, BPI, etc.)

*Classification:* CMECS Geoforms (updated)



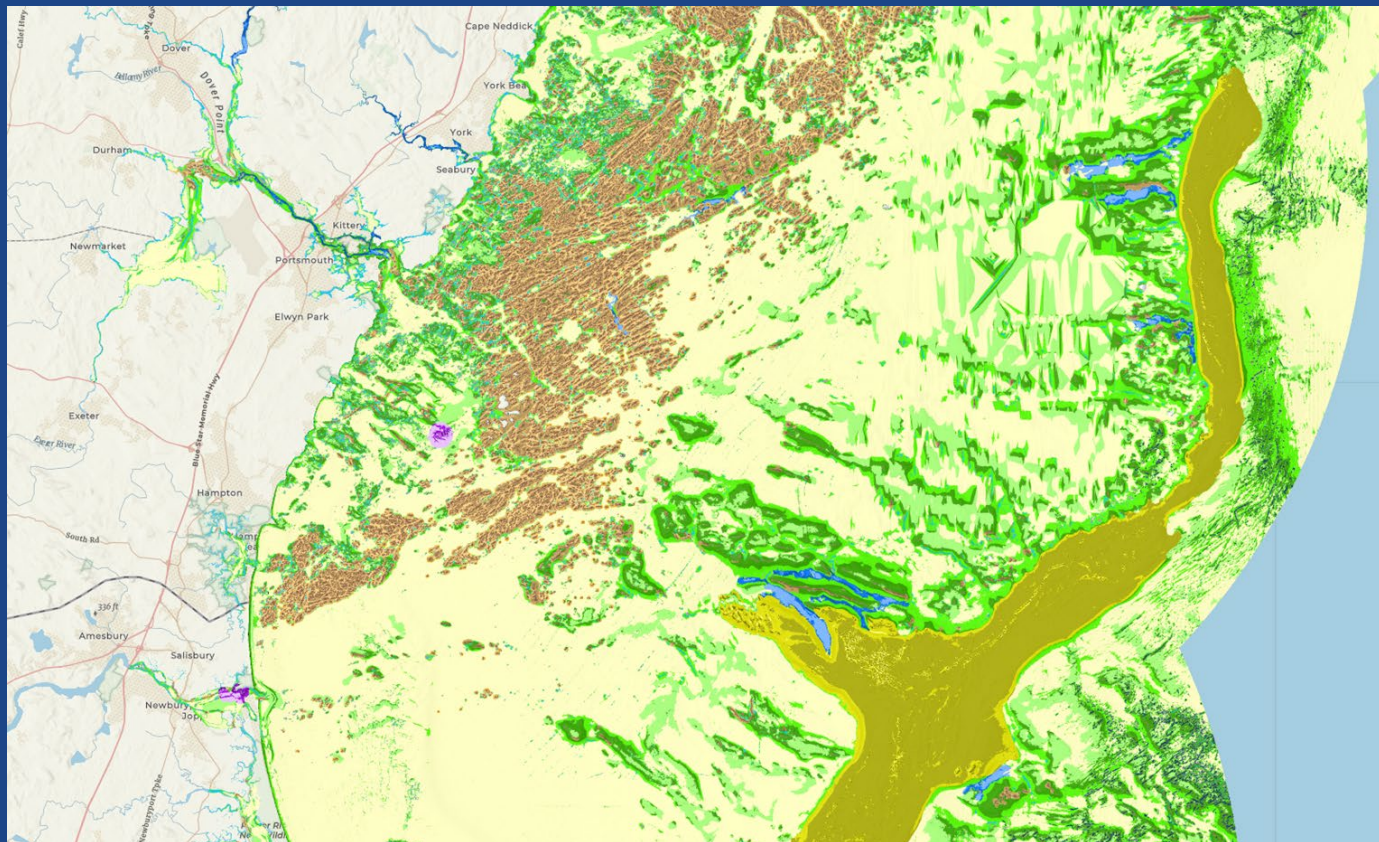
# Processing and Data Development

- Bathymetry processing (mosaicking, confidence layer development)
- **Semi-automated processing and modeling (BRESS)**
- CMECS classification
- Supplemental interpretation by subject matter experts
- Data packaging
- Documentation



Bathymetry- and Reflectivity-based Estimator  
of Seafloor Segments (BRESS)  
(<https://www.hydroffice.org/bress/main>)

# Gulf of Maine Seascape Features



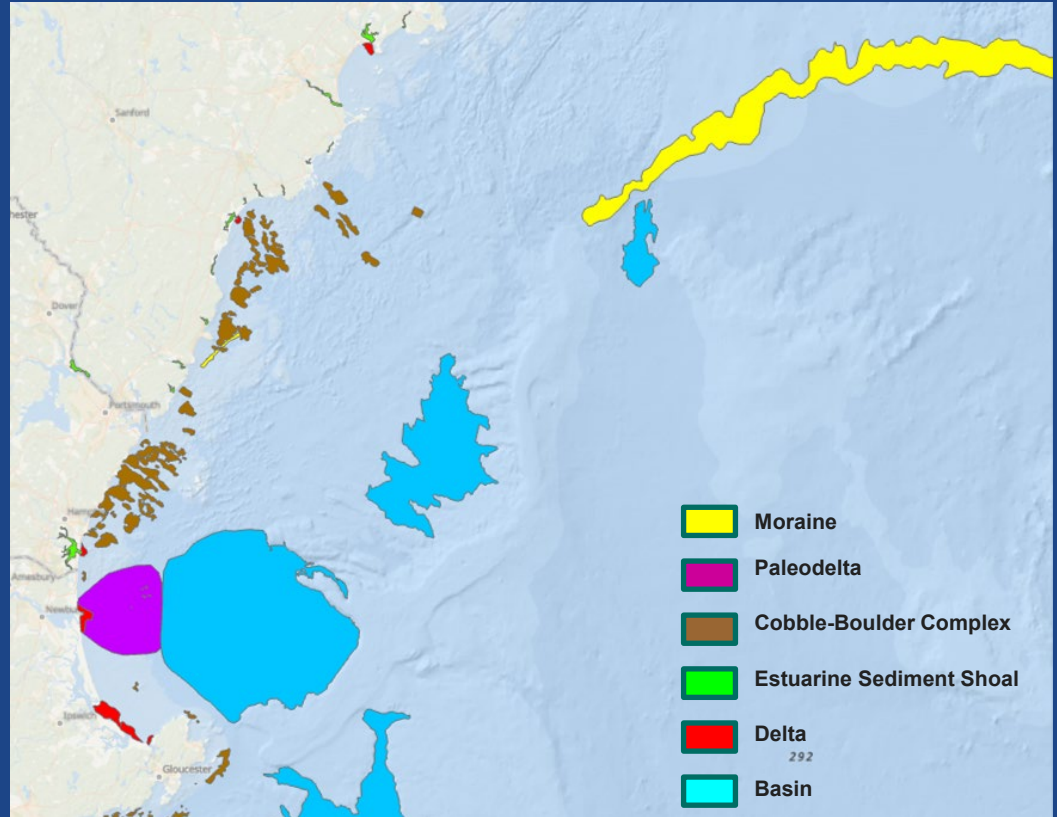
GOM\_CMECS\_Final CAT 2

- Bank: DEPRESSION
- Bank: FLAT
- Bank: CREST
- Bank: SLOPE
- CREST: CREST
- DEPRESSION: DEPRESSION
- FLAT: FLAT
- Large Depression: DEPRESSION
- Large Depression: FLAT
- Large Depression: CREST
- Large Depression: SLOPE
- Pockmark: DEPRESSION
- Pockmark: SLOPE
- Pockmark Field: CREST
- Pockmark Field: DEPRESSION
- Pockmark Field: FLAT
- Pockmark Field: SLOPE
- Rise: DEPRESSION
- Rise: FLAT
- Rise: CREST
- Rise: SLOPE
- Rocky Zone: DEPRESSION
- Rocky Zone: FLAT
- Rocky Zone: CREST
- Rocky Zone: SLOPE
- Scar: DEPRESSION
- Sediment Wave Field: DEPRESSION
- Sediment Wave Field: FLAT
- Sediment Wave Field: CREST
- Sediment Wave Field: SLOPE
- SLOPE: SLOPE

# Subject Matter Expert Interpreted Layers

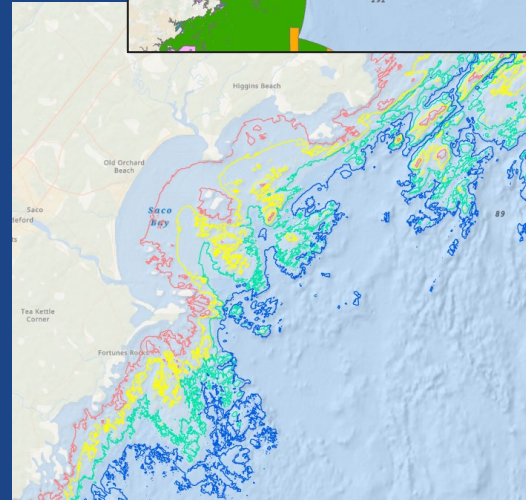
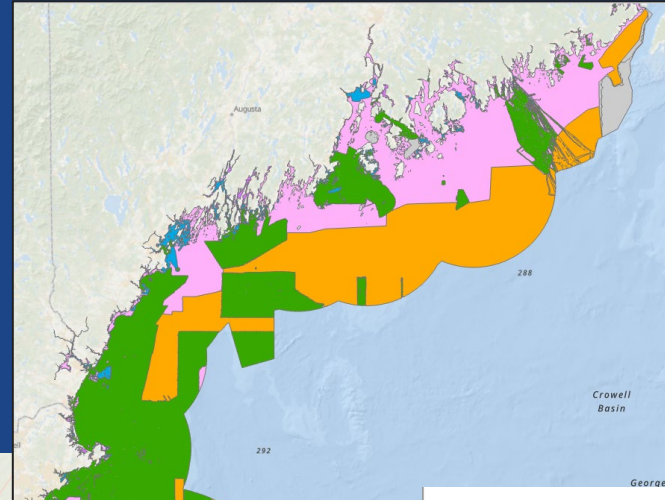
Stand-alone layers for manually-derived geofoms:

- Moraines
- Basins
- Cobble/Boulder Complexes
- Deltas
- Paleo-deltas
- Estuarine Sediment Shoals



# Project Outputs

- Geomorphons (raster)
- CMECS geofoms (vector polygons)
- Bathymetric derivatives (rasters)
- Bathymetric contours (vector lines)
- Interpreted geologic features of interest in the region (vector polygons)
- Methodologies for replication (.pdf)



**Gulf of Maine – Geofom Data Development**  
December 17, 2021

Prepared for  
Department of Commerce  
National Oceanic and Atmospheric Administration  
National Ocean Service  
Office for Coastal Management

Prepared by  
**TETRA TECH**  
Tetra Tech, Inc.  
1933 North Cove Parkway  
Bohnet, VA 98011

In Partnership With  
Maine, New Hampshire, and Massachusetts Coastal Programs

Tetra Tech, Inc.  
3746 Mt. Diablo Blvd., Lafayette, CA 94549

# Seascape 2 Mapping

- Expansion of the AOI to include southwestern Massachusetts waters
- Integrating new, higher quality bathymetry
- Re-processing of new areas with same thresholds
- Expect project (contracted) start spring 2023

