



NGS Coastal Mapping Program Update

Shoreline, Imagery, and Nearshore Bathymetry

Mike Aslaksen

Remote Sensing Division
National Geodetic Survey



National Oceanic and Atmospheric Administration

National Geodetic Survey

Mission: Define, maintain and provide access to the National Spatial Reference System.

RSD Primary Programs:



Aeronautical Survey
Program



Coastal Mapping
Program

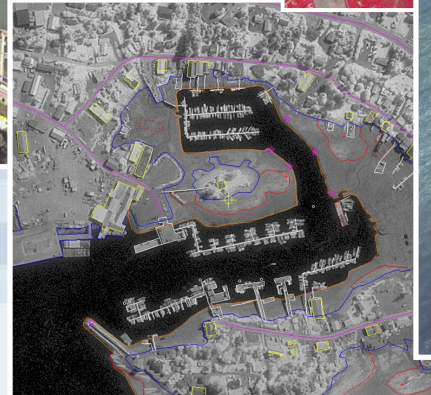
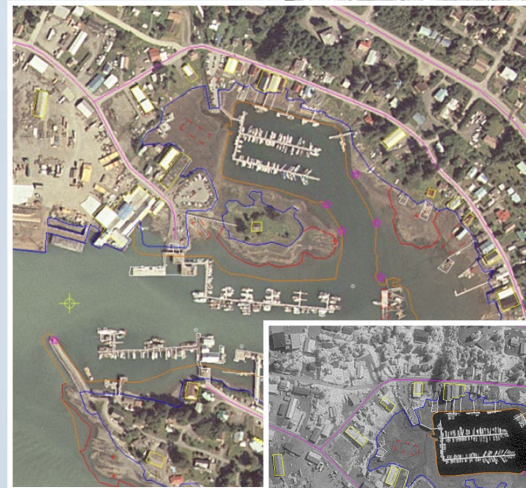


Emergency Response



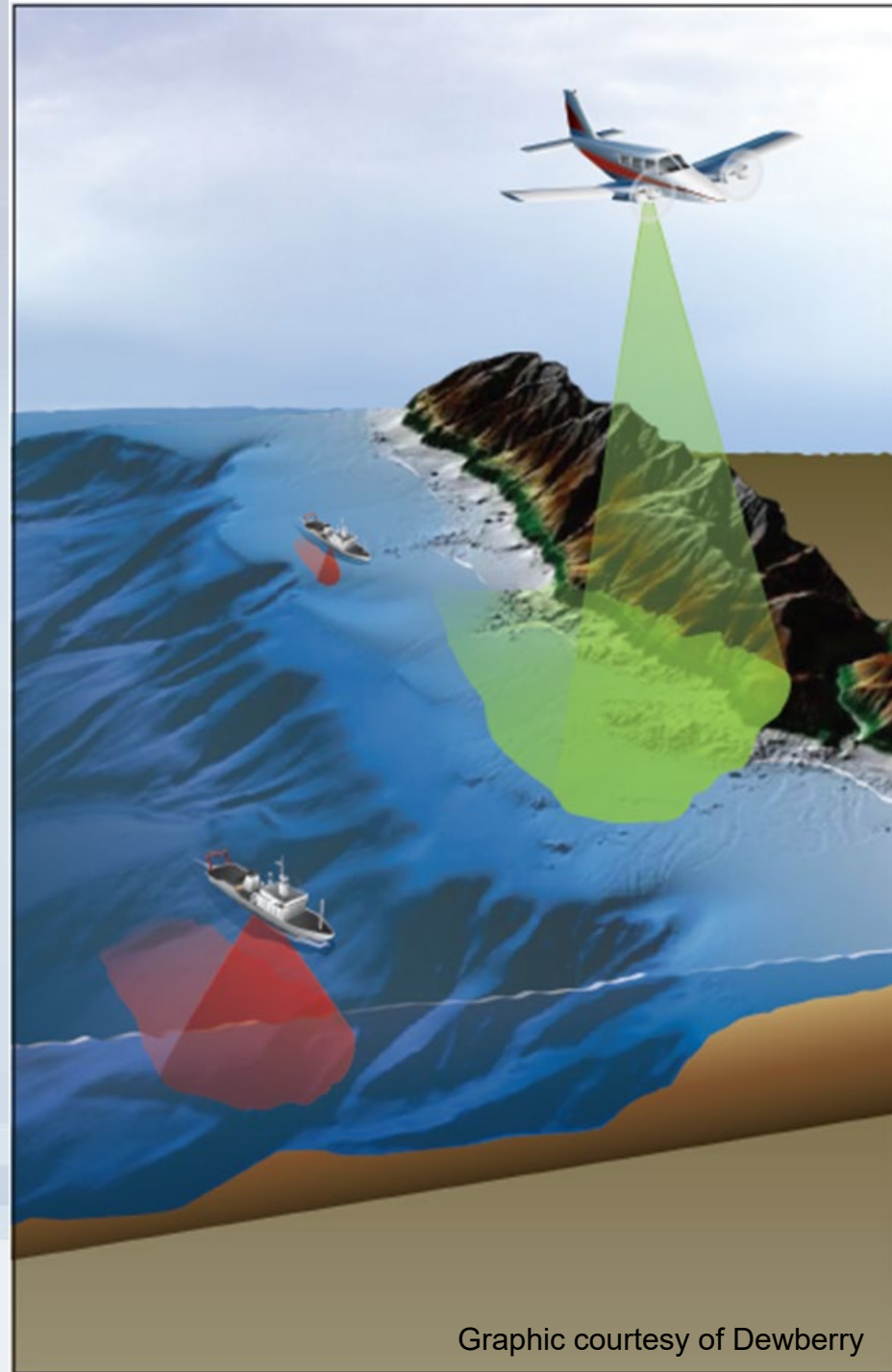
The RSD Coastal Mapping Program

- A congressional mandate to conduct remote sensing surveys of coastal regions of the United States and its possessions for demarcating the nation's legal coastline.
- **Goals:**
 - Provide the Nation With Accurate, Consistent, Up-to-Date National Shoreline
 - Acquire Nearshore Elevation Data
- **Sources:**
 - Lidar
 - Digital Cameras
 - High Resolution Satellites
 - UAS



Support of Hydrographic Surveys

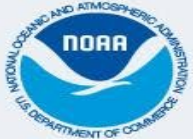
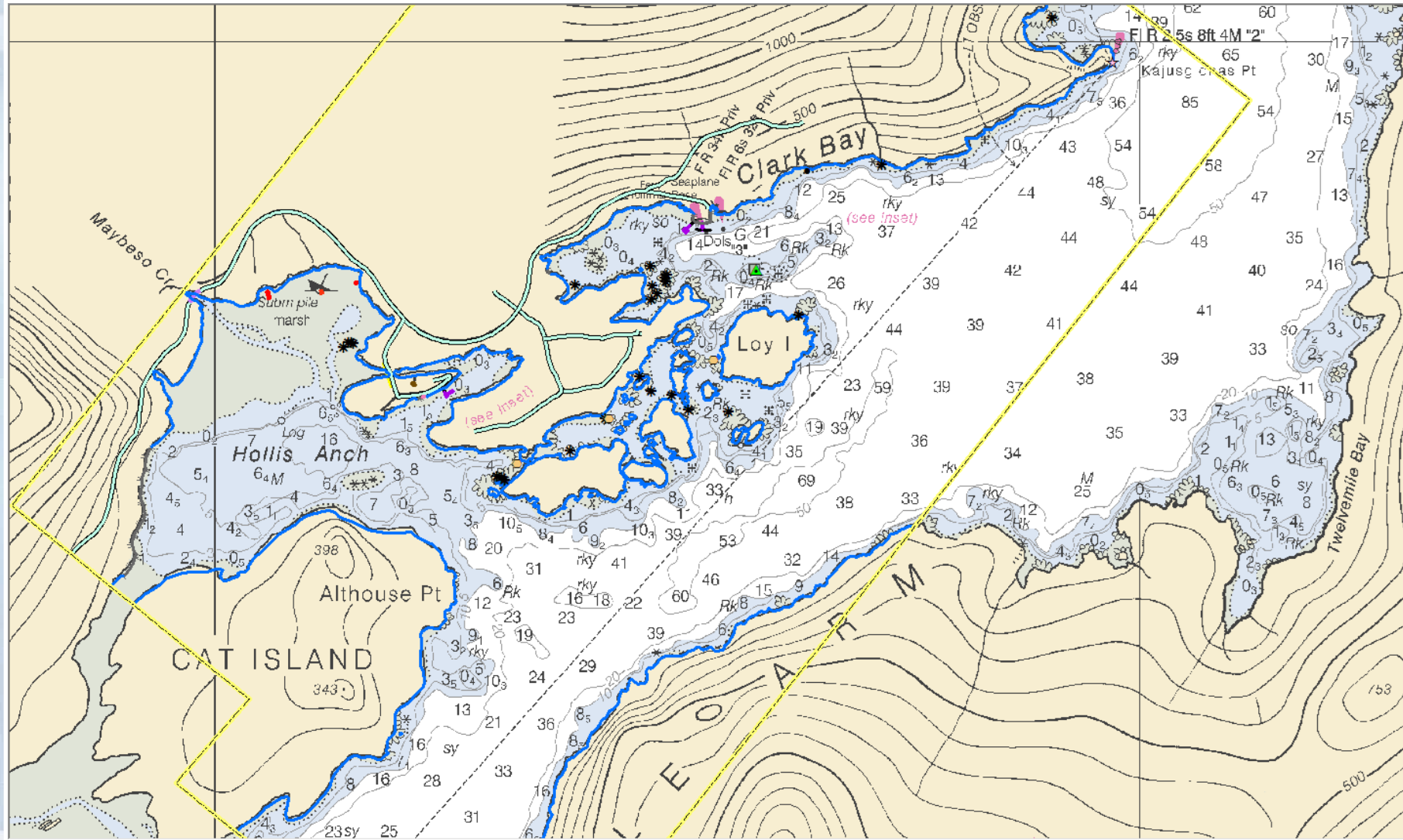
- RSD collects nearshore topobathy lidar to the 4m NALL in the year prior to ship ops
- RSD will provide both shoreline and nearshore bathymetry
- Hydro operations will use this data to plan operations and overall situational awareness
- Increases efficiency and safety of launch and ship operations

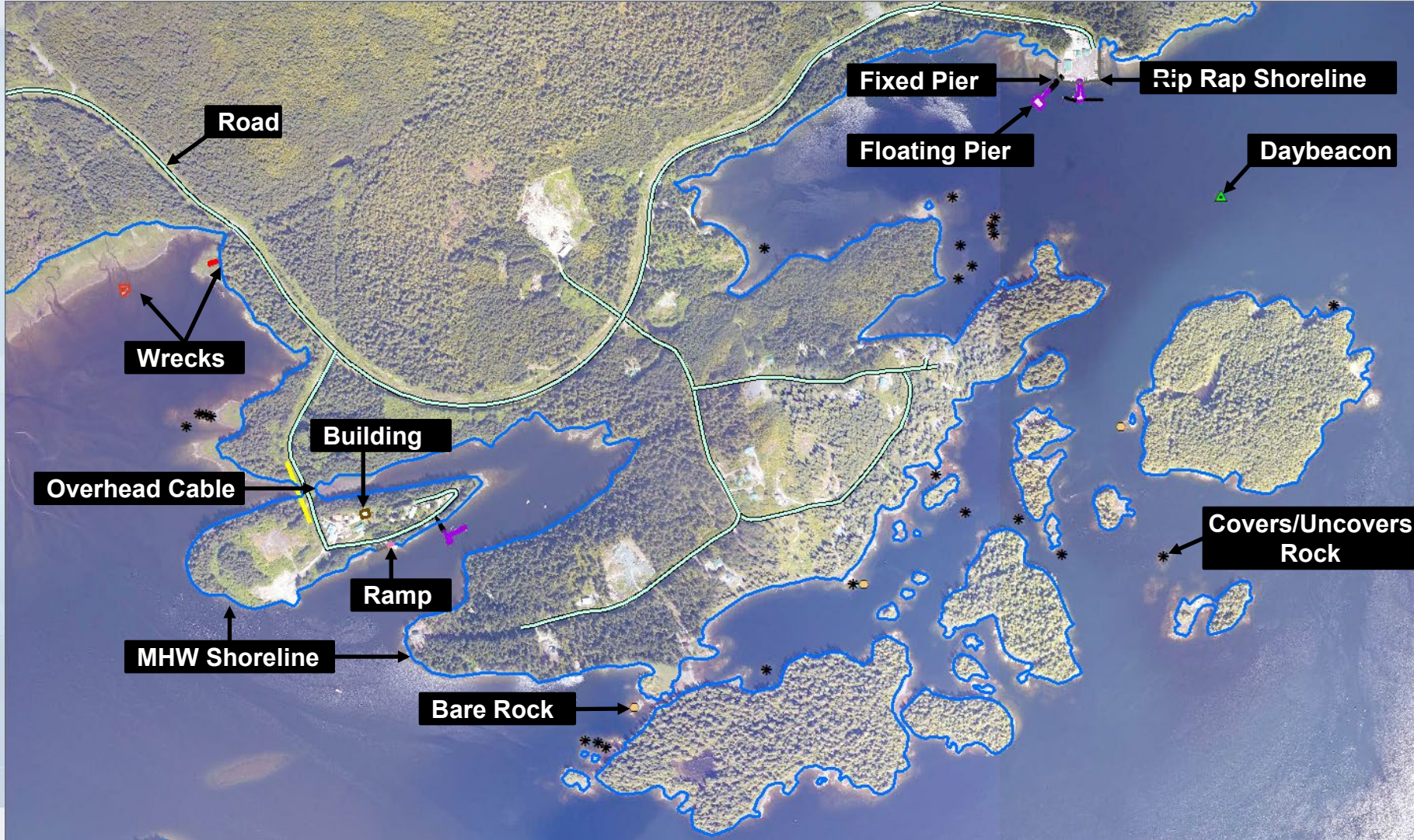


National Oceanic and Atmospheric Administration

Graphic courtesy of Dewberry

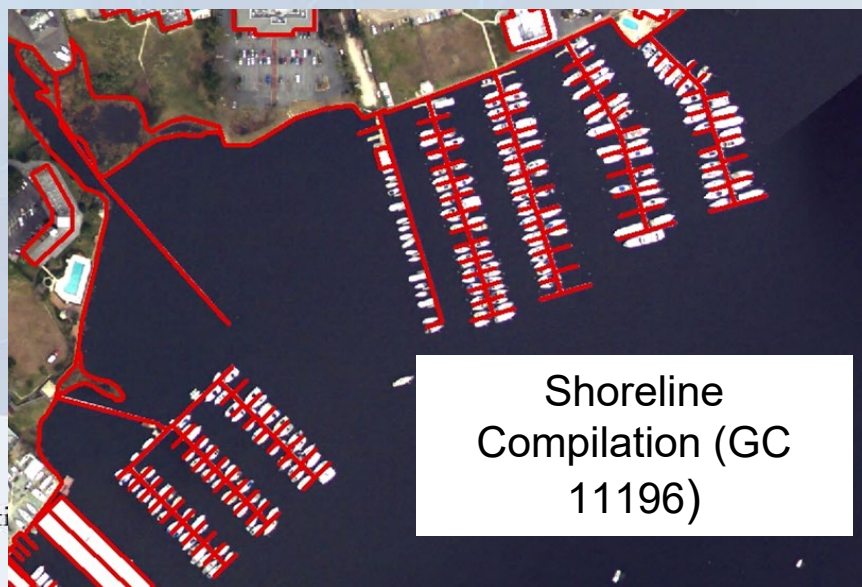
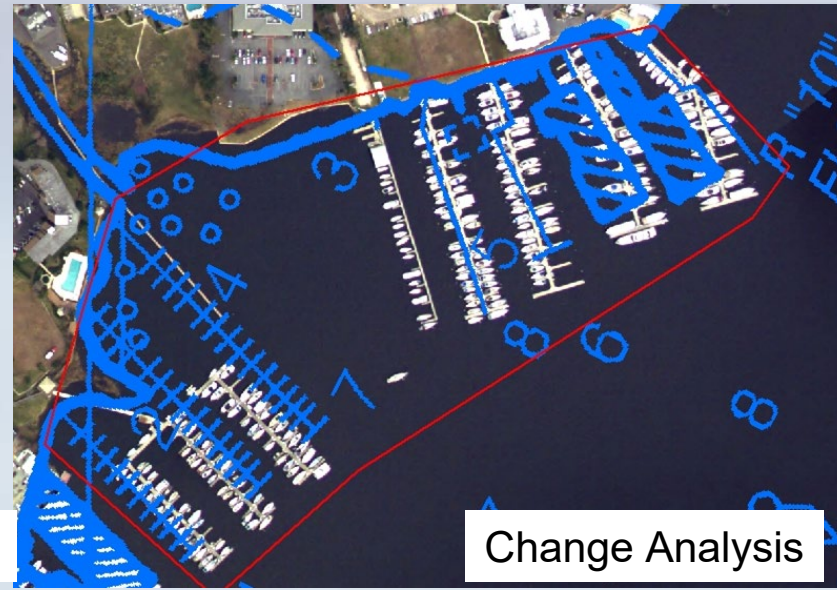
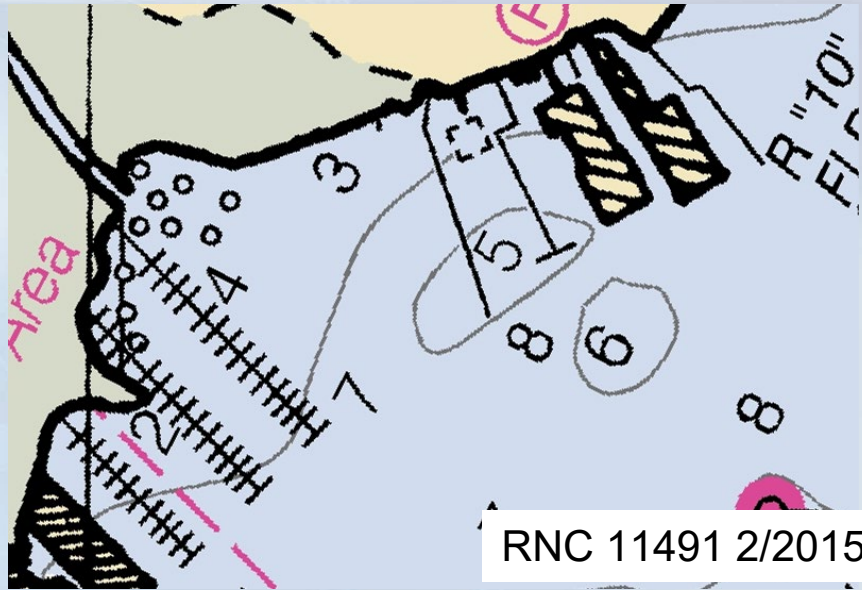
Geographic Cells (Nautical Chart Shoreline)





National Oceanic and Atmospheric Administration

Coast and Shoreline Change Analysis Program (CSCAP)



Nati

Shoreline Update Expedite (SUE)

- **Goal:** to provide the requested updates within 1-2 workdays.
- **Example workflow:**
 - Received request from MCD on Thu. Aug. 23, 2018 for an update to chart 25670, depicting a large uncharted pier.
 - Determined that RSD aerial imagery flown on 9/24/17 in response to Hurricane Maria had captured the new pier.
 - Compiled the features in ArcGIS using the orthoimagery accessed directly through the NGS Storm Imagery web map tile service (WMTS), and delivered the shapefile to MCD just 3.5 hours after their request.

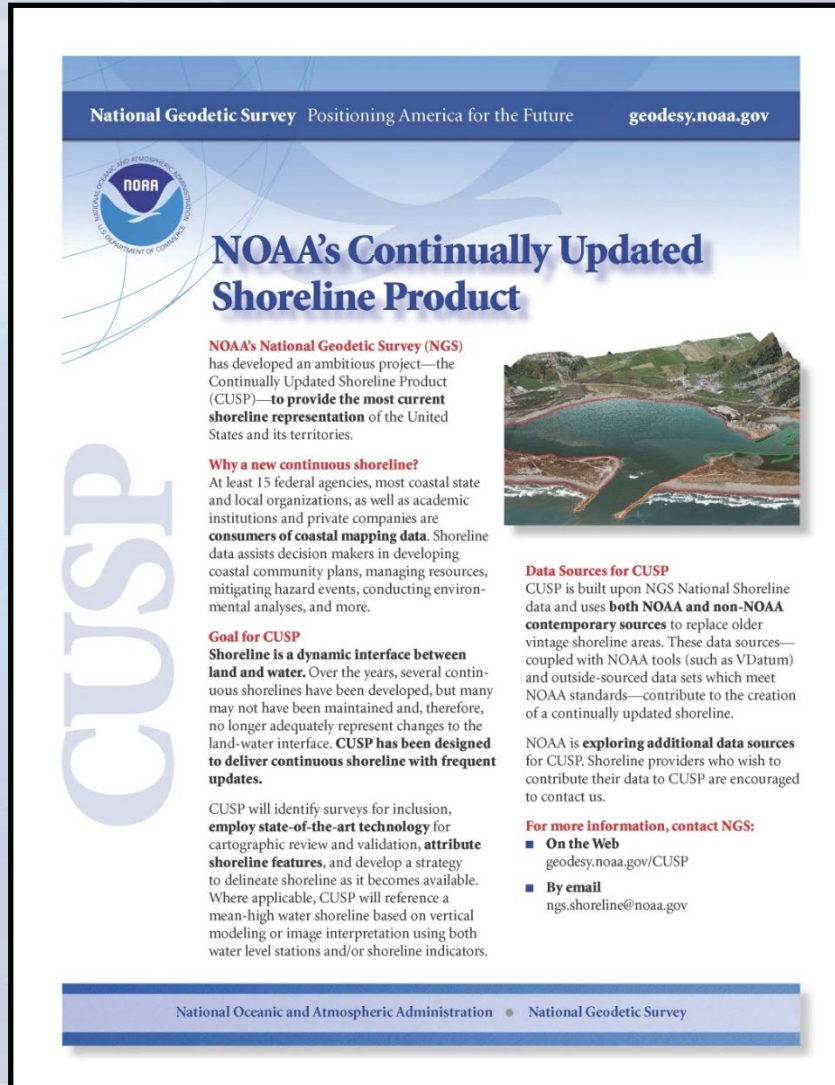


SUE-00022

Isla Grande, San Juan, PR



Continually Updated Shoreline Product (CUSP)



The image shows a brochure for NOAA's Continually Updated Shoreline Product (CUSP). The brochure has a blue header with the text "National Geodetic Survey Positioning America for the Future" and the website "geodesy.noaa.gov". On the left side, there is a large vertical "CUSP" logo. The main title is "NOAA's Continually Updated Shoreline Product". Below the title, there is a paragraph explaining that NOAA's National Geodetic Survey (NGS) has developed an ambitious project—the Continually Updated Shoreline Product (CUSP)—to provide the most current shoreline representation of the United States and its territories. To the right of this text is a photograph of a coastal area with a lake and surrounding land. Below the photograph, there are several sections of text: "Why a new continuous shoreline?", "Goal for CUSP", "Data Sources for CUSP", and "For more information, contact NGS:". The "Data Sources for CUSP" section mentions that CUSP is built upon NGS National Shoreline data and uses both NOAA and non-NOAA contemporary sources. The "For more information, contact NGS:" section lists two ways to contact them: "On the Web" at geodesy.noaa.gov/CUSP and "By email" at ngs.shoreline@noaa.gov. At the bottom of the brochure, it says "National Oceanic and Atmospheric Administration • National Geodetic Survey".

National Geodetic Survey Positioning America for the Future geodesy.noaa.gov

NOAA's Continually Updated Shoreline Product

NOAA's National Geodetic Survey (NGS) has developed an ambitious project—the Continually Updated Shoreline Product (CUSP)—to provide the most current shoreline representation of the United States and its territories.

Why a new continuous shoreline?
At least 15 federal agencies, most coastal state and local organizations, as well as academic institutions and private companies are consumers of coastal mapping data. Shoreline data assists decision makers in developing coastal community plans, managing resources, mitigating hazard events, conducting environmental analyses, and more.

Goal for CUSP
Shoreline is a dynamic interface between land and water. Over the years, several continuous shorelines have been developed, but many may not have been maintained and, therefore, no longer adequately represent changes to the land-water interface. **CUSP has been designed to deliver continuous shoreline with frequent updates.**

CUSP will identify surveys for inclusion, employ state-of-the-art technology for cartographic review and validation, attribute shoreline features, and develop a strategy to delineate shoreline as it becomes available. Where applicable, CUSP will reference a mean-high water shoreline based on vertical modeling or image interpretation using both water level stations and/or shoreline indicators.

Data Sources for CUSP
CUSP is built upon NGS National Shoreline data and uses both NOAA and non-NOAA contemporary sources to replace older vintage shoreline areas. These data sources—coupled with NOAA tools (such as VDatum) and outside-sourced data sets which meet NOAA standards—contribute to the creation of a continually updated shoreline.

NOAA is exploring additional data sources for CUSP. Shoreline providers who wish to contribute their data to CUSP are encouraged to contact us.

For more information, contact NGS:

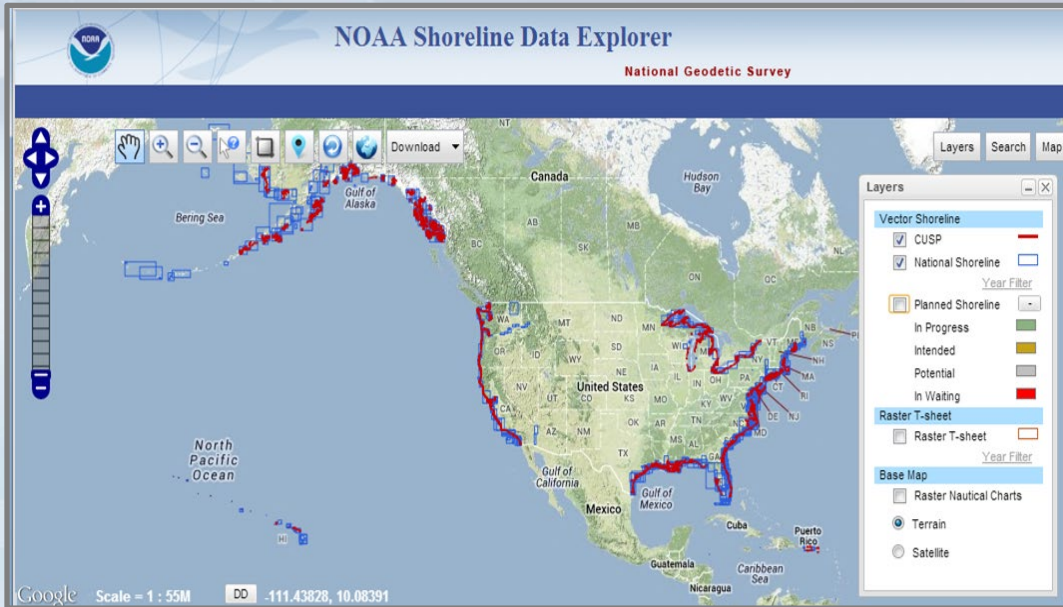
- **On the Web**
geodesy.noaa.gov/CUSP
- **By email**
ngs.shoreline@noaa.gov

National Oceanic and Atmospheric Administration • National Geodetic Survey

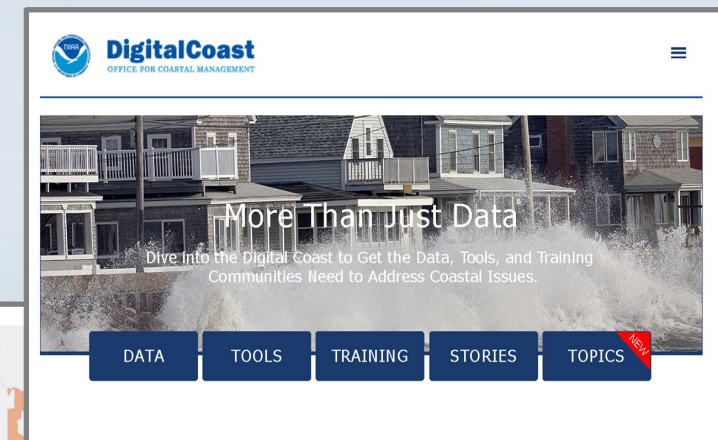
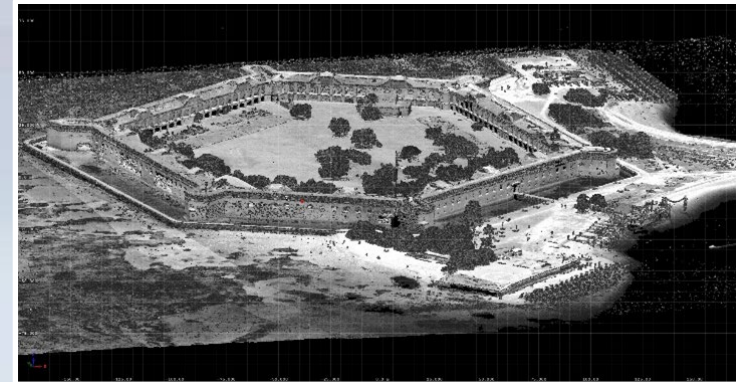
- To provide the most current shoreline representation
- Designed to deliver continuous shoreline with frequent updates
- Employ state-of-the-art technologies
- Attributed shoreline features
- Referenced to Mean High Water datum where applicable
- Includes NOAA and non-NOAA contemporary sources



Distribution of Data



Shoreline (<http://www.ngs.noaa.gov/NSDE/>)



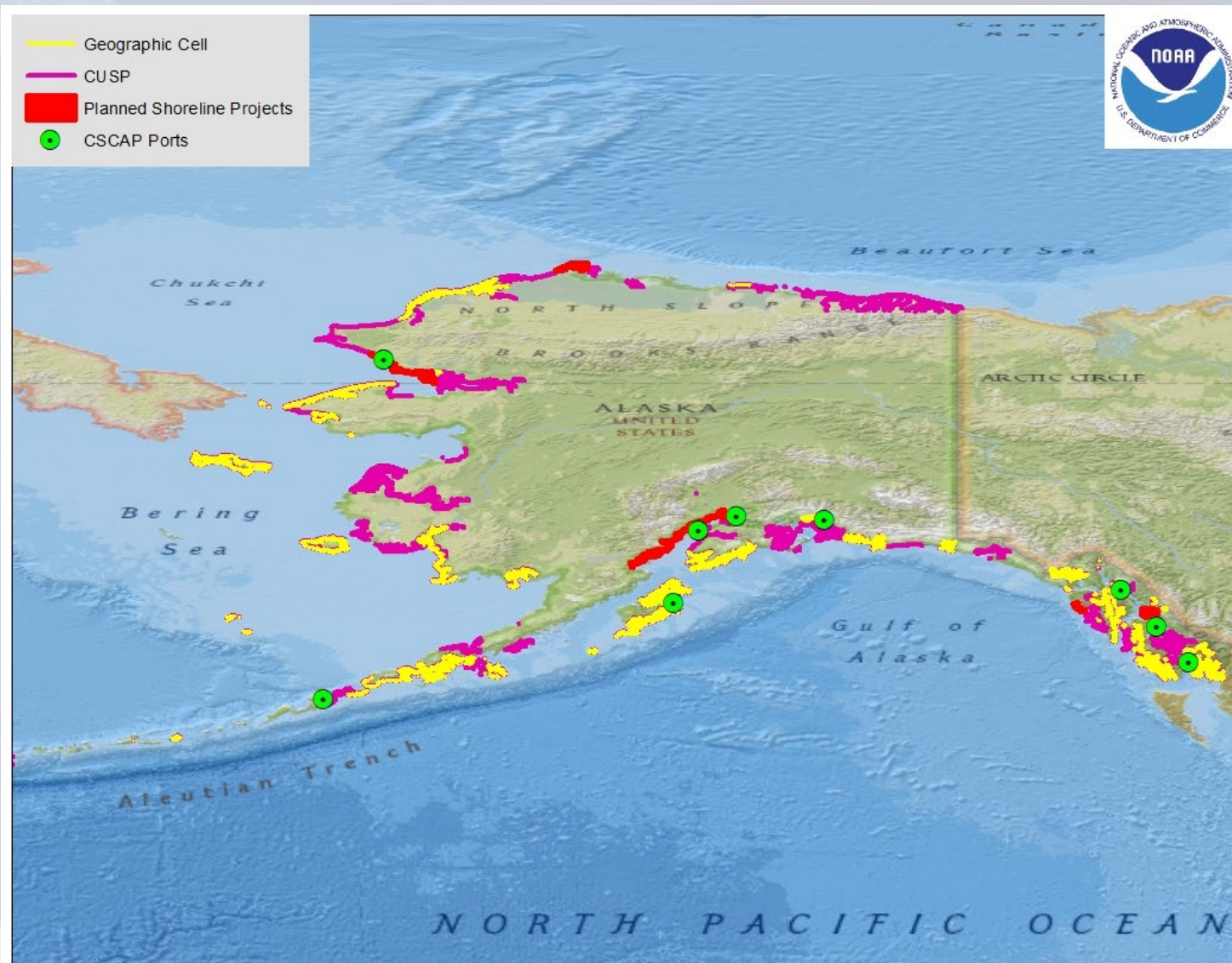
Lidar and Imagery:

<https://coast.noaa.gov/digitalcoast/>



National Oceanic and Atmospheric Administration

NGS/RSD Shoreline Products

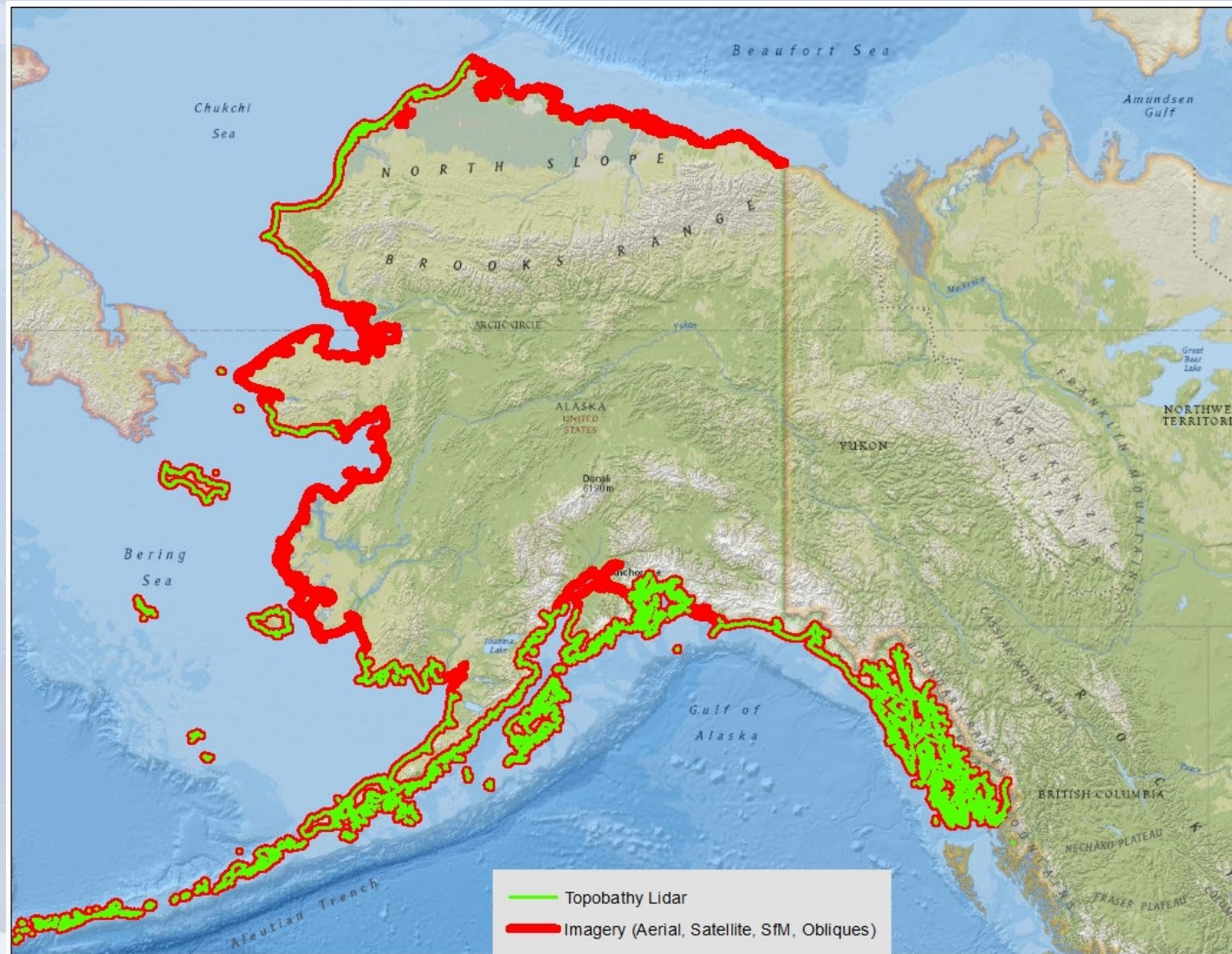


National Oceanic and Atmospheric Administration

<https://www.ngs.noaa.gov/RSD/topobathy.shtml>

(2000-present)

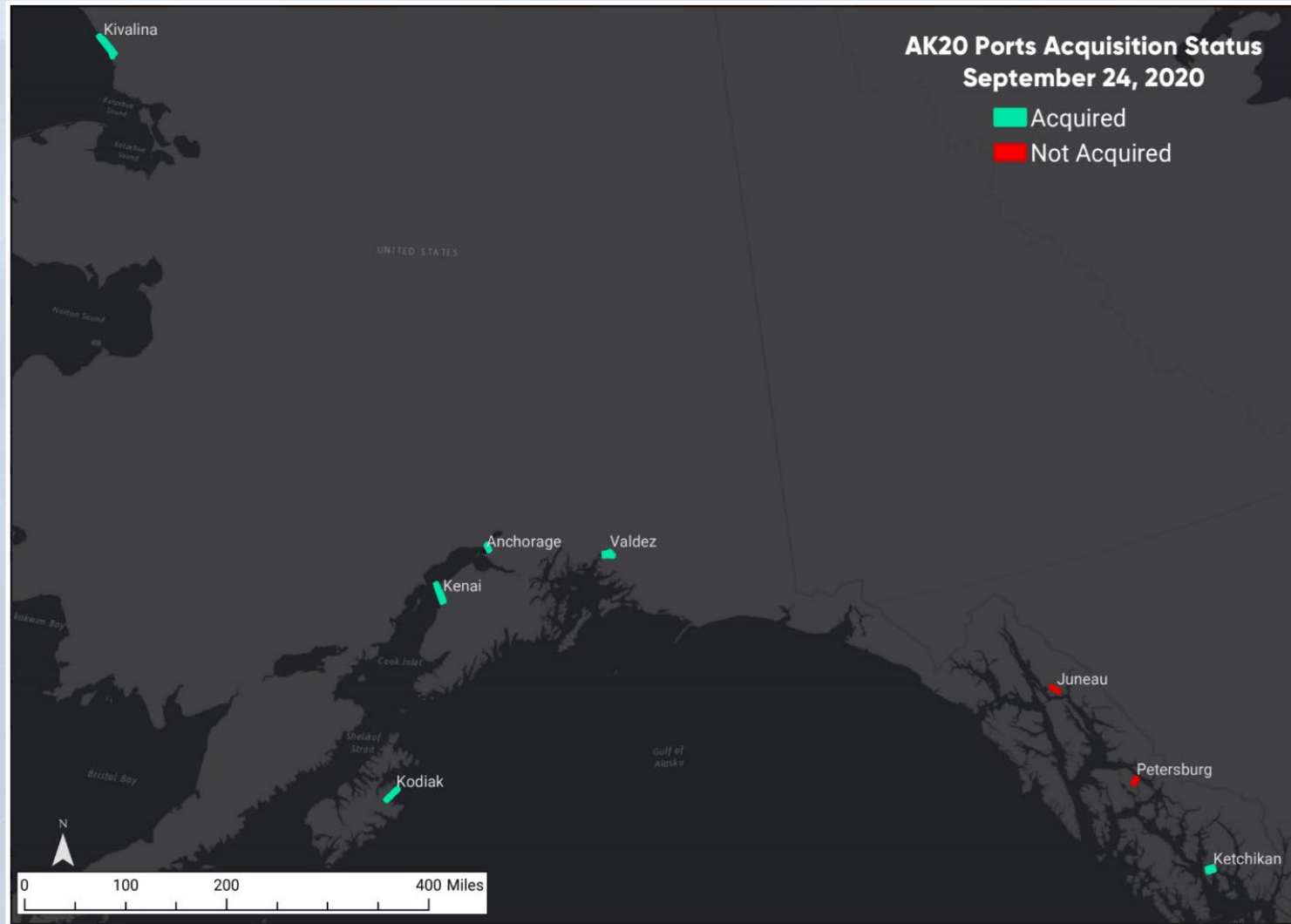
Draft Strategy for Sensor Utilization is being Revamped



National Oceanic and Atmospheric Administration

<https://www.ngs.noaa.gov/RSD/topobathy.shtml>

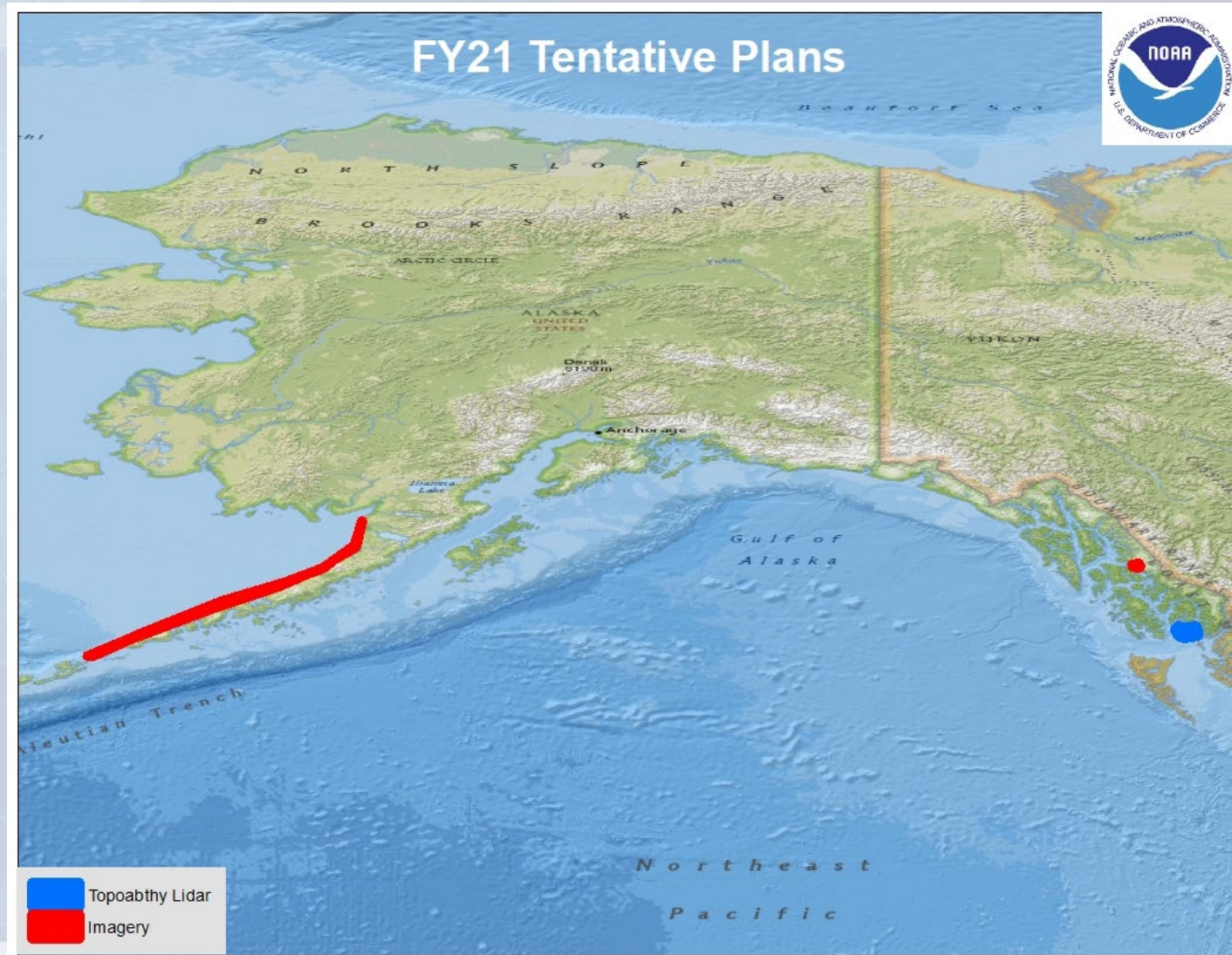
AK Ports (FY20) Acquisition



National Oceanic and Atmospheric Administration

Dutch Harbor excluded due to lack of funding

Charting Support (FY21)



National Oceanic and Atmospheric Administration

What we will be looking for:

- Updated Prioritization Study
 - FY21 Budget
- Then to finalize FY21 NOAA and contract operations



Questions?

Mike Aslaksen
Chief, Remote Sensing Division
NOAA National Geodetic Survey
mike.aslaksen@noaa.gov



National Oceanic and Atmospheric Administration