COASTAL BLUFF STABILITY MAPPING
HOMER ALASKA

HOMER PLANNING COMMISSION MEETING
DECEMBER 4, 2019
JACQUELYN OVERBECK

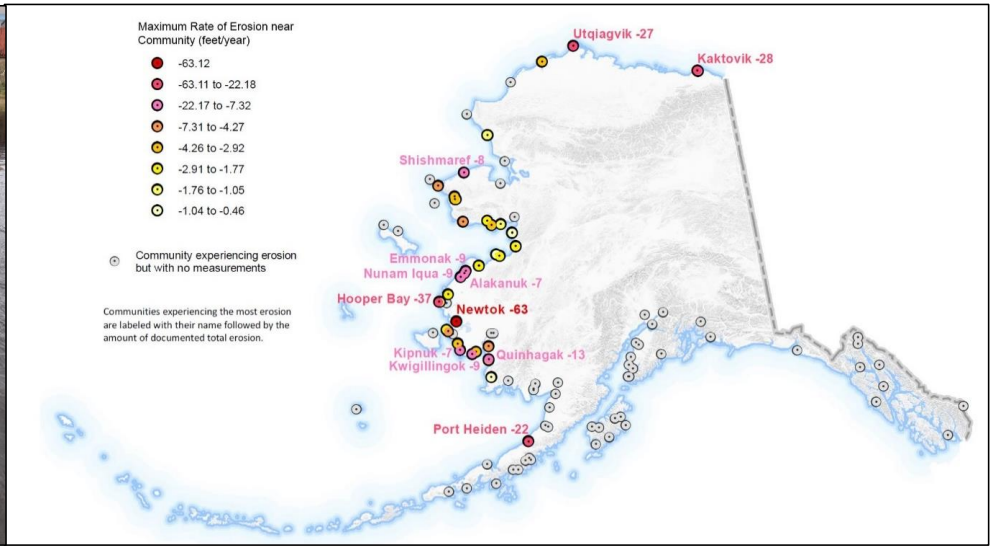
STATE OF ALASKA DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS

Dept. Natural Resources, Division of Geological & Geophysical Surveys

Our mission: Determine the potential of Alaskan land for production of metals, minerals, fuels, and geothermal resources, the locations and supplies of groundwater and construction material, and the potential geologic hazards to buildings, roads, bridges, and other installations and structures (AS 41.08.020).

Coastal Hazards Program

Mapping, Monitoring, and Modeling Coastal Flood and Erosion Hazards



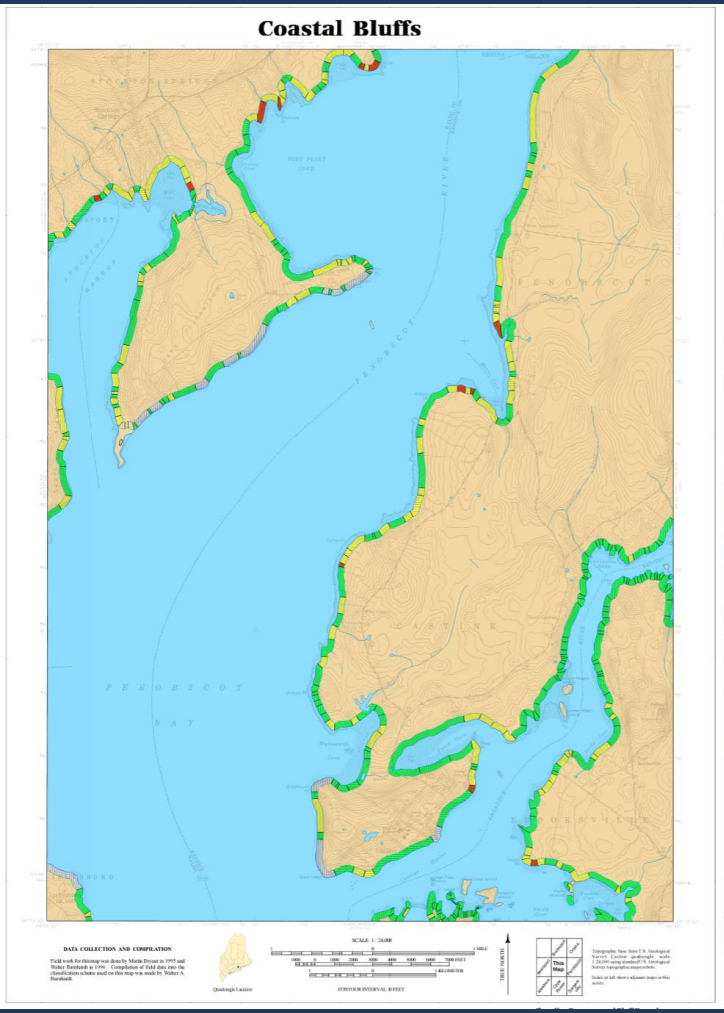
Mapping ***Monitoring*** ***Modeling***

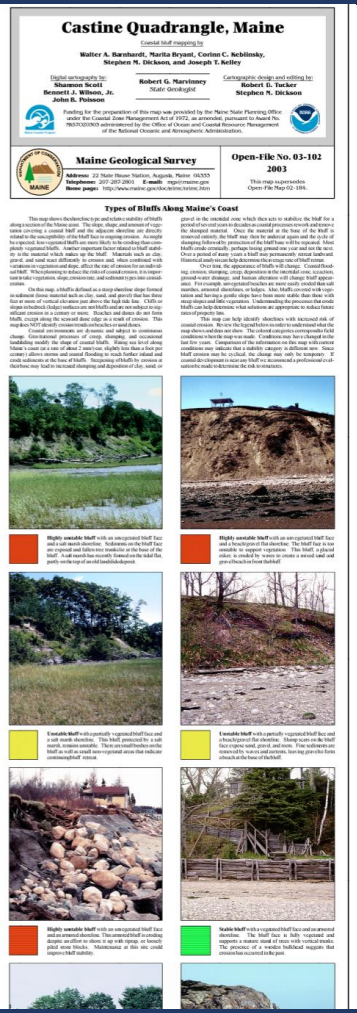
INTRODUCTION TO COASTAL SETBACK CODES

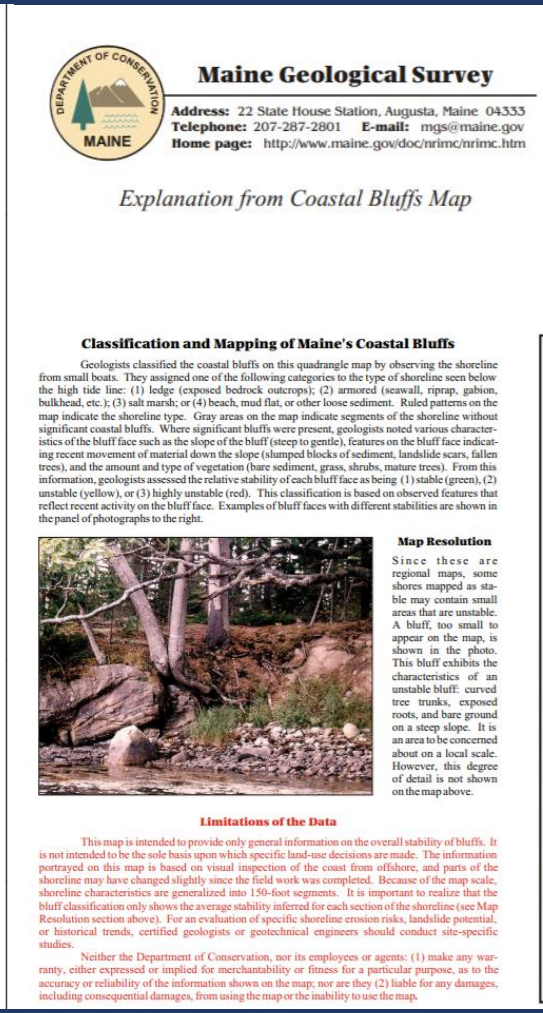
States around the US that participate in the federal Coastal Zone Management Act have developed a variety of ways to zone and code for coastal erosion threats:

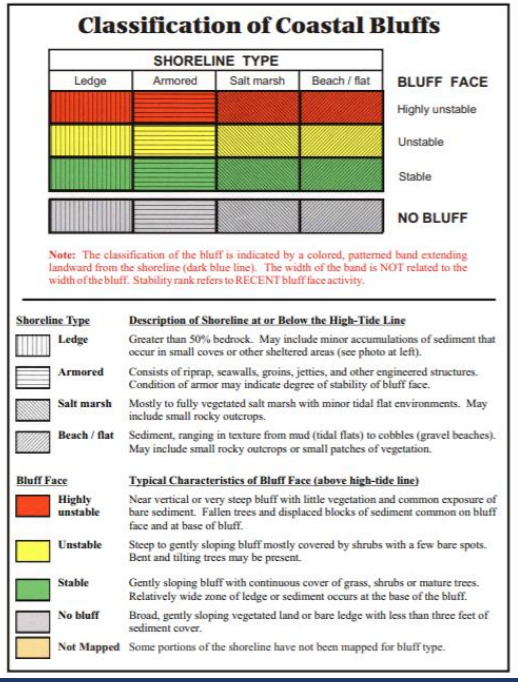
- **Alabama**—regulations require a permit for (1) removing primary dune or beach sands and vegetation or otherwise altering the primary dune system, (2) constructing any new structure, or (3) making any substantial improvement to any existing structure on property between the mean high tide and the "construction control line."
- **Delaware**—The building line is the state minimum setback requirement. It is defined in terms of certain distances, depending on the area, landward of a contour above the water line. It is set forth on maps the DNREC prepares with reference to a commonly used vertical datum.
- **Florida**—permit applications by forecasting the seasonal high-water line 30 years from the date of the permit application. Line of jurisdiction is the 50-foot setback line.
- **Georgia**—50-foot setback that applies to the upland component of the project as measured horizontally inland from the coastal marshland.
- **Hawaii**—generally establishes shoreline setbacks between 20 and 40 feet inland from the shoreline (mean high tide line).
- **Maryland**—100-foot setbacks from the mean high water line along tidal waters and tidal wetlands. In a "resource conservation area," area characterized by nature-dominated environments (e.g., wetlands, forests, abandoned fields and resource-utilization activities), there is a 200-foot minimum setback.
- And so on. This information was taken from Coastline Construction Restrictions by Mark Randall and Hendrik deBoer, 2012.

TAKING EXAMPLES FROM OTHER STATES





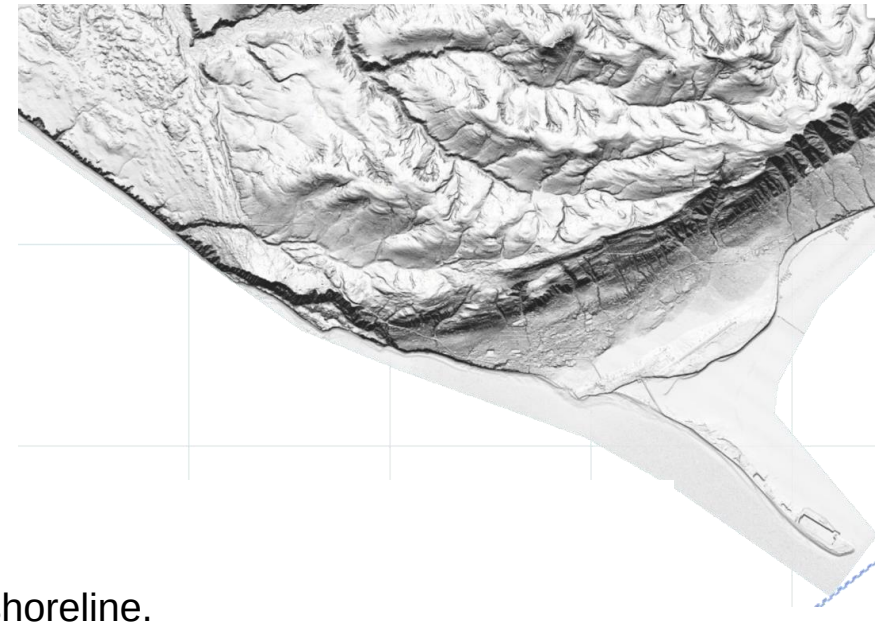




PROJECT DELIVERABLES

- **Summarized recommendations** for City code updates with a suite of options based on mapped features.
- **Coastal Bluff Stability Database**— alongshore gridded features, which will include all measurements considered in analysis (e.g. position of MHW shoreline, beach slope, bluff toe height, bluff slope, etc.)
- **Coastal Bluff Stability Map and Report**— map will show the linear feature of the coastal bluff stability database with features that show the stability of the bluff, while the report will be a user-guide to the map.

PROJECT SCOPE



- ✓ **Lidar oblique imagery**—DGGS was able to collect lidar and oblique imagery in 2019 as a part of the landslide project.
- ✓ **Establish NOAA Authoritative Tidal Datum**—NOAA's Office for Coastal Management funded the collection of an authoritative datum in 2018, which will be available for this work.
- ✓ **Historical Shoreline Assessment**—City of Homer completed up to 2012 shoreline.

- Review existing policies for other coastal states.
- Update shoreline change assessment with 2019 lidar-derived shoreline.
- Sample lidar for alongshore coastal segments and delineate visual bluff stability features; compute coastal bluff stability metrics.
- Compute correlations between bluff stability features and metrics.
- Project Coordination! *Kick-off meeting*, project progress, and final meeting (open to public optional).

CONTACT INFORMATION

- Are there any preferences to paths for research coastal zoning methods?
- Are there any products that weren't discussed that need to be included?
- What is the capacity for the City of Homer to use GIS data?
- How does this project fit in with existing geospatial datasets?
- Next meeting might not be until next year.
- Who is the best contact for small questions to determine if they should be brought to the Planning Commission?

Contact

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LIDAR FOR COASTAL MAPPING