Gulf of Maine Seascape Mapping

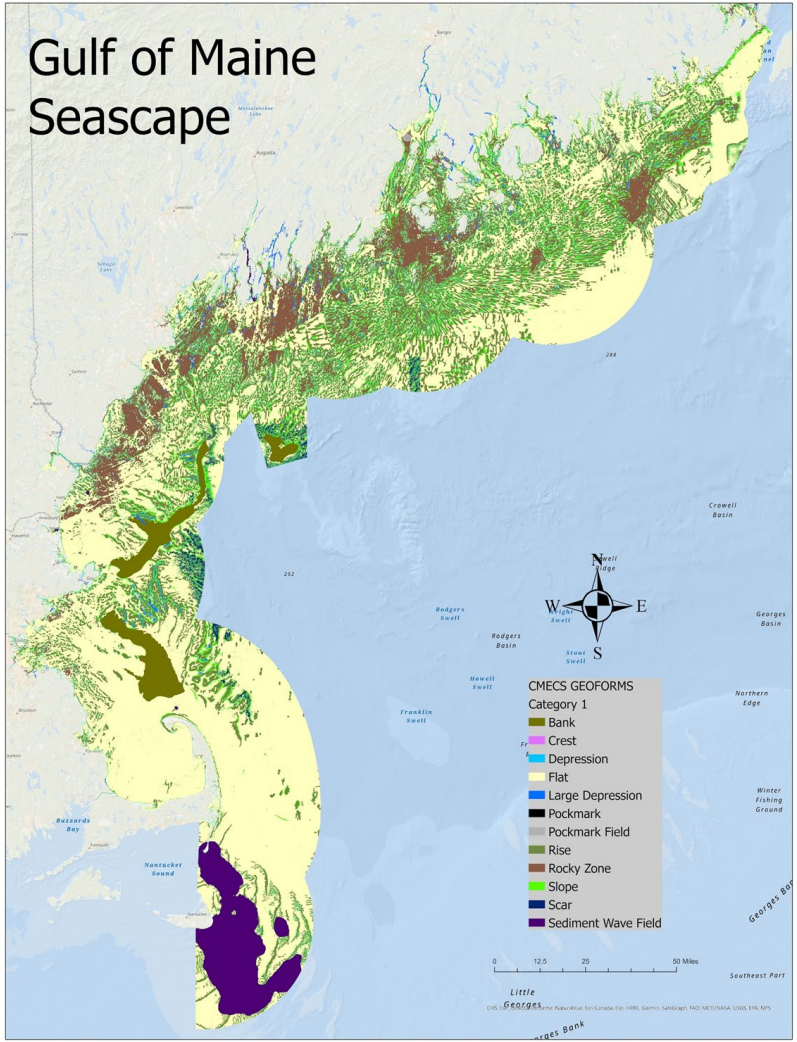
NROC Spring Meeting
13 April 2023

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)

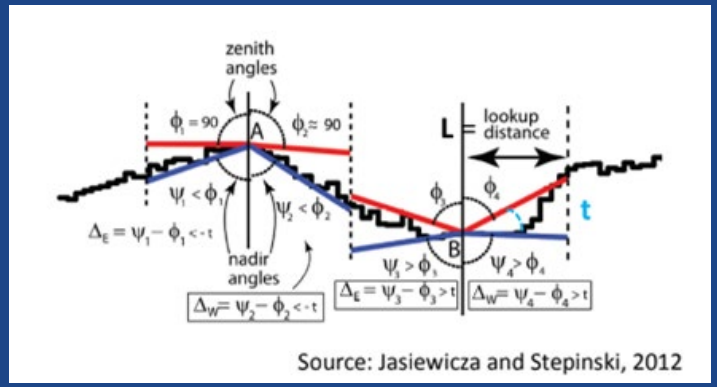
How: Automated methods (BRESS, BPI, etc.)

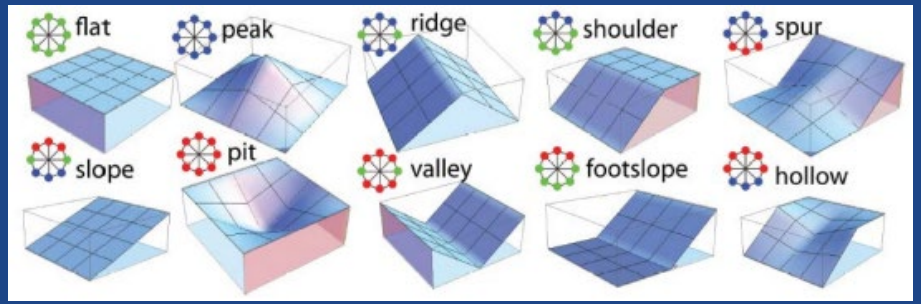
Classification: CMECS Geoforms (updated)

CMECS 2012, FGDC Standard

Processing and Data Development

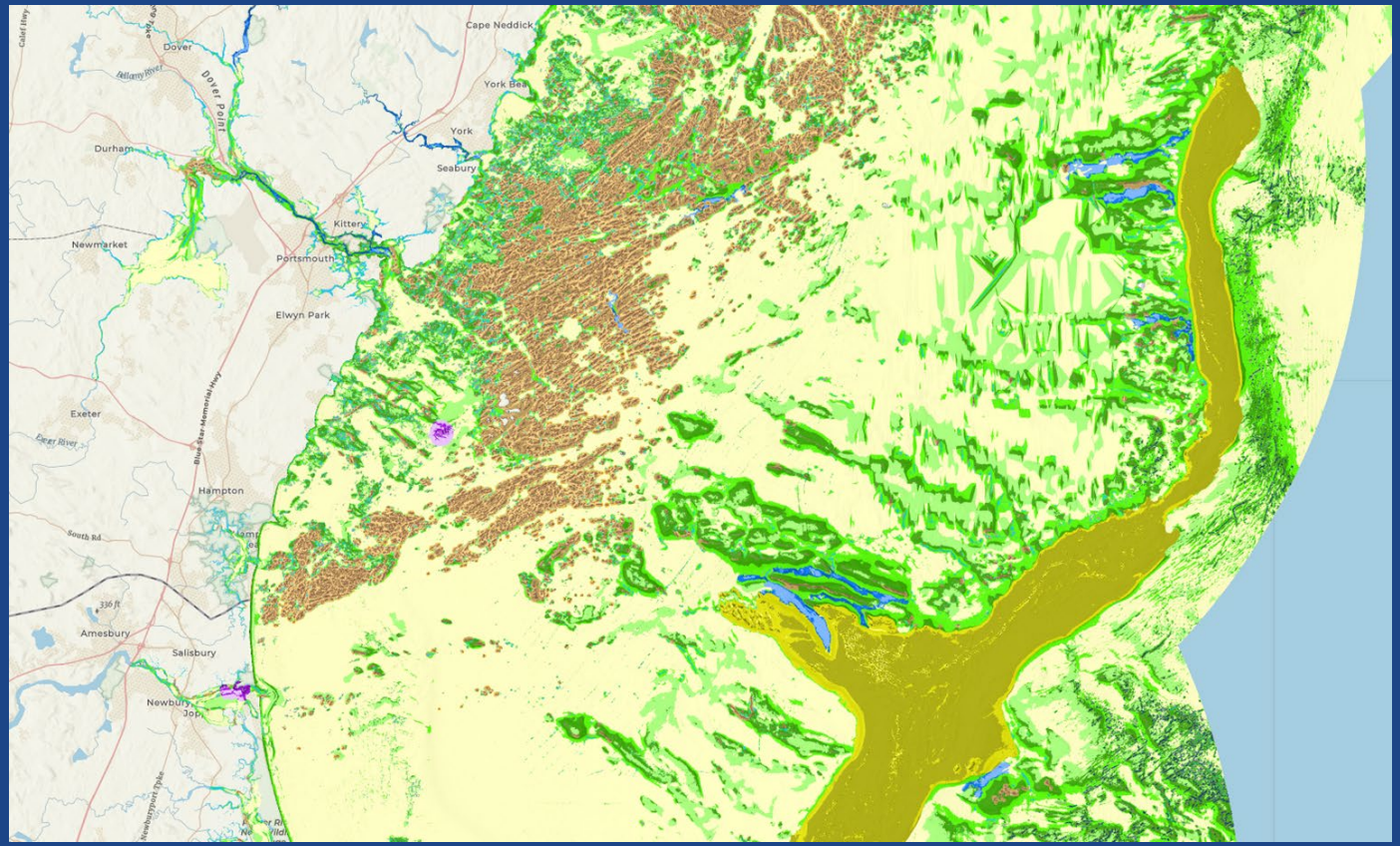
- Bathymetry processing (mosaicking, confidence layer development)
- Semi-automated processing and modeling (BRESS)
- CMECS classification
- Supplemental interpretation by subject matter experts
- Data packaging
- Documentation





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

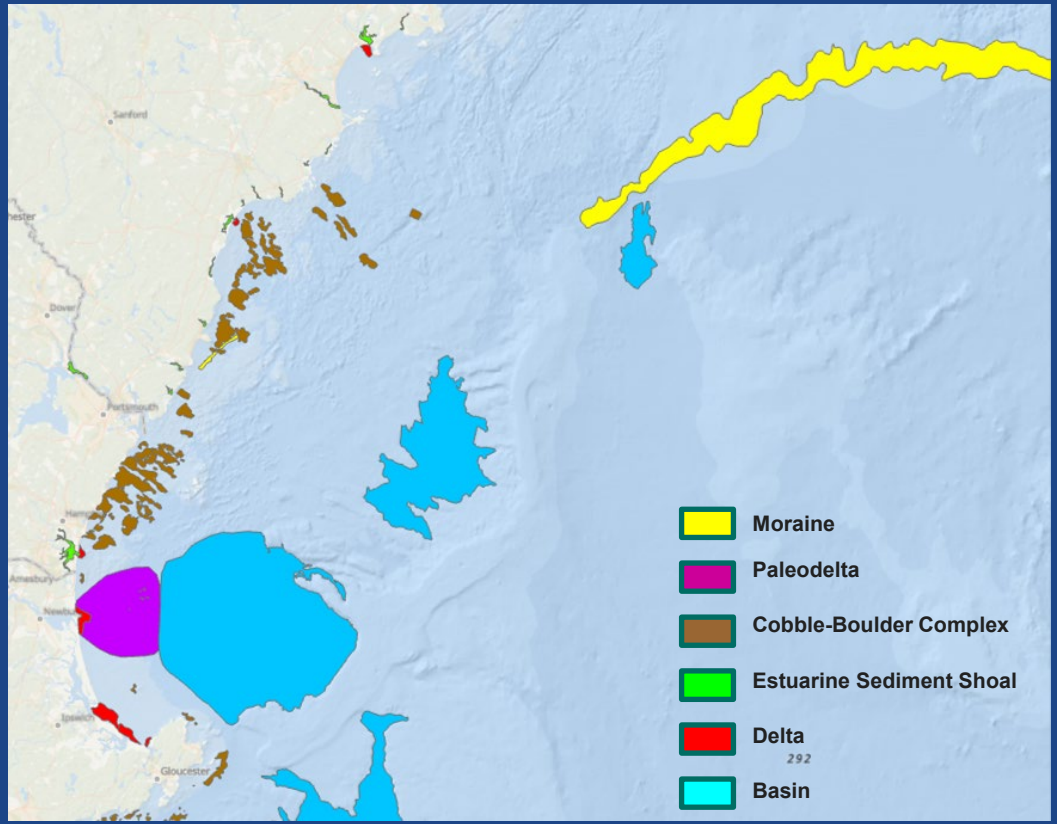
Gulf of Maine Seascape Features



Subject Matter Expert Interpreted Layers

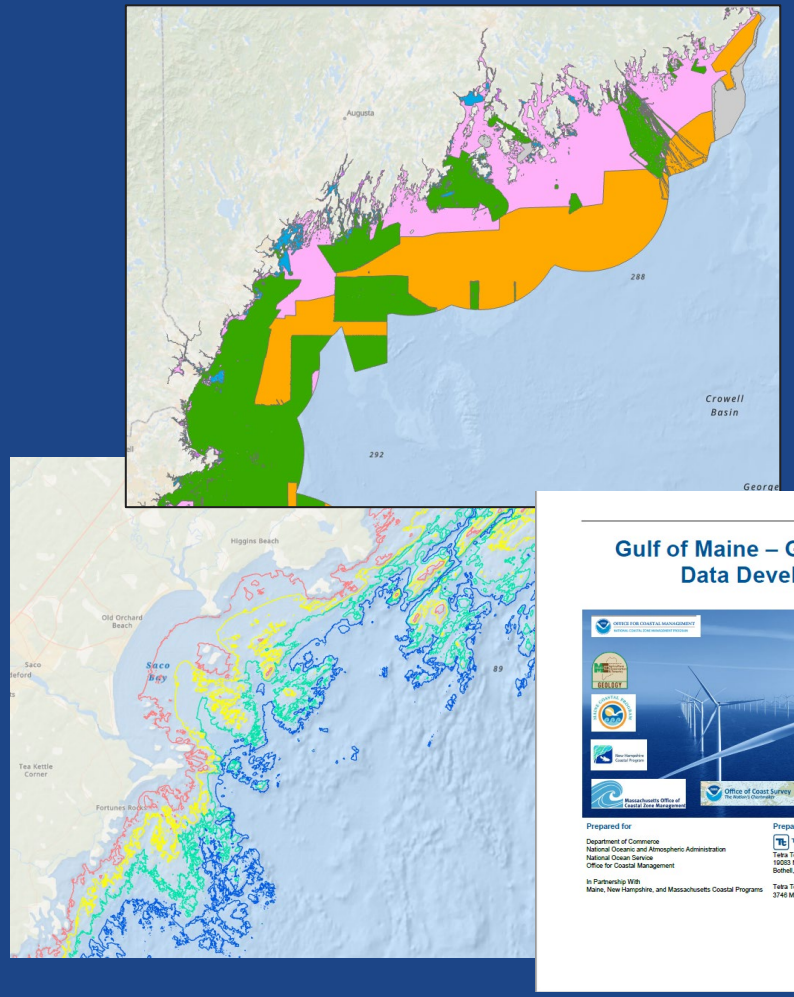
Stand-alone layers for manually-derived geoforms:

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



Project Outputs

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



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