3rd Alaska Coastal Mapping Summit

Strategic Coordination & Use of Science and Technology

December 9-10, 2020

Aerial photo of Goodnews Bay, Southwest Alaska, taken by Rich Buzard

Virtual Public Listening Session

- **Please mute your microphone**
- You may also email any Public Comments to **marta.kumle@alaska.gov**
- Public comments will be read into the public record
- You may also enter any comments into the chat box
- Please change your display name to add your affiliation
- We will be polling throughout the meeting

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Disclosure: VOLUNTARY

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Alaska Coastal Mapping Summits

2016 - 1st Alaska Coastal Mapping Summit, Girdwood, Alaska

who was interested in coastal mapping anyway?

2018 - 2nd Alaska Coastal Mapping Summit, Anchorage, Alaska

setting mapping objectives

2019 - Alaska Coastal Mapping Prioritization Survey

2019 - Presidential Memo on Mapping the Shoreline of Alaska

2020 - Alaska Mapping Executive Committee - Coastal Mapping

2020 - Alaska Coastal Mapping Strategic Plan

2020 - 3rd Alaska Coastal Mapping Summit, virtual meeting

Mapping the Coast of Alaska

Laying the foundation to support life, safety & economic opportunity

Haines landslide, Dec 2020
Jacob Cheeseman, ADN article

Erosion at Shishmaref, Nov 2020
Twyla Thermond, Native Village of Shishmaref

Commercial fishing fleet, Egegik
Warner Lew, Icicle Seafoods

Agenda

Strategic Coordination
Wednesday, December 9th

9:00 AM Alaska/1:00 PM Eastern

Welcome

Alaska Coastal Mapping Strategy

10:00 AM Alaska/2:00 PM Eastern

Lightning Agency Updates

11:30 AM - 1:00 PM Alaska/3:30-5:00 PM Eastern

Implementation Plan Discussions

Strategic Use of Science & Technology
Thursday, December 10th

9:00 Alaska/1:00 PM Eastern

Data Management & Shorelines

10:45 Alaska/2:45 PM Eastern

Topography & Datums

12:30 - 2:00 PM Alaska/4:30-6:00 PM Eastern

Nearshore Bathymetry

POLL

Congressional Keynote

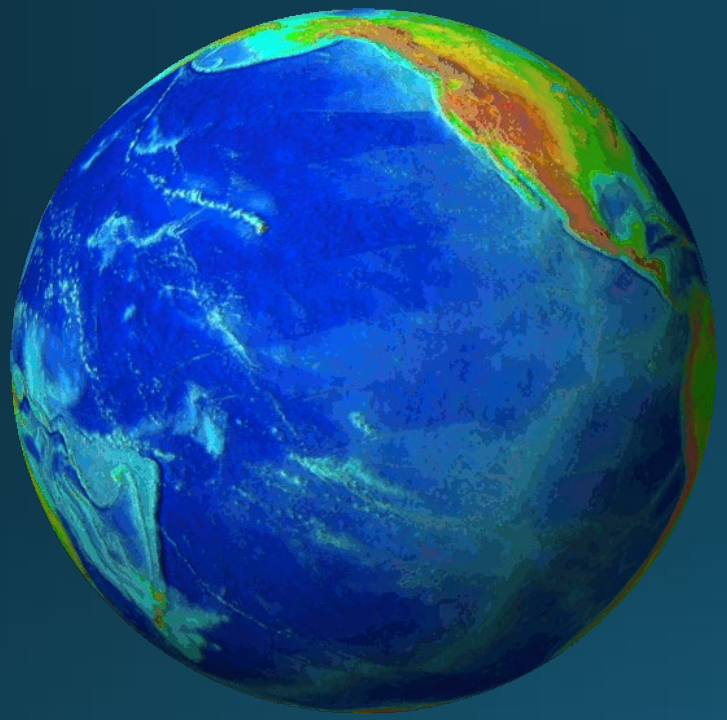
U.S. Senator
Lisa Murkowski
(video)

NOAA Welcome

NOAA Ocean Service Acting Assistant Administrator

Nicole R. LeBoeuf

(video)



Update on the Alaska Coastal Mapping Strategy

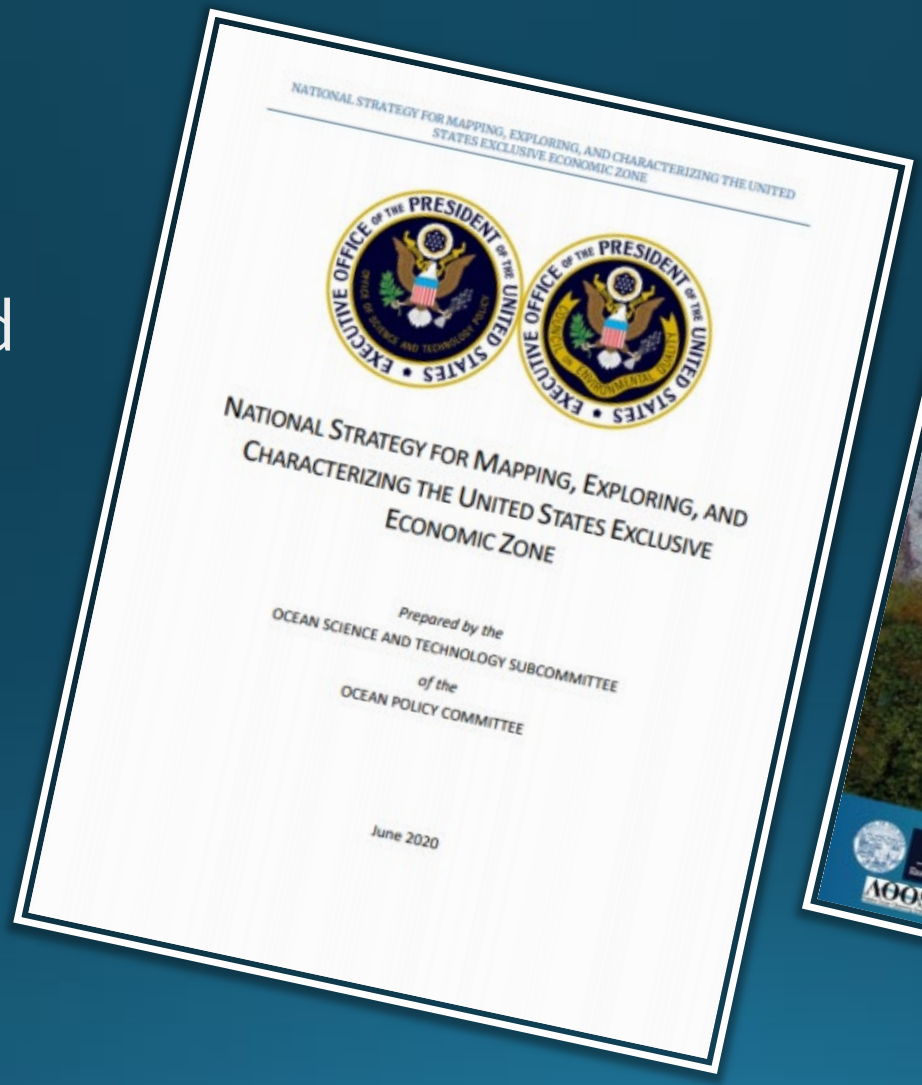
Juliana Blackwell
Director, NOAA National Geodetic Survey
Alaska Mapping Executive Committee

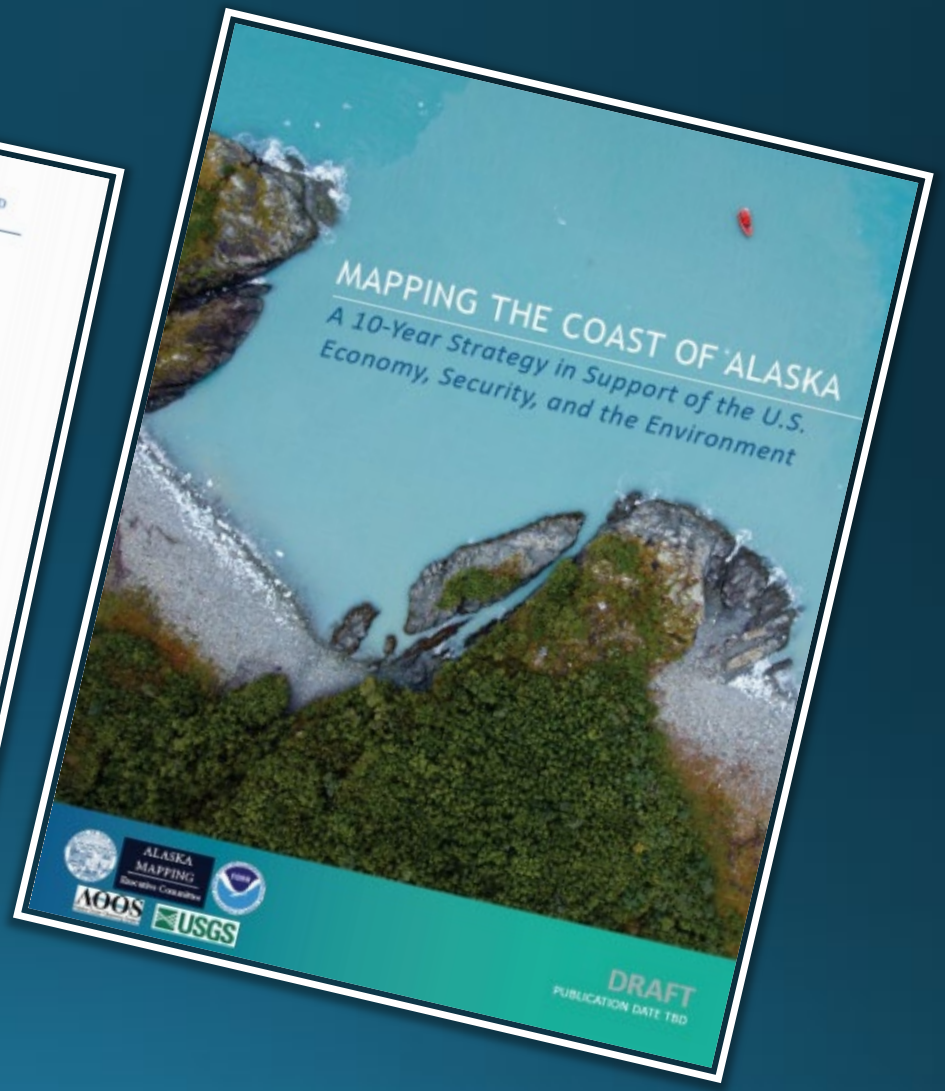
12.9.20

Setting the Stage: National Mapping Plans

National Ocean Mapping, Exploring, and Characterization of the U.S. EEZ (NOMEC)

Alaska Coastal Mapping Strategy (ACMS)

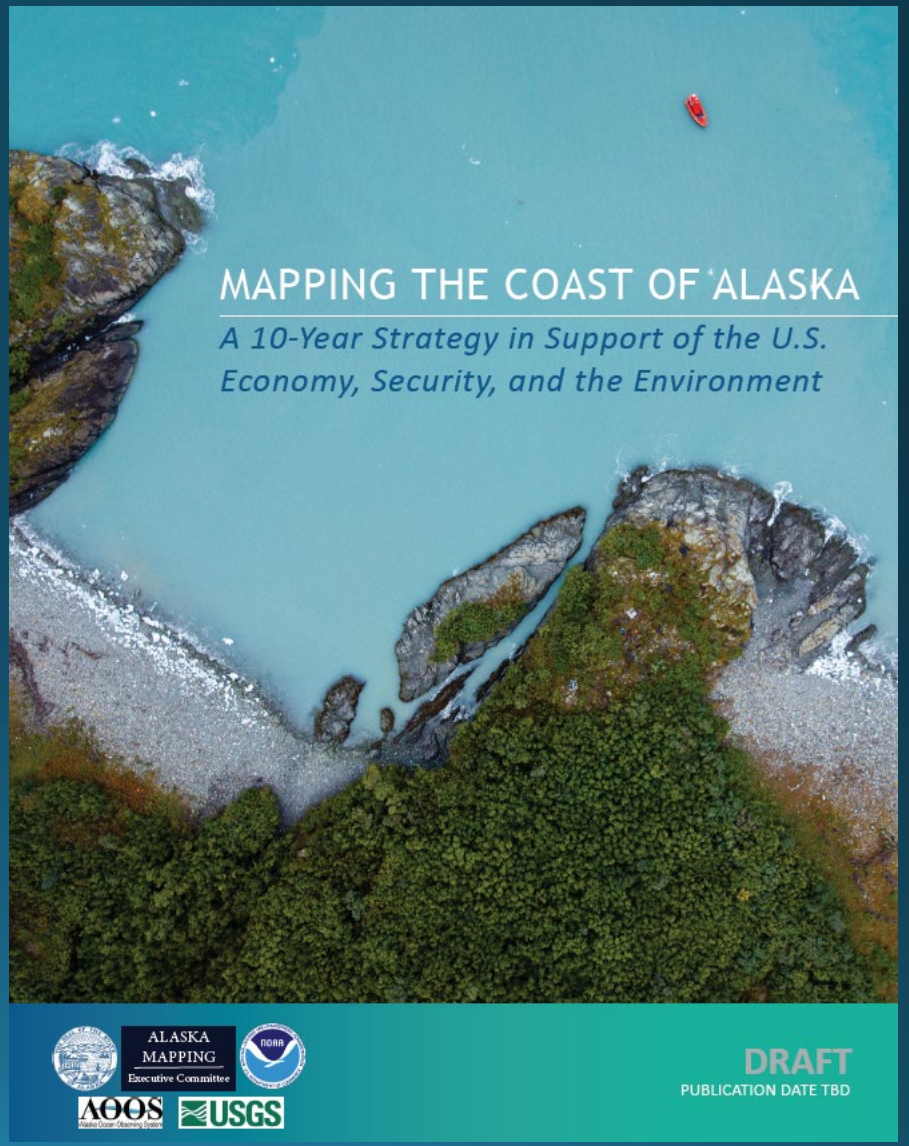




https://iocm.noaa.gov/about/strategic-plans.html

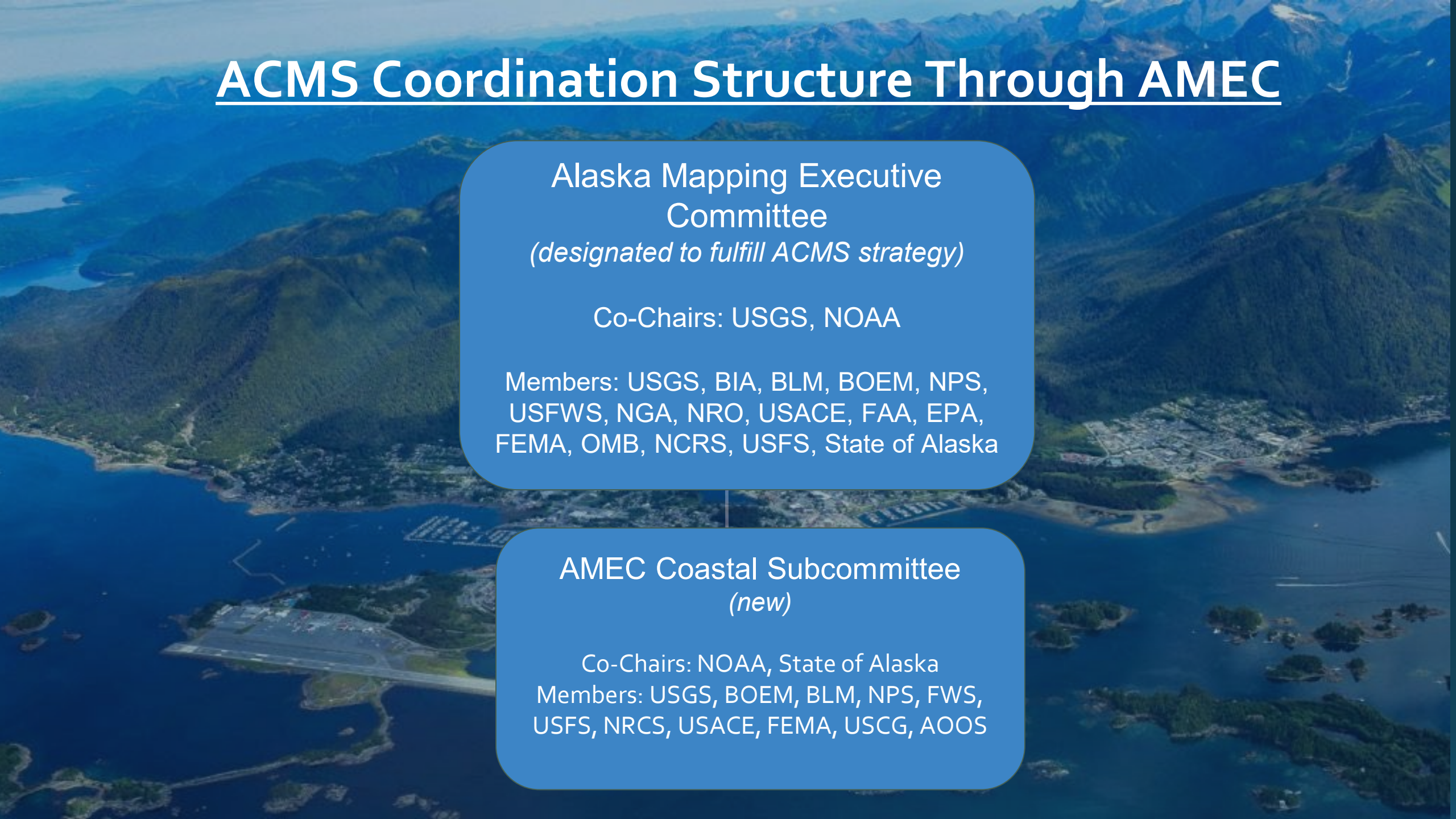
Alaska Coastal Mapping Strategy (ACMS) Goals

1. Build on existing mapping partnerships to meet Alaska's coastal mapping needs
2. Expand coastal data collection to deliver the priority geospatial products stakeholders require
3. Leverage innovation in mapping technology development
4. Conduct strategic communications to promote widespread stakeholder engagement



https://iocm.noaa.gov/about/strategic-plans.html

ACMS Coordination Structure Through AMEC



Alaska Mapping Executive Committee

(designated to fulfill ACMS strategy)

Co-Chairs: USGS, NOAA

Members: USGS, BIA, BLM, BOEM, NPS, USFWS, NGA, NRO, USACE, FAA, EPA, FEMA, OMB, NCRS, USFS, State of Alaska

AMEC Coastal Subcommittee

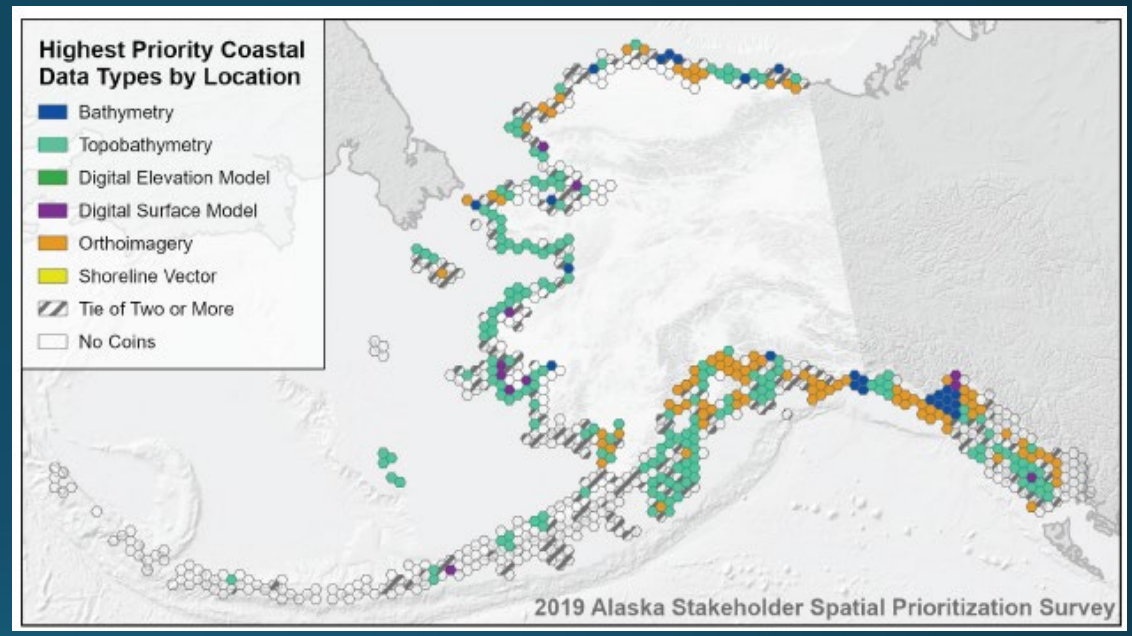
(new)

Co-Chairs: NOAA, State of Alaska

Members: USGS, BOEM, BLM, NPS, FWS, USFS, NRCS, USACE, FEMA, USCG, AOOS

ACMS Goal 1: Build on existing mapping partnerships

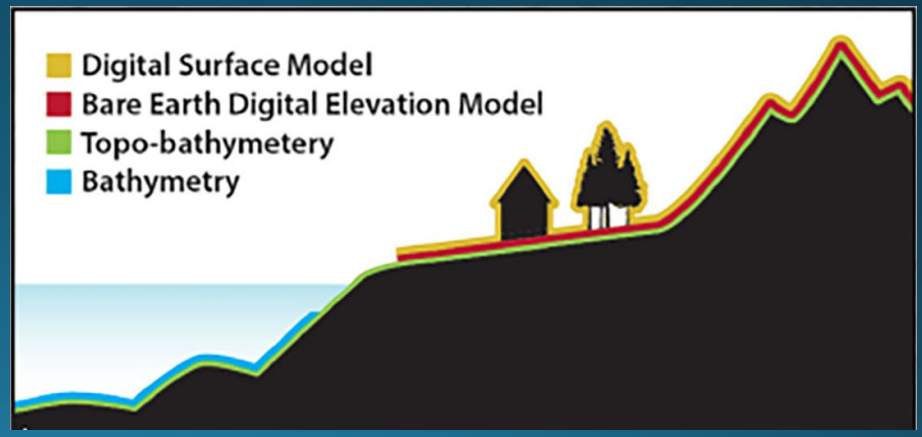
- Establish Coastal Mapping Technical Subcommittee
- Implementation Plan underway, draft due December 2020
- FY 2021 President's Budget for interagency mapping strategy: +$8.5M for NOAA
- User assessments, data studies, outcomes of 3D Nation Elevation Requirements and Benefits Study to inform Plan
- Integrating with other AMEC mapping themes to factor in planning, e.g., elevation, terrestrial hydrography, wetland/vegetation mapping



ACMS Goal 2: Expand coastal data collection to deliver priority geospatial products

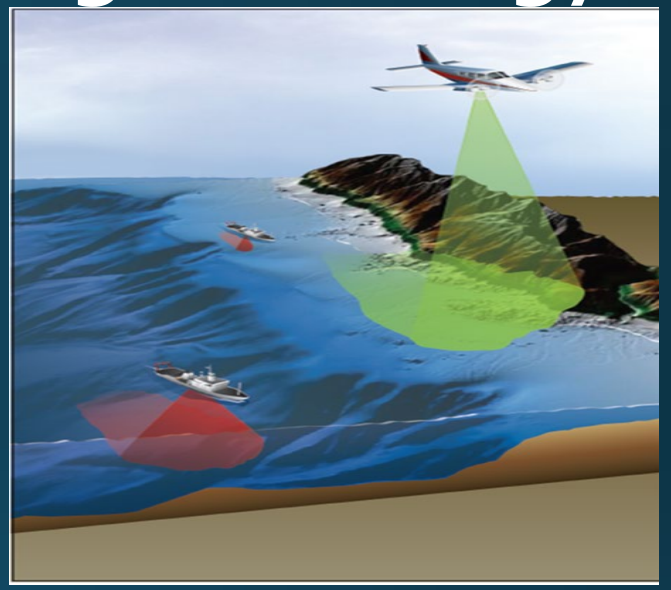
- Primary data types:
  - Nearshore bathymetry
  - Topobathymetry
  - Shoreline vector
  - Orthoimagery
  - Digital Elevation Models/Digital Shoreline Models

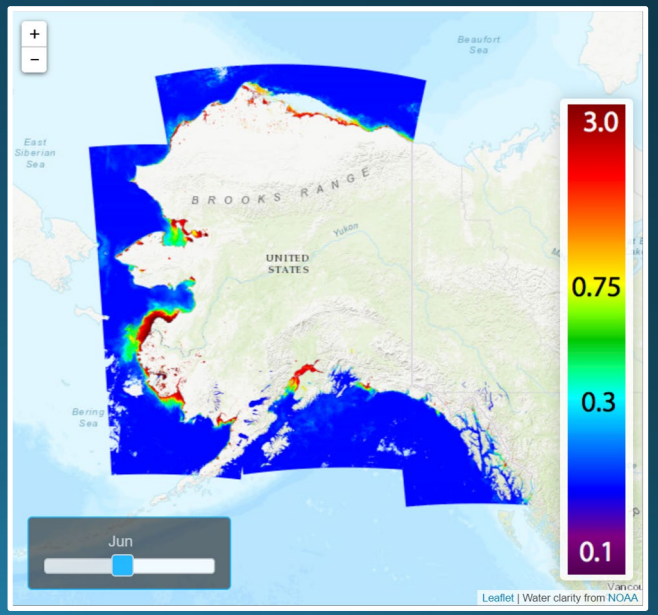
- Begin Aleutian Island GRAV-D data collection in FY21 and complete in FY22
- Negotiating adoption of three coastal National Science Foundation CORS into NOAA's Foundation CORS Network in FY21



ACMS Goal 3: Leverage innovation in mapping technology

- NOAA water clarity tool for AK topobathy upgraded using a composite of 2019 Sentinel 3 imagery
- Testing new technologies for acquisition efficiencies:
  - Satellite-derived bathymetry, e.g. Sentinel 2, WorldView-3 and ICESat-2, cloud computing
  - UxS as force multipliers, sUAS ship launched operations; multiple sUAS for deriving bathymetry, continued development or UxM for "filling the gap" between airborne lidar and maritime hydrography





ACMS Goal 4: Strategic communications for stakeholder engagement

- Alaska Coastal Mapping Summit planned for December 2020
- Online interactive maps to be hosted by the Alaska Geospatial Council
- Performance measurement and progress will be tracked on Alaska DNR website
- Plans and priorities shared through the IWG-OCM's Federal U.S. coordination site (fedmap.seasketch.org)

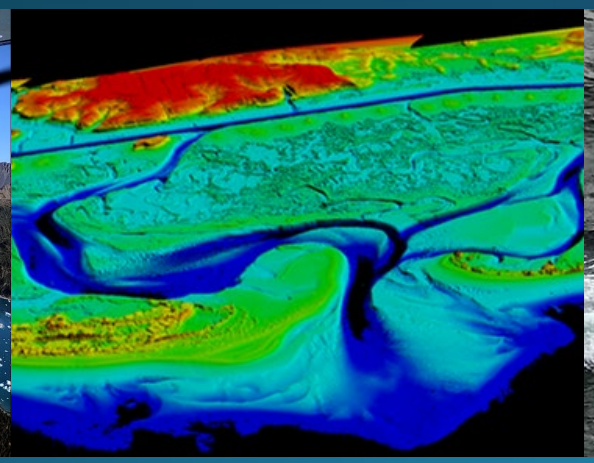
AMEC Coastal Subcommittee

- Champion: Juliana Blackwell, NOAA
- Co-Chairs: Ashley Chappell, NOAA, and Jacquelyn Overbeck, AK DNR

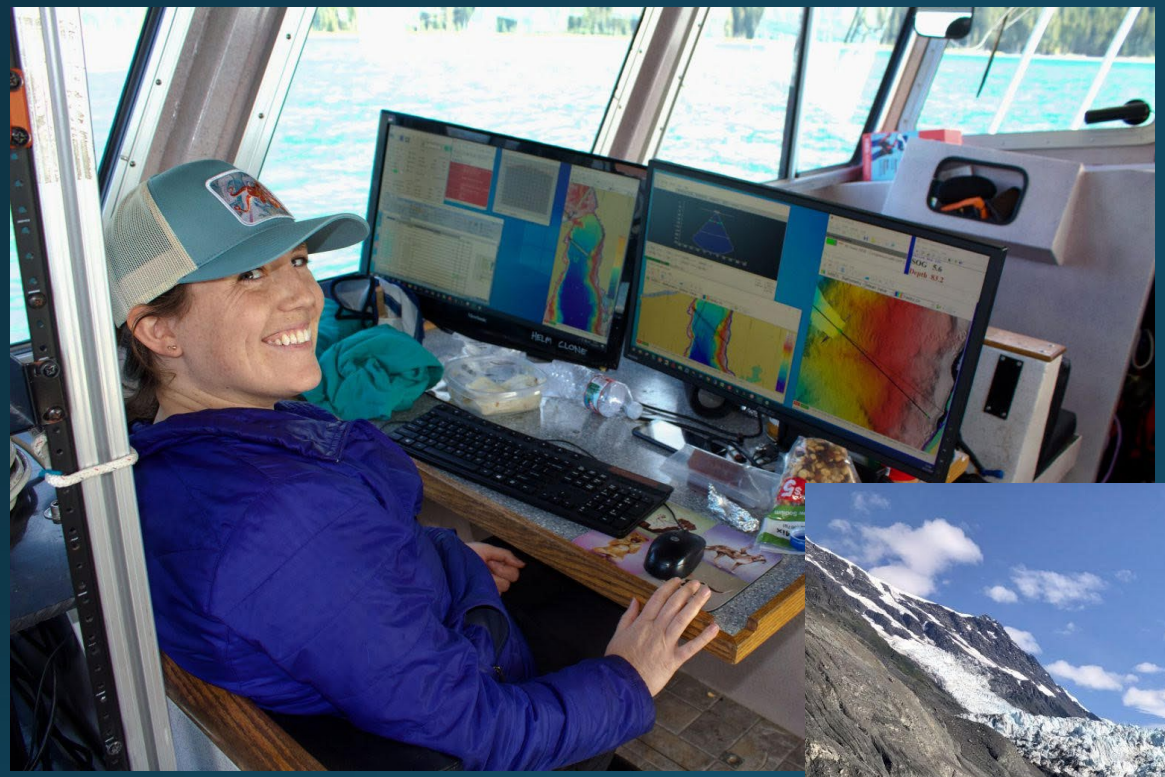
USGS	Elizabeth Powers	Steve Aichele, Jeff Danielson, Tracy Fuller, Ann Gibbs, Brian Wright
BOEM	Gail Morrison	
BLM	Chris Noyles	
NPS	Tahzay Jones	
FWS	Sydney Thielke	Lew Coggins
USFS	Neil Stichert	Kim Homan
NRCS	Denise Miller	
USACE	Jennifer Wozencraft	Chris Macon
AOOS	Molly McCammon	Marta Kumle
FEMA	Ted Perkins	Wendy Shaw, Paul Rooney, Rynn Lamb
USCG	Dave Seris	
Alaska	Jacquelyn Overbeck	Leslie Jones
NOAA	Ashley Chappell	Mike Aslaksen, Colin Becker, Bart Buesseler, Amber Butler, Christine Hayes, Rebecca Heim, Amy Holman, Nicole Kinsman, Laura Rear Mclaughlin, Summer Ohlendorf, Dave Stein, Lauren Talbert, Timi Vann, Oriana Villar, Meredith Westington, Stephen White, Robb Wright

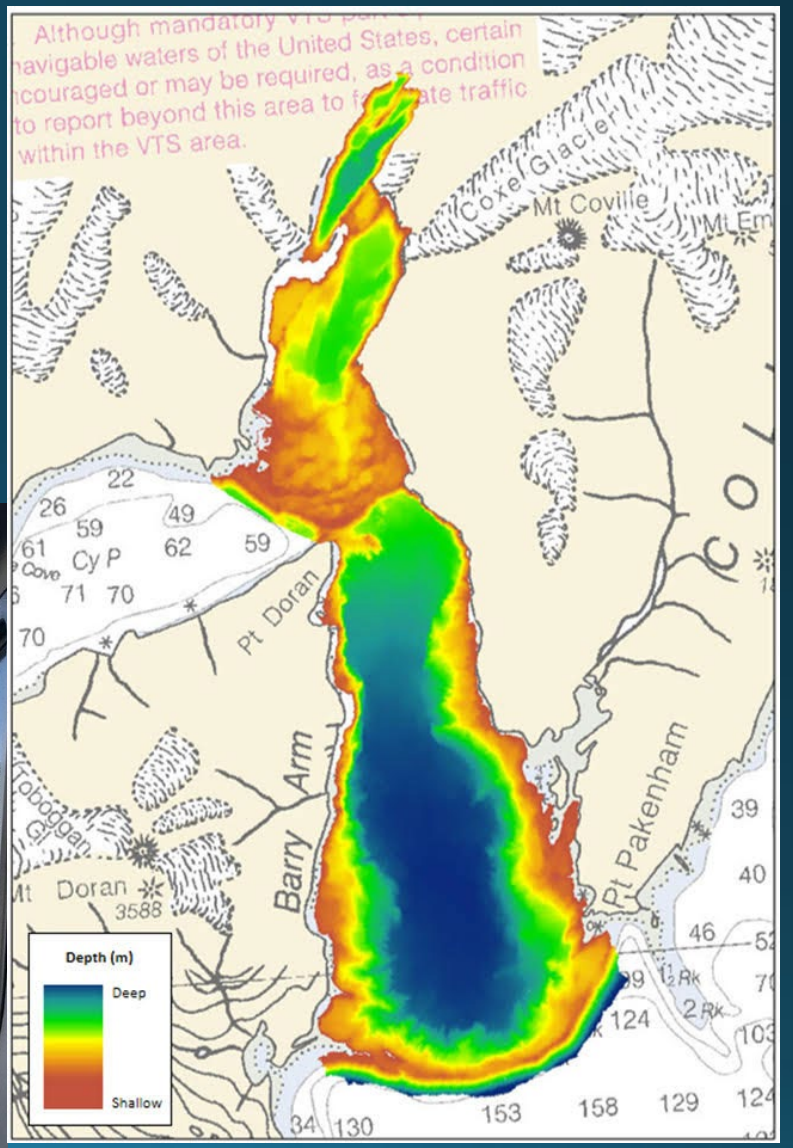
Recent and Upcoming Activity

- July 9 -- AMEC Coastal Subcommittee (CS) Kick-off Meeting
- August 11 -- CS agency introductions (priorities, requirements)
- September 1 -- Establish CS Implementation Plan (IP) tiger teams
- November 20 -- Working Implementation Plan draft due
- December 9-10 -- Alaska Coastal Mapping Summit
- December 2020 -- Final draft IP for AMEC review
- January 2021 -- IP draft shared for public comment
- March 2021 -- Final IP complete and ready to execute



Collaboration - An Example From Barry Arm





Thank you!

HSRP Recommendations to NOAA for the Implementation Plan for the Alaska Coastal Mapping Strategy

By David F. Maune, PhD, CP, PSM, PS, GS

Alaska Coastal Mapping Summit

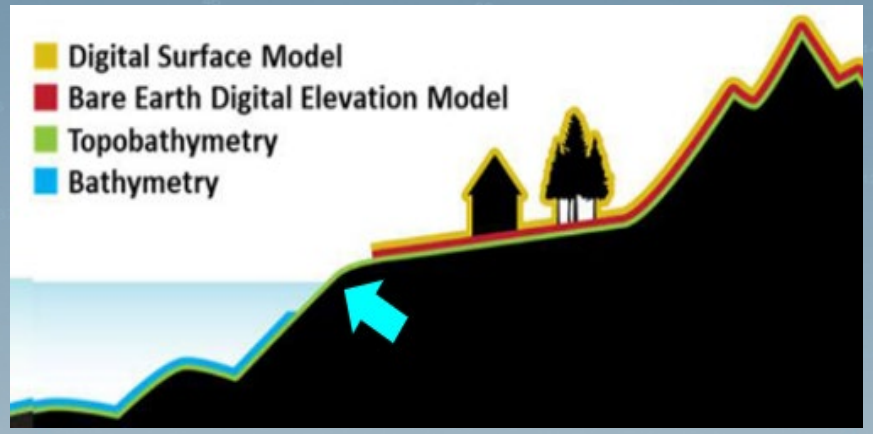
December 9, 2020

Disclosure

- I am a member of the NOAA Hydrographic Services Review Panel, a Federal Advisory Committee that reports to the NOAA Administrator.
- I am here in my personal capacity and for purposes of this presentation I do not represent NOAA or the HSRP.
- I will share information including the key HSRP recommendations and a paper the HSRP approved in September 2020, “Recommendations to NOAA for the Implementation Plan for the Alaska Coastal Mapping Strategy”.
- The presentation and the opinions I will be sharing are my personal opinions on the report and do not represent the HSRP or NOAA.
- The ACMS paper was sent to the NOAA Administrator on Oct. 26, 2020. The paper is publicly available on the HSRP recommendations web page at the following website:

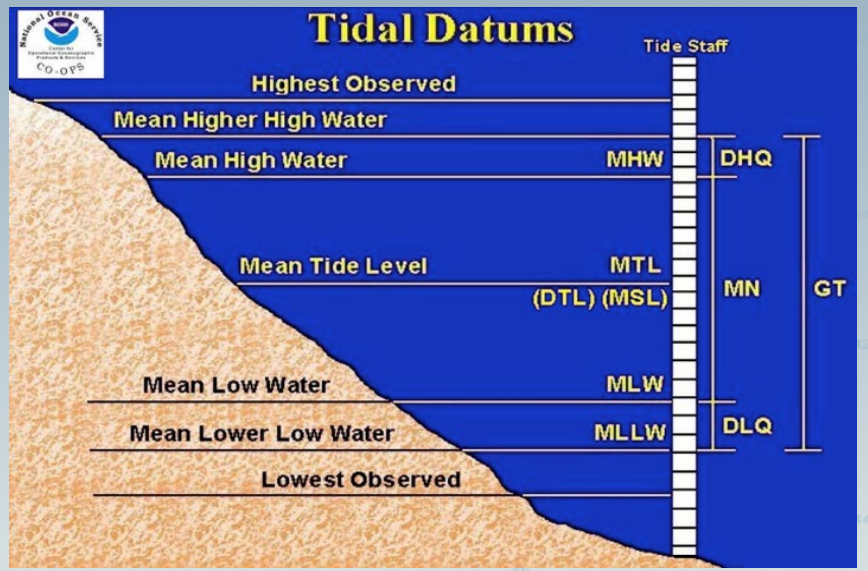
  https://www.nauticalcharts.noaa.gov/hsrp/recommendations.htm

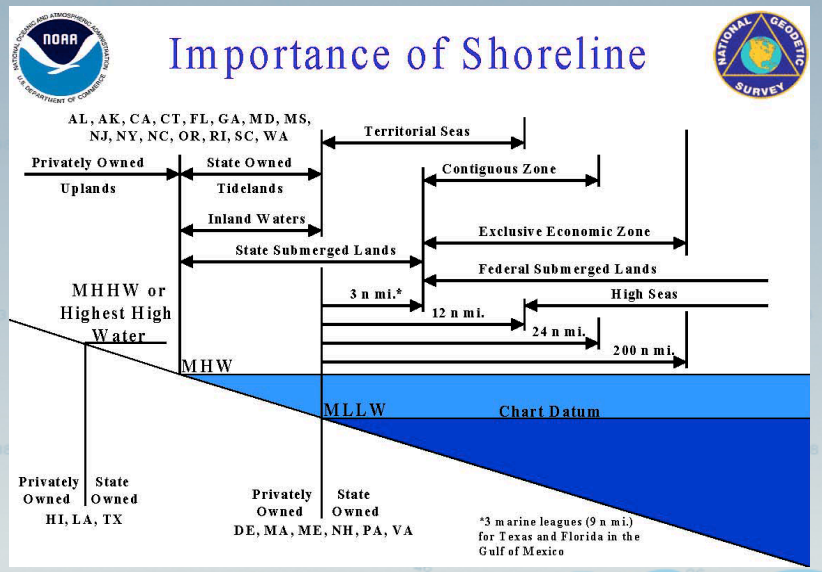
Alaska Coastal Mapping Strategy Background Information



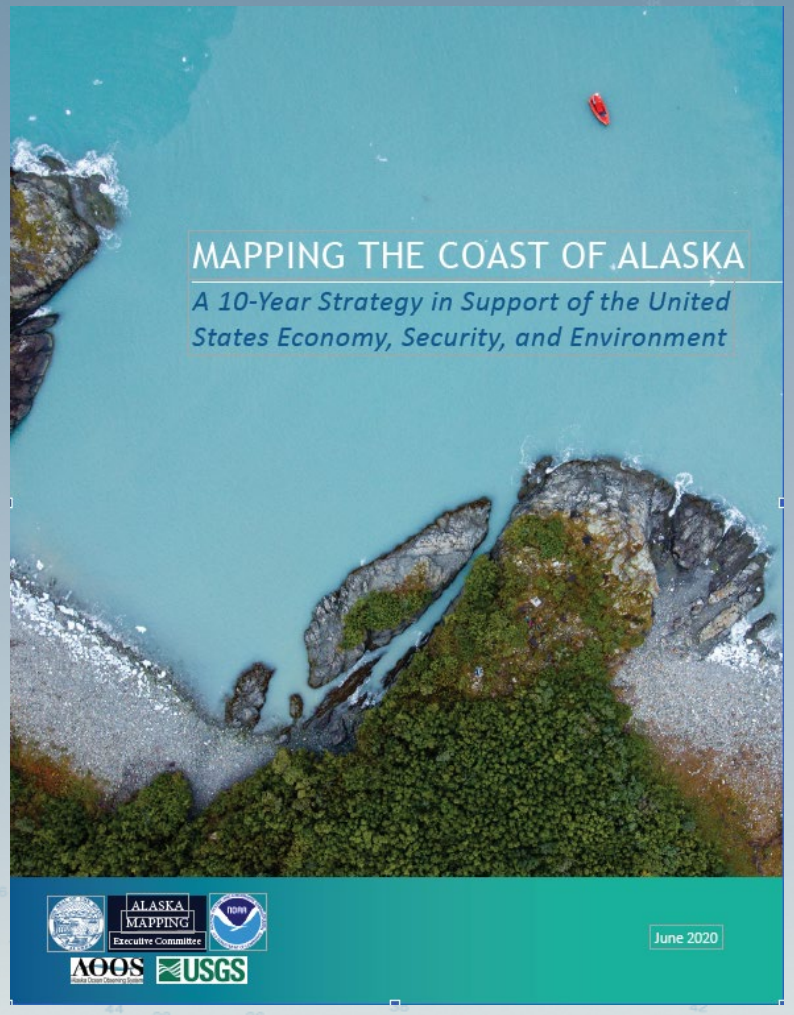
We explained the following:

1. Seamless intertidal zone
2. Importance of ellipsoid, orthometric and tidal datums and the Vertical Datum Transformation Tool (VDatum)
3. Importance of Alaska's official shoreline based on MHW



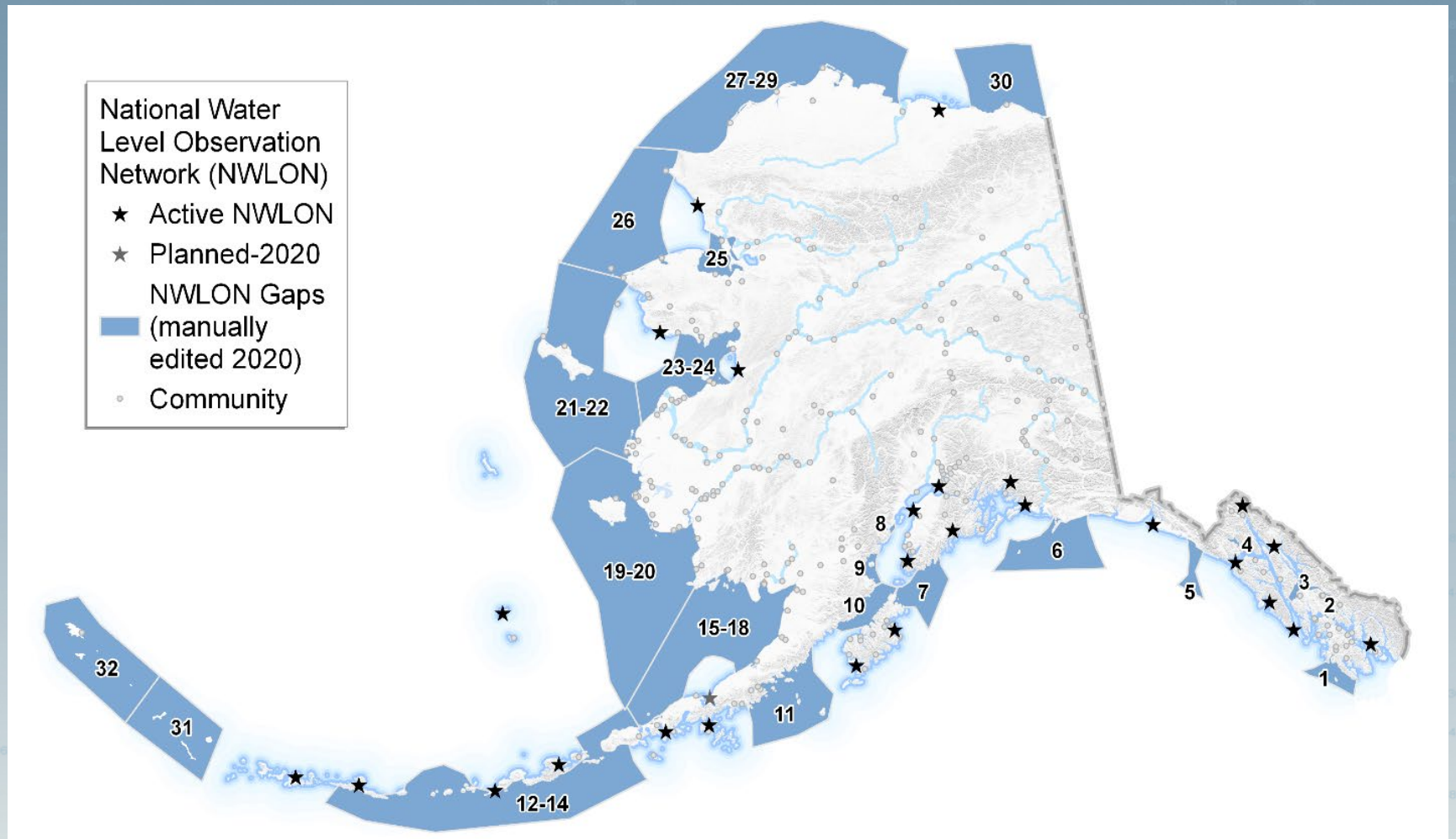


The HSRP fully supports the ACMS; our priority considerations (if practical) are:

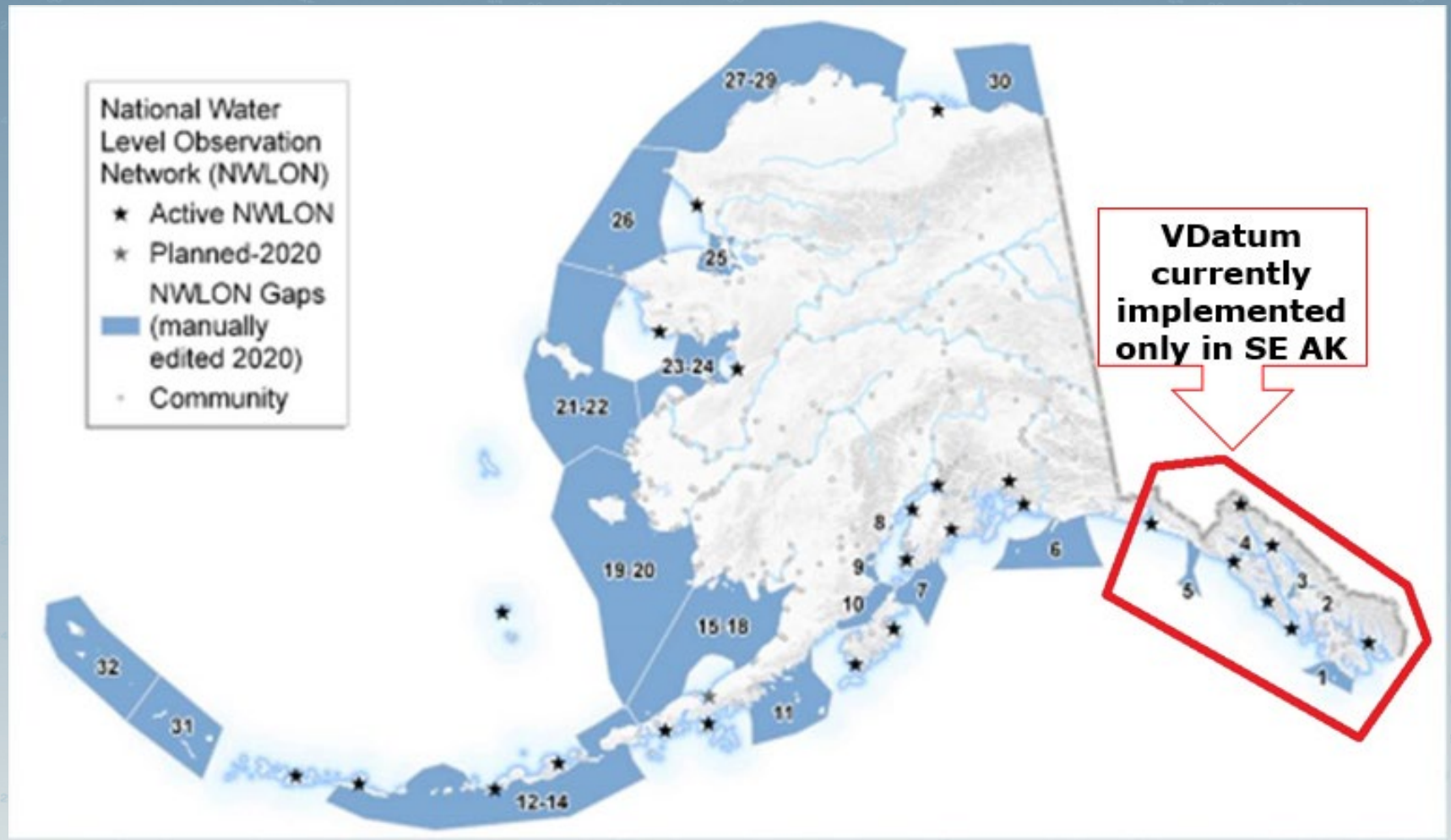


1. Establish tidal datums for VDatum tool statewide and to estimate high & low tides by priority areas
2. Update NOAA's climatology tool that predicts times and locations when waters are the clearest
3. Re-evaluate Satellite Derived Bathymetry (SDB)
4. Collect topobathy lidar and aerial imagery at low tide (±2 hours)
5. Determine data voids out to 4m depth contour
6. Collect sonar at high tide (±2 hours) out to 4m depth using Uncrewed Surface Vessels (USVs) where possible

1. The Alaska Water Level Watch is already addressing alternatives for filling NWLON gaps



We need to expand VDatum statewide so we can convert from ellipsoid to orthometric/tidal datums



VDatum needs for Alaska

Foundational data needs to be acquired before model development can be initiated:

- **Water Level Observations** (with GNSS ellipsoidal ties)
- **Geodetic GNSS Ellipsoidal Observations** on tidal benchmarks at historical Water Level Observation sites throughout the state

Model Development

- Processing, Ingestion, and Publication of Water Level and Geodetic Observations for NOAA acceptance into development
- Hydrodynamic Development and Simulations (Tidal Datums)
- Topography of the Sea Surface Development (TSS)
- Spatially Varying Uncertainty Development
- Software Integration

Iterative Version Development (Future)

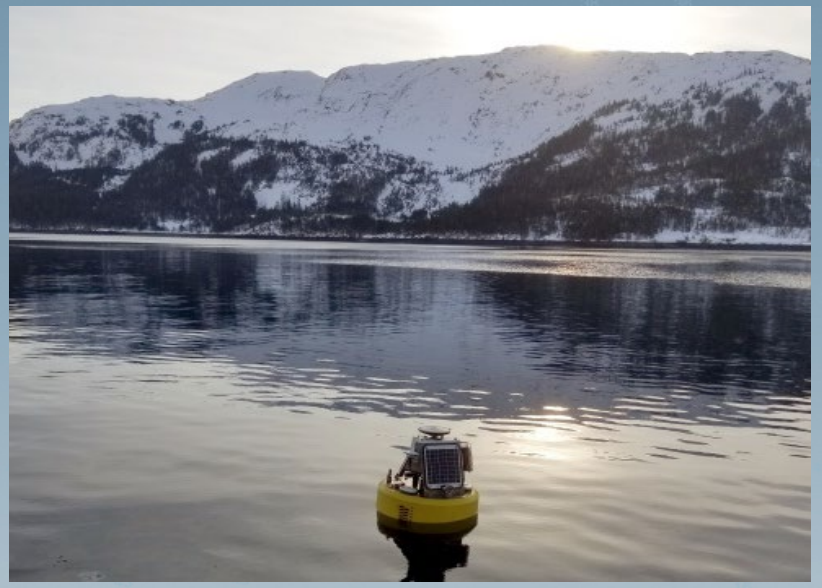
- As we learn what issues present themselves after model development and uncertainty analysis, additional data (Bathymetry, Shoreline, Foundational Water Level and Geodetic Data needs) may be needed for an iterative approach to revisions for enhanced coverage and decrease of uncertainties for user needs

AWLW is already considering lower-cost alternative sensors for tidal datums

GNSS-Reflectometry determines height of the antenna above a reflected surface

Non-vented pressure tide gauges have some advantages over vented gauges

Other alternative sensors for tidal datums

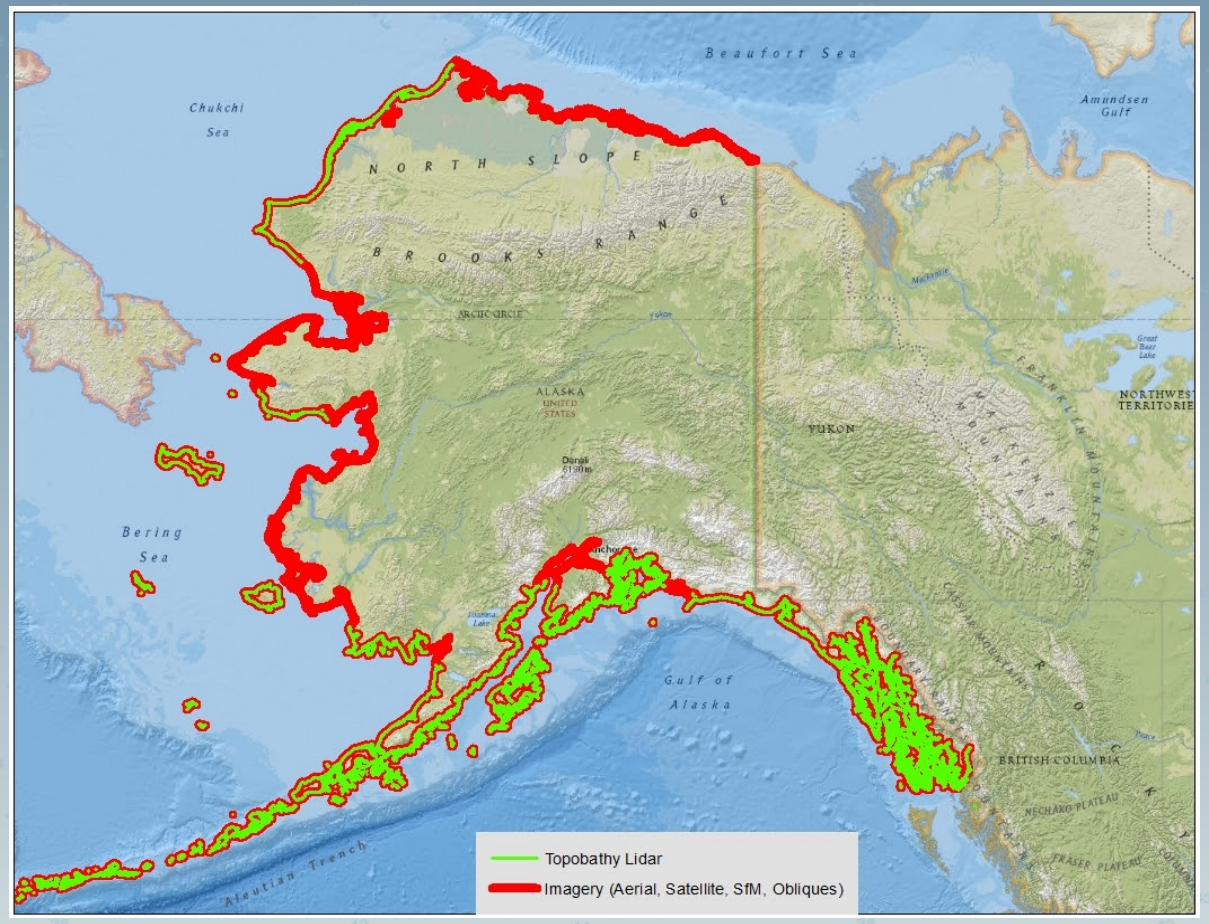


GNSS tide buoy

Hydroball buoy with GNSS and multibeam sonar

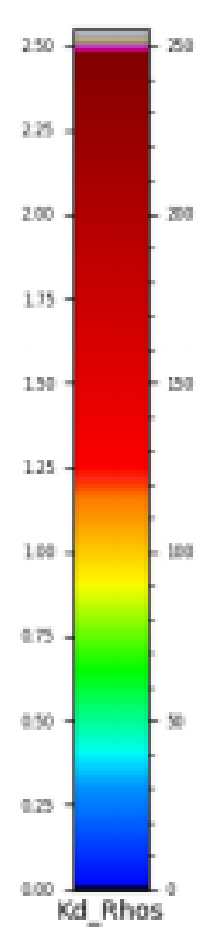
Use alternative lower cost systems for acquiring tidal data and establishing tidal datums in Alaska using the NOAA Tidal Analysis Datums Calculator that enables partners to compute tidal datums themselves using CO-OPS methodologies and their data which may not be collected to NOAA's most rigorous NWLON standards.

2. Update and use NOAA's Climatology Tool



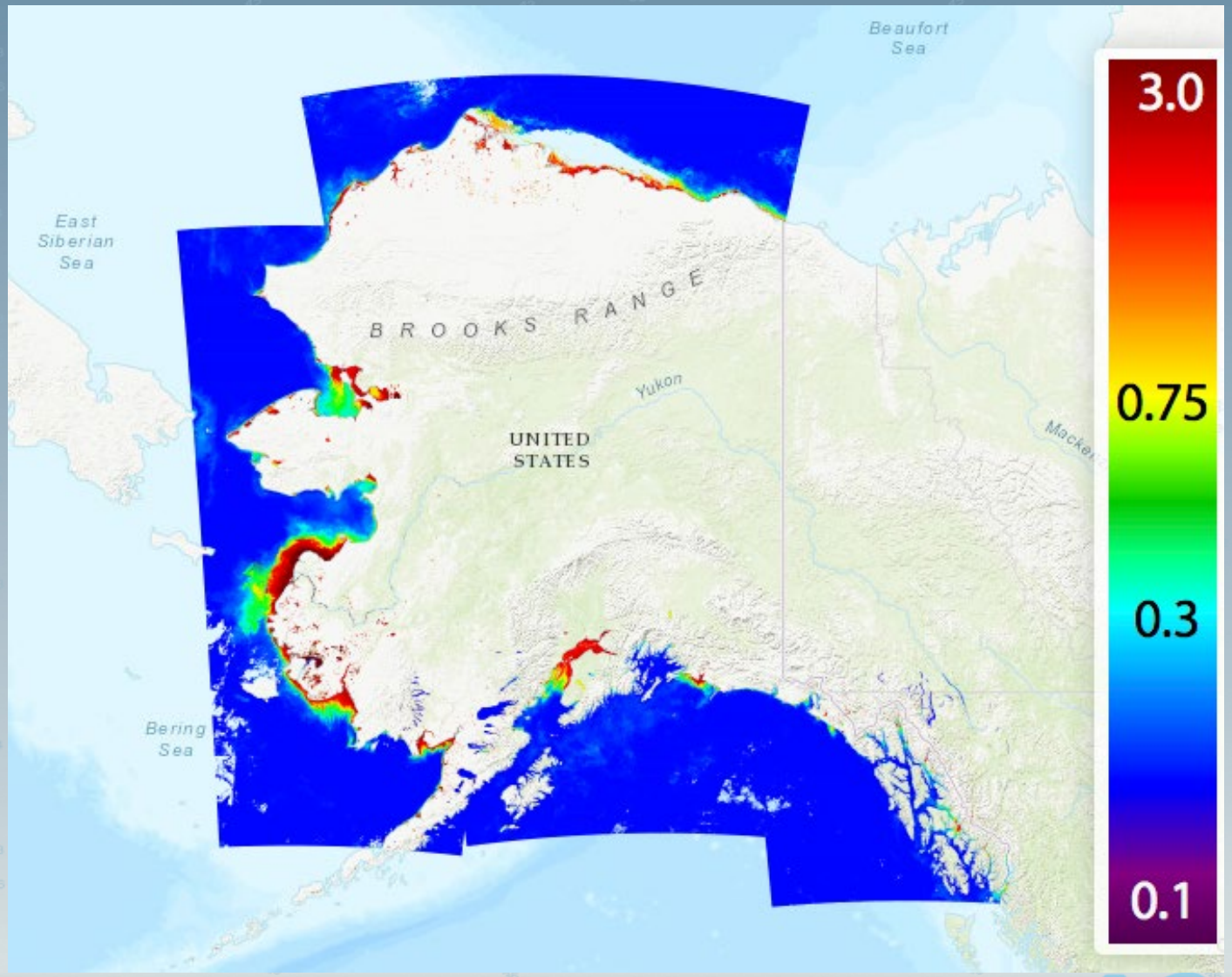
- Work with NOAA to update their climatology tool that predicts times and locations when waters are expected to be the clearest along different reaches of the AK coastline
- NGS and other ACMS partners hope to acquire topobathy lidar for areas in green, and imagery only for areas in red.

Alaska Climatology Model/Water Clarity Viewer using Sentinel-3

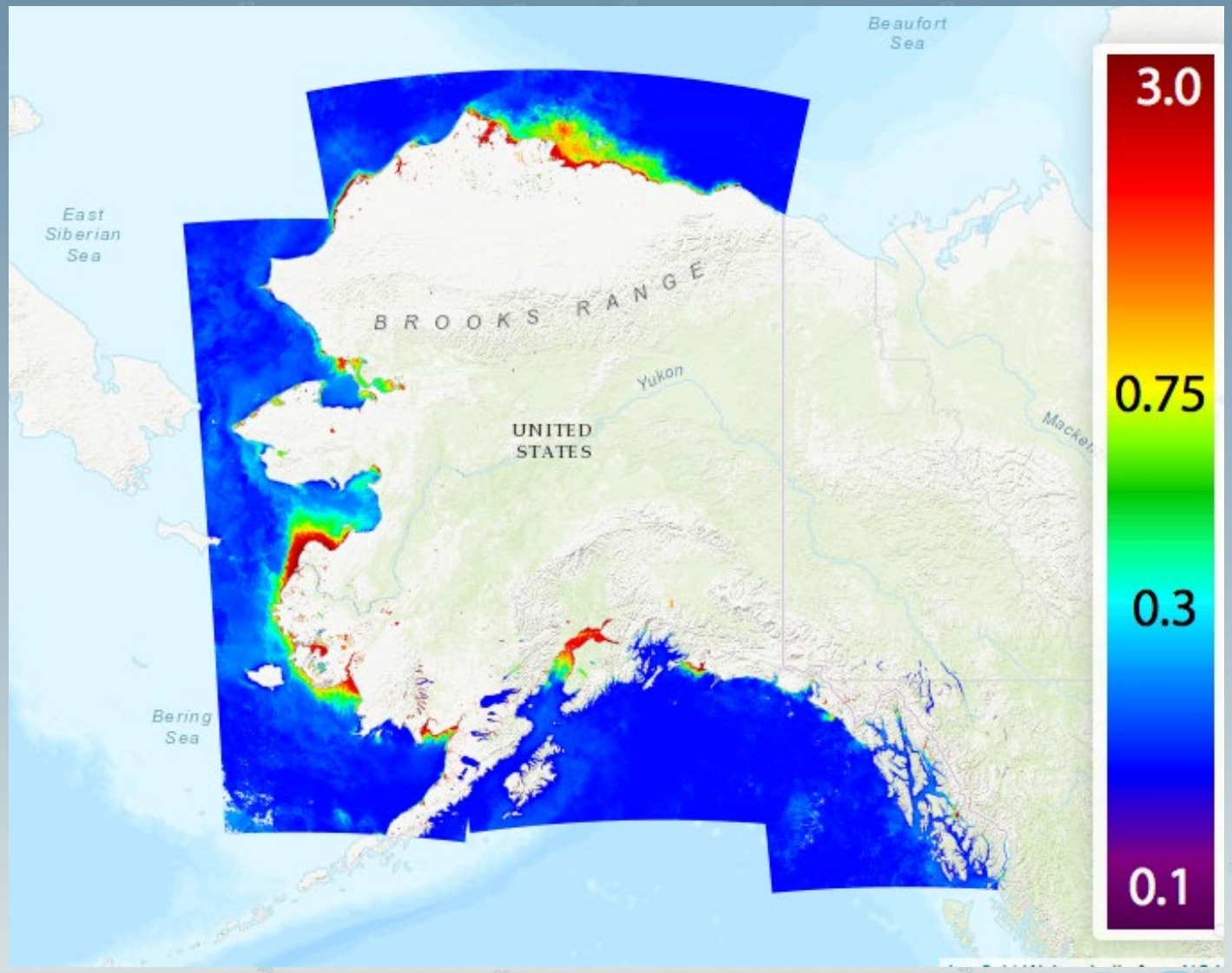


- Sentinel-3 is a multi-instrument mission to measure sea-surface topography, sea- and land-surface temperature, ocean color and land color with high-end accuracy and reliability. The mission supports ocean forecasting systems, as well as environmental and climate monitoring. Sentinel-3A was launched on 16 February 2016 and Sentinel-3B joined its twin in orbit in 2018.
- The files used to create NOAA's Alaska climatology model are monthly composites for 2019 of OLCI Sentinel-3 daily imagery at a resolution of 300 meters. Kd is a measure of how light dissipates with depth in water. Sentinel 3 has three color channels that are impacted by turbidity differently. Kd is determined by using the relative intensity information from these color channels, calibrating them and calculating a total value that approximates the amount of scattering particles in the water column.
- This is the Kd_Rhos colorbar. In general, the blue-to-cyan-to-green is going to best represent what will be 'good' conditions near shore for topobathy lidar and satellite derived bathymetry. **The Kd is an indicator of the turbidity of the water column, and is directly related to the concentration of scattering particles into the water column. So the least turbid water is going to be represented by blues**

June 2019


Beaufort Sea
East Siberian Sea
BROOKS RANGE
Yukon
UNITED STATES
Bering Sea
3.0
0.75
0.3
0.1

July 2019


Beaufort Sea
East Siberian Sea
BROOKS RANGE
Yukon
UNITED STATES
Bering Sea
3.0
0.75
0.3
0.1

August 2019


Beaufort Sea
East Siberian Sea
BROOKS RANGE
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UNITED STATES
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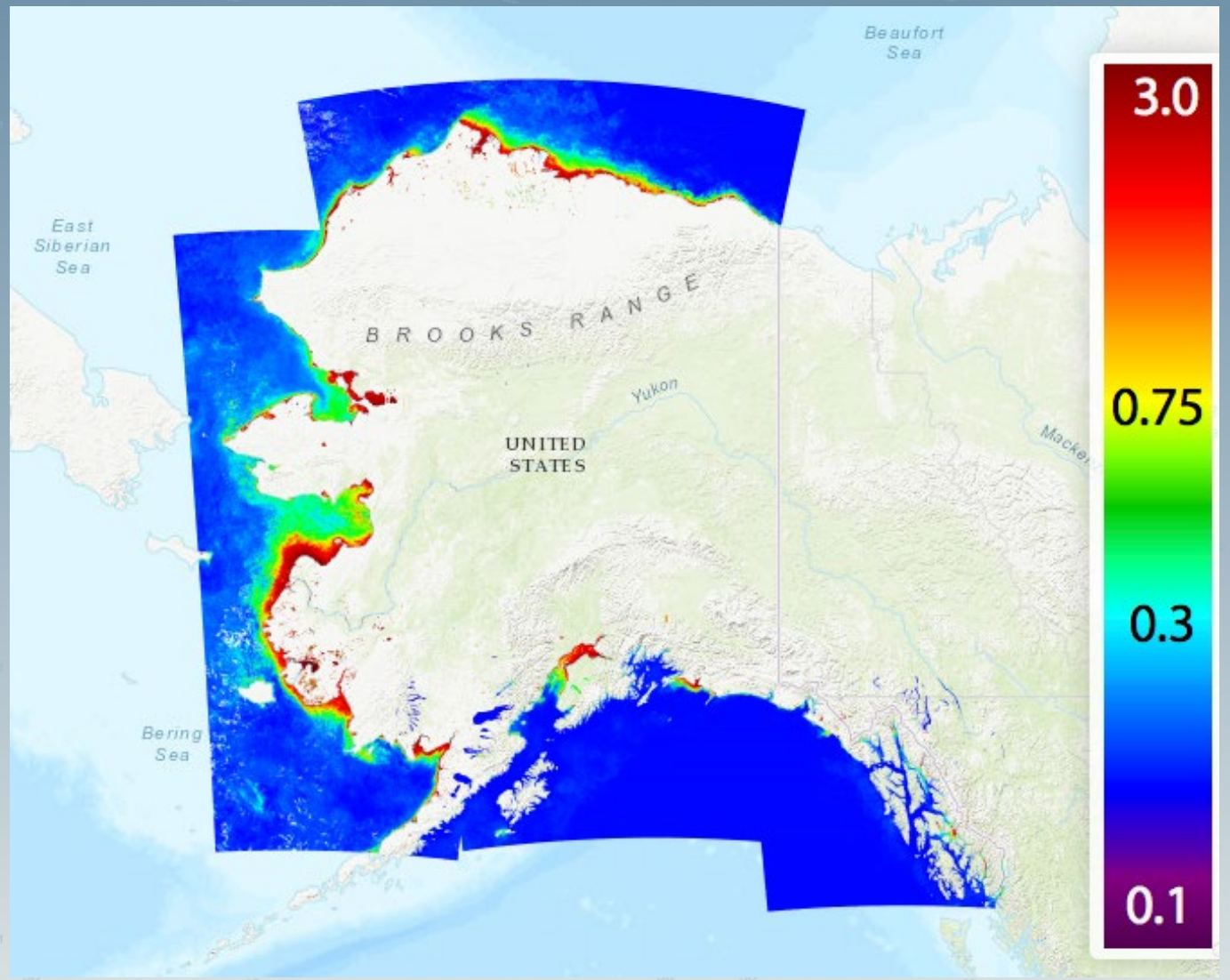
September 2019

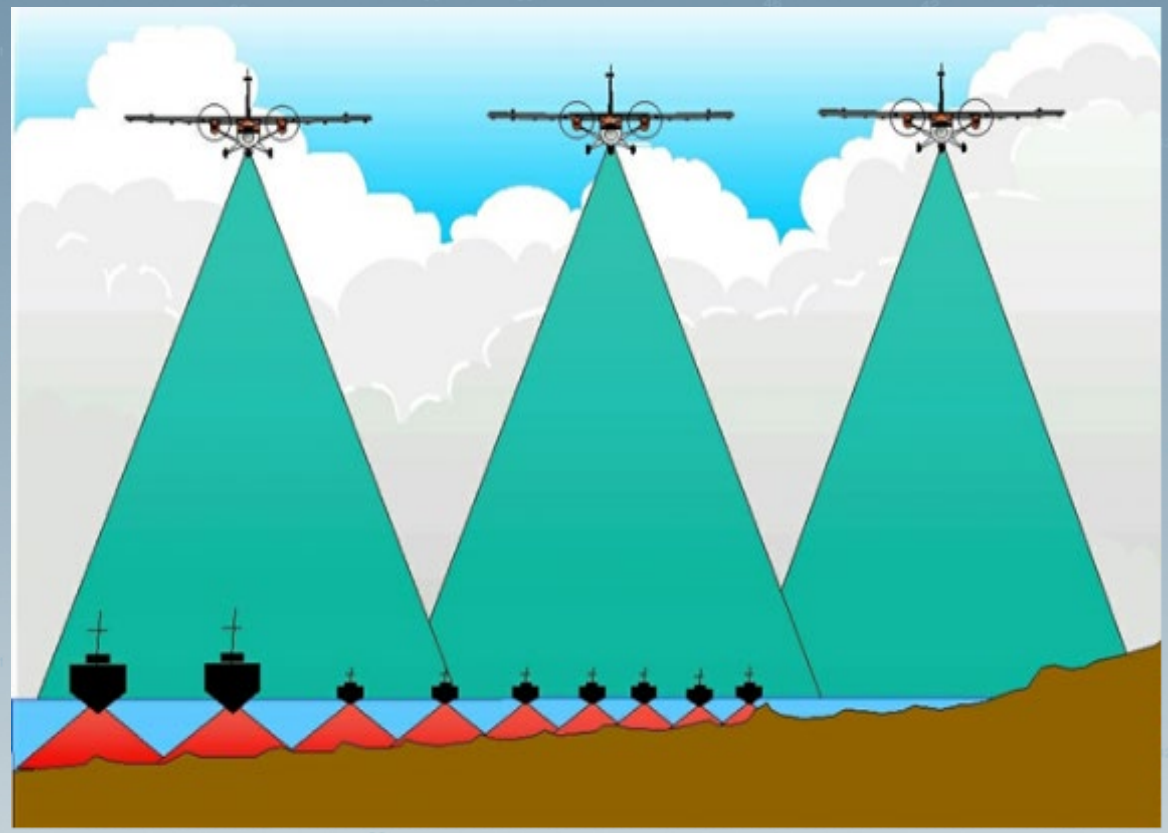


3. Re-evaluate Satellite Derived Bathymetry (SDB) Options

- We are looking for success stories in AK using selected bands of satellite imagery
- Attempts in prior years have not been successful due to limited satellite coverage, cloud cover, and turbidity
- This promises to change with increased satellite coverage by the Sentinel constellation, Maxar, Planet, and others. Currently, Sentinel-2 revisit for Alaska is 2-3 times per day.

https://sentinel.esa.int/web/sentinel/user-guides/sentinel-2-msi/revisit-coverage

Optimize times for collection of topobathy lidar (1st), then sonar (2nd)



Topobathy lidar is most cost-effective in shallow waters; sonar is most cost-effective in deeper waters and where waters are too turbid for lidar

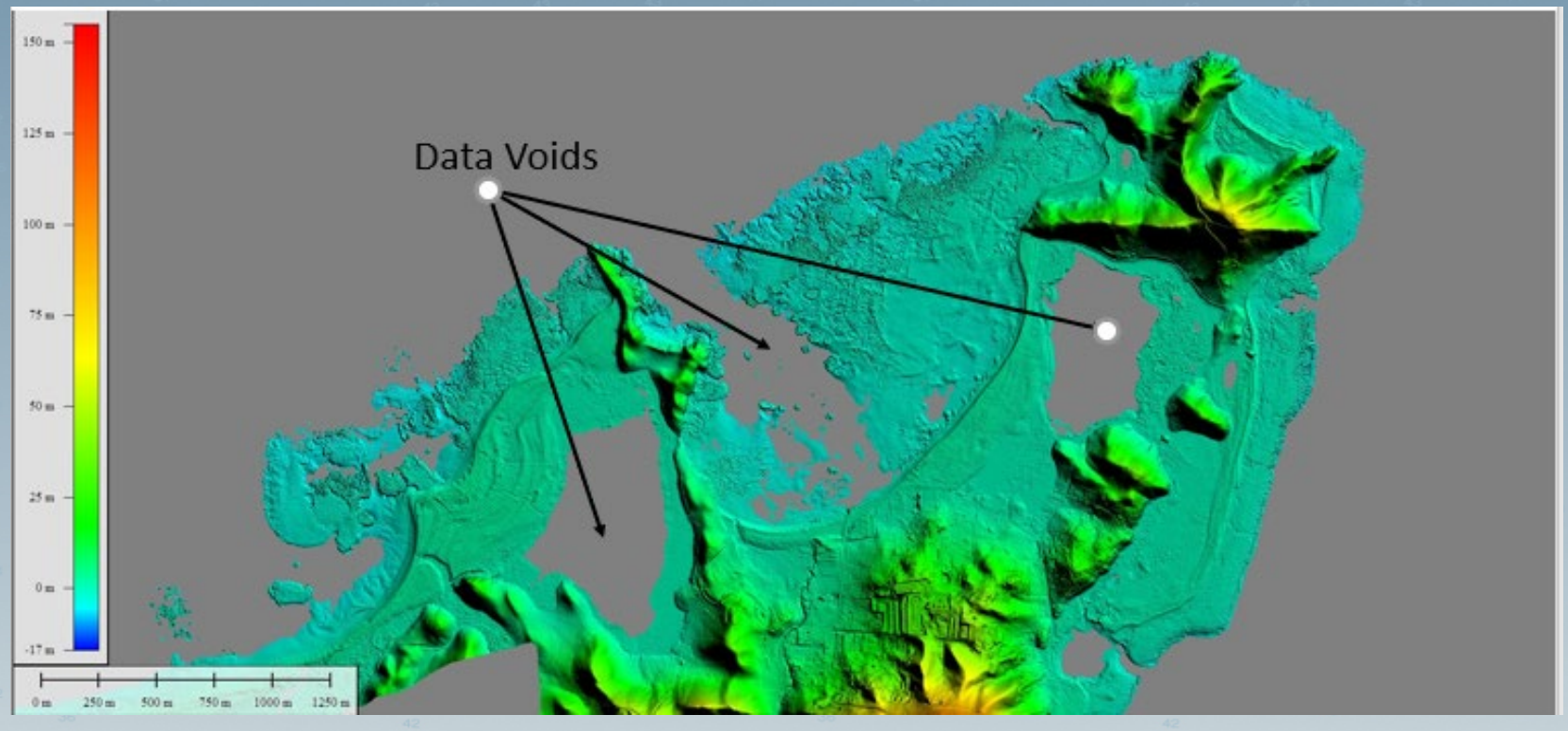
4. Collect topobathy lidar & aerial imagery at low tide (±2 hours)


2018 ALASKA COASTAL MAPPING SUMMIT SUMMARY REPORT

Haines, Alaska. A look at the intricate braiding of tidal flats, looking north at the shoreline west of McClellan Flats. The image was created from the gridded LIDAR surface colored by elevation. Quantum Spatial

Final
April 30, 2018
Prepared by Marta Kumle, Coastal Mapping Strategist
Alaska Ocean Observing System and State of Alaska Department of Natural Resources
Anchorage, Alaska

5. Determine topobathy lidar data voids out to the 4m depth contour



Where waters are too turbid for ALB, data voids must be filled in with sonar

6. Collect sonar at high tide out to 4m depth using Uncrewed Surface Vessels (USVs);

Note: 4m = Navigable Area Limit Line (NALL)

The Z-boat, with multibeam sonar, is one of may options to choose from for surveying shallow waters. They transit pre-planned acquisition patterns, but normally operate within line-of-sight of a human controller on land or on a crewed hydro survey vessel.

Saildrones, with either single- or multibeam sonar, operate autonomously, remotely monitored by Saildrone Mission Control from long distances, but they require minimum depth of 6 ft. Mapped large parts of Arctic in 2020 using zig-zag pattern.

ACMS Goal 1: Build on existing mapping partnerships to meet Alaska's mapping needs

- Objective 1.1: Establish a team for Alaska coastal mapping implementation
- Objective 1.2: Refine stakeholder mapping priorities, costs and data standards
- Objective 1.3: Cost-effectively resource the Alaska Coastal Mapping Implementation Plan
- Objective 1.4: Integration with complementary AMEC mapping priorities

While supporting other objectives, our HSRP recommendations focused on Objective 1.2, i.e., priorities, costs and standards

Where possible, prioritize needs of Alaska's coastal villages

Few villages have roads to the mainland; they are supplied by small aircraft (if they have a landing strip) or by barges guided in by sounding skiffs with consumer depth sounder or sounding poles for physical soundings of shallow water.

However, local communities can enact travel restrictions to minimize the spread of the Covid-19 virus, and AK's villages have been badly harmed in the past. It may not be possible to prioritize AK's villages if specialists can't enter.

Develop funding partnerships. Subject to availability of funds, mapping should commence immediately in areas in which there is the necessary geospatial infrastructure, i.e., CORS and tide stations needed for VDatum and accurate predictions of high and low tides.

For topobathy lidar, I'd like to see common standards between NOAA/JALBTCX e.g., swath width, tide coordination, and imagery

ACMS Goal 2: Expand coastal data collection to deliver the priority geospatial products stakeholders require

- Objective 2.1: Execute a flexible Alaska coastal mapping campaign
- Objective 2.2: Upgrade Alaska National Spatial Reference System components to support mapping data acquisition
- Objective 2.3: Produce and disseminate key datasets and products from Alaska coastal mapping data

While supporting other objectives, our HSRP recommendations focused on Objective 2.2 to include support of the Alaska Water Level Watch's Collaborative Working Group Guidance Plan to fill gaps in the NWLON network with lower-cost alternatives

ACMS Goal 3: Leverage innovation in mapping technology development

- Objective 3.1: Upgrade the Alaska climatology tool for smart application of satellite and airborne lidar bathymetry
- Objective 3.2: Monitor and test new technologies for acquisition efficiencies.

Our HSRP recommendations focused on both of these objectives.

We support the NGS build-out plan for foundation CORS; we had four additional recommendations for water level observations, plus four recommendations for expanding VDatum coverage in AK

ACMS Goal 4: Conduct strategic communications to promote widespread stakeholder engagement

- Objective 4.1: Strengthen stakeholder communications to grow participation in the Alaska coastal mapping campaign
- Objective 4.2: Use online tools and technologies to communicate plans and performance

The HSRP offered seven recommendations on how to strengthen stakeholder communications: (1) outreach and public engagement strategy, (2) ensure participation of non-government sectors, (3) demonstrate innovation, (4) AMEC transparency, (5) develop a gap analysis, (6) develop standards and protocols for consistency, (7) early stakeholder engagement

Questions Later. Thank you.

Lightning Talks Session Introduction

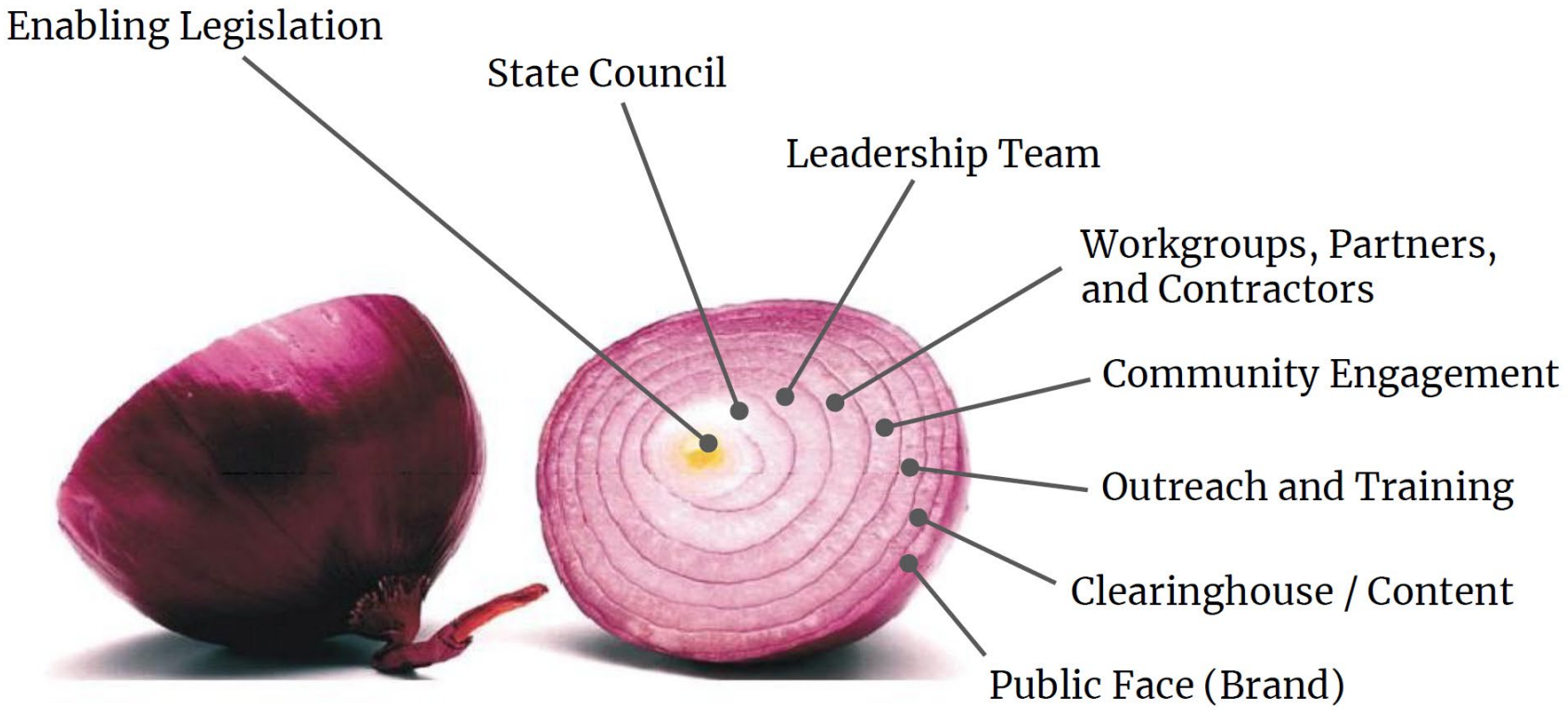
Topic	**Speaker**	**Affiliation**
Alaska Geospatial Council Updates	Leslie Jones	SOA
SOA: Barry Arm interagency collaborative mapping	Gabe Wolken	SOA
Improving Coastal Resilience with Datums and Imagery	Dave Stein	NOAA Office of Coastal Management
NOAA Navigation Manager Update	Bart Buesseler, Hadley Owen	NOAA Office of Coast Survey
NOAA Coastal Mapping Mission Update	Mike Aslaksen	NOAA National Geodetic Survey Remote Sensing Division

POLL

State Geospatial Coordination for Coastal Mapping in Alaska

Leslie Jones, PhD
Geospatial Information Officer - State of Alaska
Executive Director - Alaska Geospatial Council
leslie.jones2@alaska.gov

State GIS Coordination Infrastructure



AppGeo

Alaska Geospatial Council | Organizational Governance

Alaska Geospatial Council Executive Board

Technical Advisory Group

GIO

State Interagency Task Force

- Data Management and Standards
- UAS Policy
- Enterprise Systems

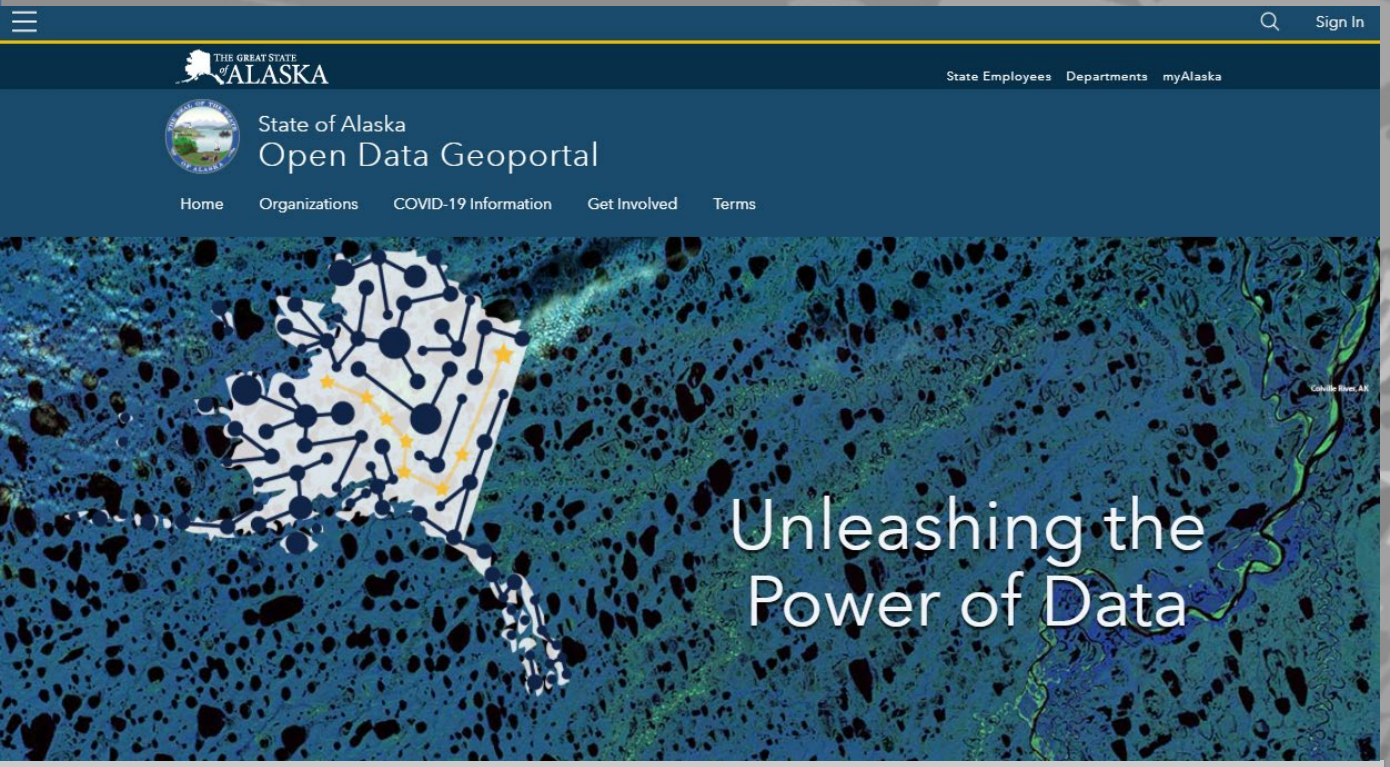
Geospatial Initiatives

- Coastal Mapping
- Emergency Response
- Enterprise GIS

Framework Data Implementation Team

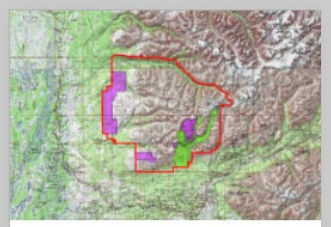
- Transportation
- Addressing
- Imagery
- Elevation
- Cadastral
- Admin Boundaries
- Geodetic
- Wetlands
- Hydrography
- Vegetation

State of Alaska | Open Data Geoportal – gis.data.alaska.gov



Featured Maps and Apps

Local, State, and Federal organizations are creating new ways to visualize data.
Explore some of the most popular maps and apps across Alaska.

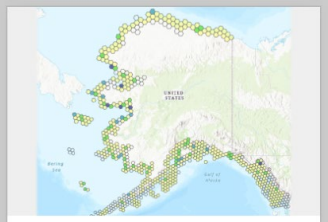


Hatcher Pass Motorized Management Areas

Explore motorized and non-motorized access areas of Hatcher Pass.

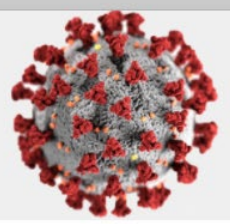
Where are National Wetlands Maps Used?

Examining the patterns of wetlands maps



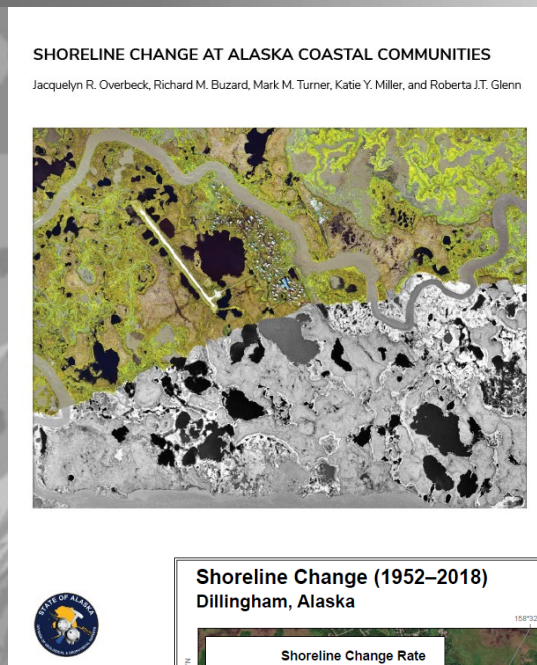
Alaska Coastal Mapping Prioritization Survey

Results of the 2019 Coastal Mapping Prioritization Survey



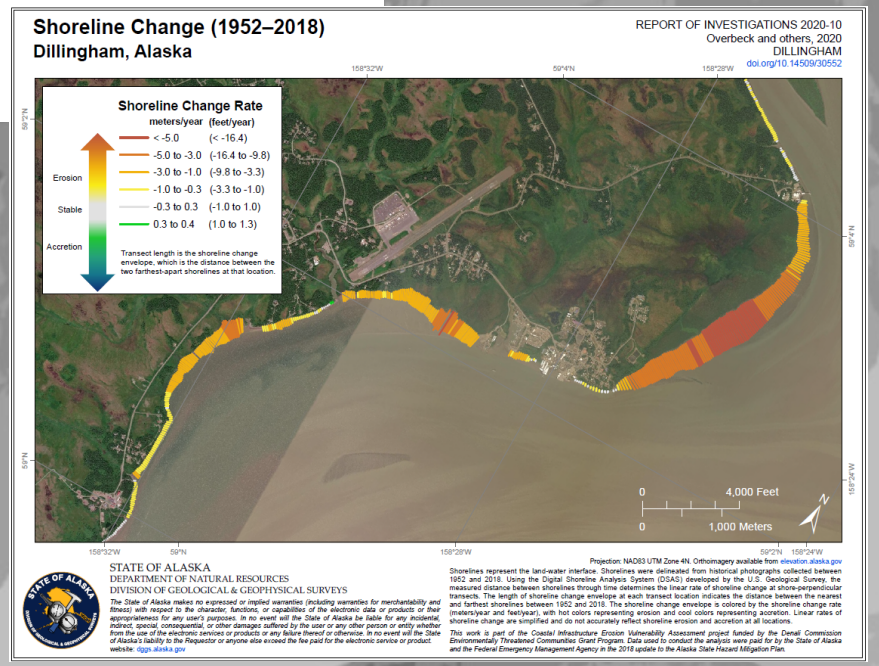
COVID-19 Information and Resources

Data related to health and economic impacts from borough, municipal, and state organizations



SHORELINE CHANGE AT ALASKA COASTAL COMMUNITIES

Jacquelyn R. Overbeck, Richard M. Buzard, Mark M. Turner, Katie Y. Miller, and Roberta J.T. Glenn



Converting paper maps to digital data

Link to Report https://dggs.alaska.gov/pubs/id/30552

State Imagery Server | Preparedness

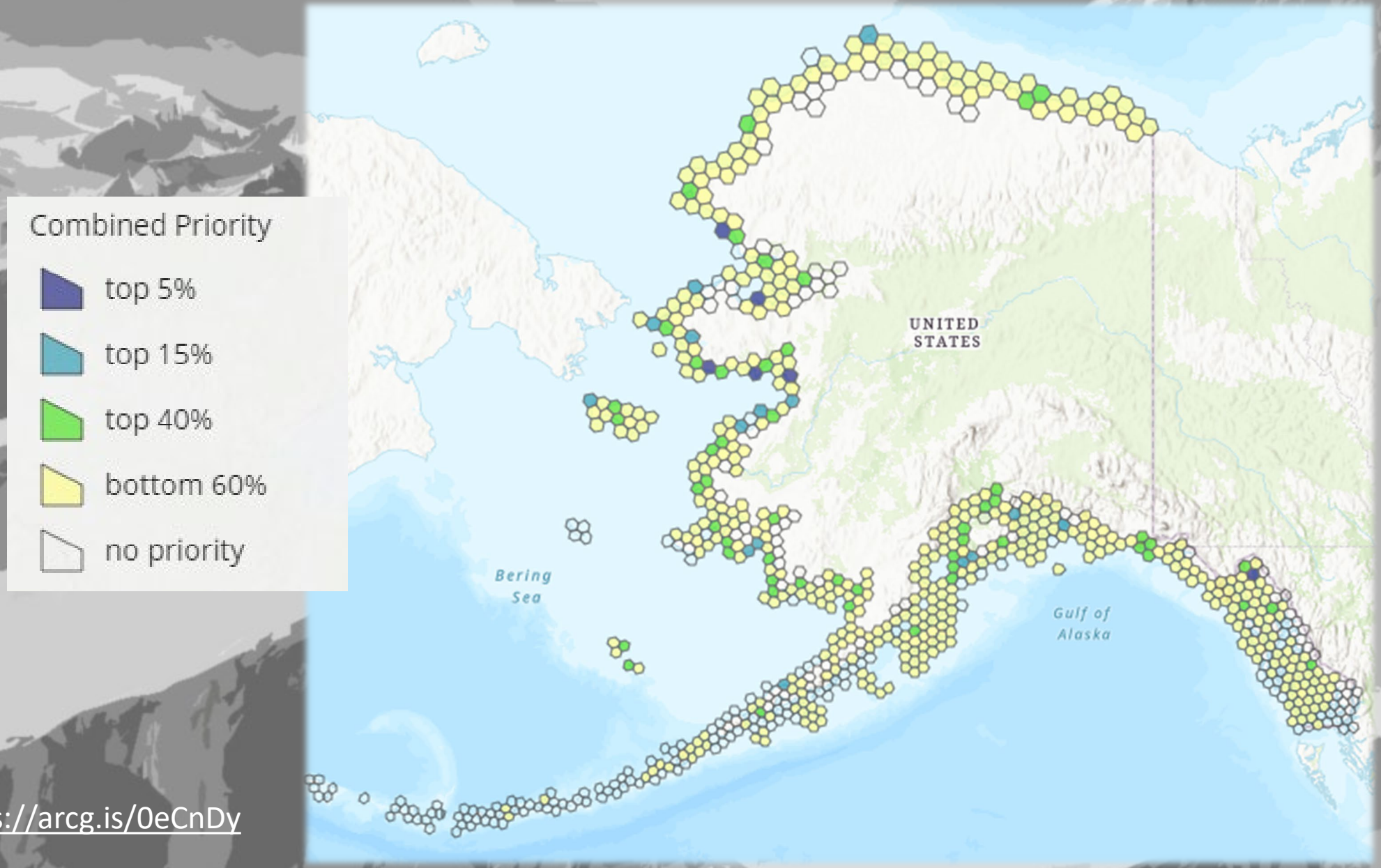
SE Alaska Disaster declaration - Haines Borough landslide

Native Village of Shishmaref: 30-80 feet of erosion along 5,000 feet of shoreline fronting the community airport facilities and undermining the road to the landfill.

The Coastal Mapping Initiative aims to improve quality and coverage of coastal mapping data to support decision-making for all Alaska stakeholders.

http://agc.dnr.alaska.gov/coastal.html

2019 Alaska Coastal Mapping Prioritization Survey Results



https://arcg.is/0eCnDy

State Geospatial Coordination | Contact Information

State of Alaska Geospatial Information Officer	Leslie Jones	907-269-5710 leslie.jones2@alaska.gov
Coastal Mapping Initiative Co-chair	Jacquelyn Overbeck	907-451-5026 jacquelyn.overbeck@alaska.gov
Coastal Mapping Initiative Co-chair	Hadley Owen	907-231-7112 alaska.navmanager@noaa.gov

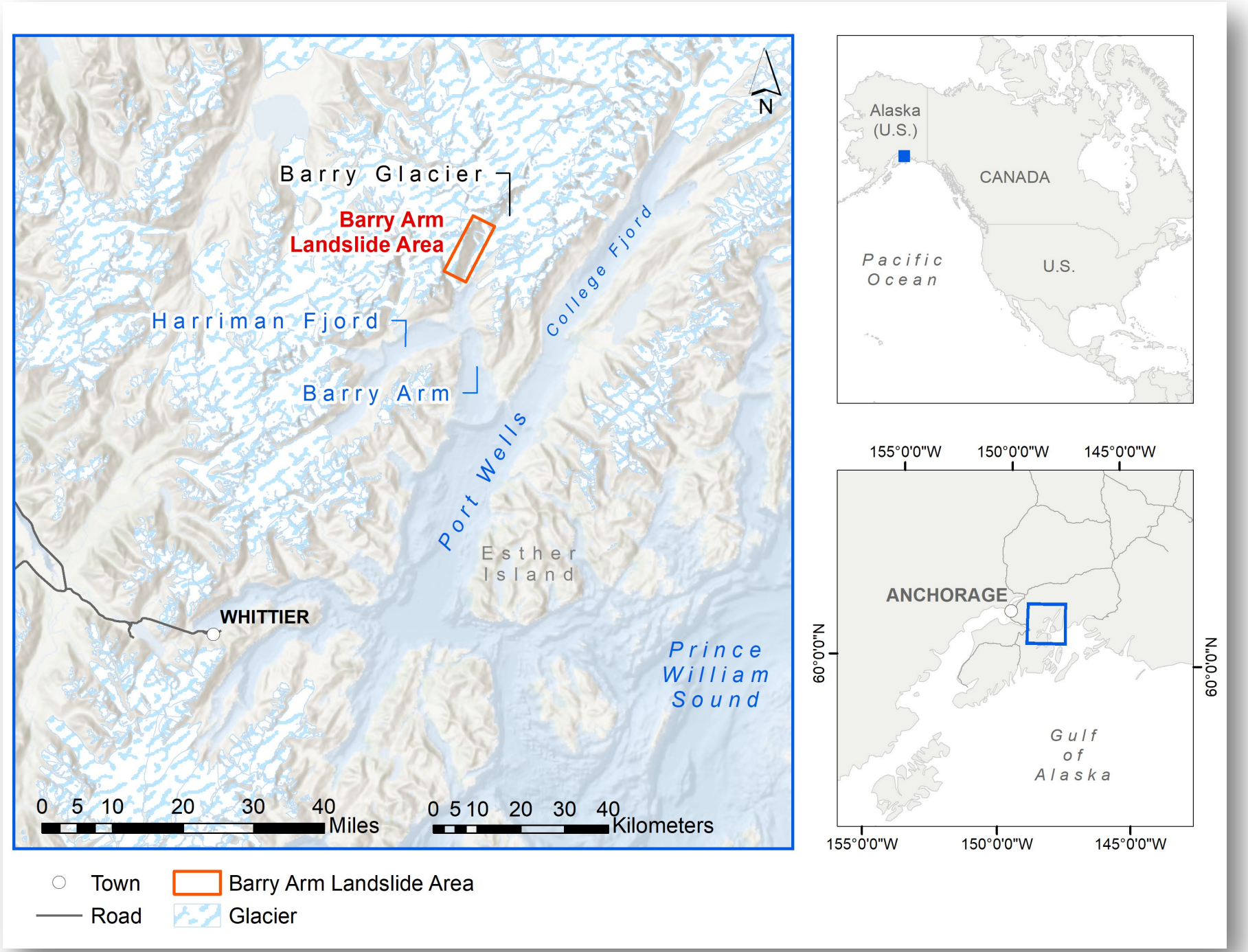
Unstable slope mapping and assessment in Barry Arm

Gabriel Wolken, Ronald Daanen, Katreen Wikstrom Jones, Jeff Coe, Lauren Schaefer, Jonathan Godt, Bretwood Higman, and Bart Buesseler

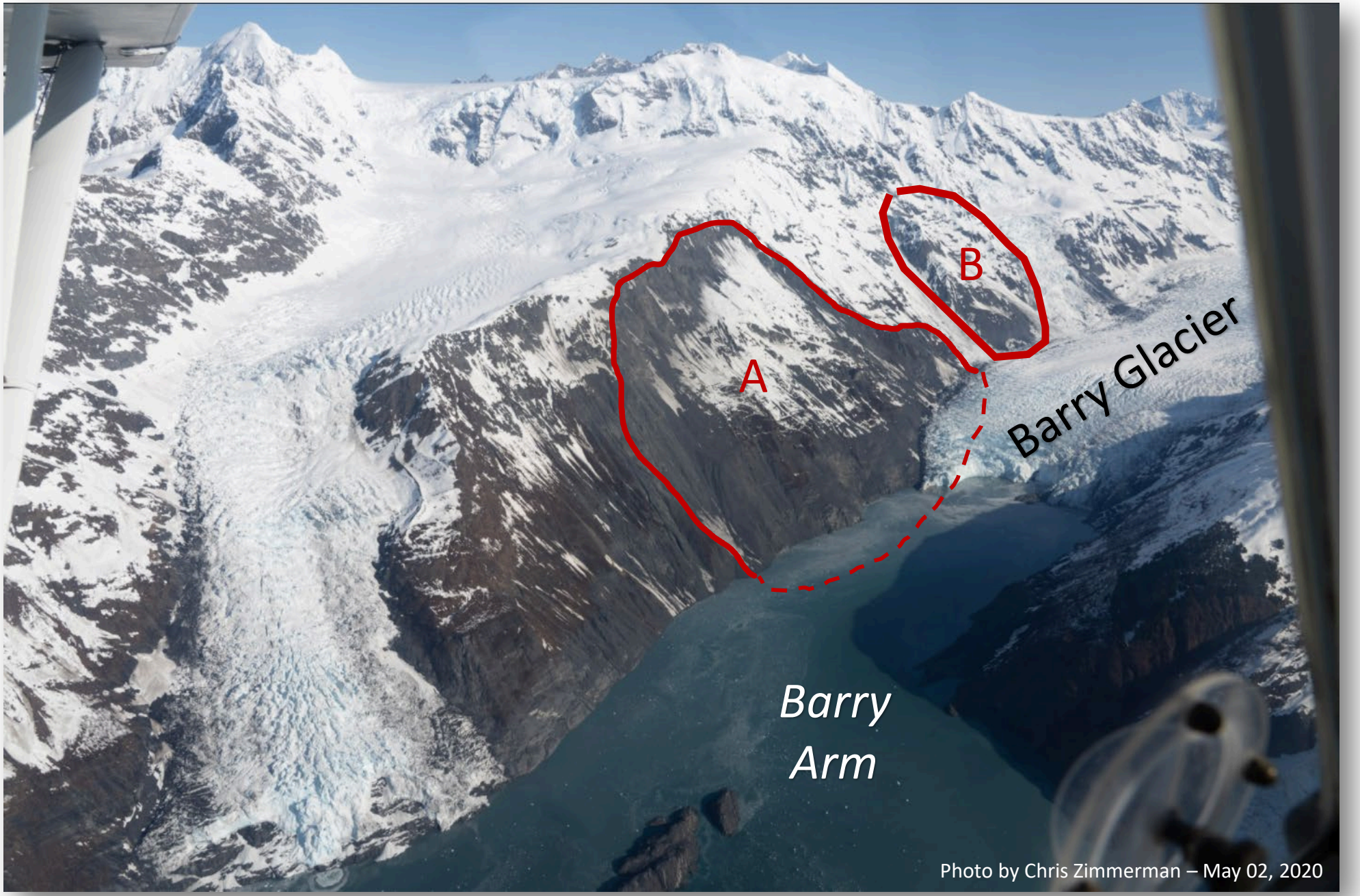
Climate and Cryosphere Hazards Program
Alaska Division of Geological & Geophysical Surveys
email: gabriel.wolken@alaska.gov

Photo by Valisa Higman

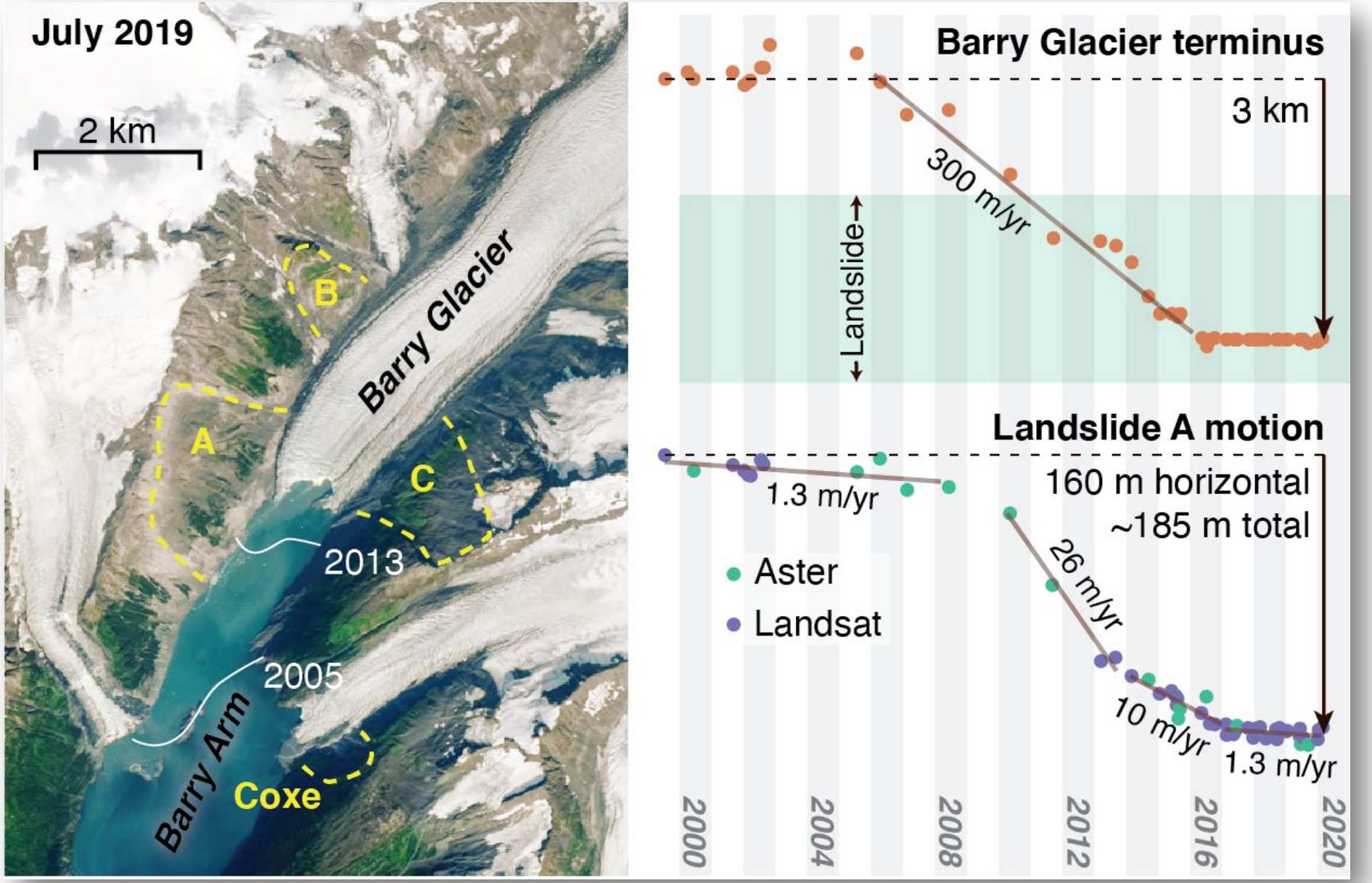
Location


Barry Glacier
Barry Arm
Landslide Area
Harriman Fjord
Barry Arm
College Fjord
Port Wells
Esther
Island
WHITTIER
Prince
William
Sound
N
0 5 10 20 30 40
Miles
0 5 10 20 30 40
Kilometers
Town
Road
Barry Arm Landslide Area
Glacier
Alaska
(U.S.)
CANADA
Pacific
Ocean
U.S.
155°0'0"W
150°0'0"W
145°0'0"W
ANCHORAGE
60°0'0"N
Gulf
of
Alaska

Unstable Slopes

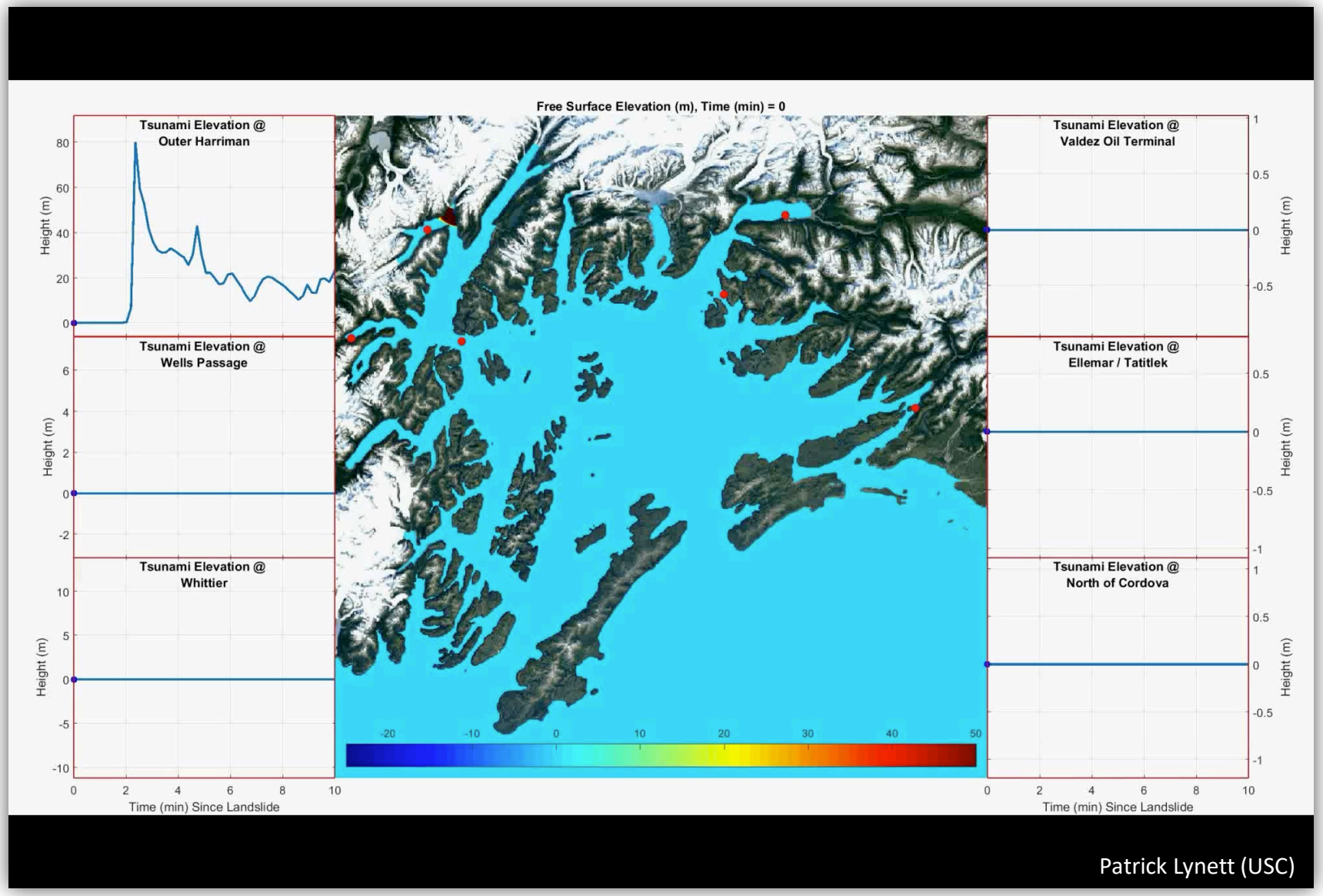


Changes in Barry Arm



Dai, C. et al., 2020: Detection and assessment of a large and potentially-tsunamigenic periglacial landslide in Barry Arm, Alaska: Geophysical Research Letters, 47(22), e2020GL089800. https://doi.org/10.1029/2020GL089800.

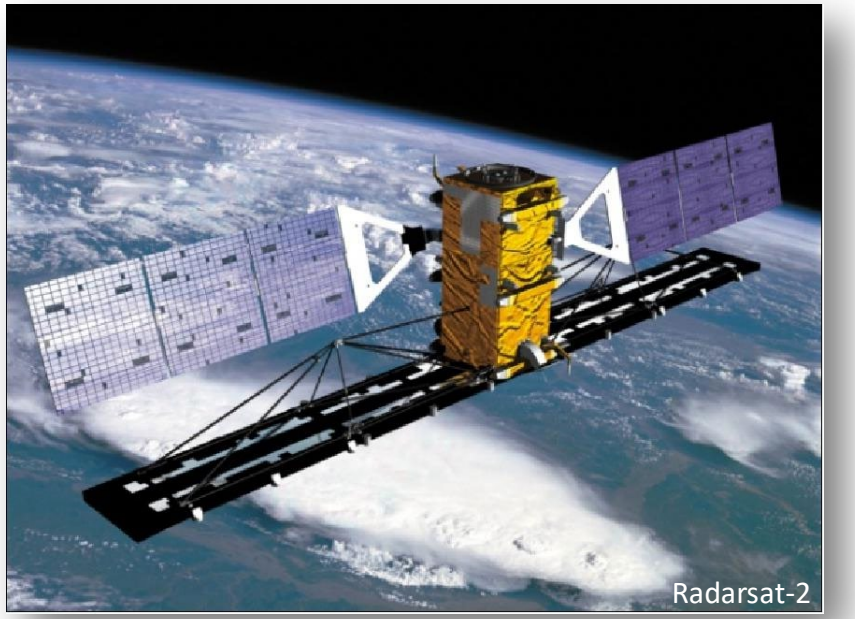
Maximum tsunami simulation



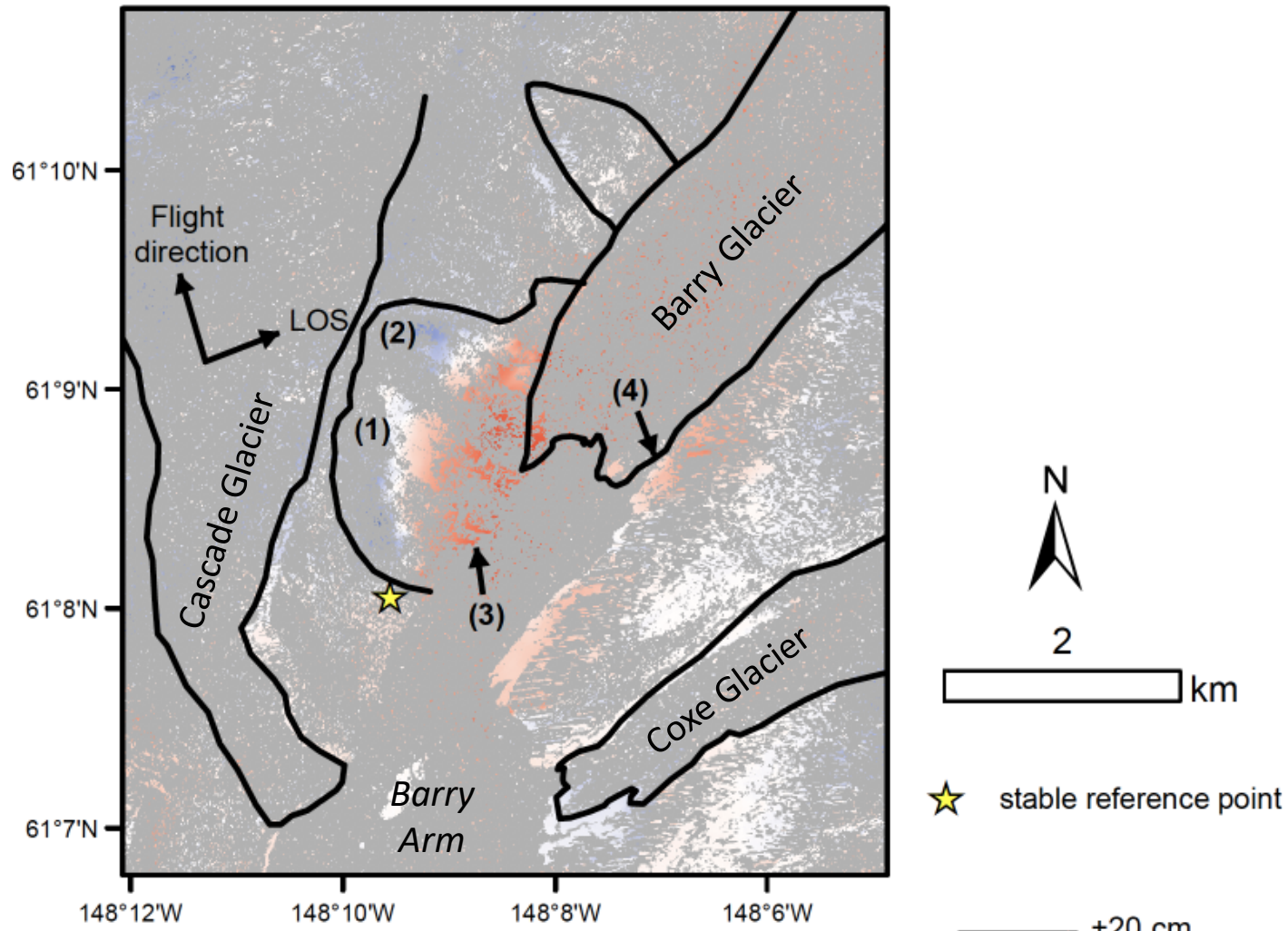
Patrick Lynett (USC)

Landslide monitoring & deformation mapping in Barry Arm

June – Oct 2020



Unwrapped interferogram



Line of sight (LOS) displacement from Radarsat-2
23 September 2020 - 17 October 2020
pixels masked out with coherence value < 0.25

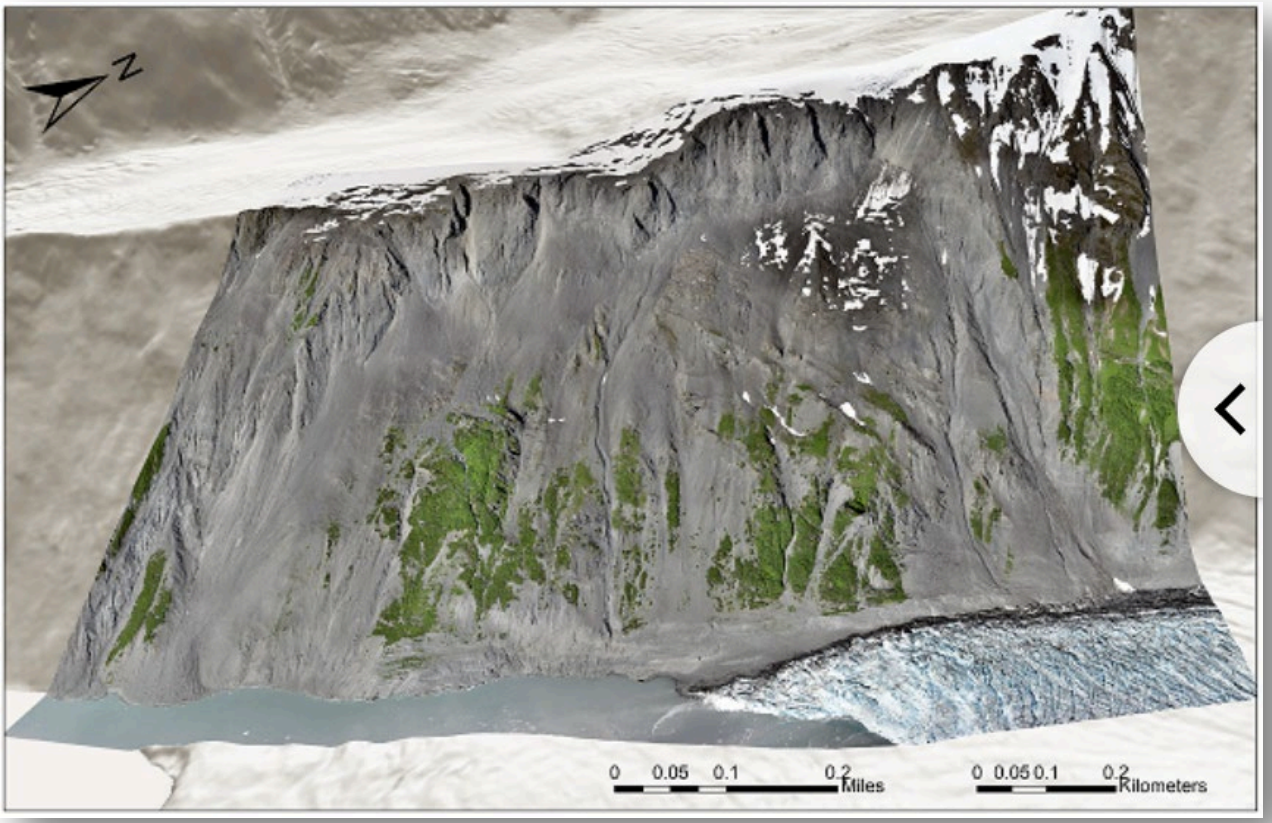
Schaefer, L.N., Coe, J.A., Godt, J.W., and Wolken, G.J., 2020, Interferometric synthetic aperture radar data from 2020 for landslides at Barry Arm Fjord, Alaska (ver. 1.4, November 2020): U.S. Geological Survey data release, https://doi.org/10.5066/P9Z04LNK.

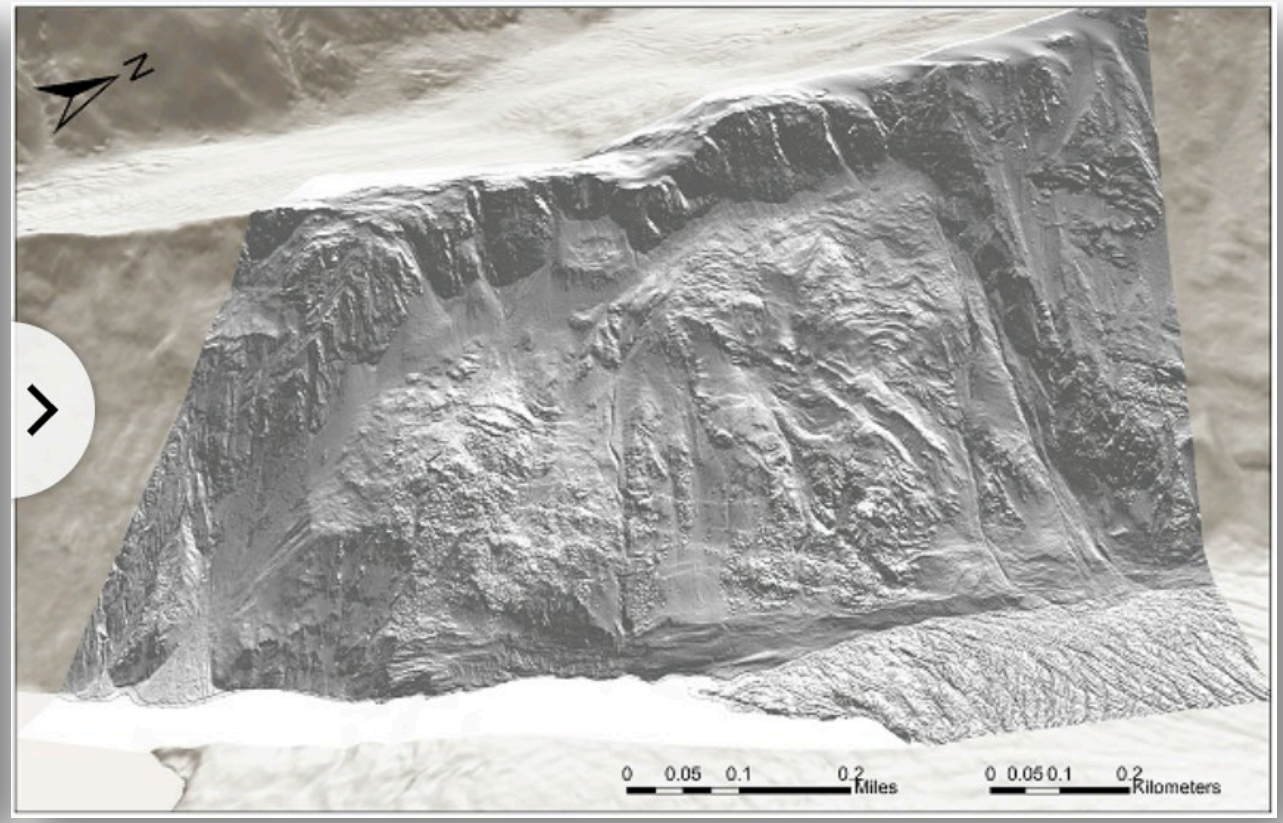
Landslide mapping in Barry Arm

June – Oct 2020

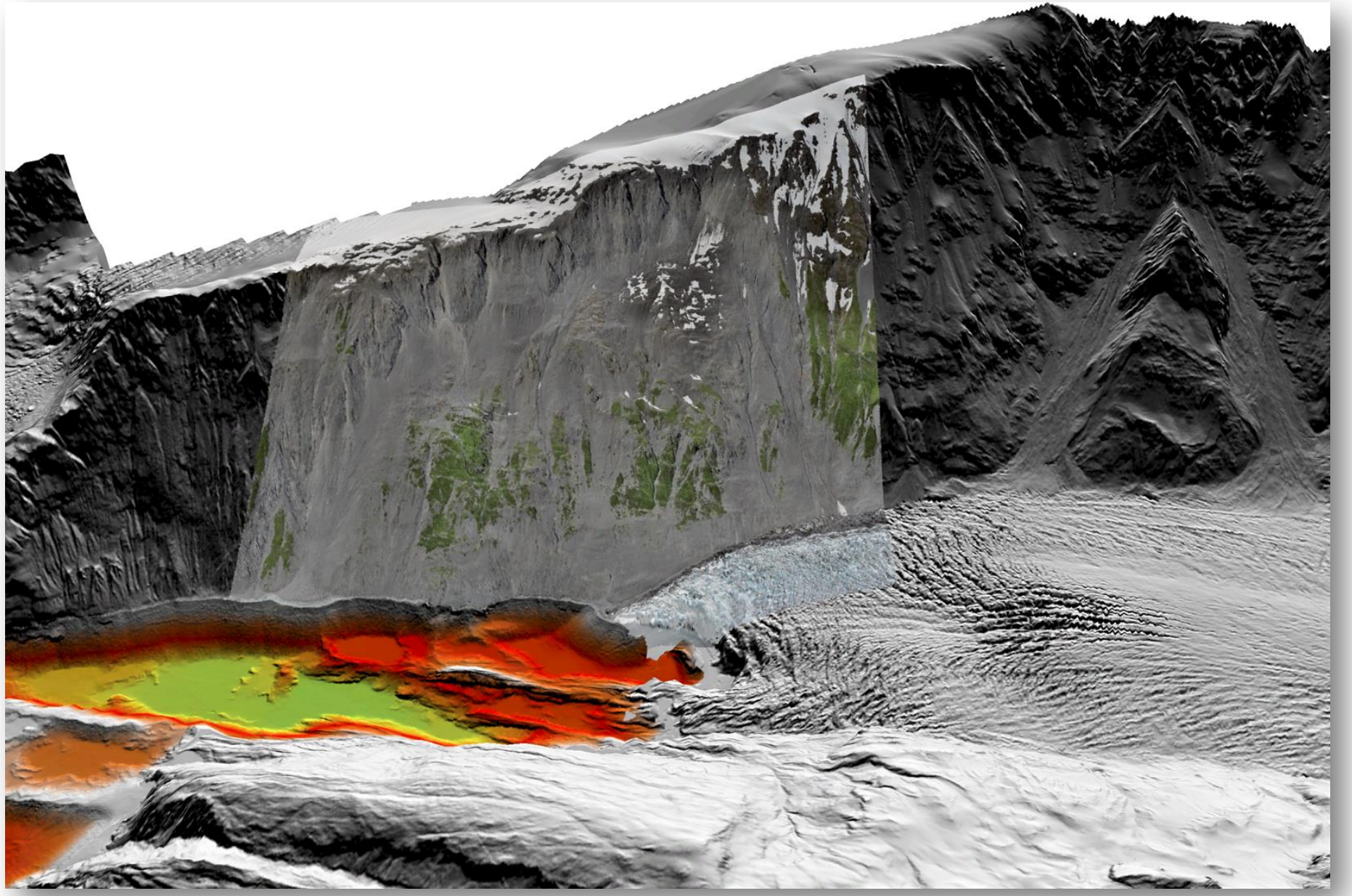
Repeat lidar and photogrammetry

June – Oct 2020



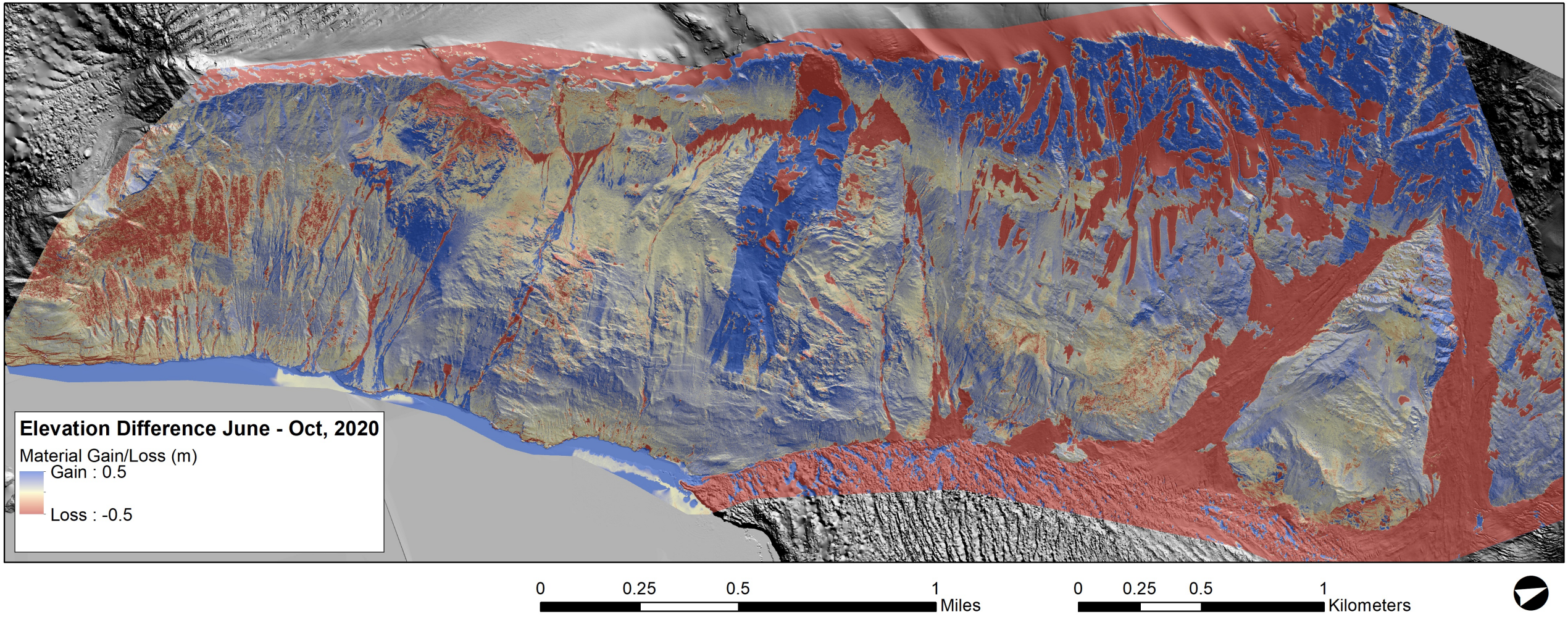


2020 Ortho-Topo-Bathy Product



Landslide deformation mapping & assessment in Barry Arm

June – Oct 2020



NOAA Office for Coastal Management

Alaska Coastal Mapping Summit

Improving Coastal Resilience with Tidal Datums and Imagery

Dave Stein

Geographer, Contracting Officer's Representative

Coastal Geospatial Services Contract

- **Five year IDIQ mapping and geospatial contract designed to provide data and map products to the coastal zone management community**
  - Data Acquisition: Remotely sensed collection of imagery, topography, bathymetry using aerial, satellite, and shipboard platforms
  - GIS Services: Spatial data development, management, integration, application development, cartography, and GIS consultation in support of coastal management applications
  - Thematic Mapping: Processing and developing data into thematic classes for land cover, environmental sensitivity, benthic habitat, and hazards vulnerability mapping
  - Survey and Control Services: Establishing ground control, collection of QC checkpoints, field validation, tidal datum determination

Establishing Tidal Datums in Coastal Alaska

● New Locations 2018-2019

- Homer
- Kwigillingok
- Gambell

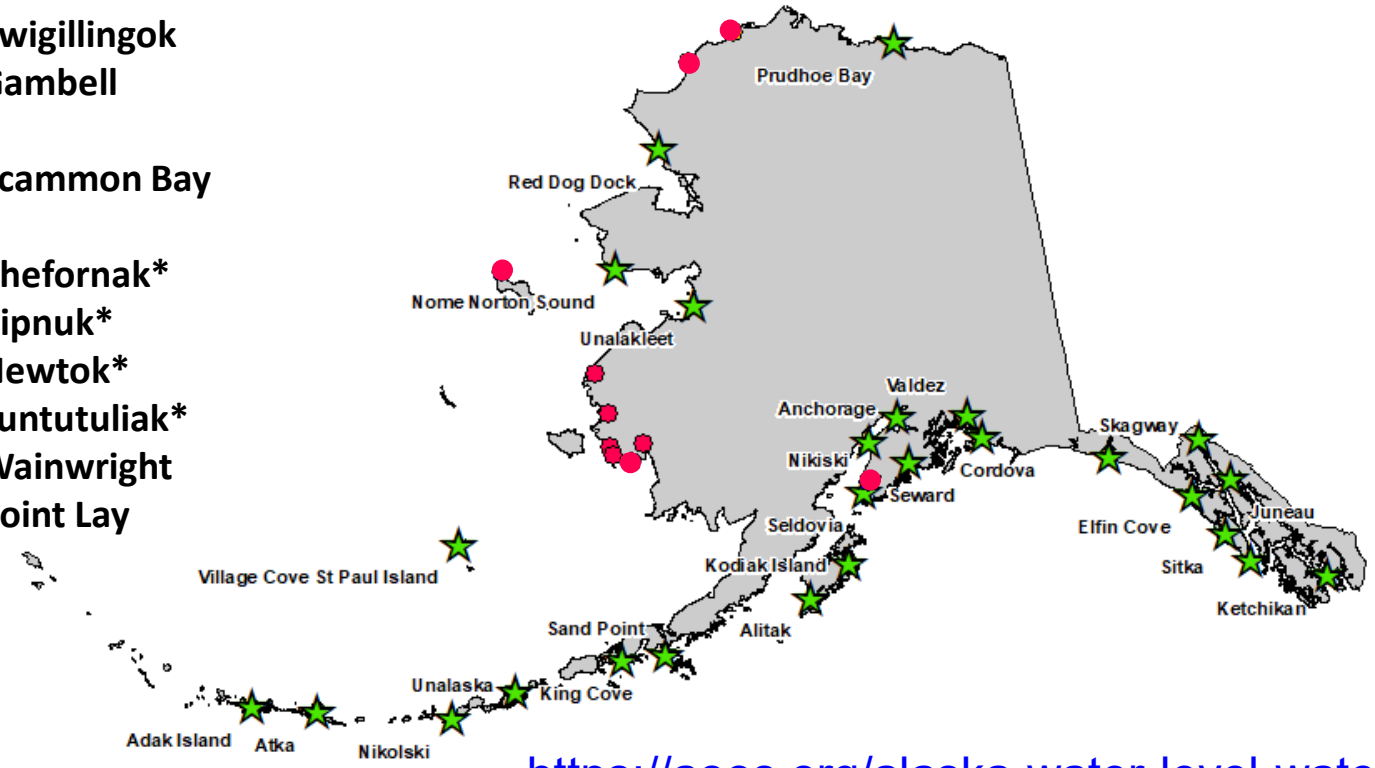
2020

- Scammon Bay

2021

- Chefornak*
- Kipnuk*
- Newtok*
- Tuntutuliak*
- Wainwright
- Point Lay

★ Active NOAA Tide Stations (26)

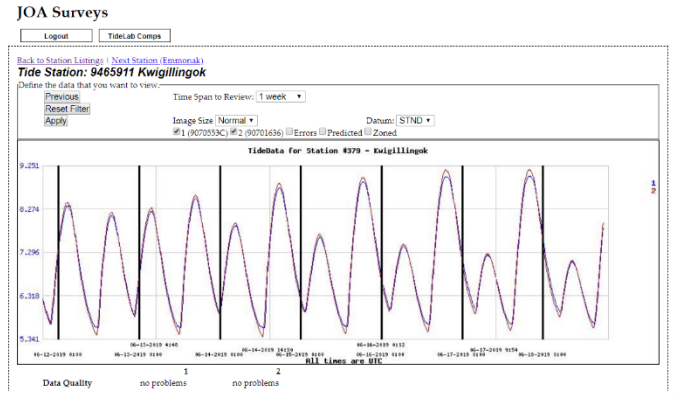


* Covid-19 Delays

https://aoos.org/alaska-water-level-watch/

Establishing Tidal Datums in Coastal Alaska

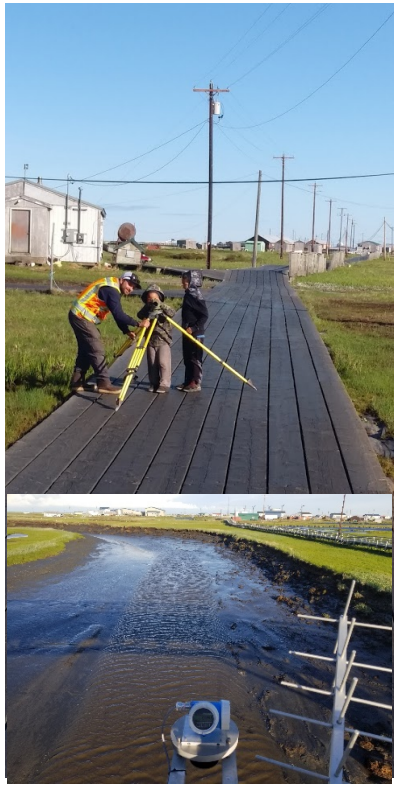
- **Purpose:** Improving tidal predictions, coastal flooding and forecasting, improving V-Datum tool
- **Coverage:** 10 sites – Western AK and North Slope
- **Partners:** AK DGGS, NOAA CO-OPS, NOAA OCM, Quantum Spatial, JOA
- **Specifications**: comply with CO-OPS operations and design, recon, installation, 90 data occupation, submittal to CO-OPS
- **Products:** new tidal datums, predictions, benchmarks



Establishing Tidal Datums in Coastal Alaska

1. Ishkowik

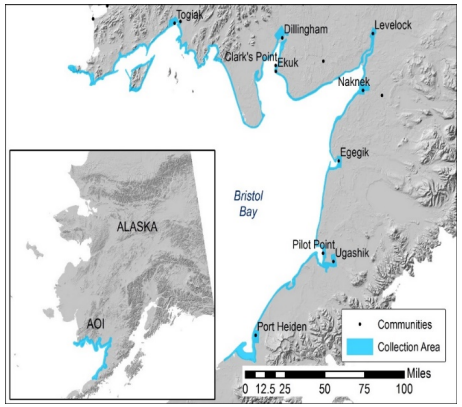
2. Gambell Island



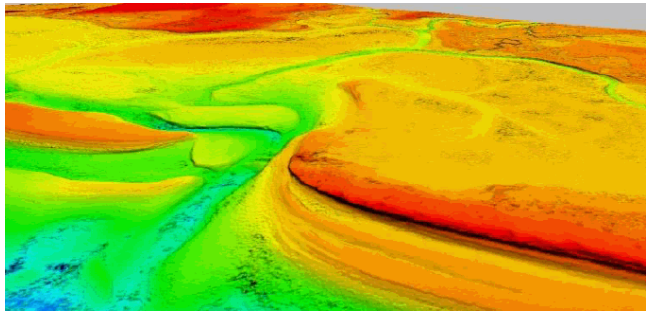
3. Kwigillingok

Imagery Acquisition in Bristol Bay

- **Purpose:** Baseline imagery and phodar-derived DSMs to assess risk and improve flood forecasting
- **Coverage:** Cape Newenham to Port Heiden
- **Partners:** AK DGGS, NOAA OCM, Quantum Spatial
- **Specifications**: 20cm pixel size, 4 band, 80% overlap and 40% side-lap
- **Products:** Orthoimagery, phodar point clouds, and digital surface models

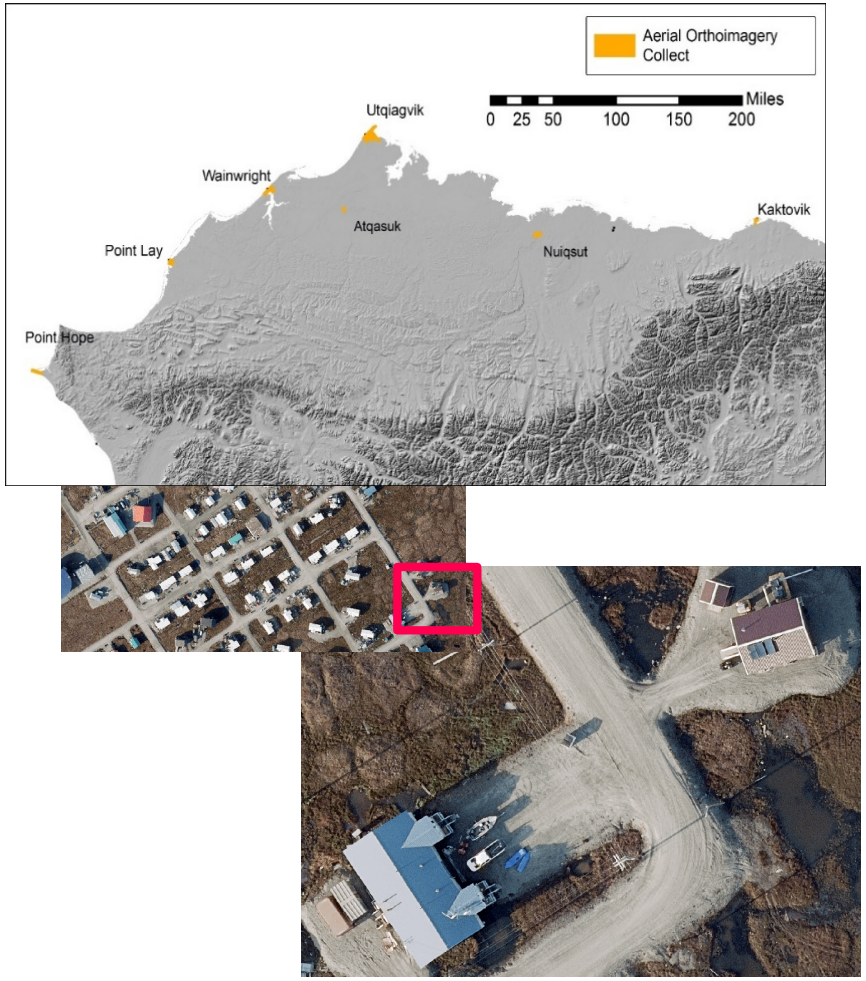


(Courtesy of Chasen Cunitz)



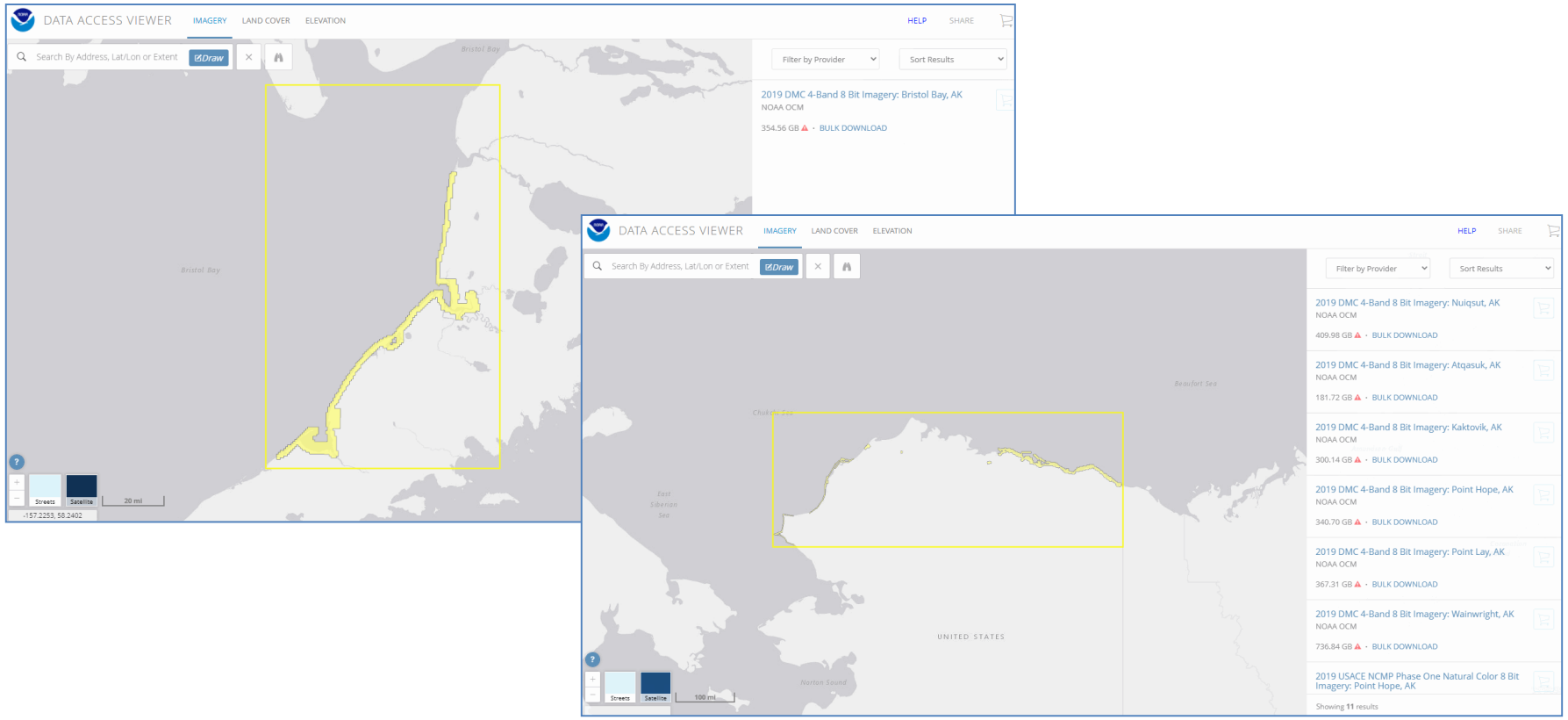
Imagery Acquisition along the North Slope

- **Purpose:** High resolution orthoimagery for civil works and emergency management
- **Coverage:** Point Hope, Point Lay, Wainwright, Utqiagvik, Atqasuk, Nuiqsut, and Kaktovic
- **Partners:** AK DGGS, NSB, NOAA OCM, Quantum Spatial
- **Specifications**: 3” pixel resolution, 4 band imagery
- **Products:** Orthoimagery



Where’s the Data?

Go to Digital Coast/Data Access Viewer




Questions?
Dave.Stein@noaa.gov
coast.noaa.gov/idiq/geospatial.html
Credit: Mark Sullivan, NOAA

Navigation Manager Updates

Alaska Coastal Mapping Summit

December 9th, 2020

LCDR Bart Buesseler, NOAA
LT Hadley Owen, NOAA

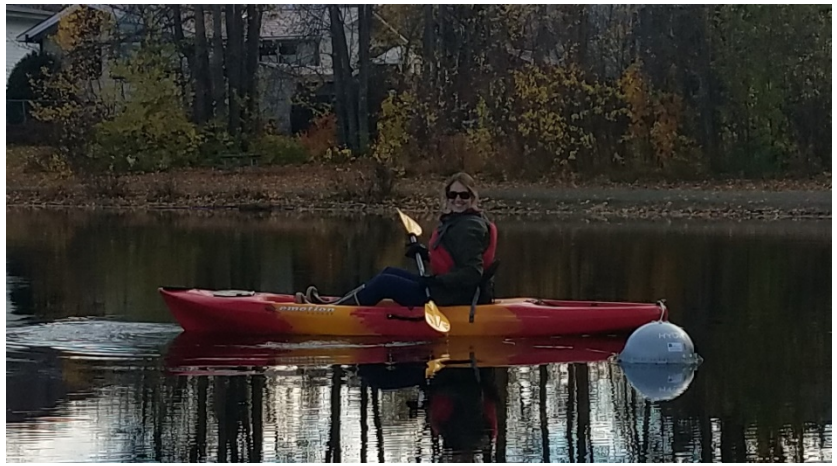
Navigation Manager Transition

- LCDR Bart Buesseler is moving on to his next assignment, and LT Hadley Owen has reported aboard
  - LCDR Buesseler is heading out as Executive Officer of NOAA Ship *Okeanos Explorer*
  - LT Owen joins us after a successful tour as Operations Officer onboard NOAA Ship *Rainier,* and has additional Alaskan experience from time onboard NOAA Ship *Fairweather*, as well as time in the small cruise ship industry prior to her career with NOAA
- Contact information will stay the same
  - Alaska.NavManager@noaa.gov
  - Cell: 907.231.7112

NOAA Ship *Rainier* in Whale Passage, 2020

HydroBall

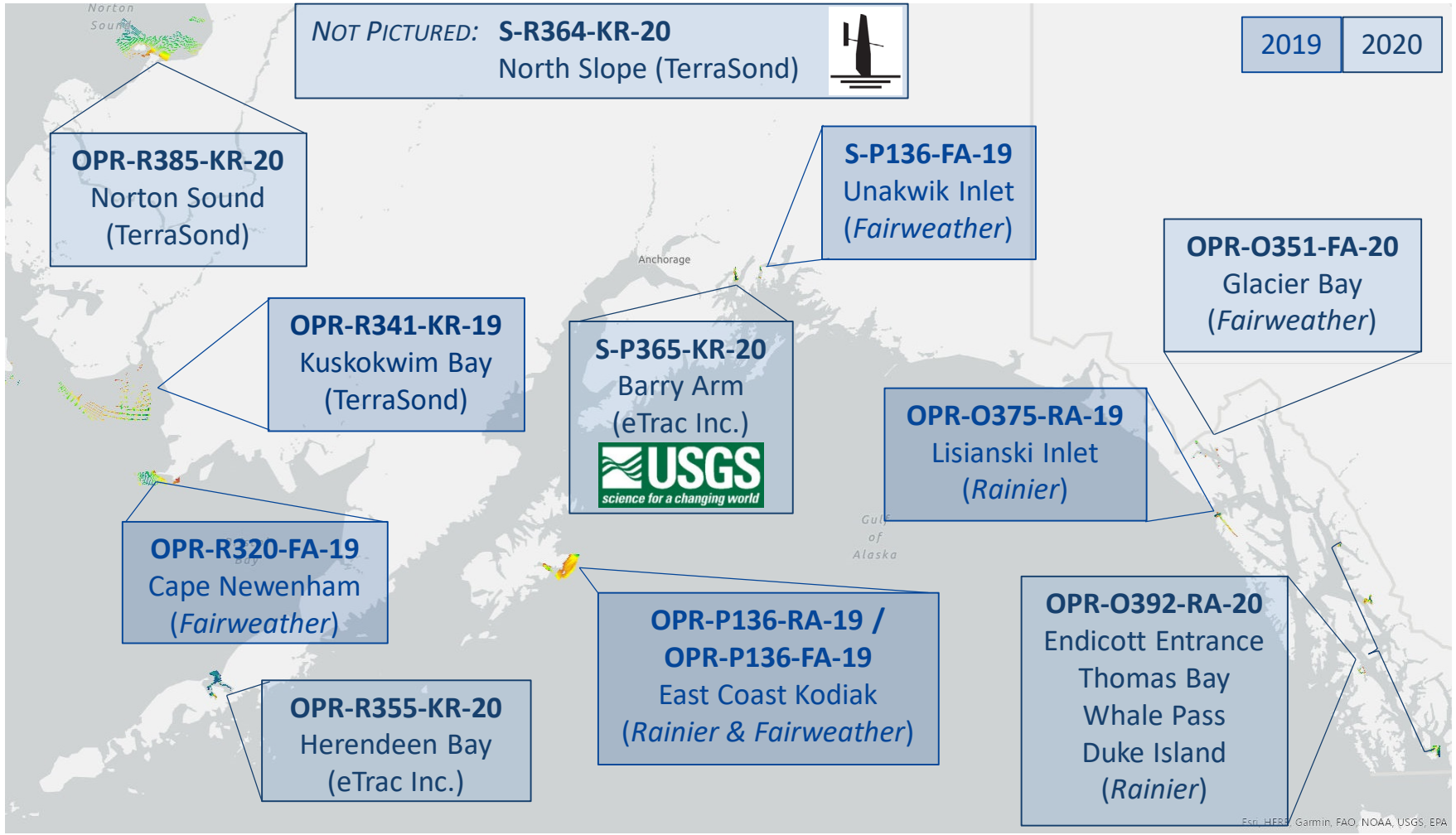
- Working in partnership with AOOS and the State of Alaska, acquired a “HydroBall”, a simple single beam survey system, for the AK Region
  - Objective is to enable opportunistic surveys in nearshore regions where traditional surveys are cost prohibitive
- Field evaluation pushed back to 2021 due to COVID-19
  - Potential for Coast Survey evaluation work to in Seattle, WA this winter



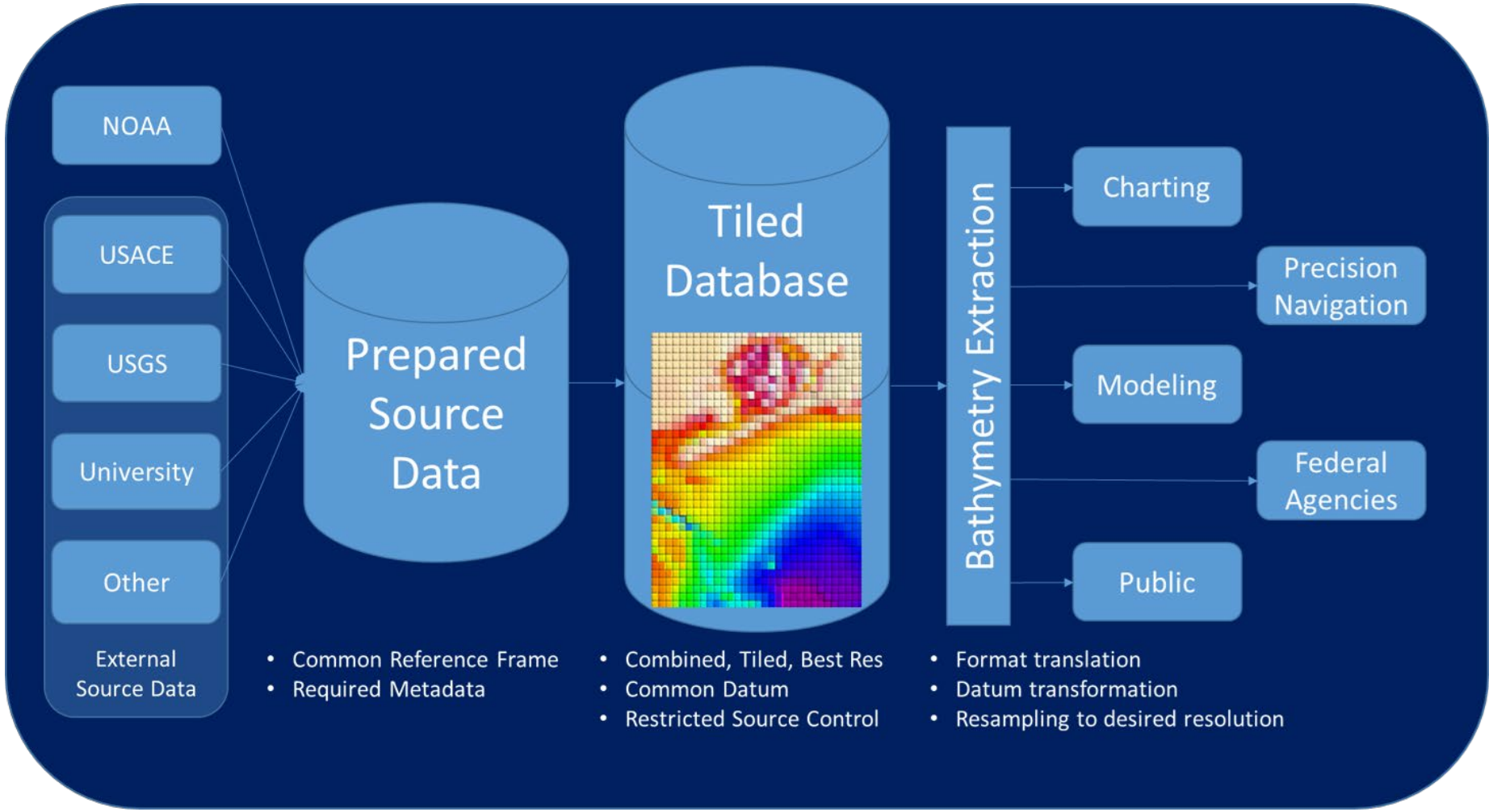
Jaci Overbeck (DGGS) during HydroBall testing

The HydroBall

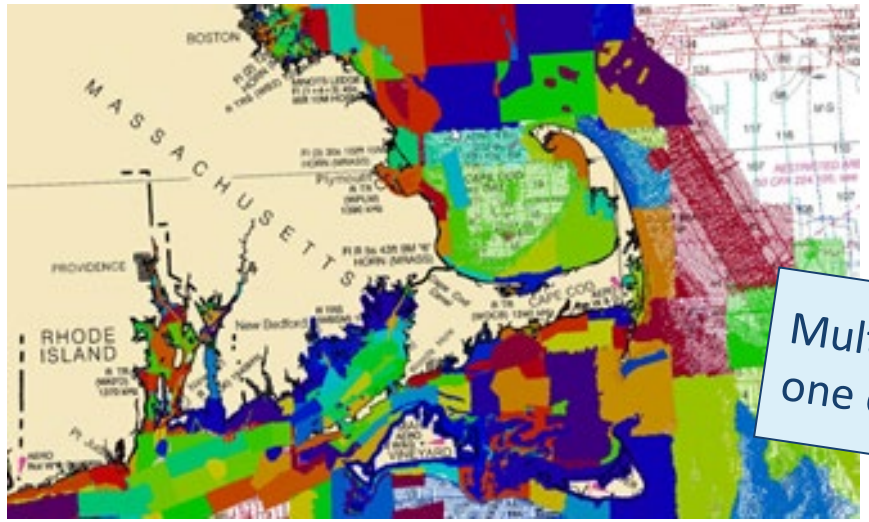
2019 & 2020 Survey Operations



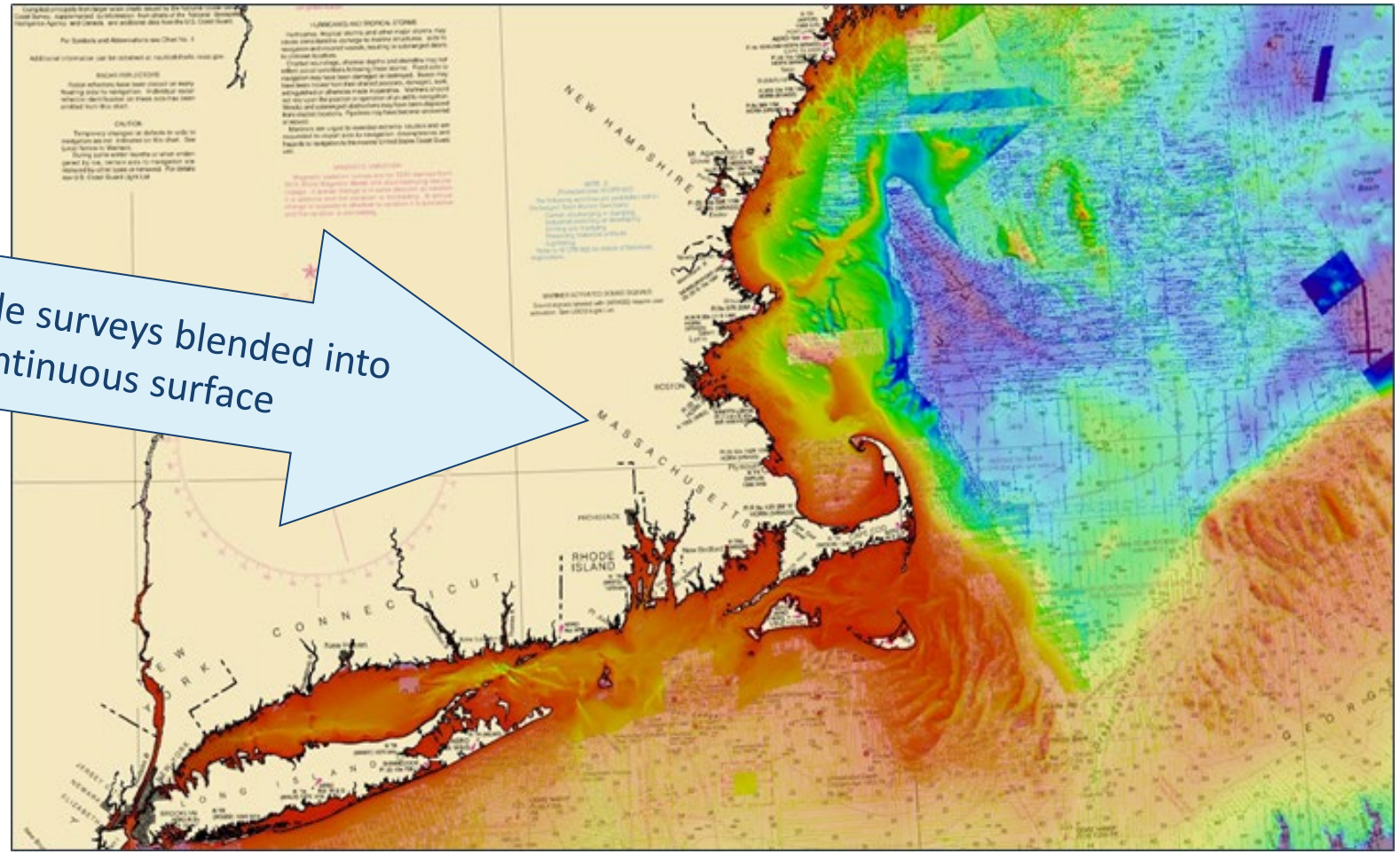
National Bathymetric Source



National Bathymetric Source

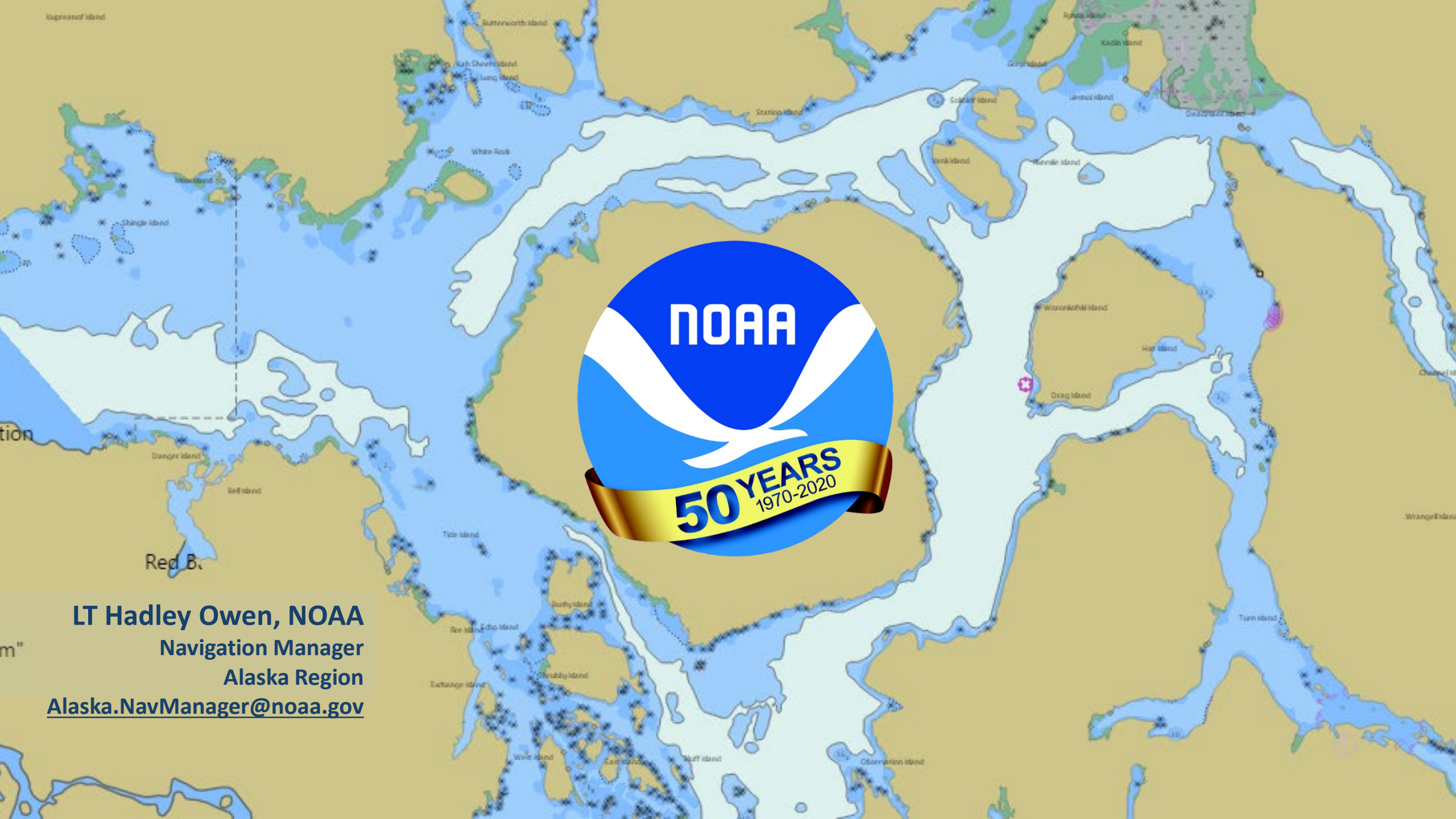


Multiple surveys blended into one continuous surface



What does it look like?

Check out the Coast Survey Blog Post for more information



LT Hadley Owen, NOAA
Navigation Manager
Alaska Region
Alaska.NavManager@noaa.gov

Links

- Barry Arm Survey Blog Post
  - https://nauticalcharts.noaa.gov/updates/noaa-bathymetric-data-helps-scientists-more-accurately-model-tsunami-risk-within-barry-arm/
- North Slope Saildrone Mission Blog Post
  - https://nauticalcharts.noaa.gov/updates/autonomous-vessel-operations-in-the-arctic-lessons-learned-from-the-summer-2020-mapping-mission/
- National Bathymetric Source Blog Post
  - https://nauticalcharts.noaa.gov/updates/building-the-national-bathymetry/

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

National Oceanic and Atmospheric Administration

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.**

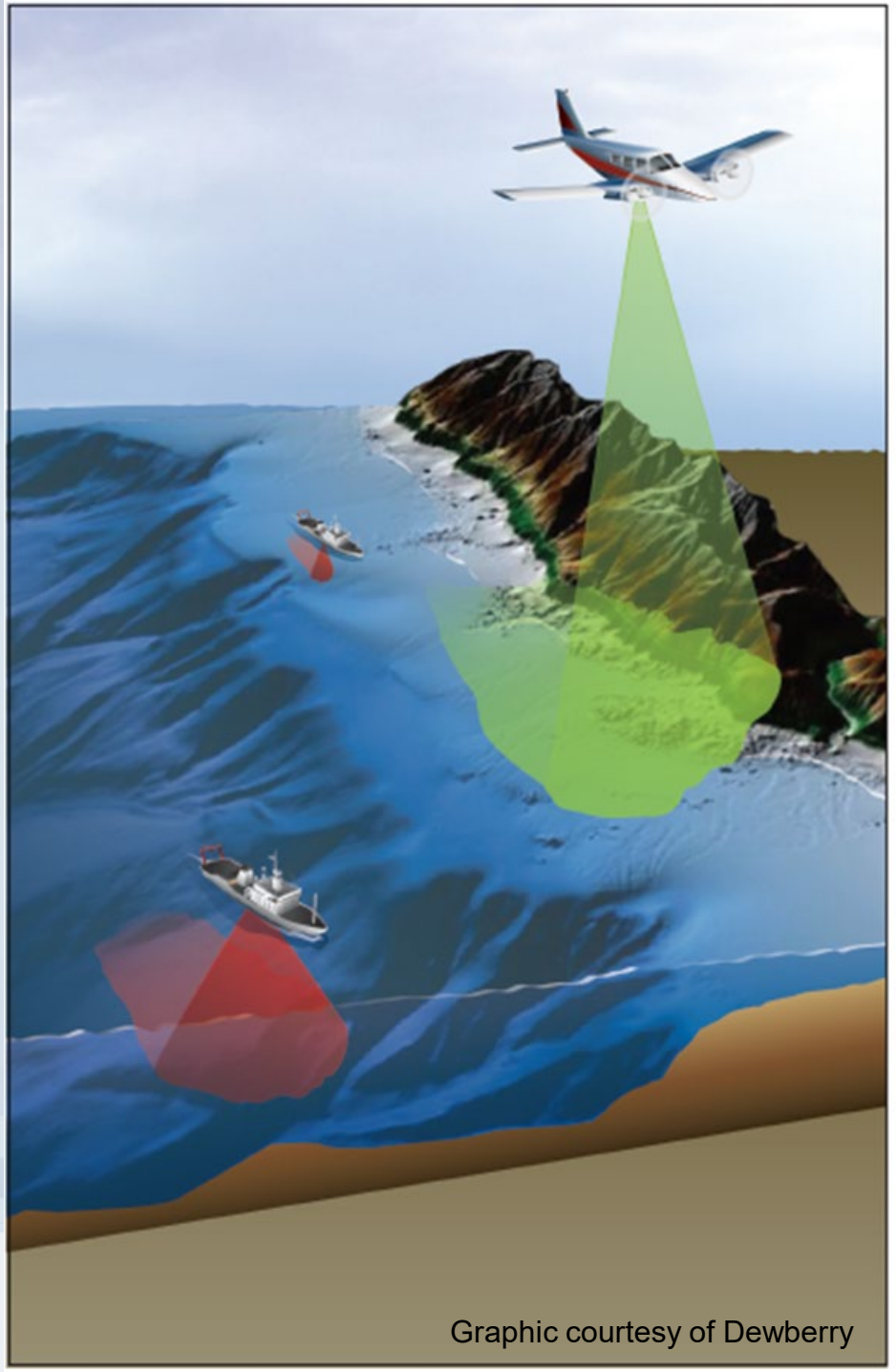
- **Goals:**
  - Provide the Nation With Accurate, Consistent, Up-to-Date National Shoreline
  - Acquire Nearshore Elevation Data

- **Sources:**
  - **Lidar**
  - **Digital Cameras**
  - **High Resolution Satellites**
  - **UAS**

National Oceanic and Atmospheric Administration

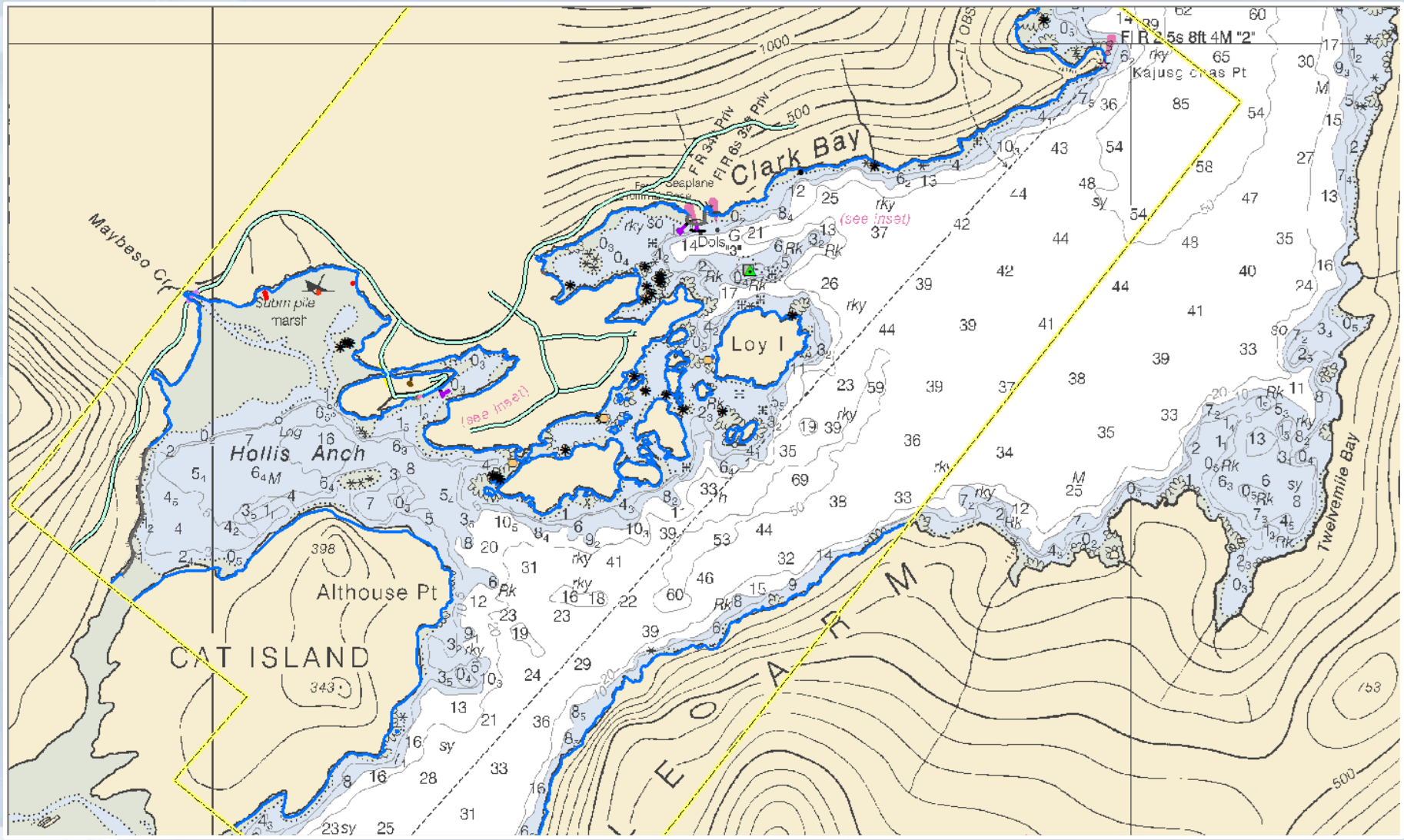
Support of Hydrographic Surveys

- 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

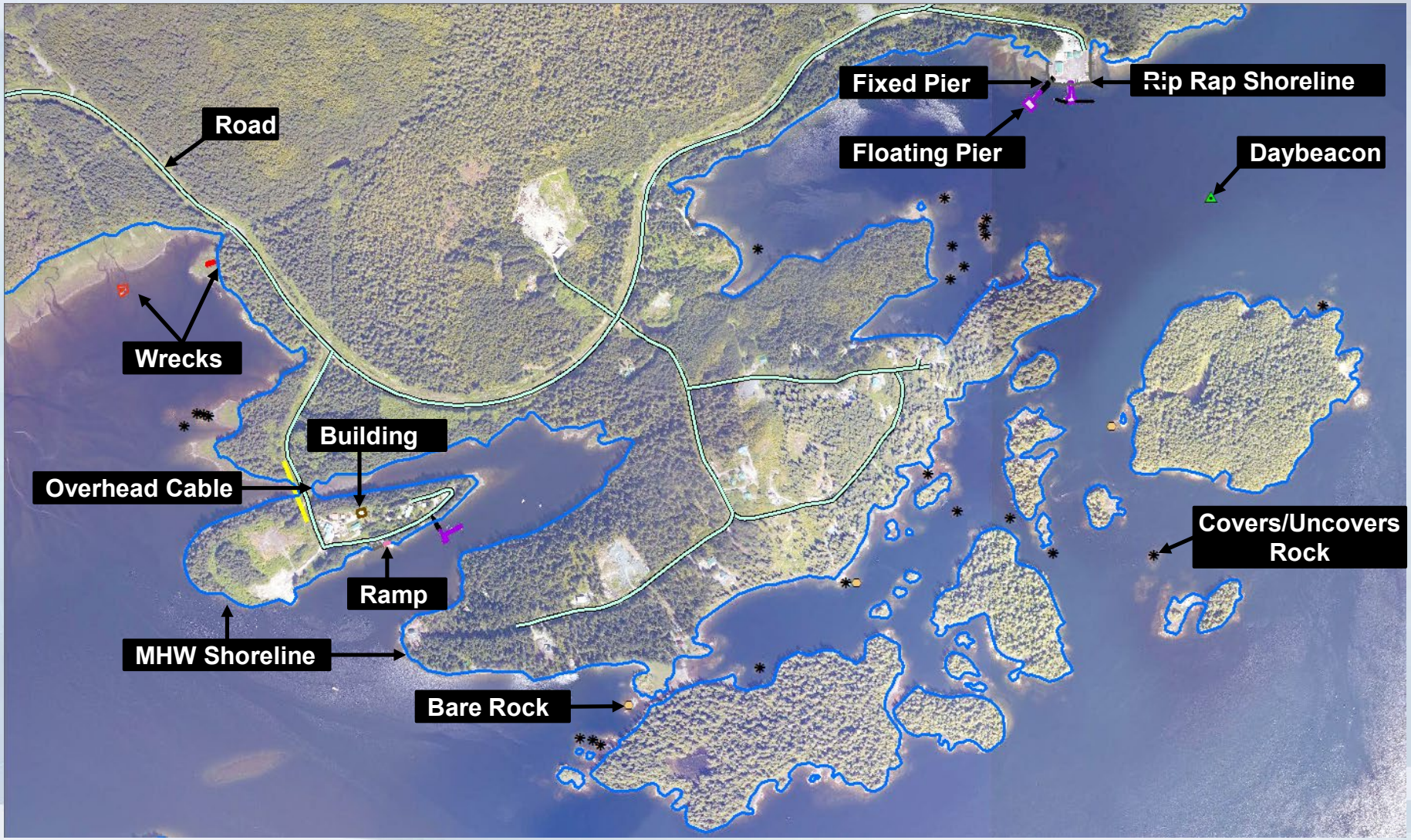


Graphic courtesy of Dewberry

Geographic Cells (Nautical Chart Shoreline)

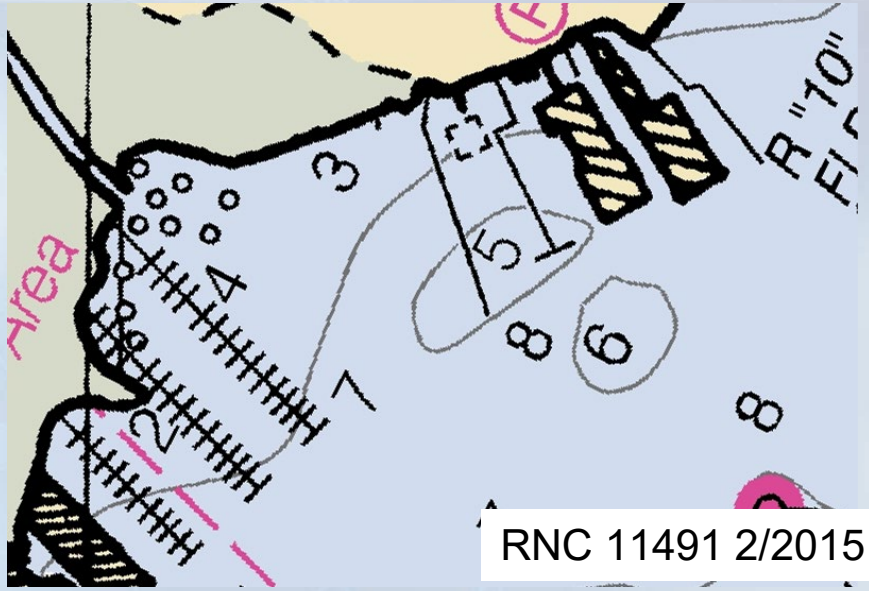


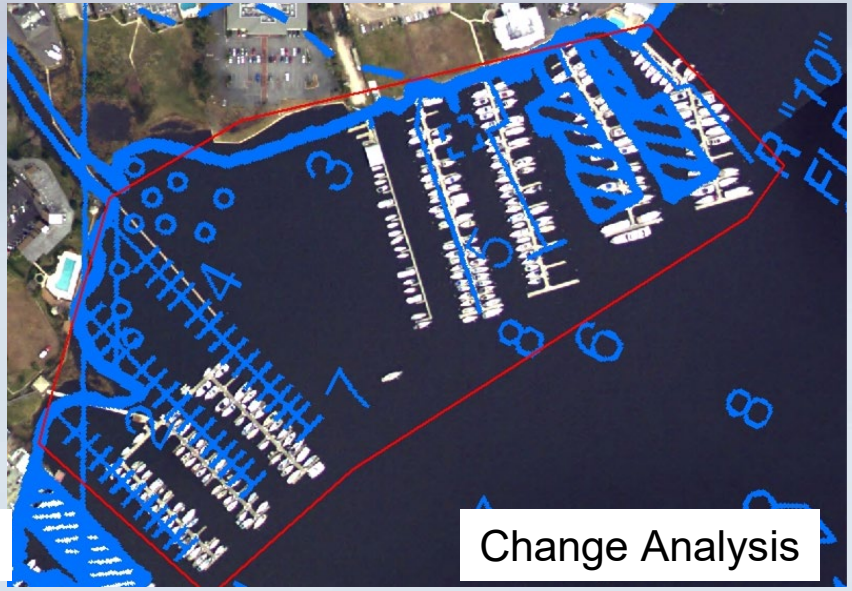
National Oceanic and Atmospheric Administration

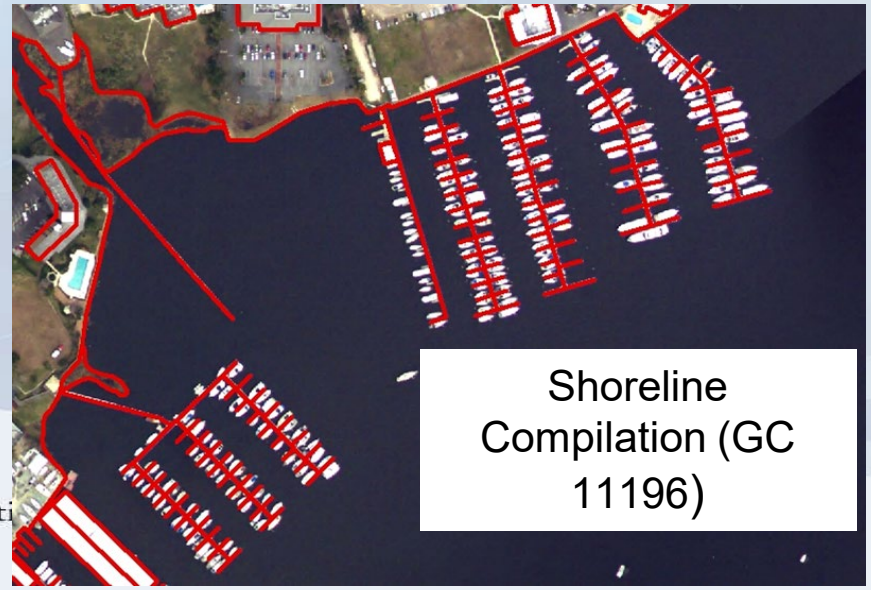


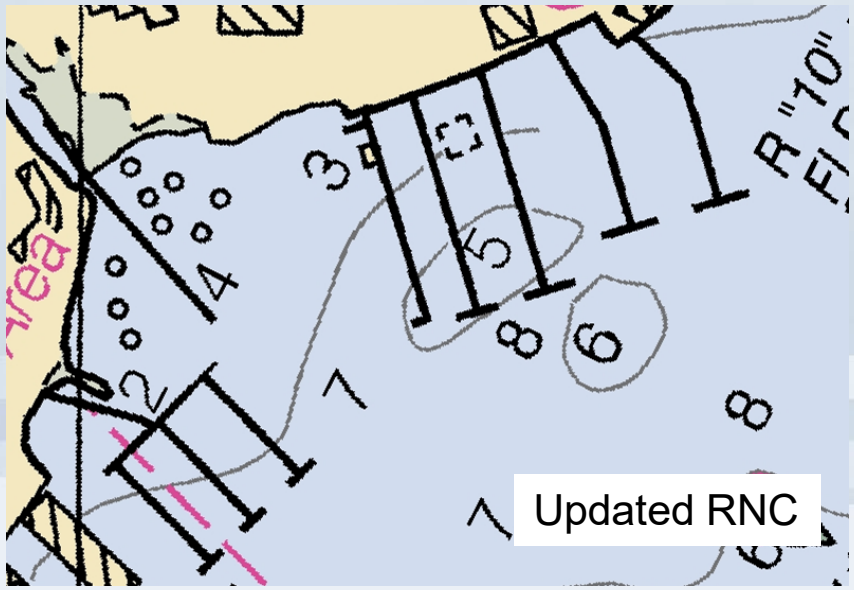
National Oceanic and Atmospheric Administration

Coast and Shoreline Change Analysis Program (CSCAP)









Nati

Shoreline Update Expedite (SUE)

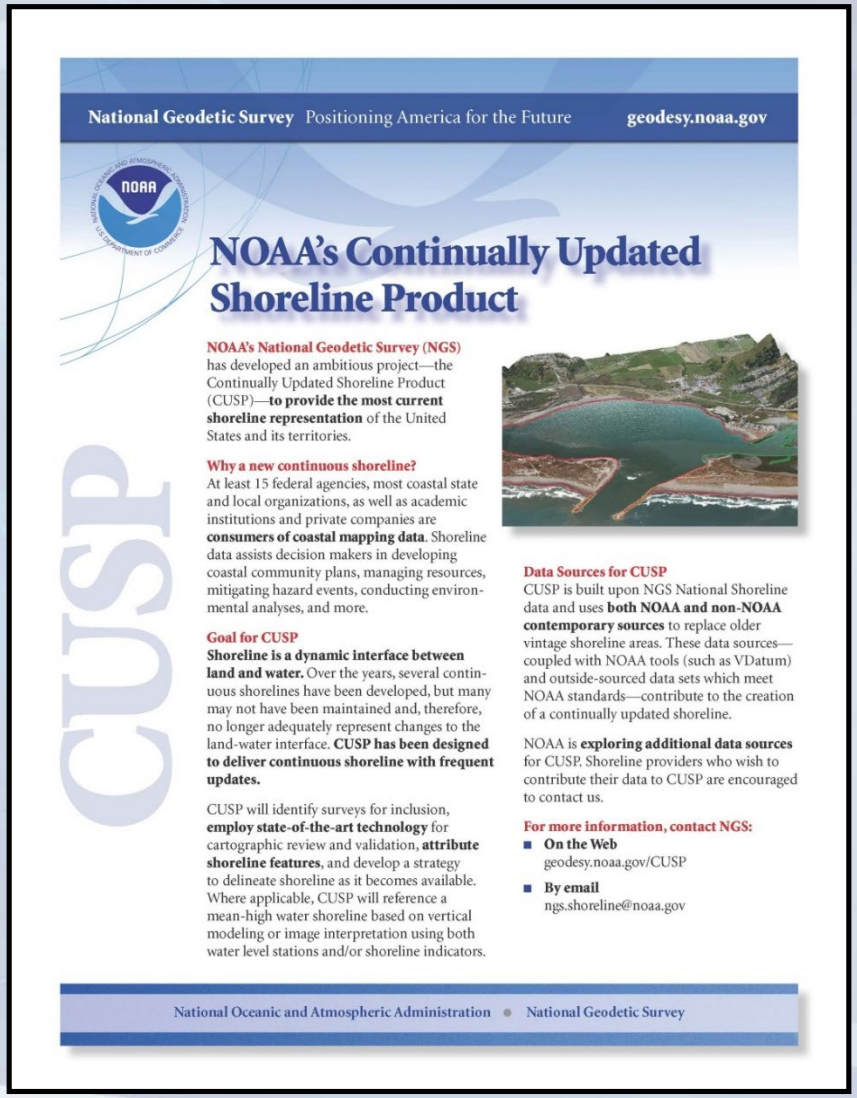
- **Goal:** to provide the requested updates within 1-2 workdays.

- **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

National Oceanic and Atmospheric Administration

Continually Updated Shoreline Product (CUSP)



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

NOAA's Continually Updated Shoreline Product

CUSP

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.

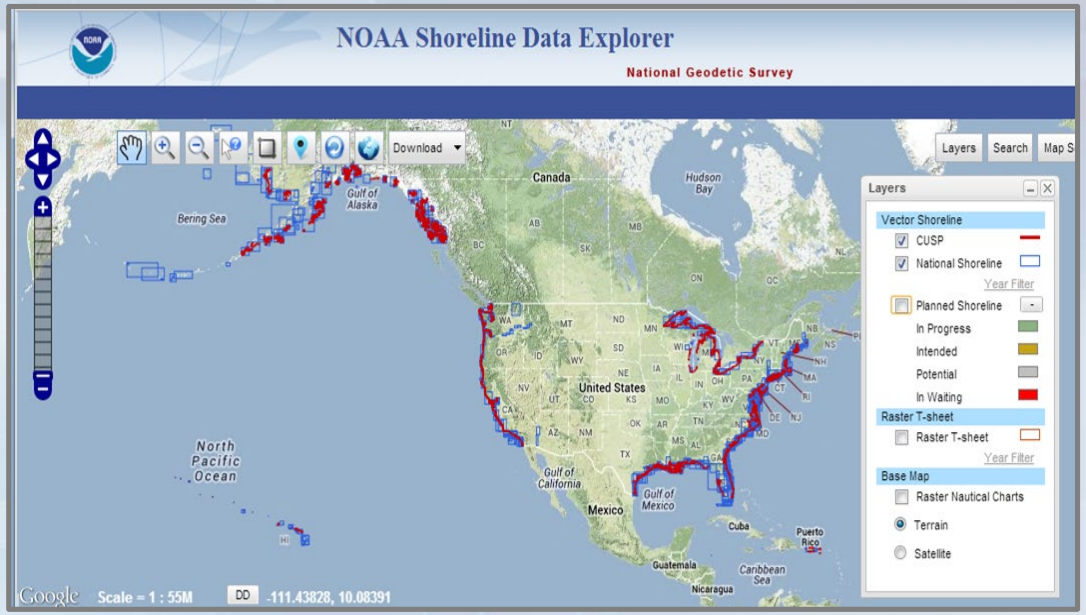
For more information, contact NGS:
- **On the Web**
  geodesy.noaa.gov/CUSP
- **By email**
  ngs.shoreline@noaa.gov

National Oceanic and Atmospheric Administration • National Geodetic Survey

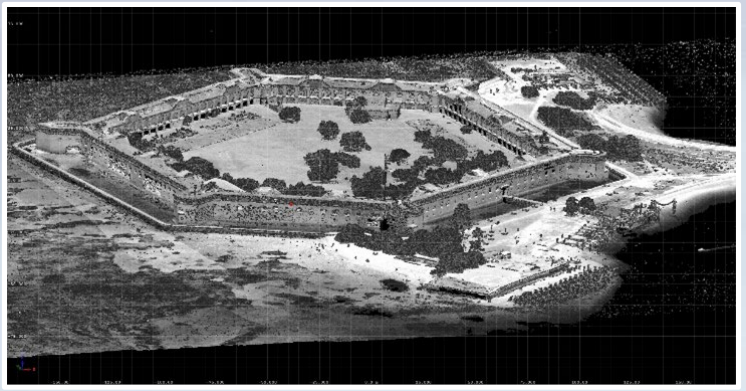
- To provide the most current shoreline representation
- Designed to deliver continuous shoreline with frequent updates
- Employ state-of-the-art technologies
- Attributed shoreline features
- Referenced to Mean High Water datum where applicable
- Includes NOAA and non-NOAA contemporary sources

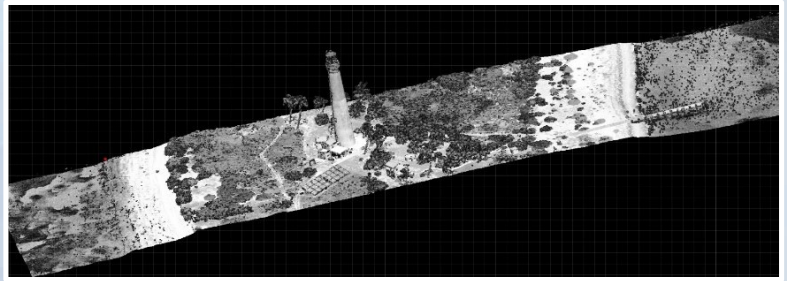
National Oceanic and Atmospheric Administration

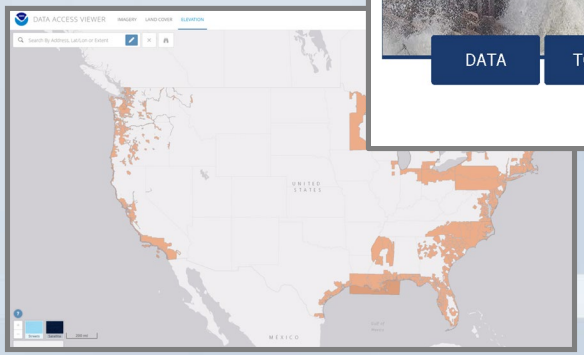
Distribution of Data

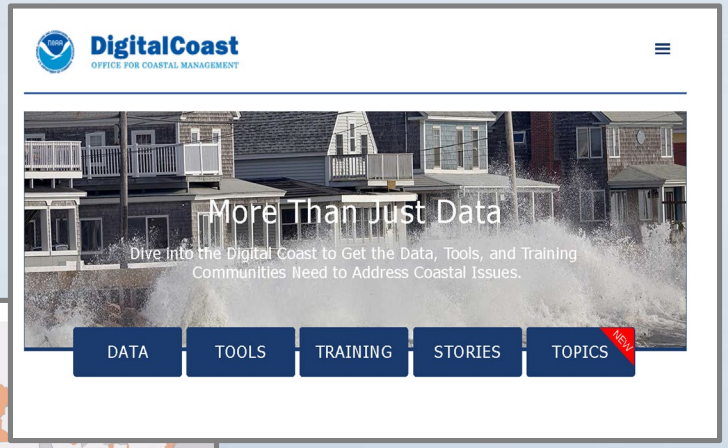


Shoreline (http://www.ngs.noaa.gov/NSDE/)







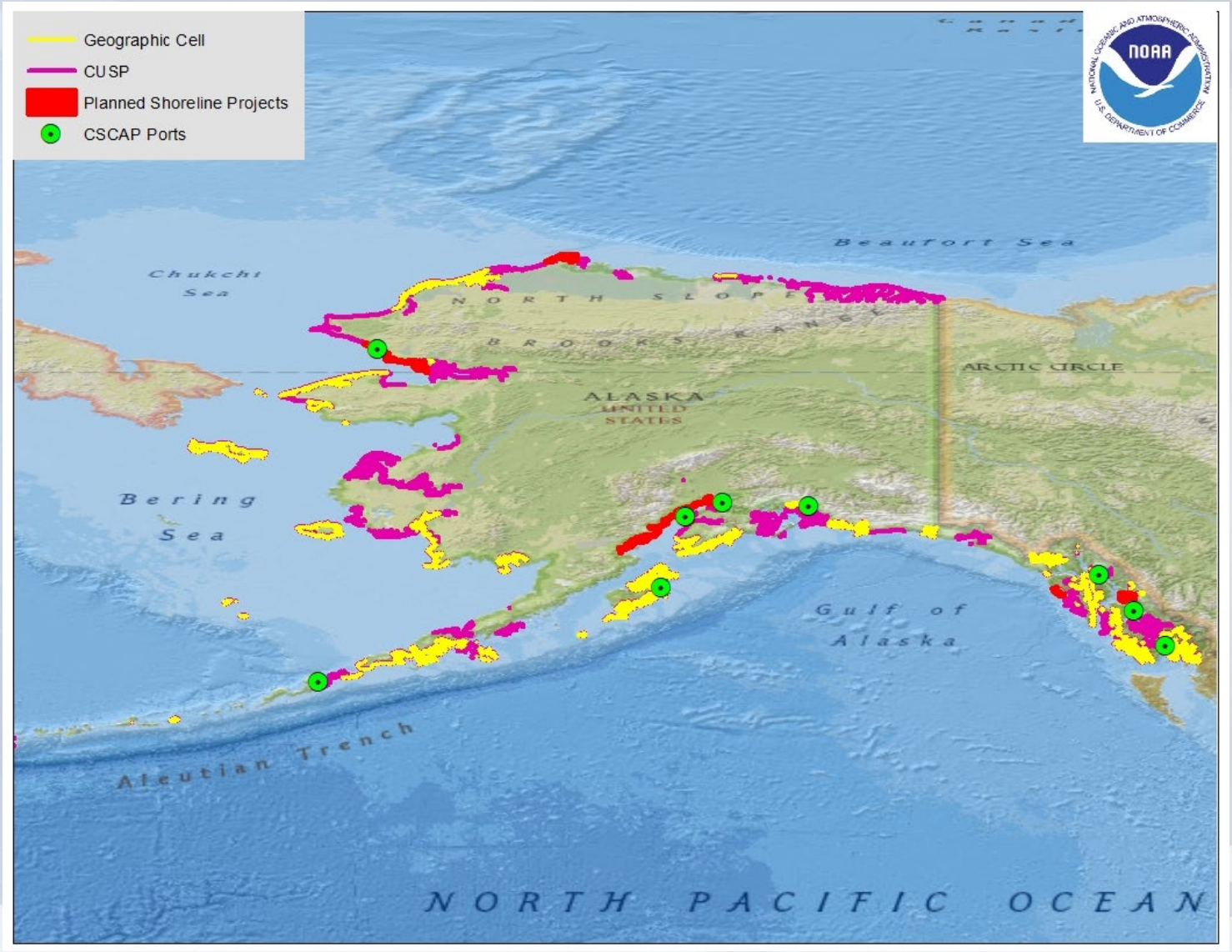


Lidar and Imagery:

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

National Oceanic and Atmospheric Administration

NGS/RSD Shoreline Products

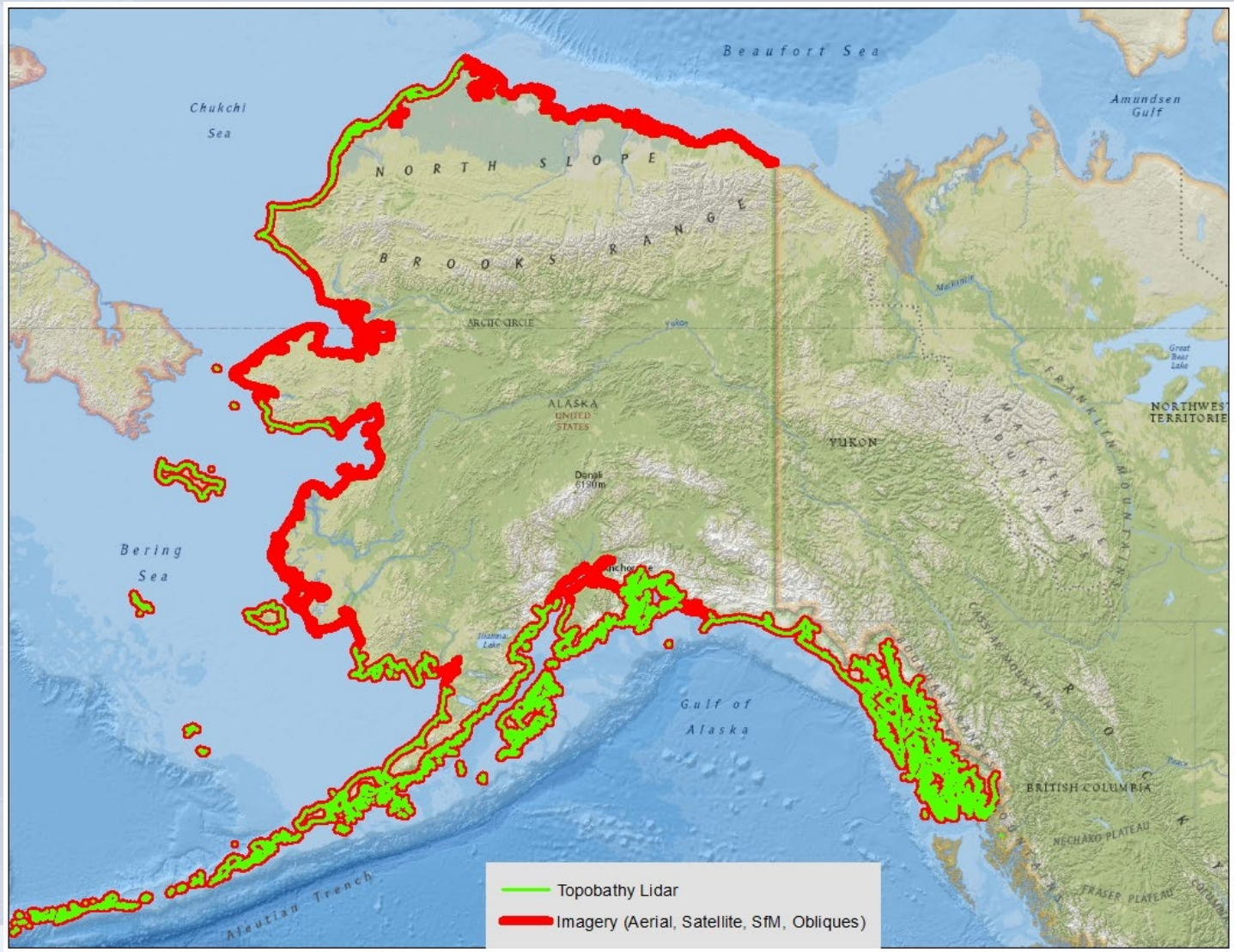


National Oceanic and Atmospheric Administration

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

(2000-present)

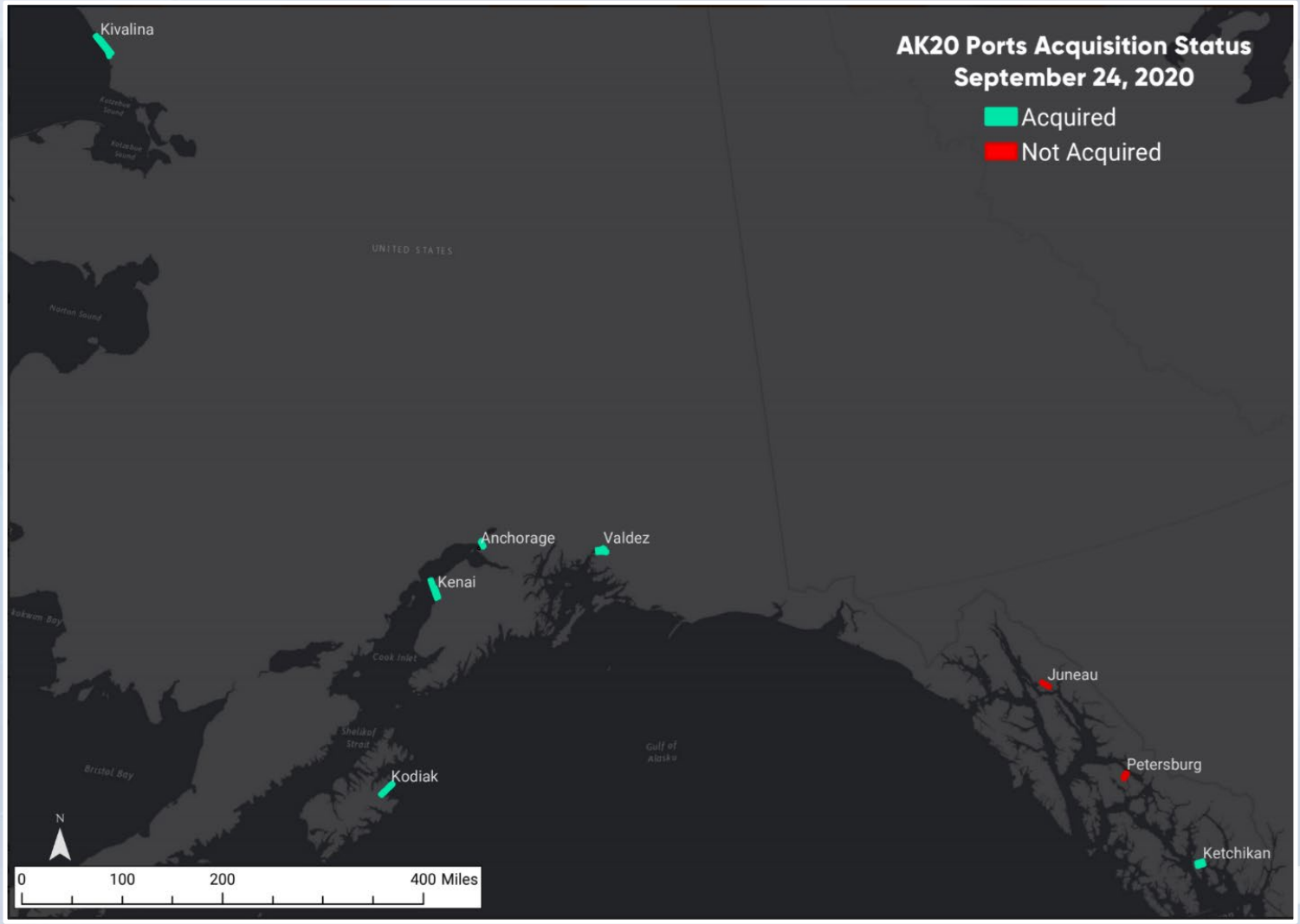
Draft Strategy for Sensor Utilization is being Revamped



National Oceanic and Atmospheric Administration

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

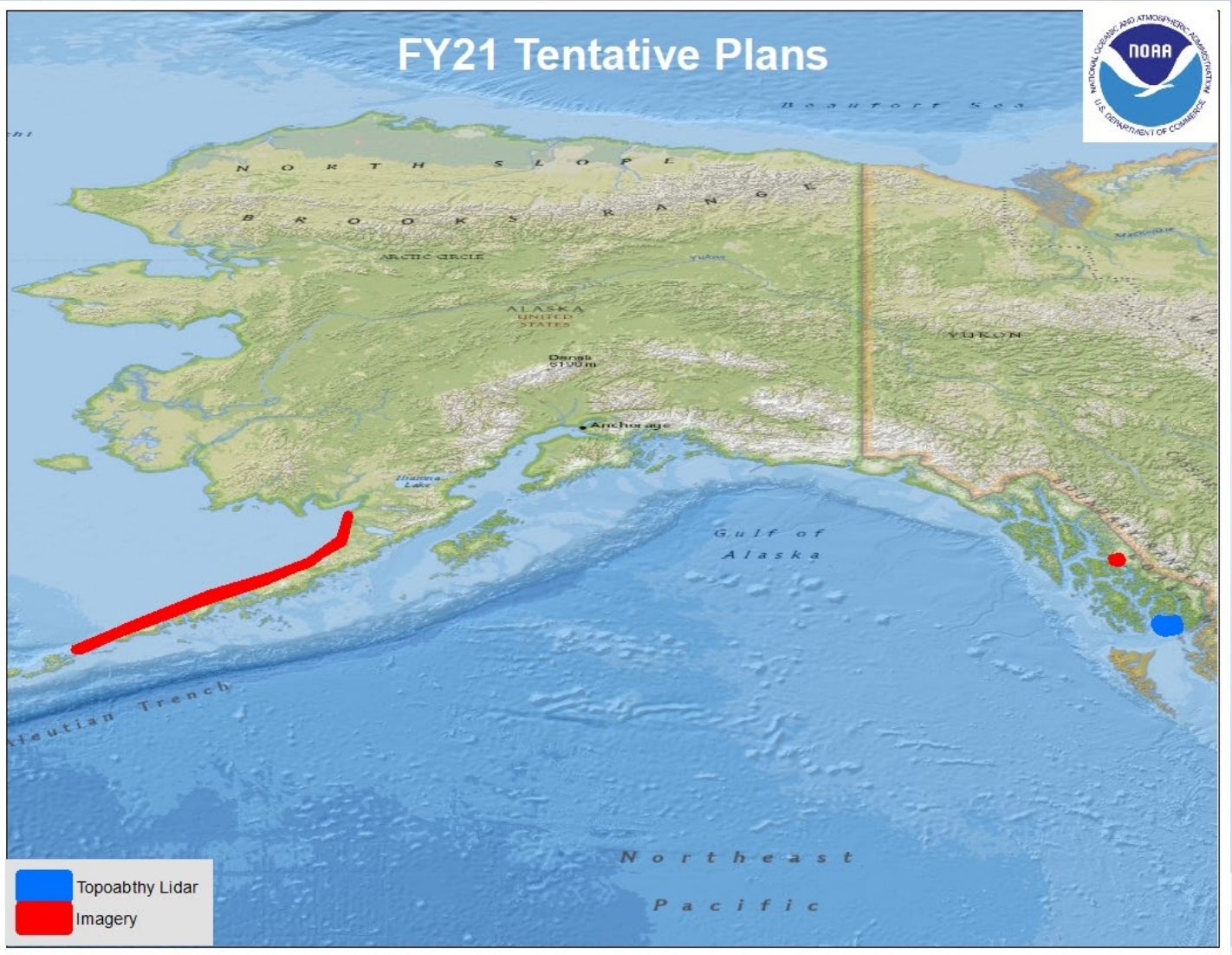
AK Ports (FY20) Acquisition



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?

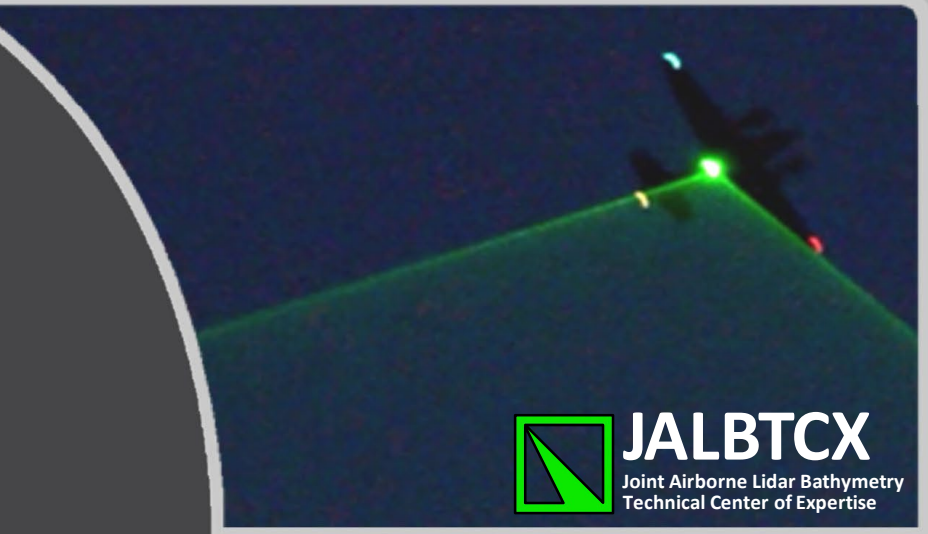
Mike Aslaksen
Chief, Remote Sensing Division
NOAA National Geodetic Survey
mike.aslaksen@noaa.gov

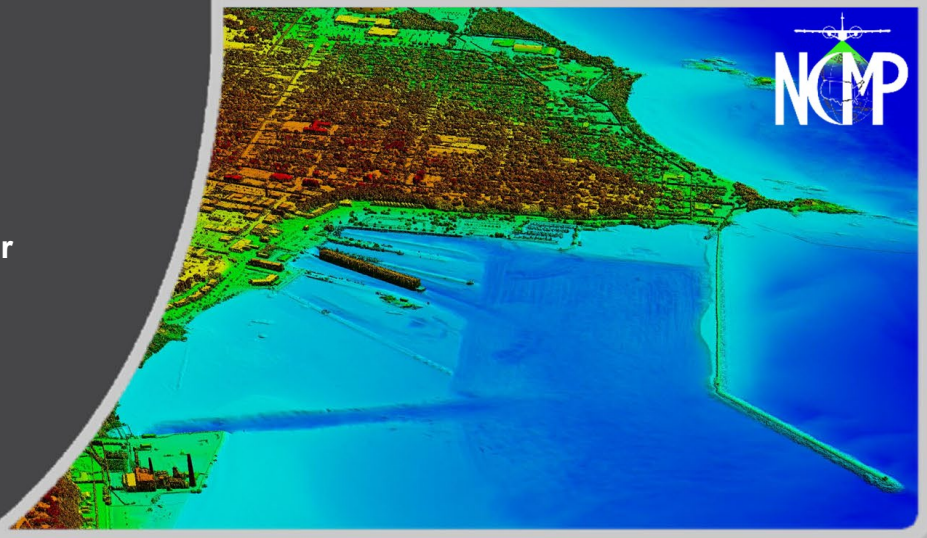
BREAK & POLL

Lightning Talks

Topic	Speaker	Affiliation
JALBTCX	Jennifer Wozencraft	USACE
USGS	Brian Wright, Ann Gibbs, Jeff Danielson	USGS
National Park Service	Tahzay Jones	NPS
AOOS Activities Along Alaska's Coast	Molly McCammon	AOOS
NMFS Nearshore & Coastal Habitat Work in Alaska	Ellen Ward	NOAA National Marine Fisheries Service
Coastal Mapping Applications in Tsunami Operations and Mitigation	Kara Gately	NOAA NWS National Tsunami Warning Center
Actionable Hazard Mapping Needs in 144 Threatened Communities	Max Neale	ANTHC
BOEM Critical Minerals Program	Dan Lasco	BOEM

JALBTCX





Jennifer M. Wozencraft

- Joint Airborne Lidar Bathymetry Technical Center of Expertise Director
- US Army Corps of Engineers National Coastal Mapping Program Manager
- Coastal and Hydraulics Laboratory, US Army Engineer Research and Development Center

3rd Alaska Coastal Mapping Summit
09 December 2020

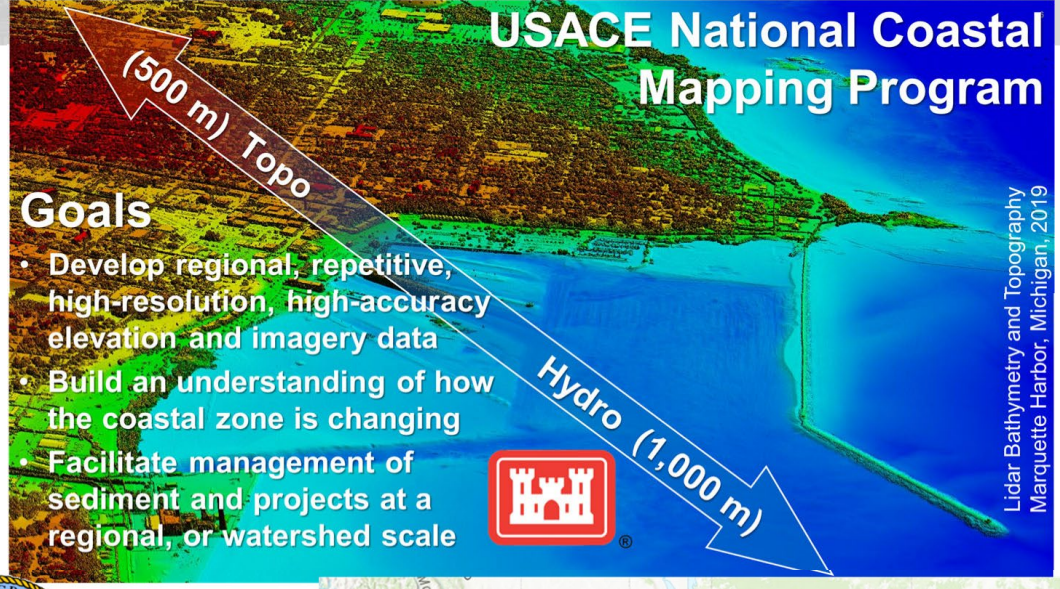
US Army Corps of Engineers

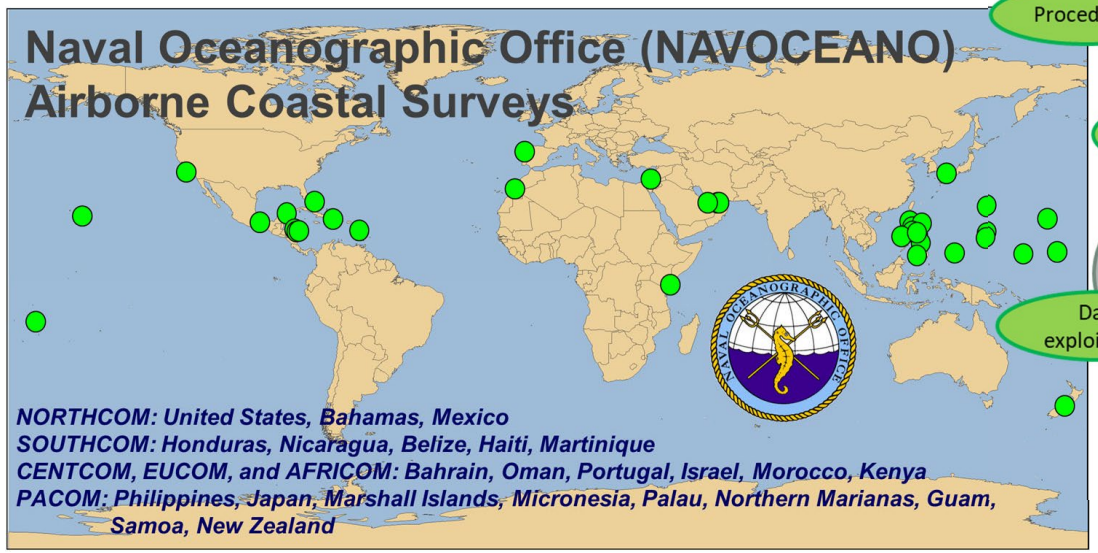
ERDC
ENGINEER RESEARCH & DEVELOPMENT CENTER

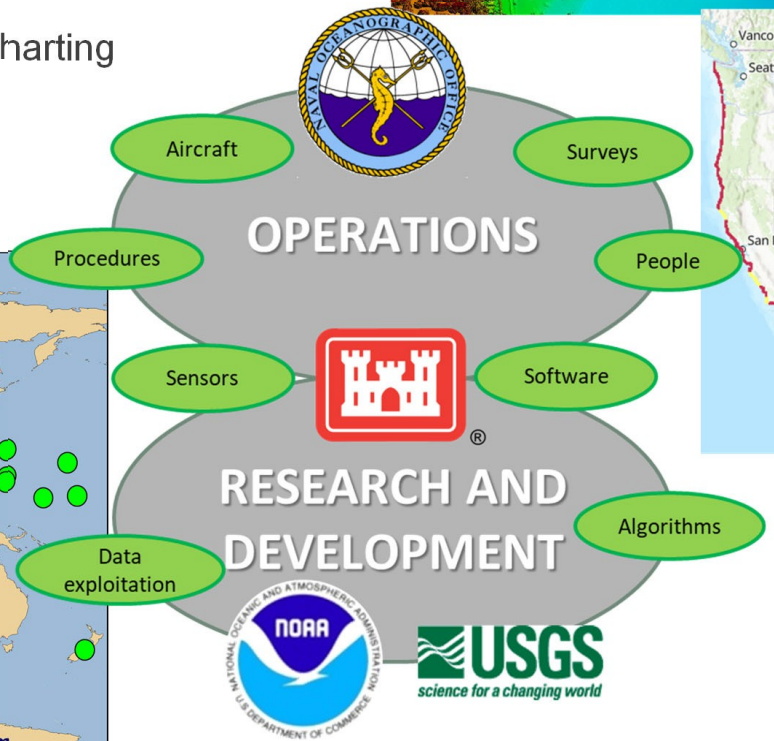
Joint Airborne Lidar Bathymetry Technical Center of Expertise

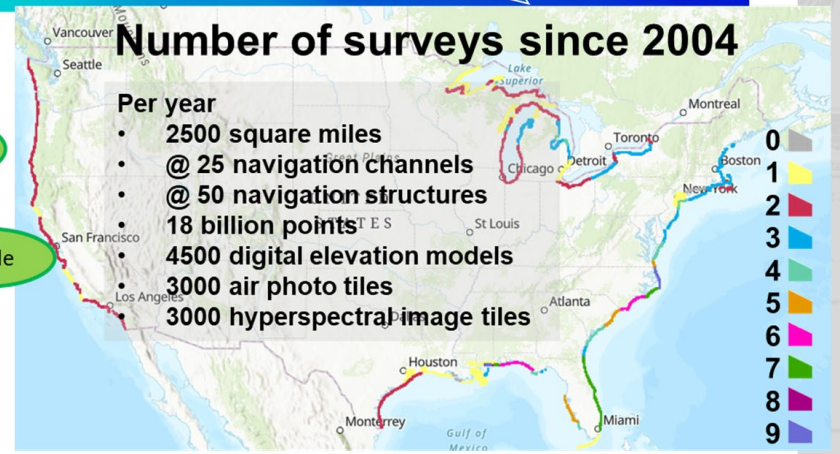
Mission: Operations and R&D in airborne lidar bathymetry and complementary tech for airborne coastal mapping and charting

- 22-year collaboration among USACE, Navy, NOAA, & USGS
- Government, industry, and academia partner to advance technology and its application to coastal challenges
- Developed 3 three generations of coastal mapping and charting sensors to meet the needs of the partner agencies
- USACE- and Navy-owned sensors are operated year-round & world-wide





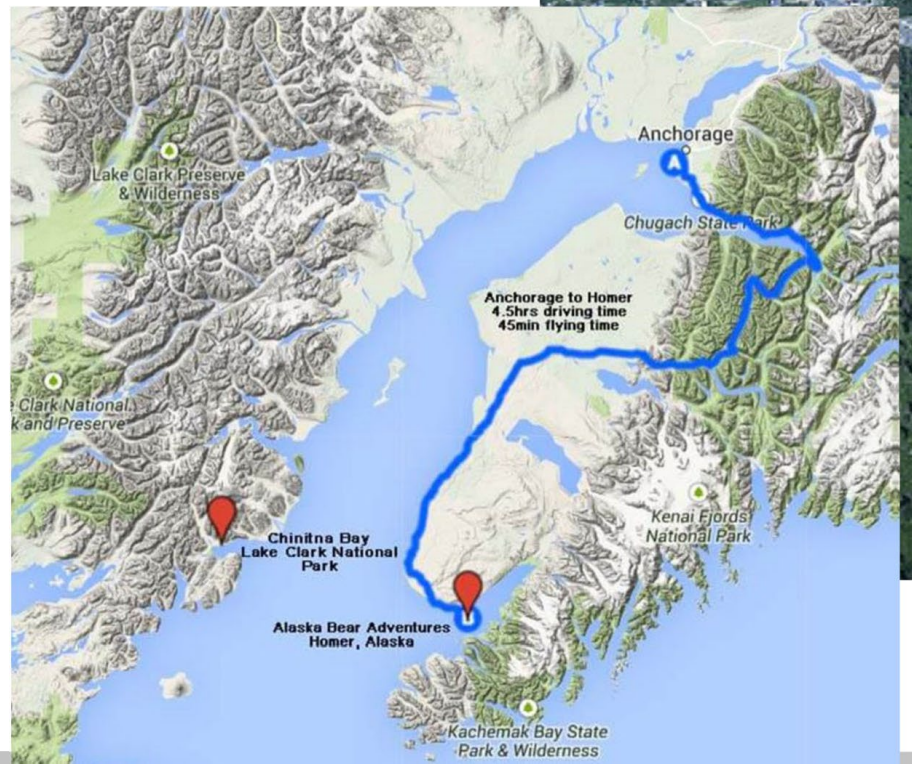




Jennifer.M.Wozencraft@usace.army.mil

2018 JALBTCX Pilot Project

- Site Selection—Homer Spit, 200 miles south of Anchorage
  - Requirements for the test were developed based on discussions during the Alaska Coastal Mapping Summit
  - Broad interest by a number of federal and state agencies
  - e.g. USACE maintains navigation channels and erosion protection structures for the harbor and 4.5 mi long gravel spit
  - Resource management
  - Data to support harbor expansion
  - “The halibut fishing capital of the world”
  - Alaska’s eco and adventure tourism capital



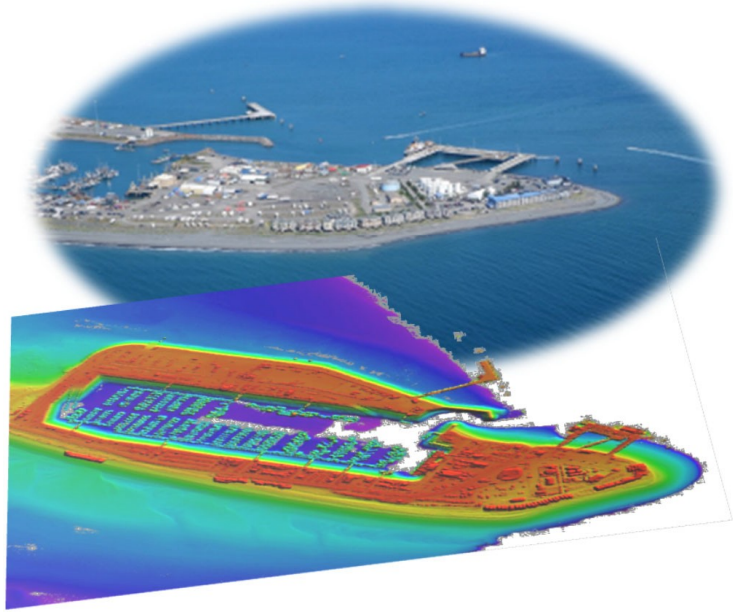
JALBTCX
Joint Airborne Lidar Bathymetry Technical Center of Expertise

Jennifer.M.Wozencraft@usace.army.mil

2018 Pilot Project

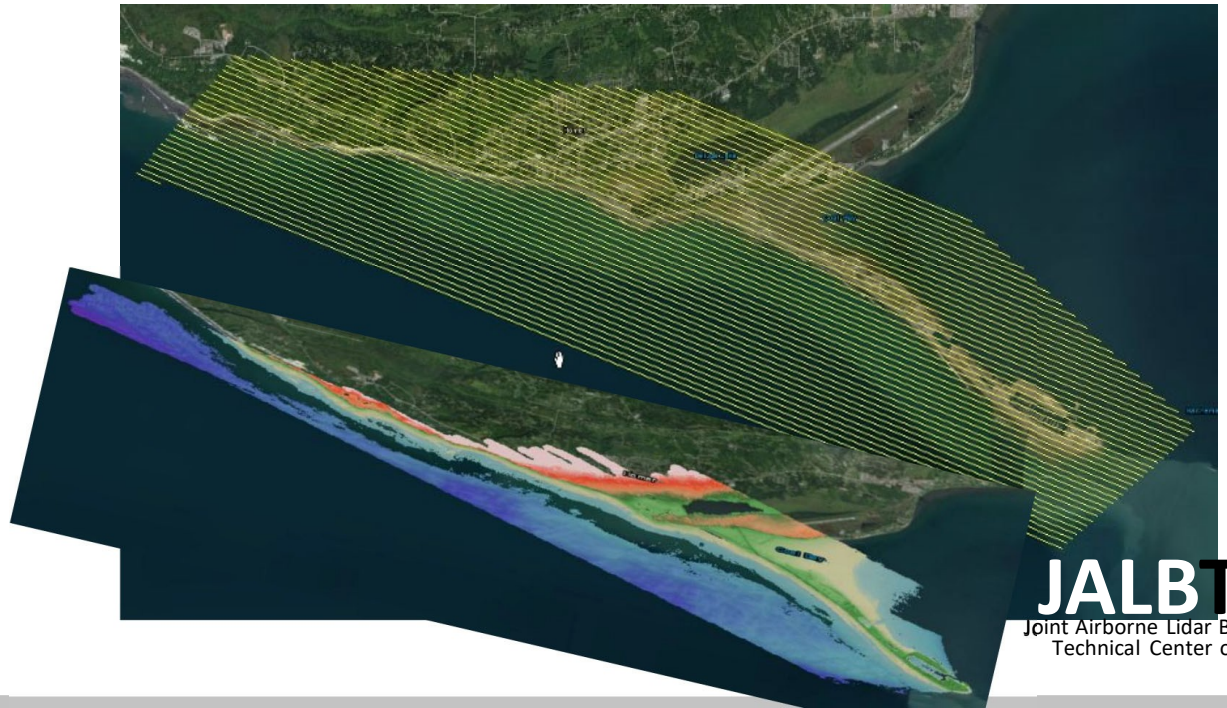
The flights

- Data was acquired over three survey days
- 10 –12 June 2018
- 14 Flight Hours
- 47 flight lines
- 53 square kilometers
- Multiple tide windows and wind directions
  - twice at high tide, once at low tide in early morning with low wind
- Depths to ~19 meters
- Submerged aquatic vegetation and sediment layers



Standard data products

- Point Data
  - LAS Files – Unclassified (1), Ground (2), Bathy (29), Potential Submerged Vegetation (23)
  - Ellipsoid Referenced (NAD83, NAD83)
  - Orthometric Referenced (NAD83, xGeoid17/18)
- DEMs
  - Digital Surface Models (NAD83, NAVD88)
  - Digital Terrain Models (NAD83, NAVD88)
- RGB Imagery
  - 5cm GSD GeoTiffs (NAD83)
- Hyperspectral
  - 1m GSD and 48 Band
- All tiled using MGRS and metadata in XML format

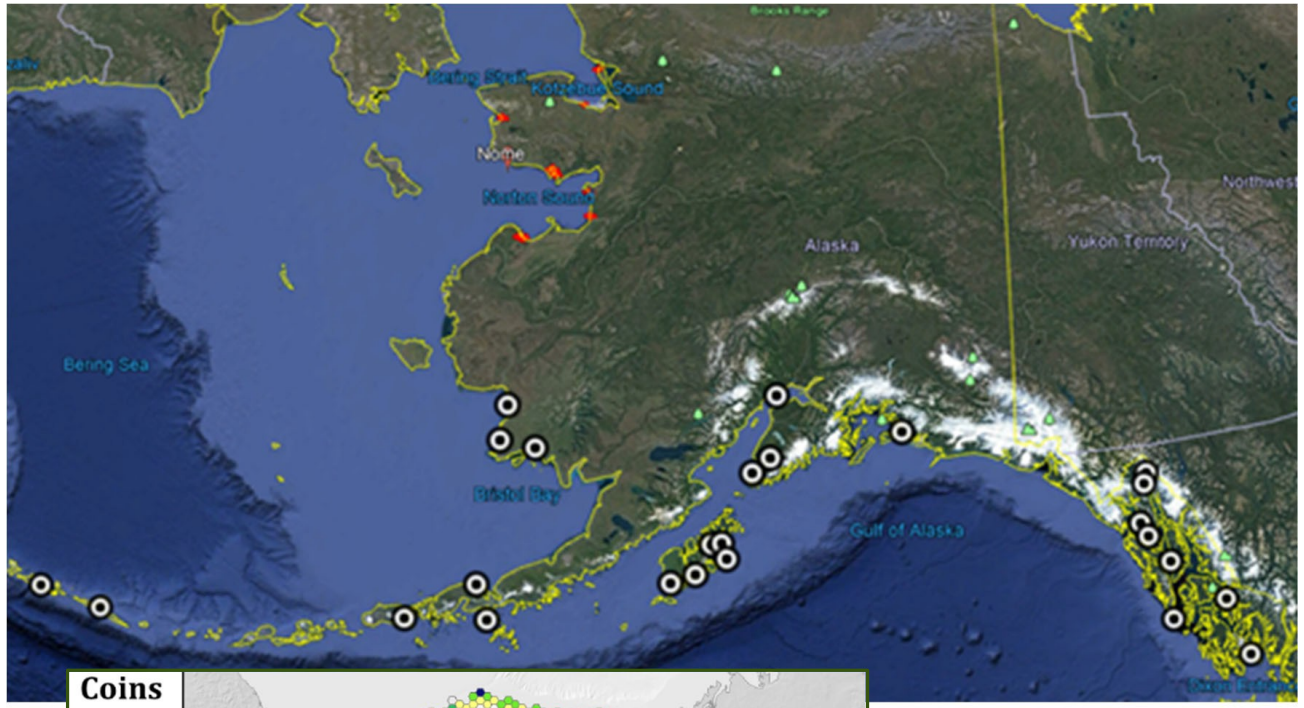


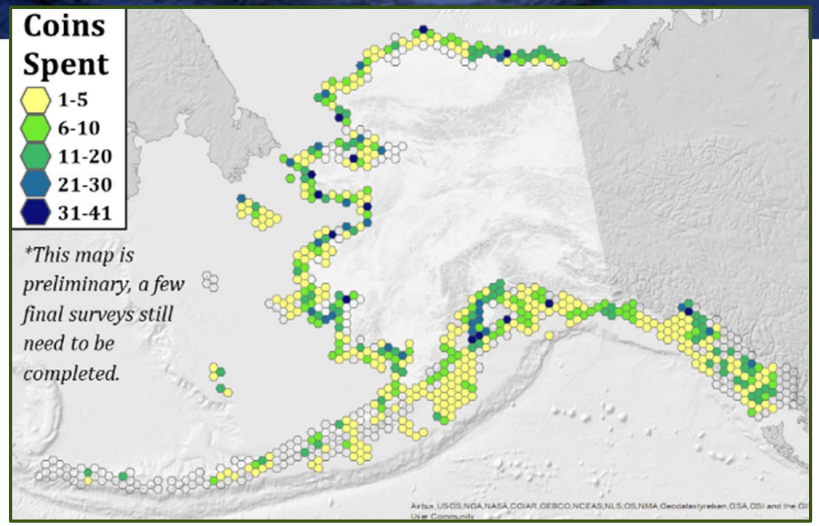
JALBTCX
Joint Airborne Lidar Bathymetry Technical Center of Expertise

Jennifer.M.Wozencraft@usace.army.mil

2019 JALBTCX NCMP Topo/Bathy Operations

- Areas of interest identified in collaboration with US Army Corps of Engineers Alaska District and AK Coastal Mapping Prioritization
- Applications are numerous
  - Navigation
  - Coastal erosion
  - Coastal storm flood modeling
  - Tsunami modeling
  - Geologic fault
- Target areas identified based on priority and likelihood of success
- To demonstrate
  - Multiple sites provide operational flexibility to accommodate constantly changing weather and water conditions
  - Capability of long-range aircraft to survey geographically separated targets efficiently
  - Capability of high-power, low noise bathy lidar system to collect bathymetry in challenging water conditions
  - Agencies sharing deployed asset for cost savings*



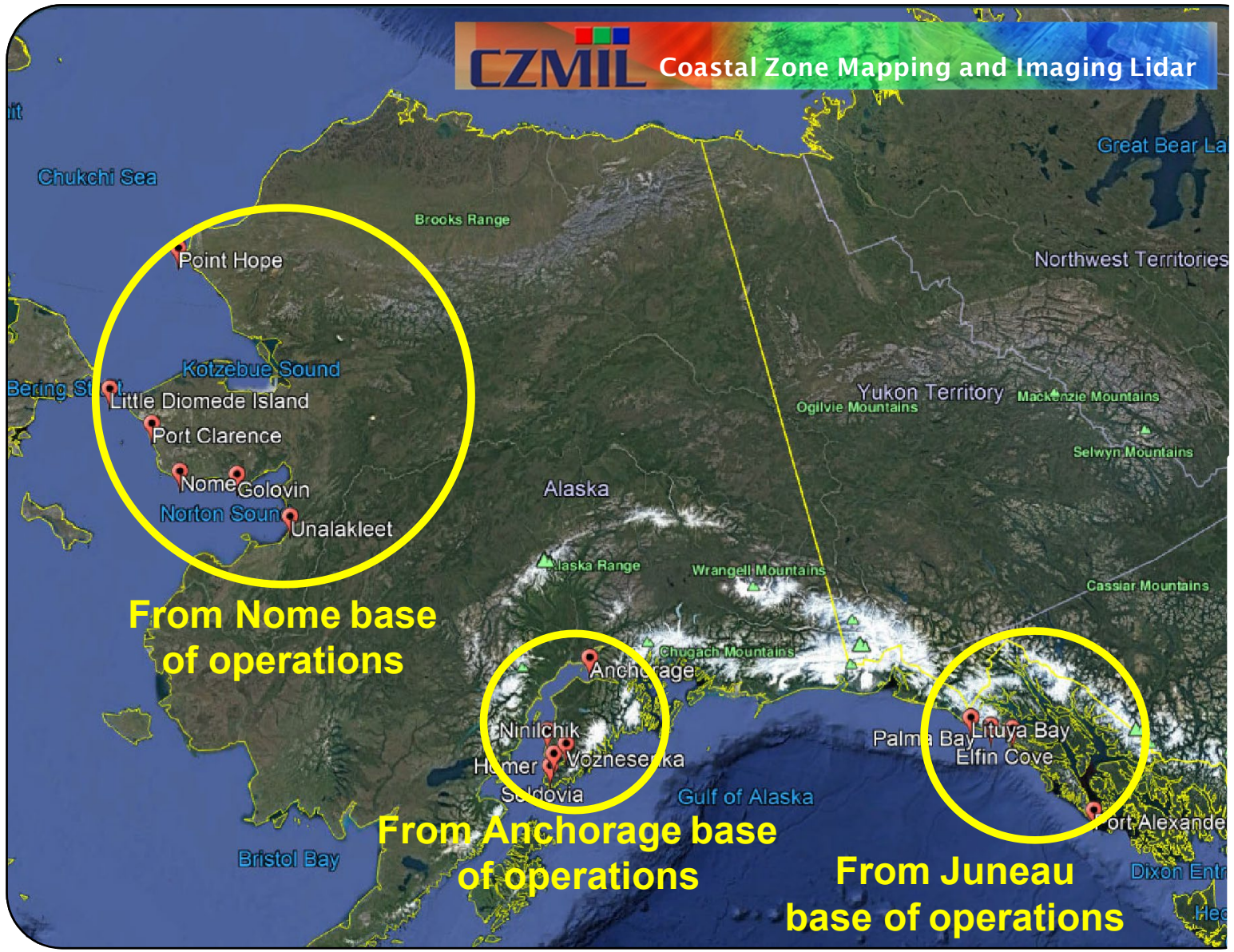


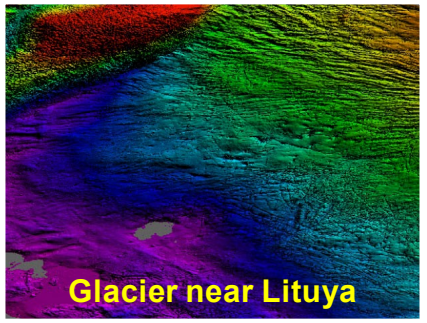
Tsunami modeling
Coastal storm modeling

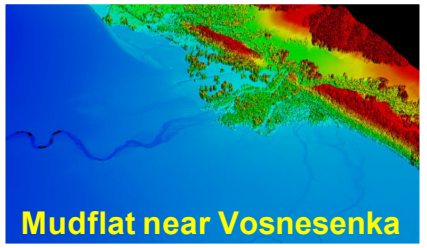
JALBTCX
Joint Airborne Lidar Bathymetry Technical Center of Expertise

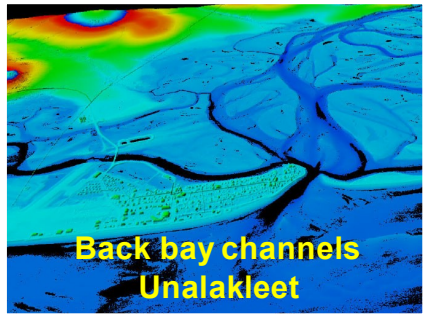
Jennifer.M.Wozencraft@usace.army.mil

2019 JALBTCX Topo/Bathy Operations









- Utilized NAVO return transit from INDOPACOM
- July 4 – July 29
- 13 Flight days between 9 July and 27 July
- 18 Flights
- 100 Engine Hours
- 54 Survey Hours
- 40 Transit Hours
- ~ 1/3 of days impacted by Weather
- Delivered Data on 17 Dec to USACE, DGGS, and NPS

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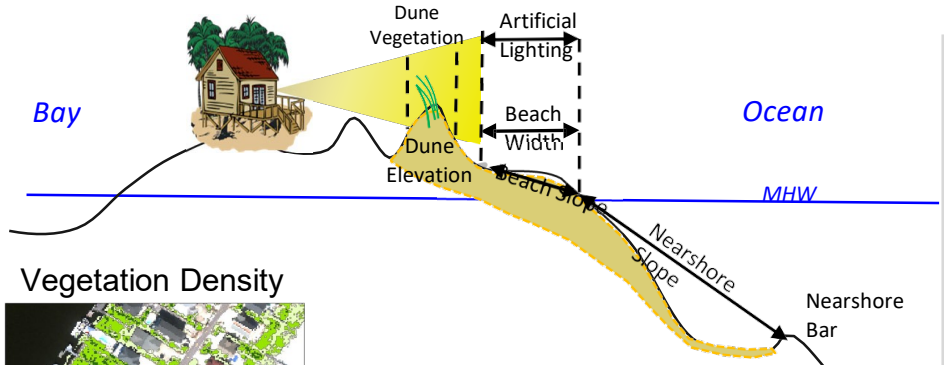
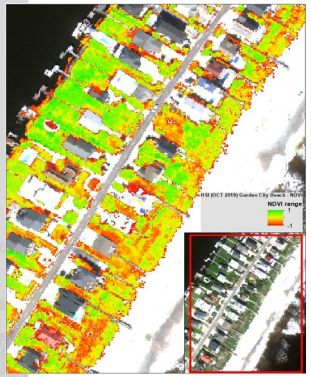
National Coastal Mapping Program Products and Tools

Coastal Metrics

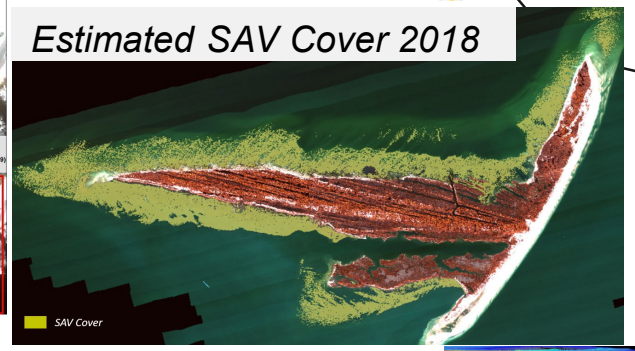


Normalized Difference Vegetation Index



Vegetation Density

Estimated SAV Cover 2018



NCMP data publicly available:

JALBTCX Services REST Endpoint https://arcgis.usacegis.com/arcgis/rest/services/JALBTCX

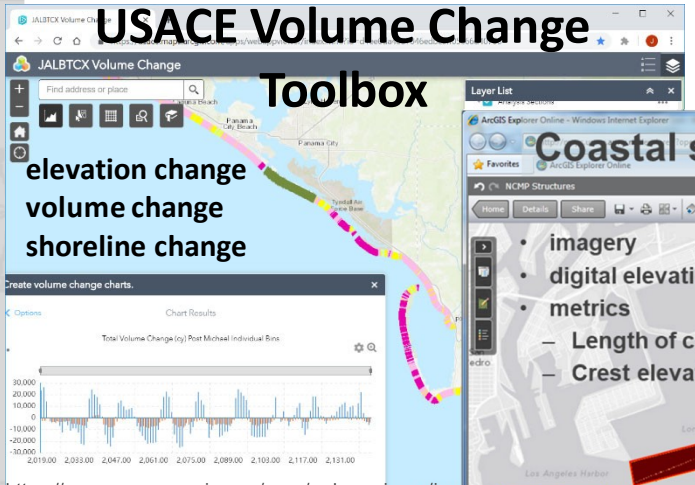
DIGITAL COAST https://coast.noaa.gov/dataviewer/

GRiD https://griduc.rsgis.erdc.dren.mil/griduc

How USACE uses NCMP data:

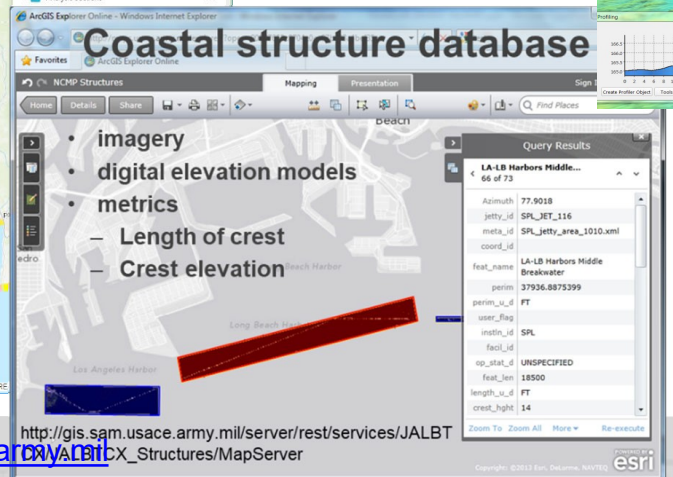
- Regional context for project and sediment management
- Regional sediment budgets
  - Integration with RSM-SBAS (Sediment Budget Analysis System)
- Coastal structure asset management
  - Measure and monitor coastal infrastructure
  - Coastal structure physical condition assessment
  - Data for modeling functional performance
- Quantify capacity of upland dredge placement sites
- Navigation channel impacts to adjacent shorelines
- Physical/environmental baseline for operational changes such as channel deepening
- Channel condition assessment in clear water
- Design and monitoring of beneficial use sites and natural and nature-based features
- Habitat data for sensitive species like eelgrass, sea turtles, & wetlands
- Emergency response storm impacts
  - Quantify storm impacts to channels and jetties
  - Quantify storm impacts to beaches projects
- Updated bathymetry and topography to drive coastal models

USACE Volume Change Toolbox



https://usace.maps.arcgis.com/apps/webappviewer/index.html?id=d1ee0da4887046edbc9ff05c66d40708

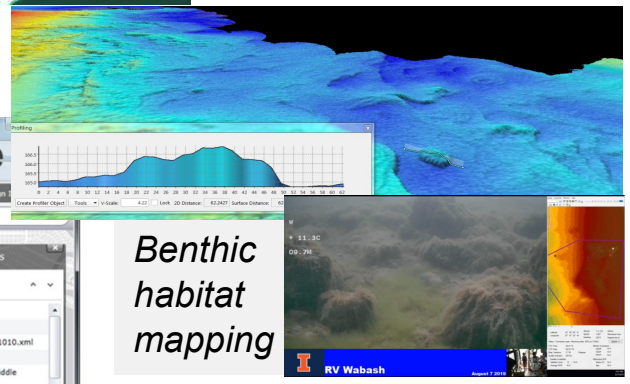
Coastal structure database



- imagery
- digital elevation models
- metrics
  - Length of crest
  - Crest elevation

http://gis.sam.usace.army.mil/server/rest/services/JALBTCX_Structures/MapServer

Benthic habitat mapping



How other agencies use NCMP Data

- NOAA—update nautical charts, tsunami modeling, public dissemination (45,000 downloads!)
- USGS—coastal hazard studies, operational storm forecasts, coastal studies, CoNED topo-bathy elevations models
- FEMA—flood hazard mapping, eligibility for public assistance
- NPS—monitor National Parks

Jennifer.M.Wozencraft@usace.army.mil

Questions?

Jennifer.M.Wozencraft@usace.army.mil

https://jalbtcx-live.azurewebsites.net

US Army Corps of Engineers

Finger Glacier, Glacier Bay National Park, 2019

JALBTCX
Joint Airborne Lidar Bathymetry Technical Center of Expertise

Update on Coastal Mapping Activities in Alaska

2020 Coastal Mapping Summit
December 9, 2020

Brian Wright, National Geospatial Program (bwright@usgs.gov)
Ann E. Gibbs, Coastal and Marine Hazards and Resources Program (agibbs@usgs.gov)
Jeffrey J. Danielson, EROS Center (daniels@usgs.gov)

U.S. Department of the Interior
U.S. Geological Survey

National Geospatial Program - Alaska Mapping Initiative

Completed statewide terrestrial elevation collection via Interferometric Synthetic Aperture Radar (IfSAR) at 5-meter resolution

- Digital Surface Model (DSM)
- Digital Terrain Model (DTM)
- Orthorectified Radar Intensity Image (ORI)

Available via the USGS - The National Map and AK DNR, DGGS - Alaska Elevation Portal

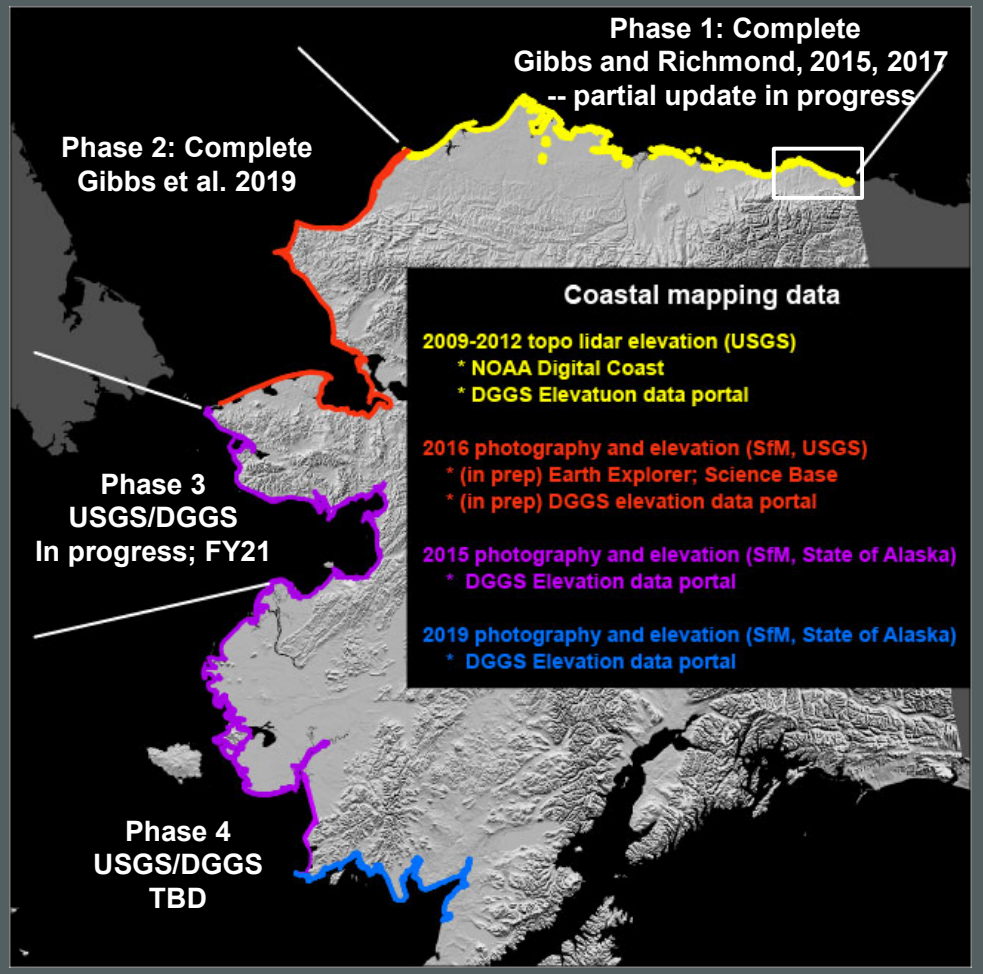
Acquired statewide satellite mosaic, MAXAR (Digital Globe) WorldView II and III

- Federal participating agencies and State of Alaska licensed for internal use of GeoTiff mosaic
- Alaska DNR, DGGS, Alaska Geospatial Imagery Service - Alaska High Resolution Imagery
- 4-band, 0.5cm, IfSAR orthorectification, sun-angle, summer scenes collection predominantly 2017-2020

USGS

USGS - Alaska coastal mapping dependent projects

- Coastal Change Hazards
  - Quantify shoreline change rates
  - Assess and project/model:
    - Shoreline change
    - Coastal vulnerability (erosion/flooding)
- Coastal NED (CoNED)
  - Build hi-res, seamless topo-bathy products
- Tsunami Hazards
  - Flooding/inundation
  - Barry Arm landslide
  - Subduction zone science

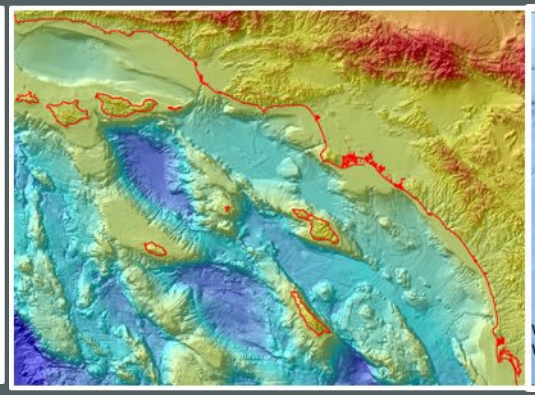


USGS

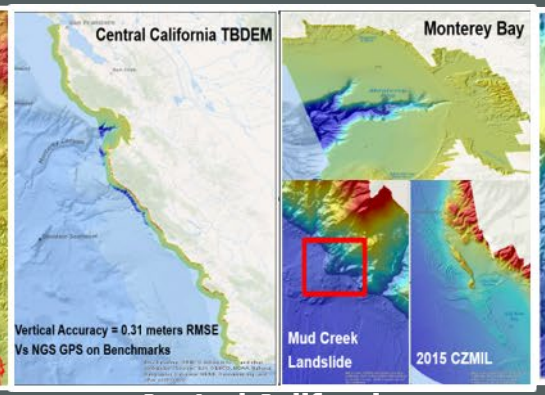
USGS Coastal National Elevation Database (CoNED) Applications Project

1) Support coastal and marine spatial planning, by constructing the Coastal National Elevation Database (CoNED) at select focus regions thereby establishing a topobathymetric elevation model (tbdem) baseline product for scientific investigations and applications.
2) Conduct algorithm remote sensing 3D point cloud (lidar) research to extend the data structure for topobathymetric elevation models and create methods for fostering land change science studies.

San Francisco Bay



Southern California



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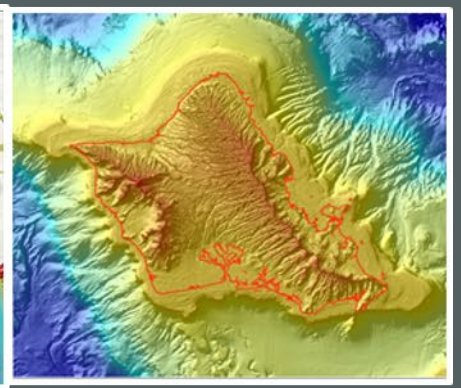


Hawaii - Oahu

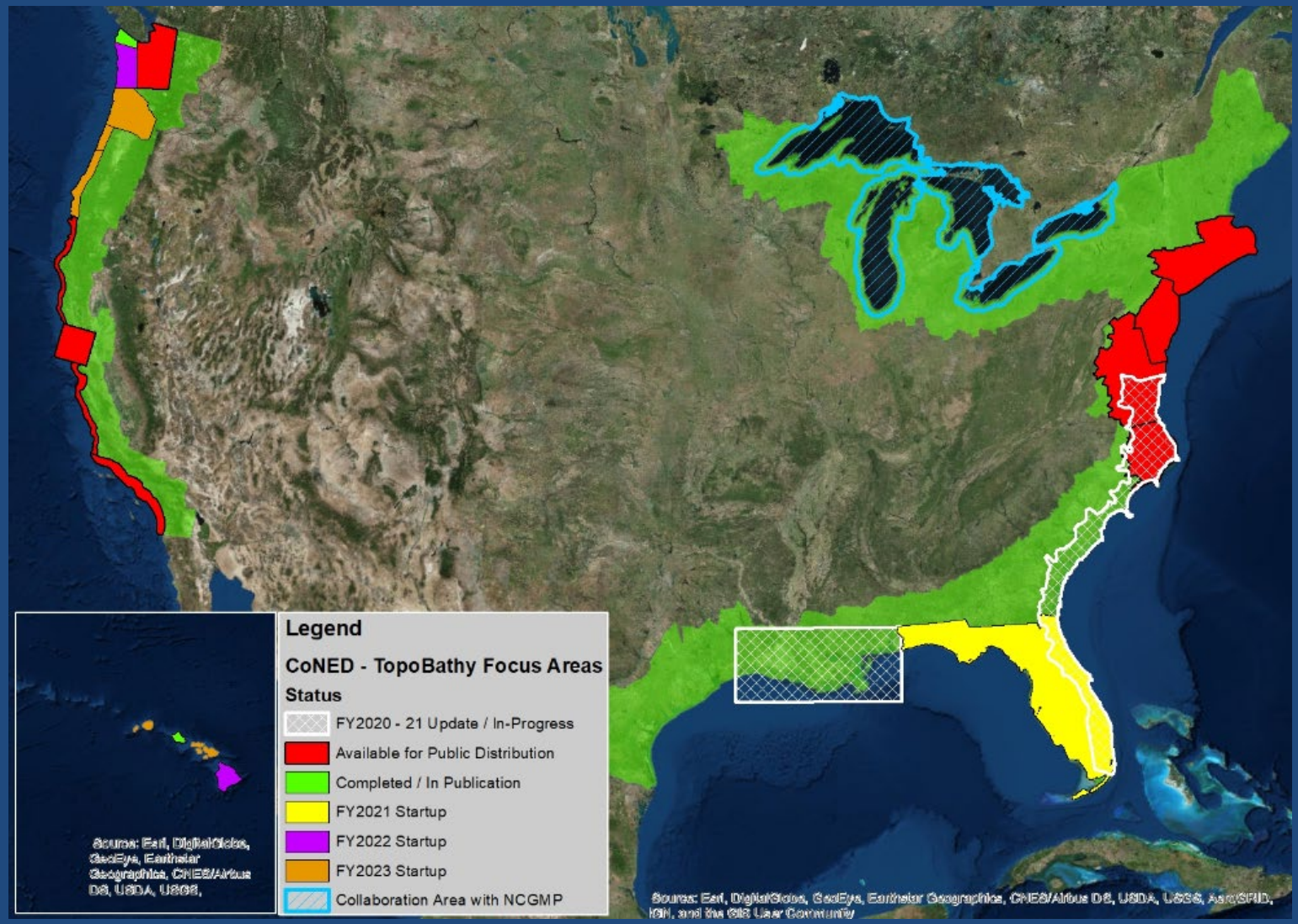
Stakeholders: USGS Coastal Storm Modeling System (CoSMoS), NOAA-OCM Sea Level Rise Viewer, NOAA National Water Model, LA CPRA Coastal Master Plan, ADCIRC Hydrodynamic Model, VIMS SCHISM Model, Nature Conservancy Coastal Resilience Viewer, and DOI Pacific Islands Climate Adaptation Science Center

Point of Contact: Jeffrey Danielson, CoNED Applications Project Chief, daniels@usgs.gov

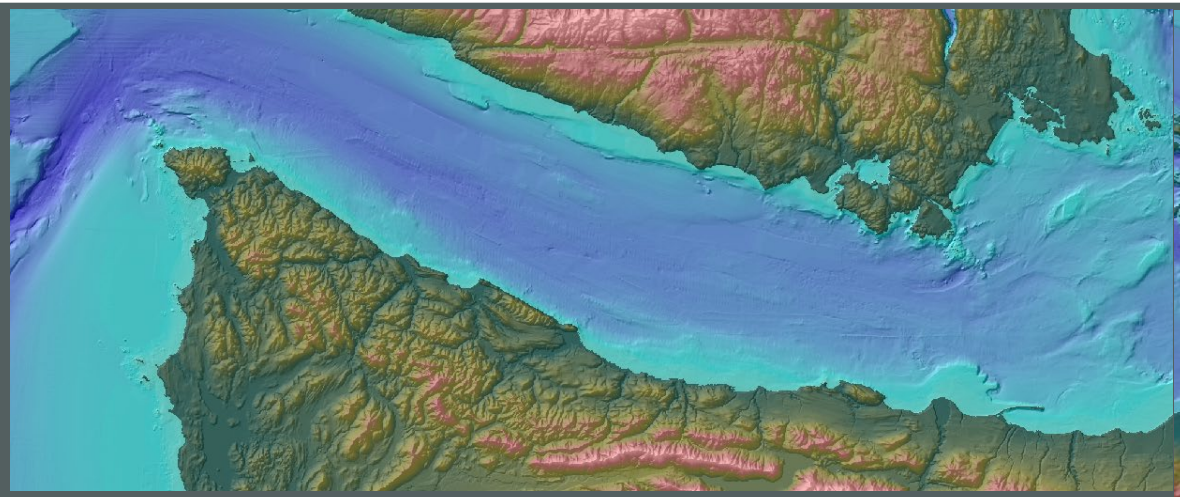
USGS

Mapping Activities: TBDEM Mapping Plans

USGS CoNED – TBDEM Integration Plans (FY20 – FY23)



Pacific Northwest Topobathymetric DEM - CoNED
Puget Sound and Juan de Fuca: 1-Meter TBDEMs



Strait of Juan de Fuca

Puget Sound

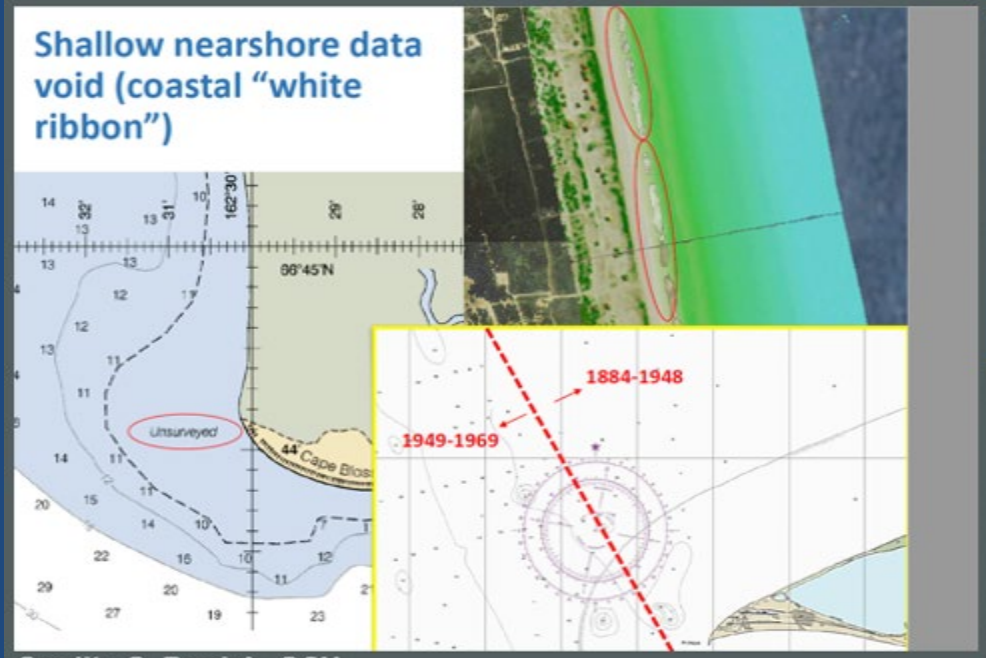
USGS

Interagency Working Group On Ocean And Coastal Mapping

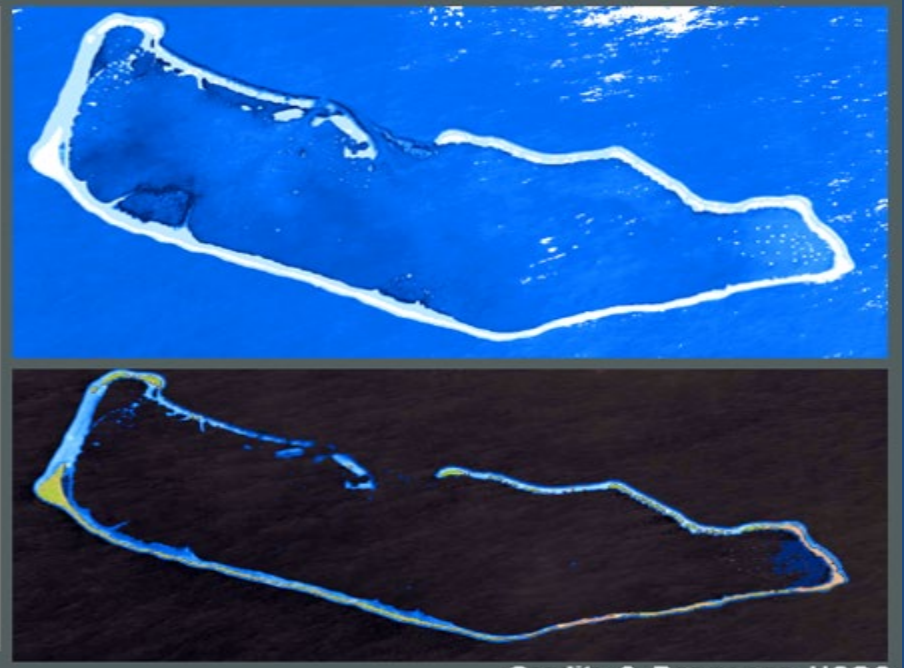
INTERAGENCY WORKING GROUP ON

Ocean and Coastal Mapping

Satellite-Derived Bathymetry Task Team



Credit: C. Parrish, OSU

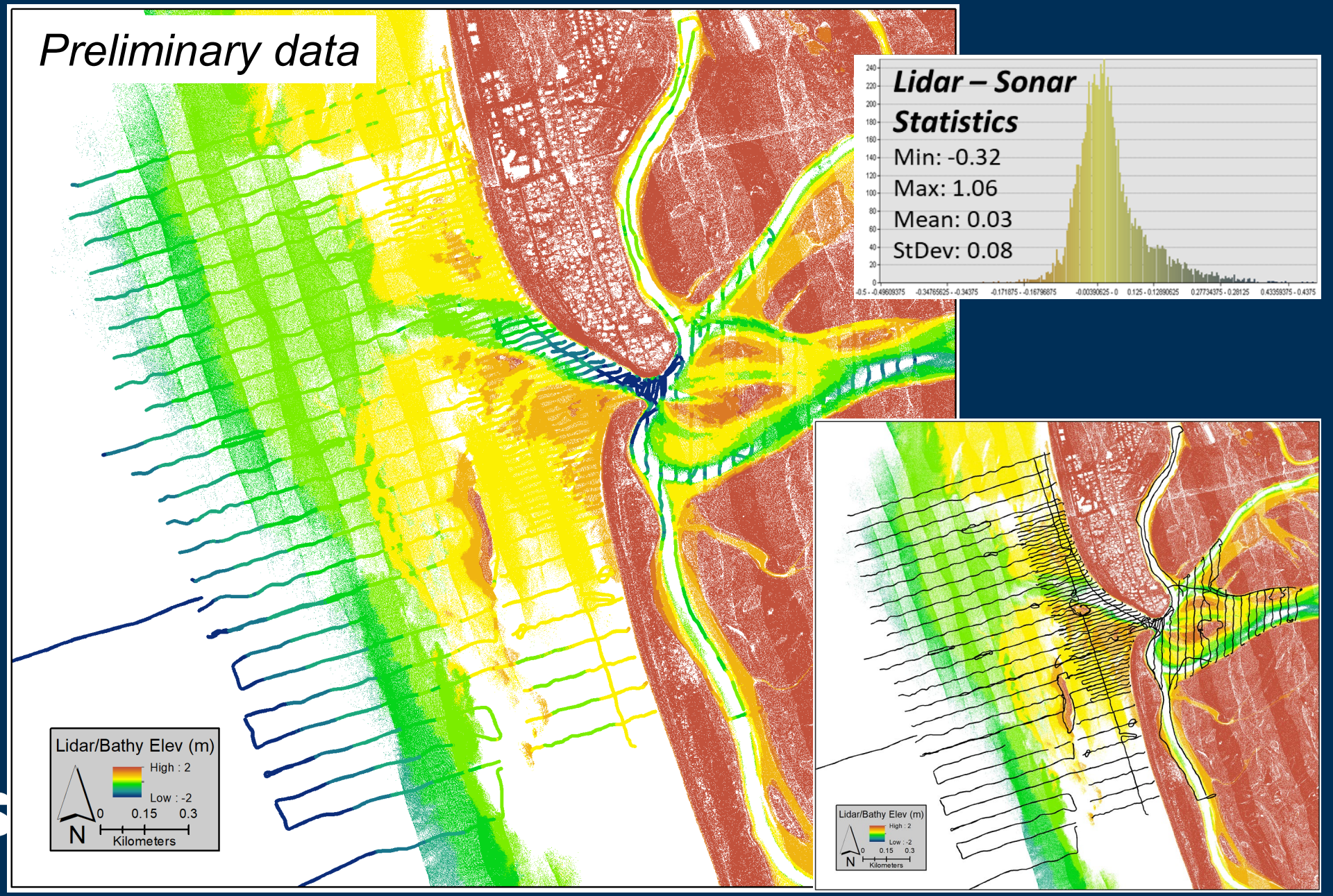


Credit: S. Poppenga, USGS

- **Purpose and Goal:**

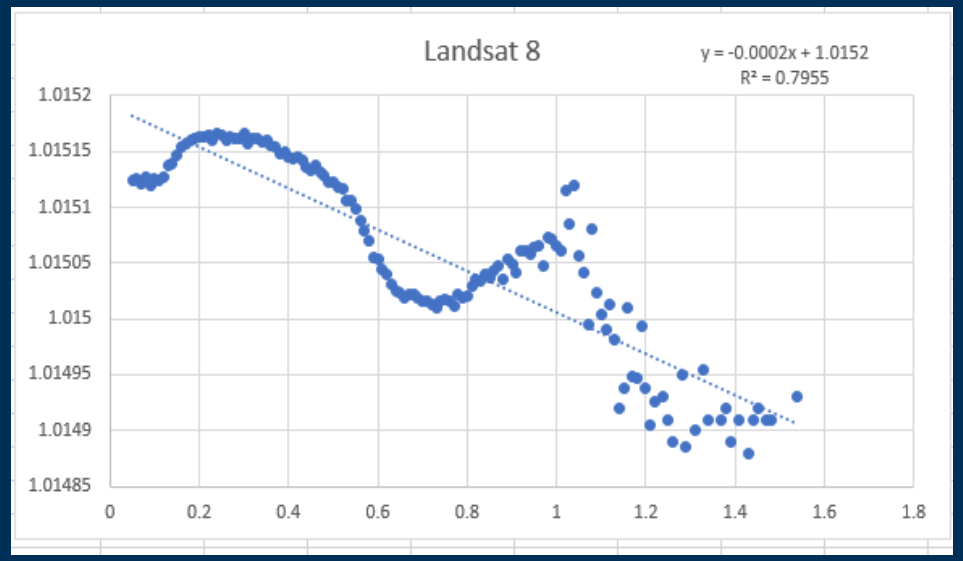
  To cooperatively investigate remote sensing methods and techniques for generation of reliable satellite-derived bathymetry mapping products using standardized metadata schema and definition, consistent data formats, and incorporating best practices for long-term science and end-user applications.

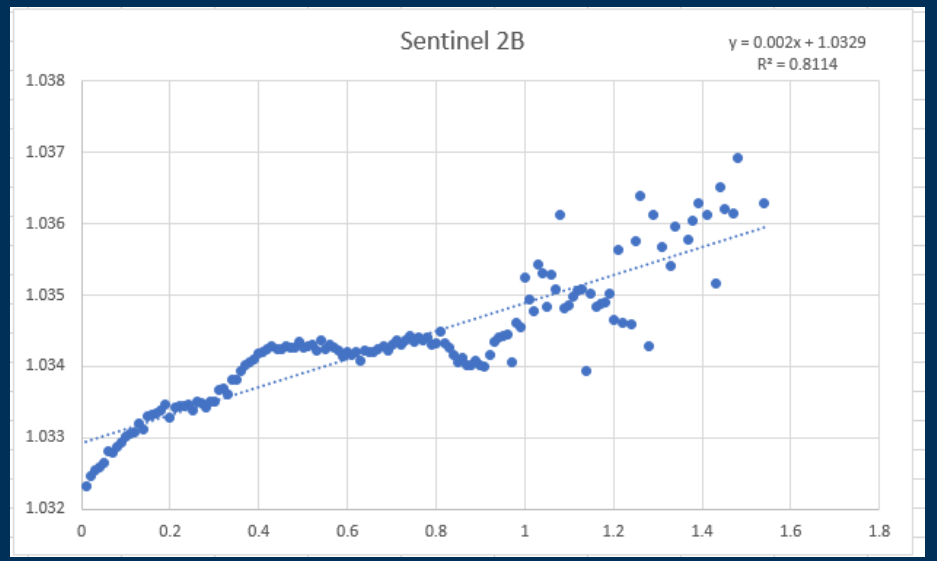
Unalakleet Combined Sonar/Lidar

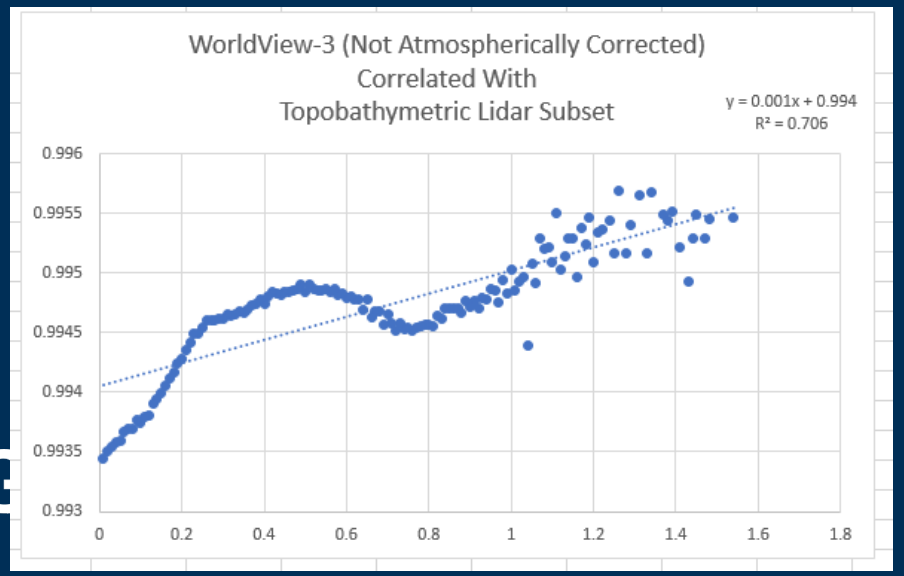


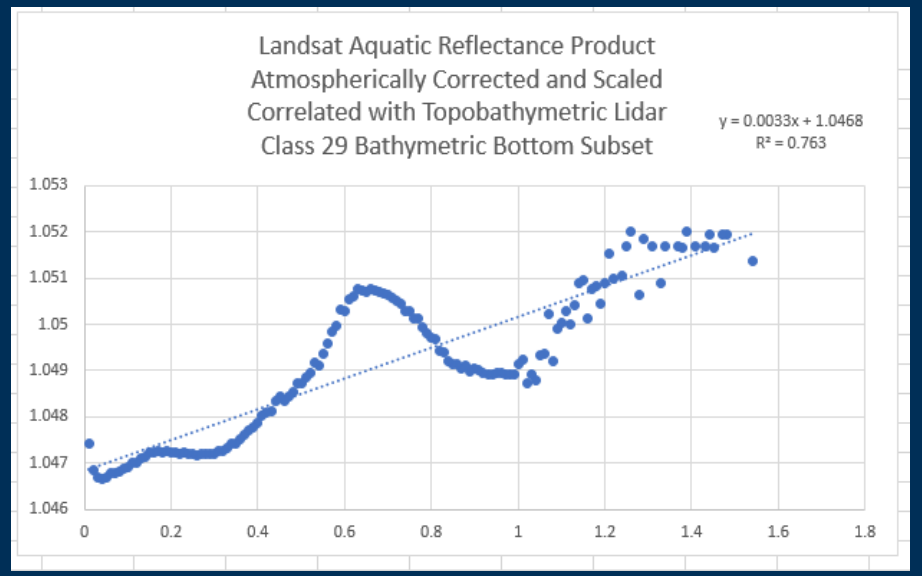
SDB Correlation with Topobathy Lidar
Landsat 8, Sentinel-2B, WorldView-3 & L8 Aquatic Refl.

Preliminary data



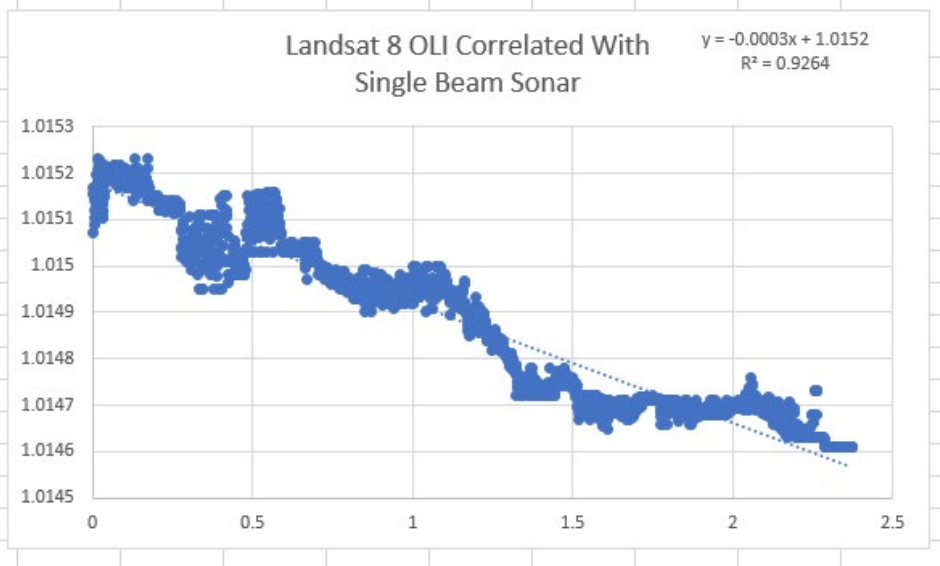


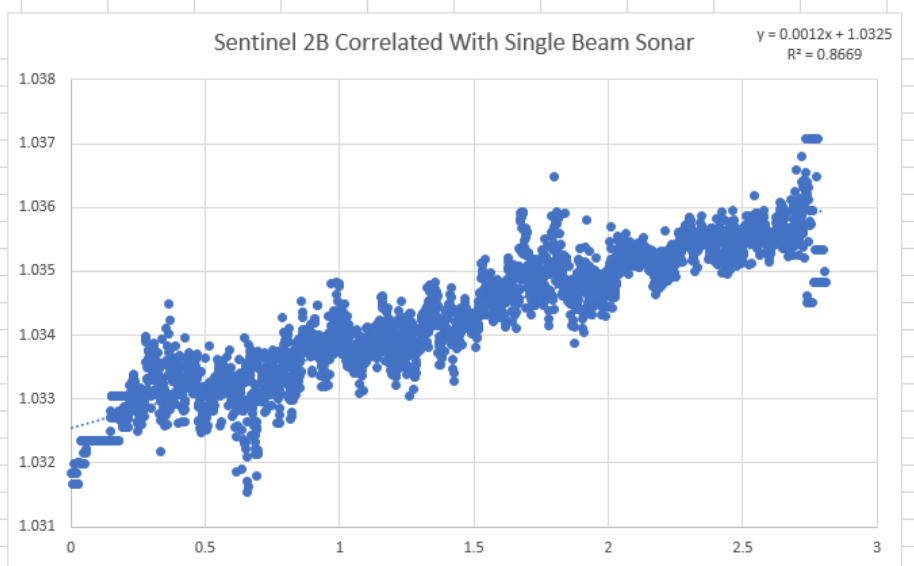


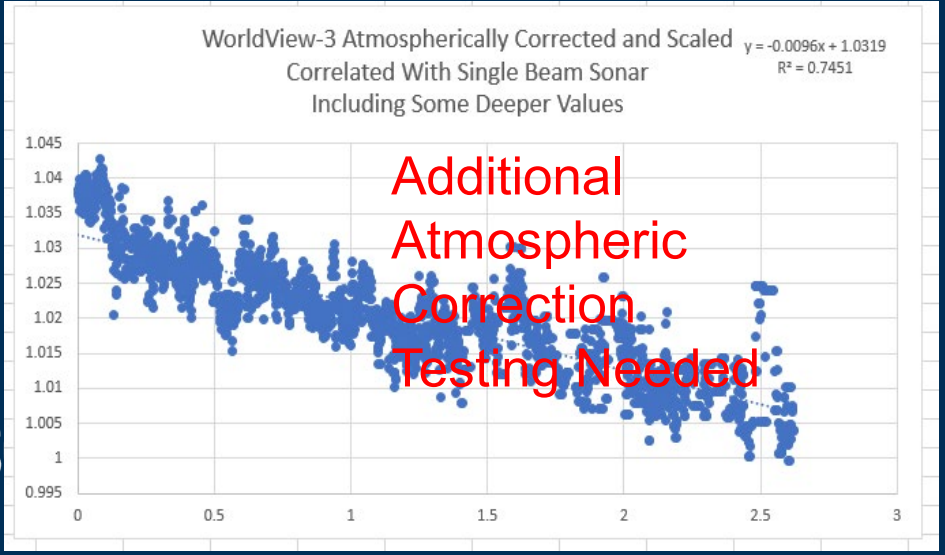


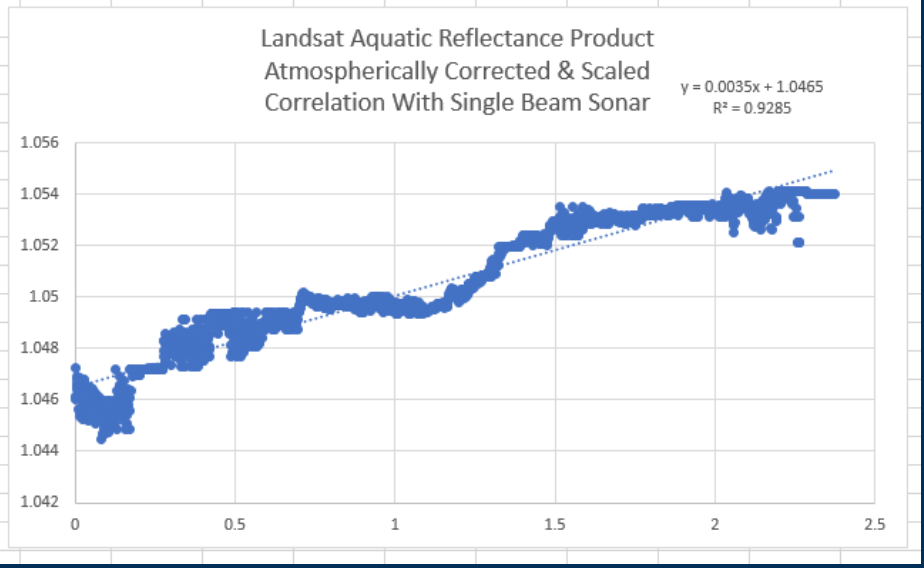
SDB Correlation w/ Sonar - Comparisons
Landsat 8, Sentinel-2B, WorldView-3 & L8 Aquatic Refl.

Preliminary data







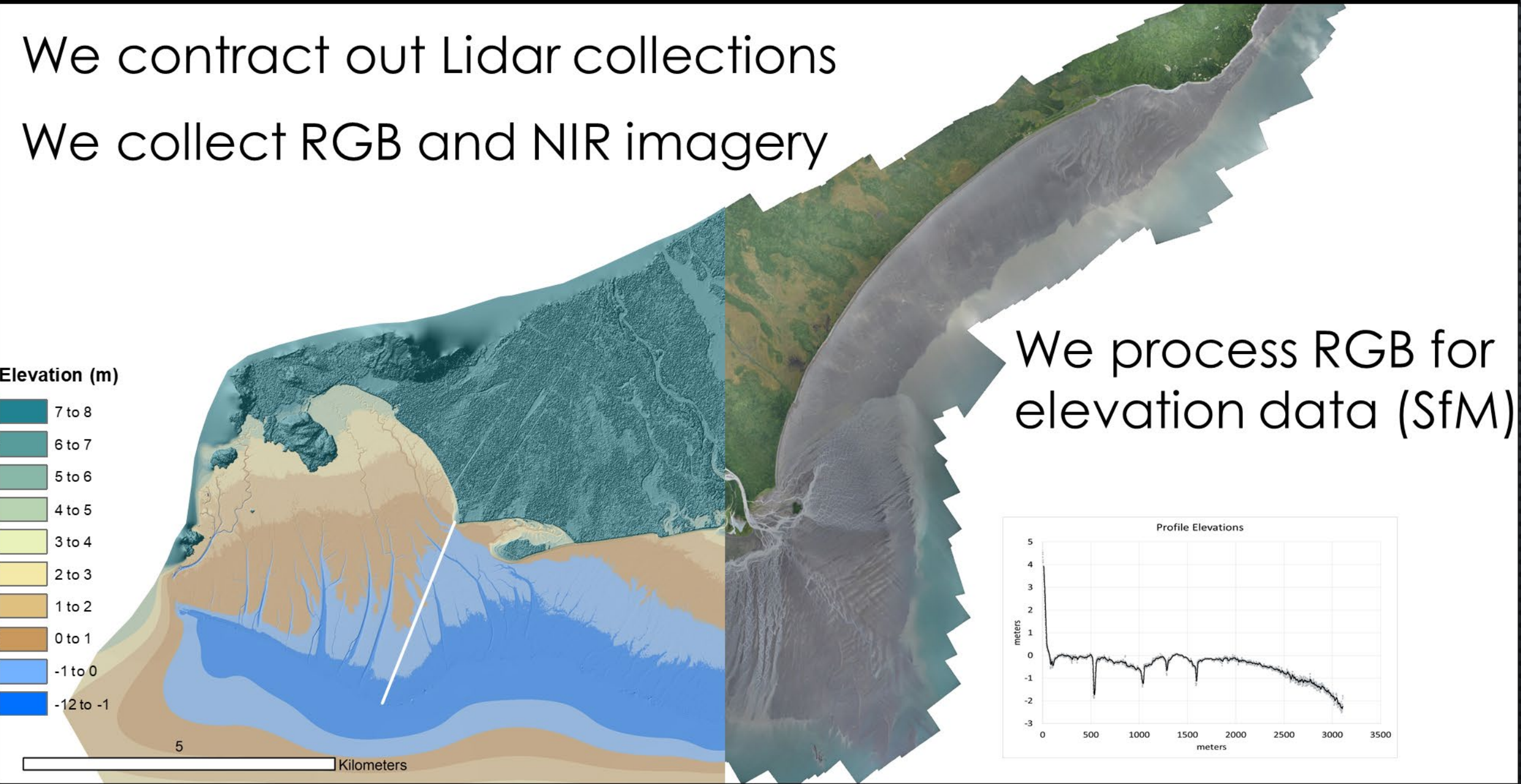


NATIONAL PARK SERVICE COASTAL MAPPING UPDATE

Tahzay Jones
Alaska Region
Ocean and Coastal Programs Coordinator
National Park Service
Tahzay_jones@Nps.gov
907-644-3442

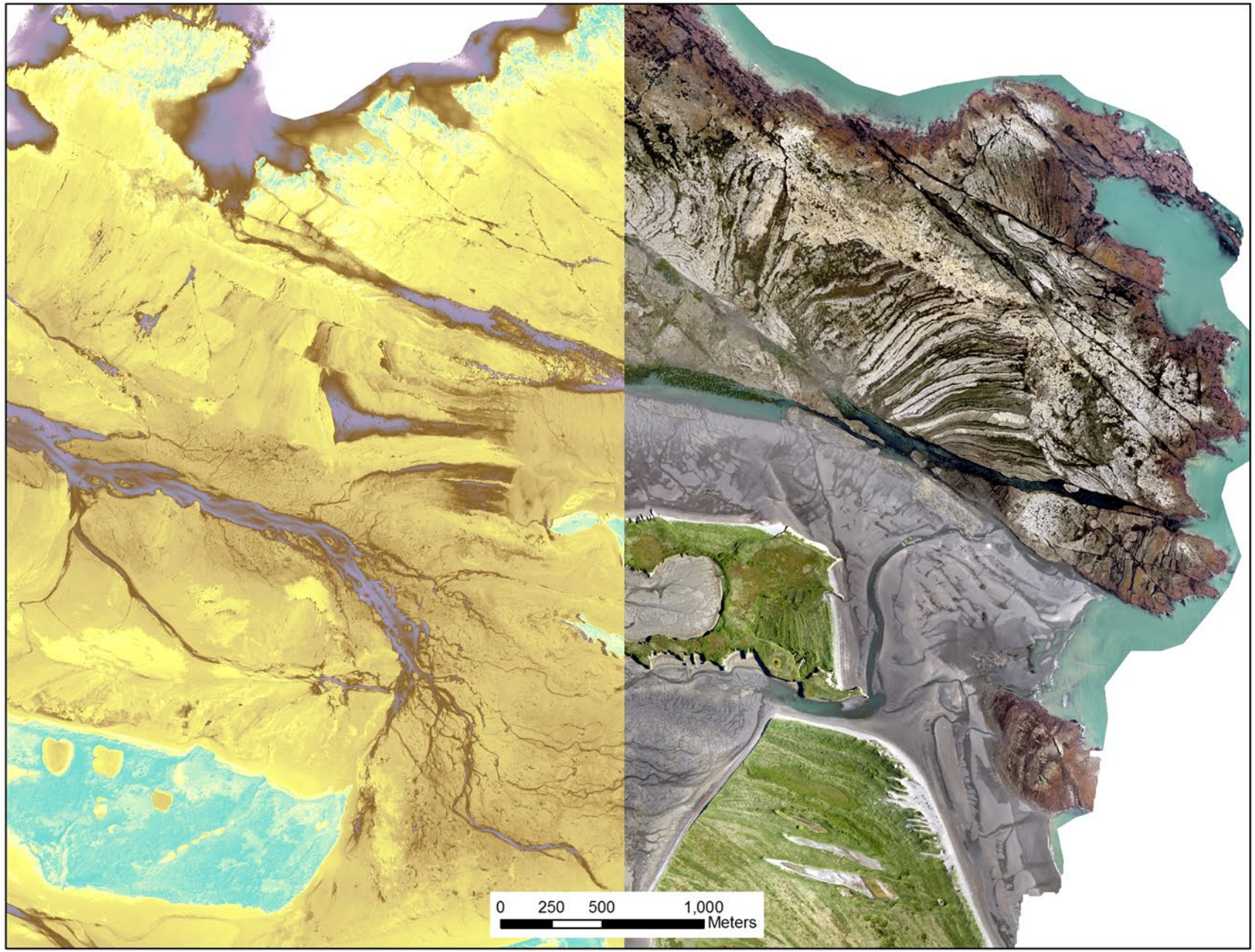
We contract out Lidar collections

We collect RGB and NIR imagery

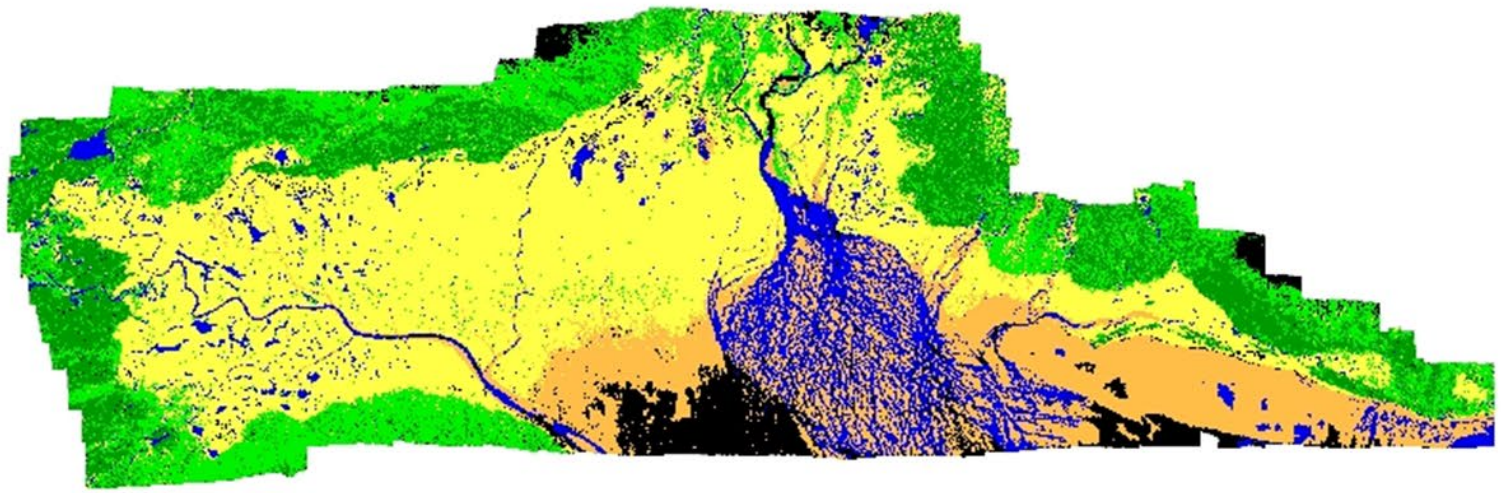


We process RGB for elevation data (SfM)

We process RGB and NIR for NDVI data for habitat mapping

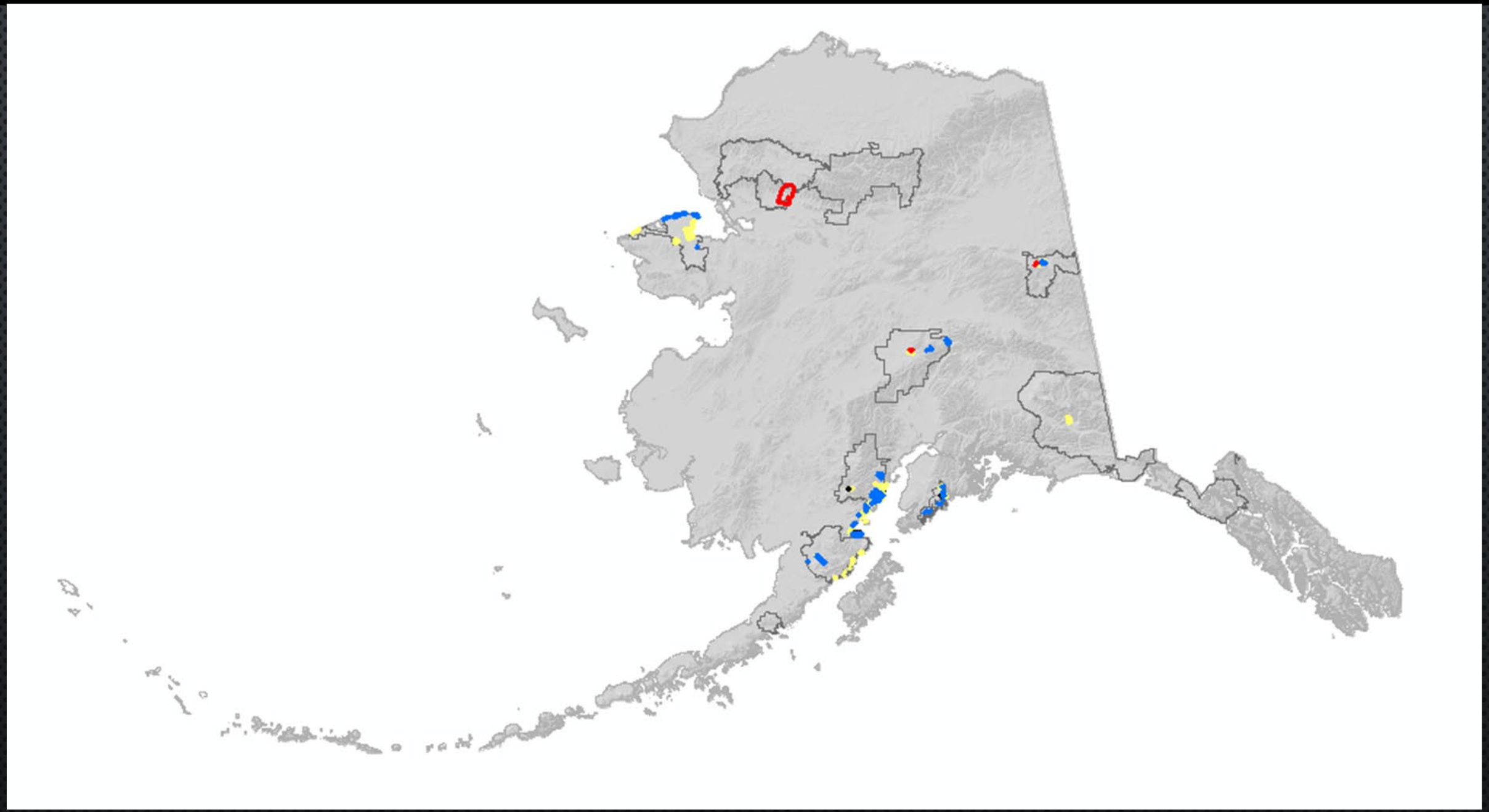


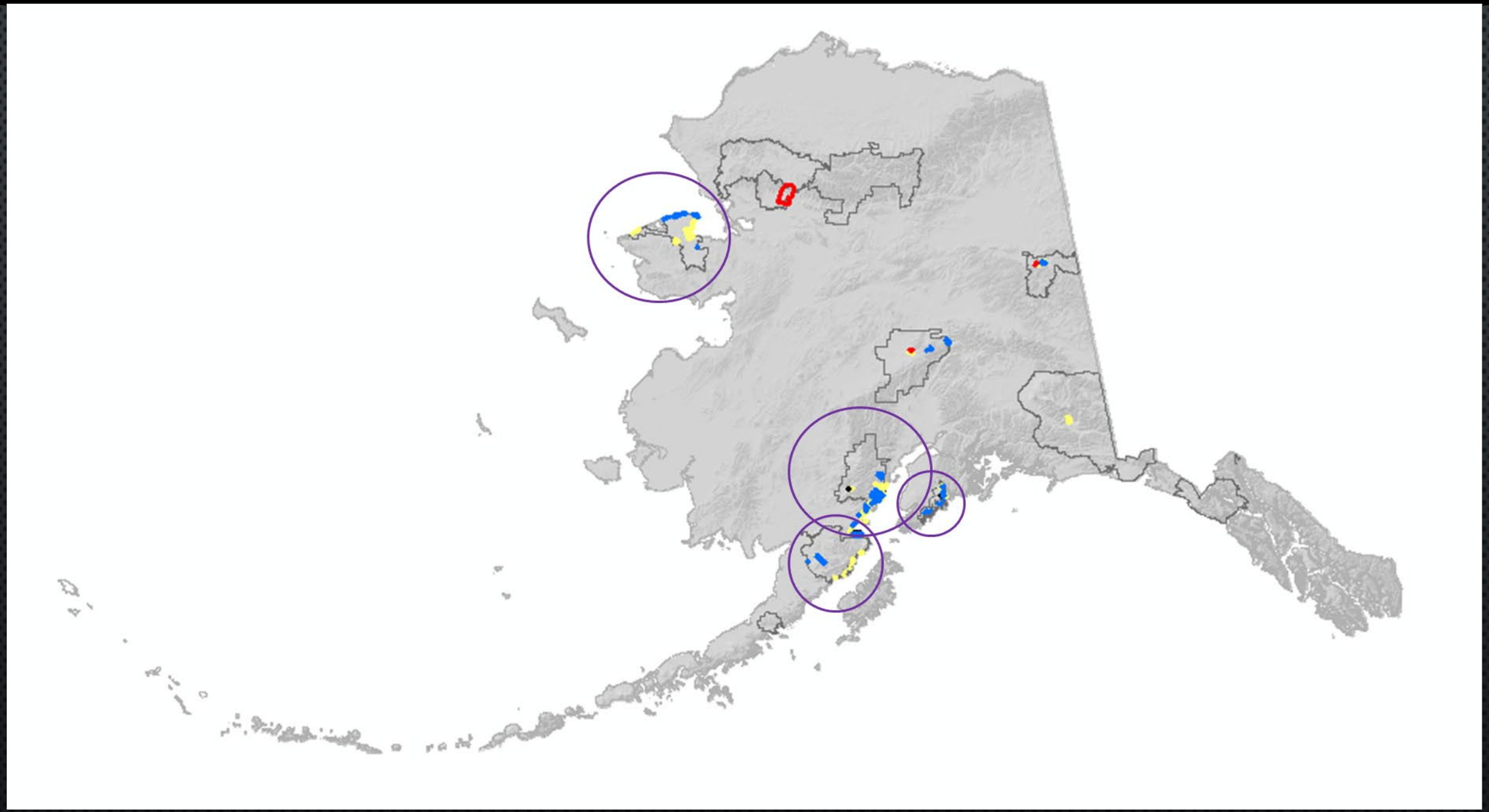
DOUGLAS REEF
KATMAI

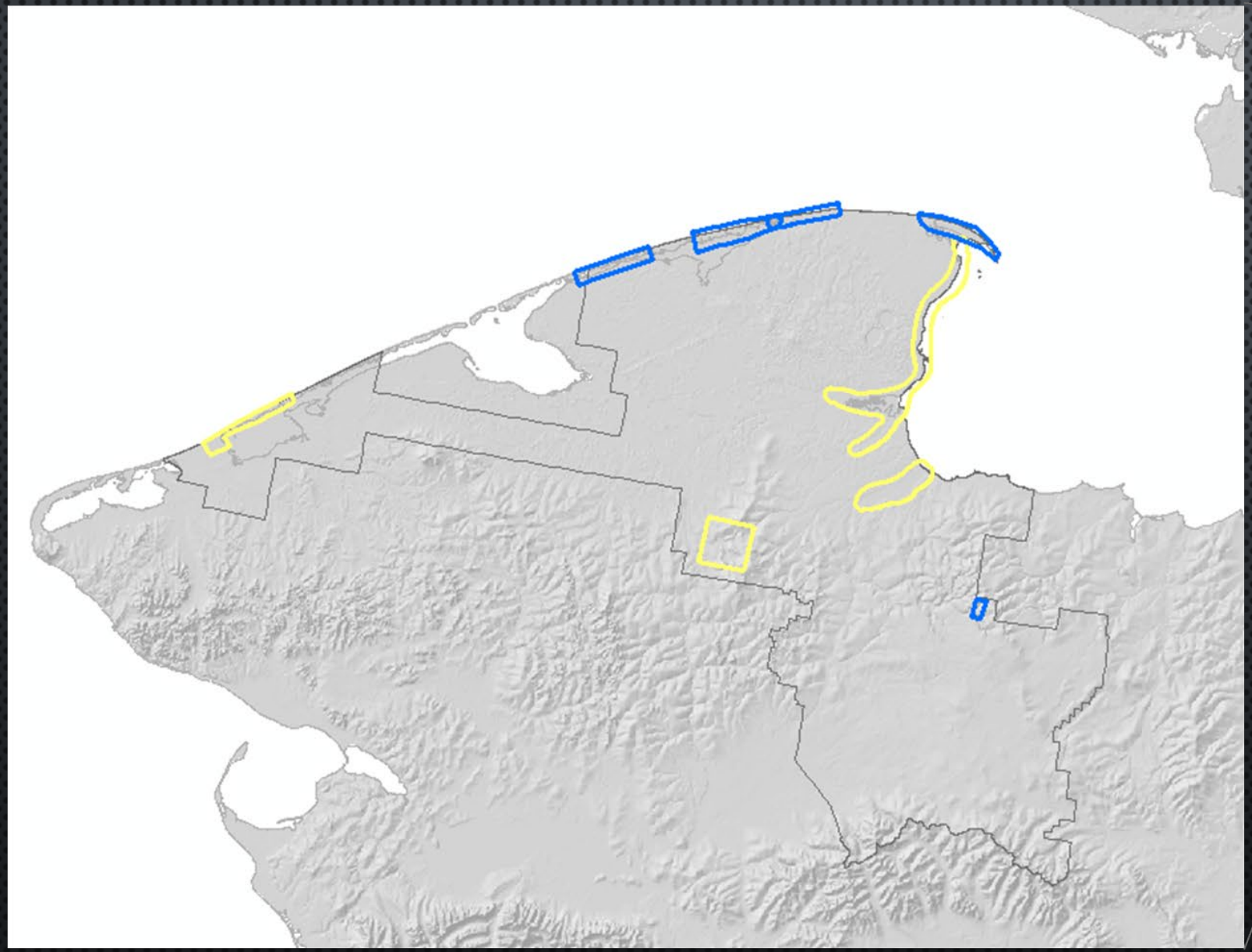


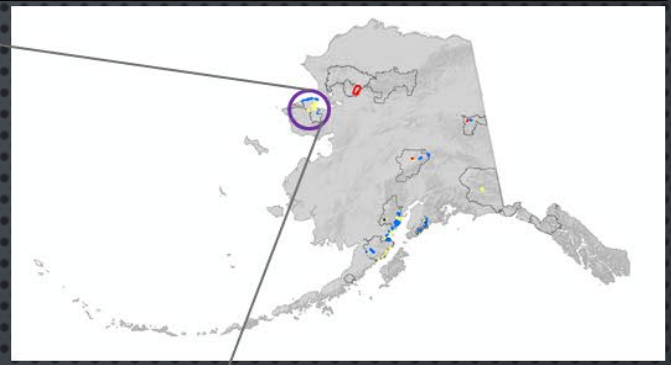
Habitat Mapping is focused on sensitive and vulnerable habitats

Many smaller targeted acquisitions



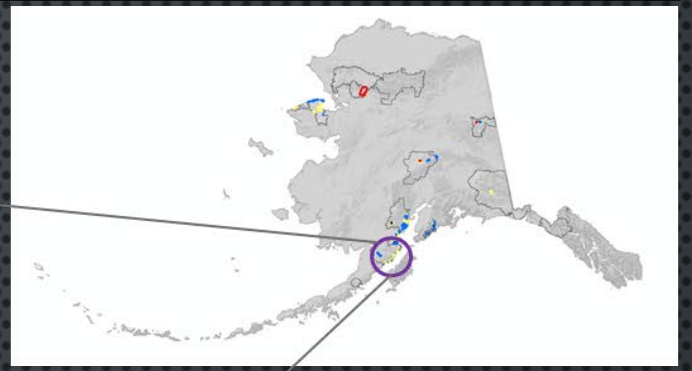






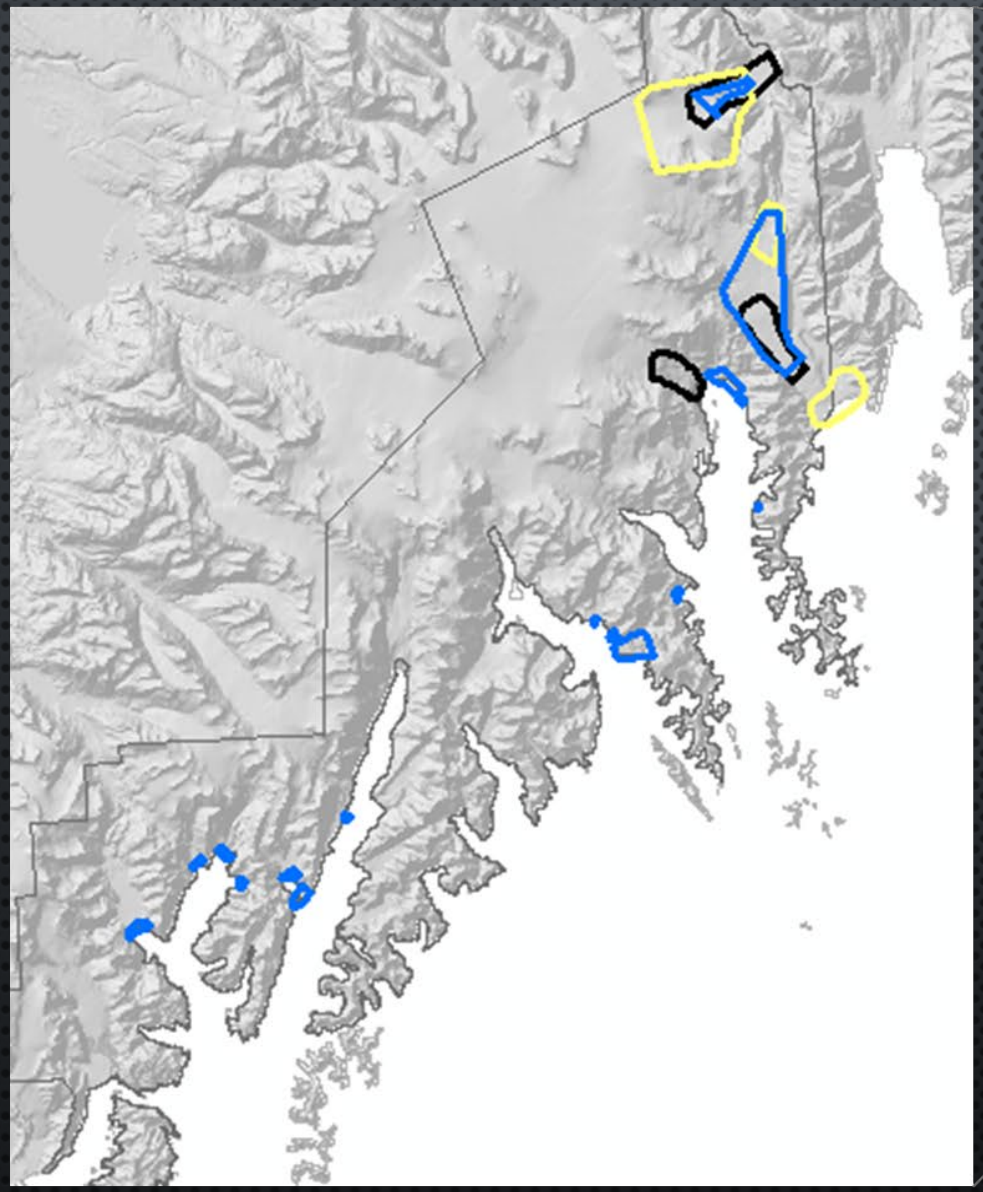
2018
2019

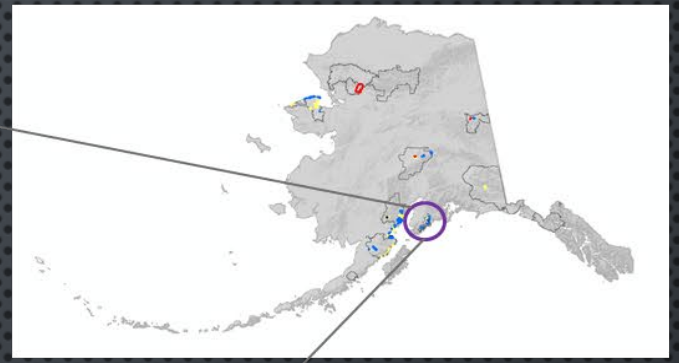
SfM Acquisition – Bering Land Bridge



2018
2019

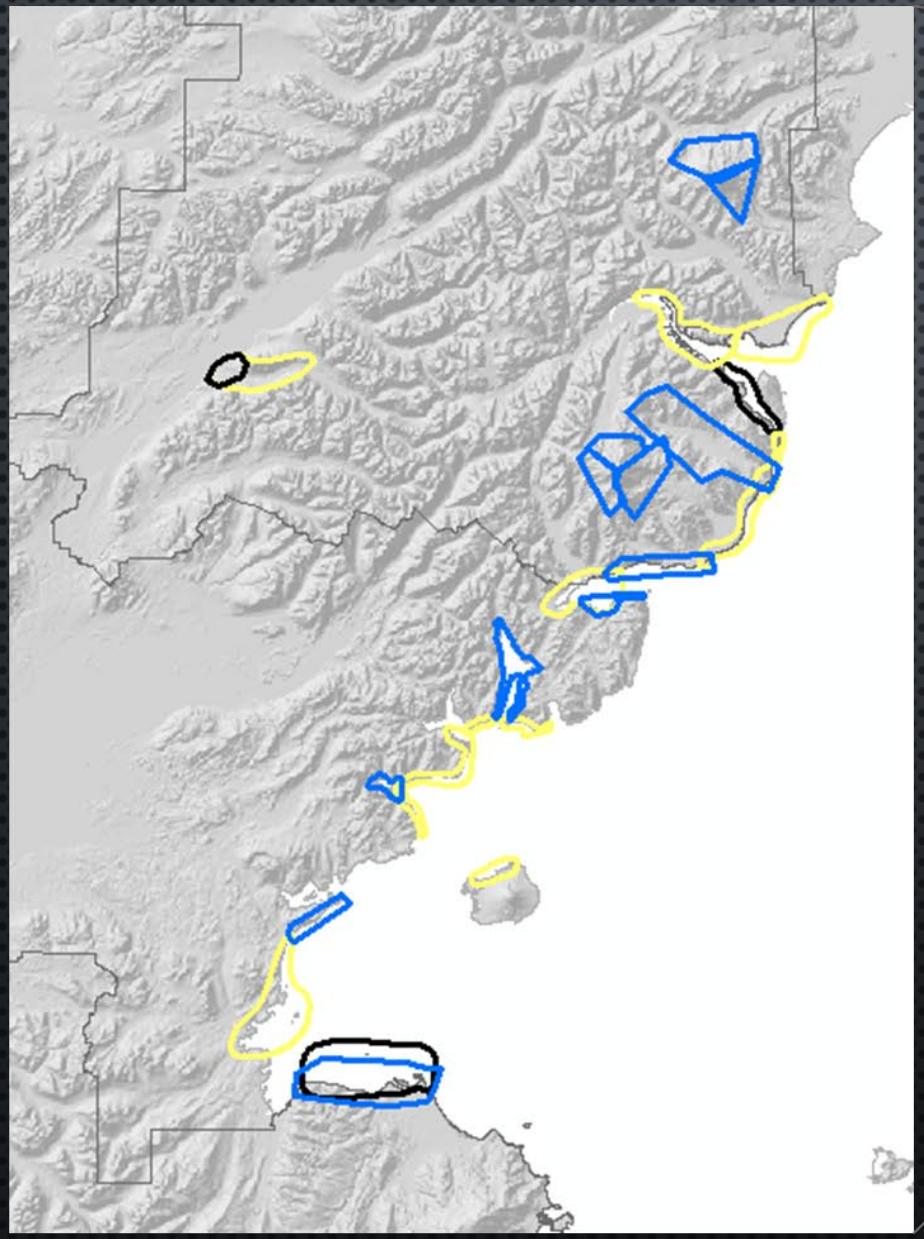
SfM Acquisition – Katmai National Park

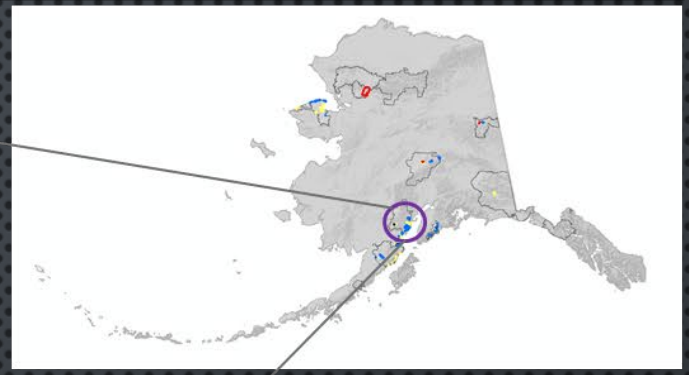




2017
2018
2019

SfM Acquisition – Kenai Fjords National Park

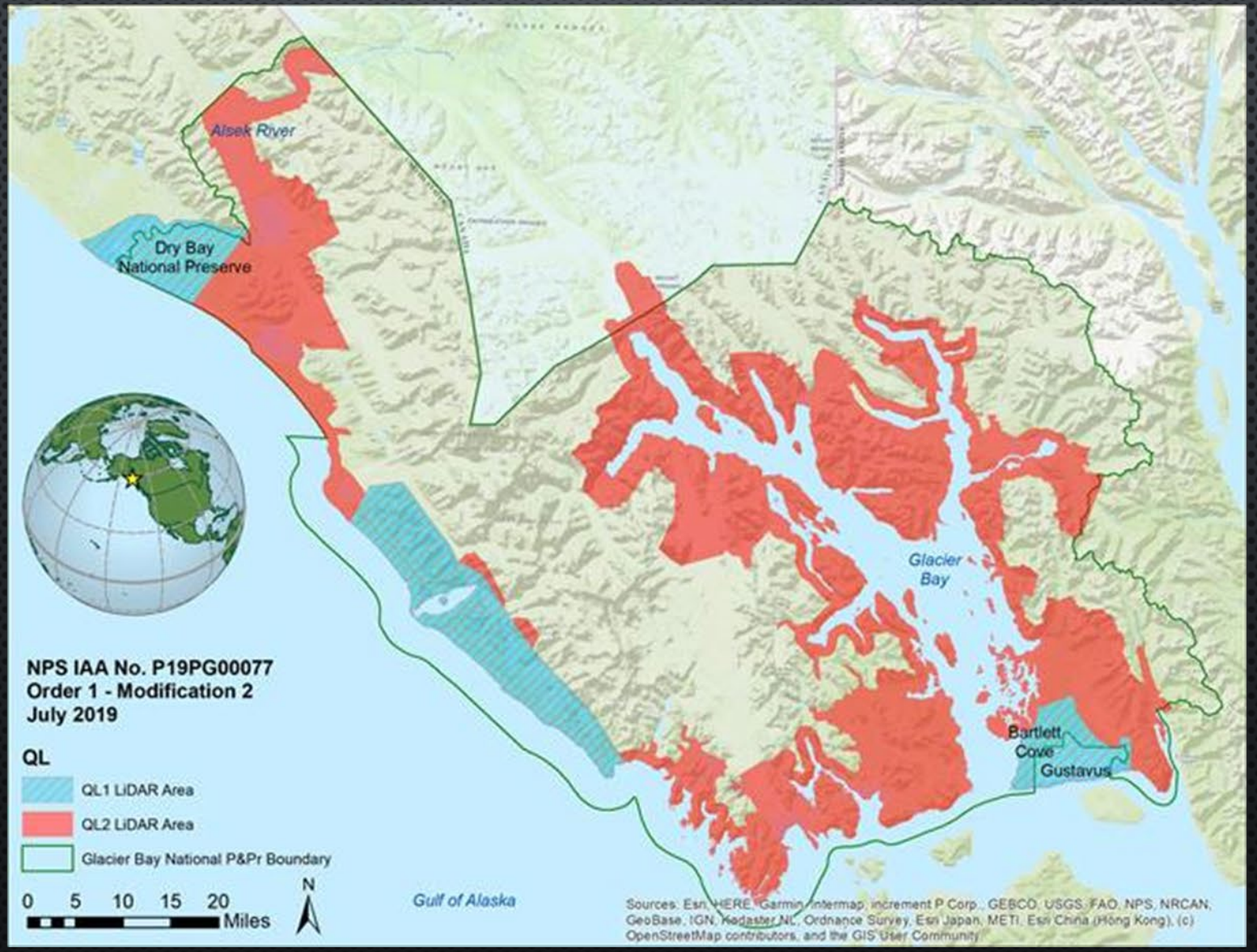




2017
2018
2019

SfM Acquisition – Lake Clark National Park

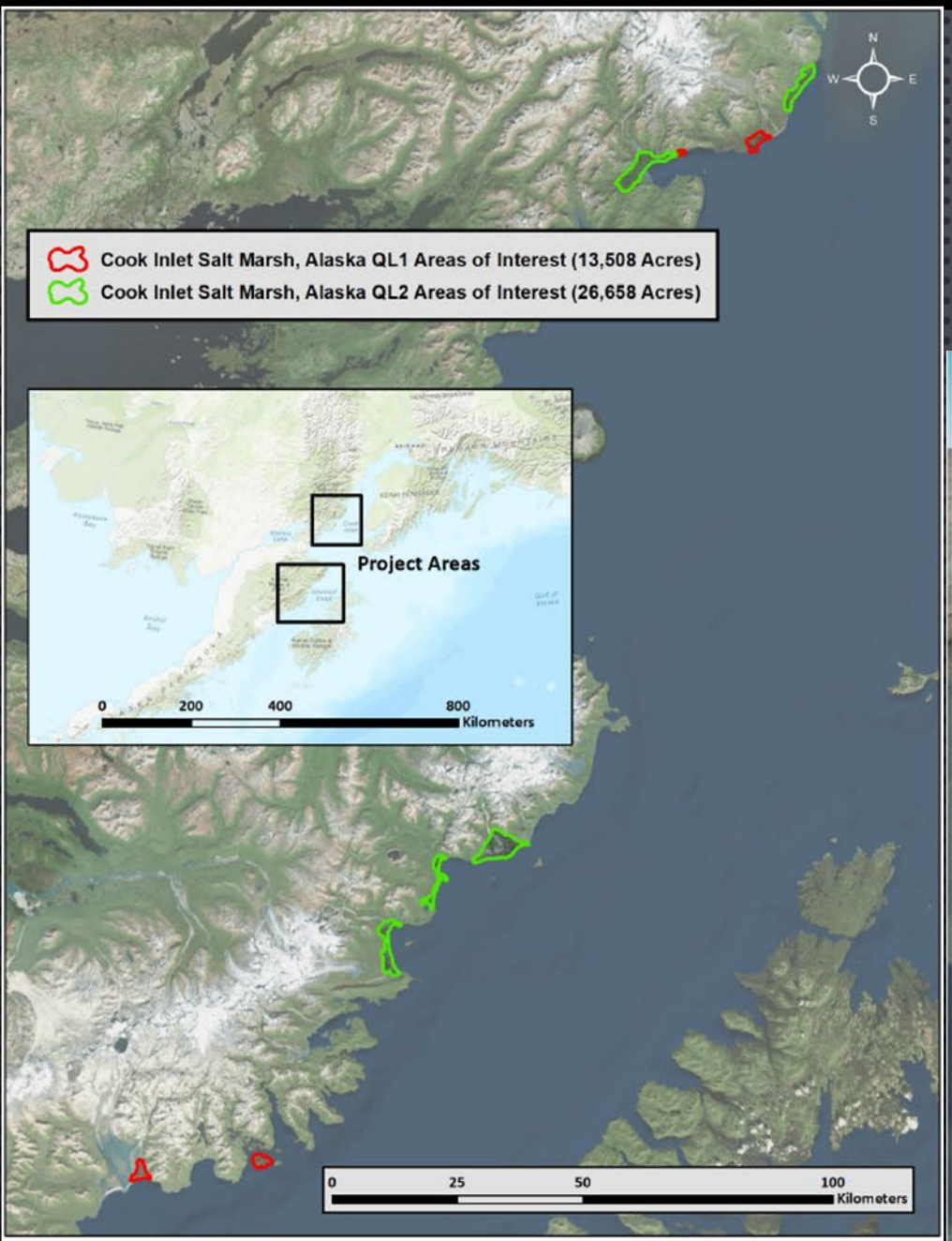
Lidar Acquisition – Glacier Bay - 2019

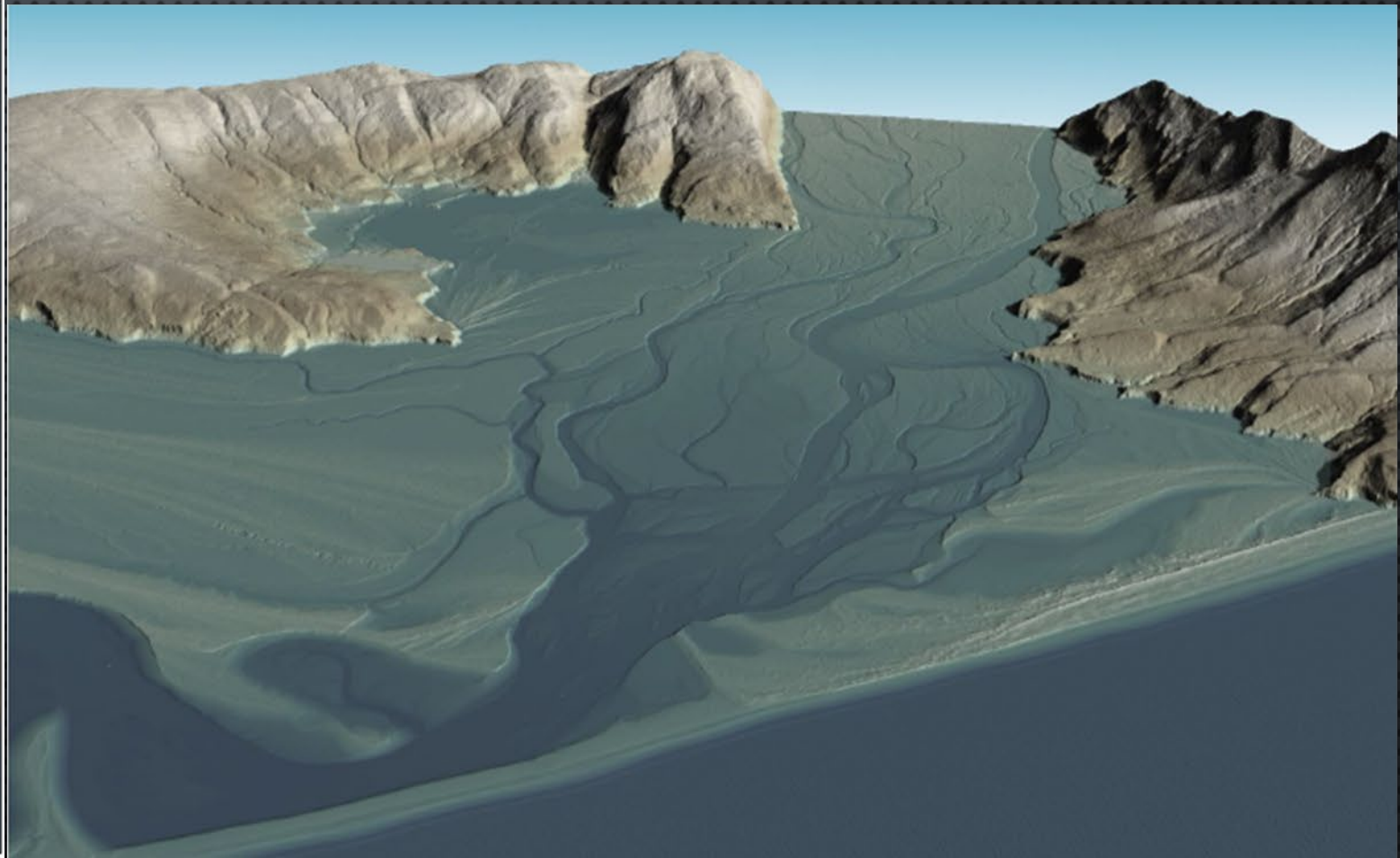


Topobathy
Lituya Bay to Icy Point

Oceans and Coastal Program
Alaska Region
National Park Service

Targeted Lidar Acquisitions - 2018
Lake Clark National Park
Katmai National Park





THANK YOU

QUESTIONS?

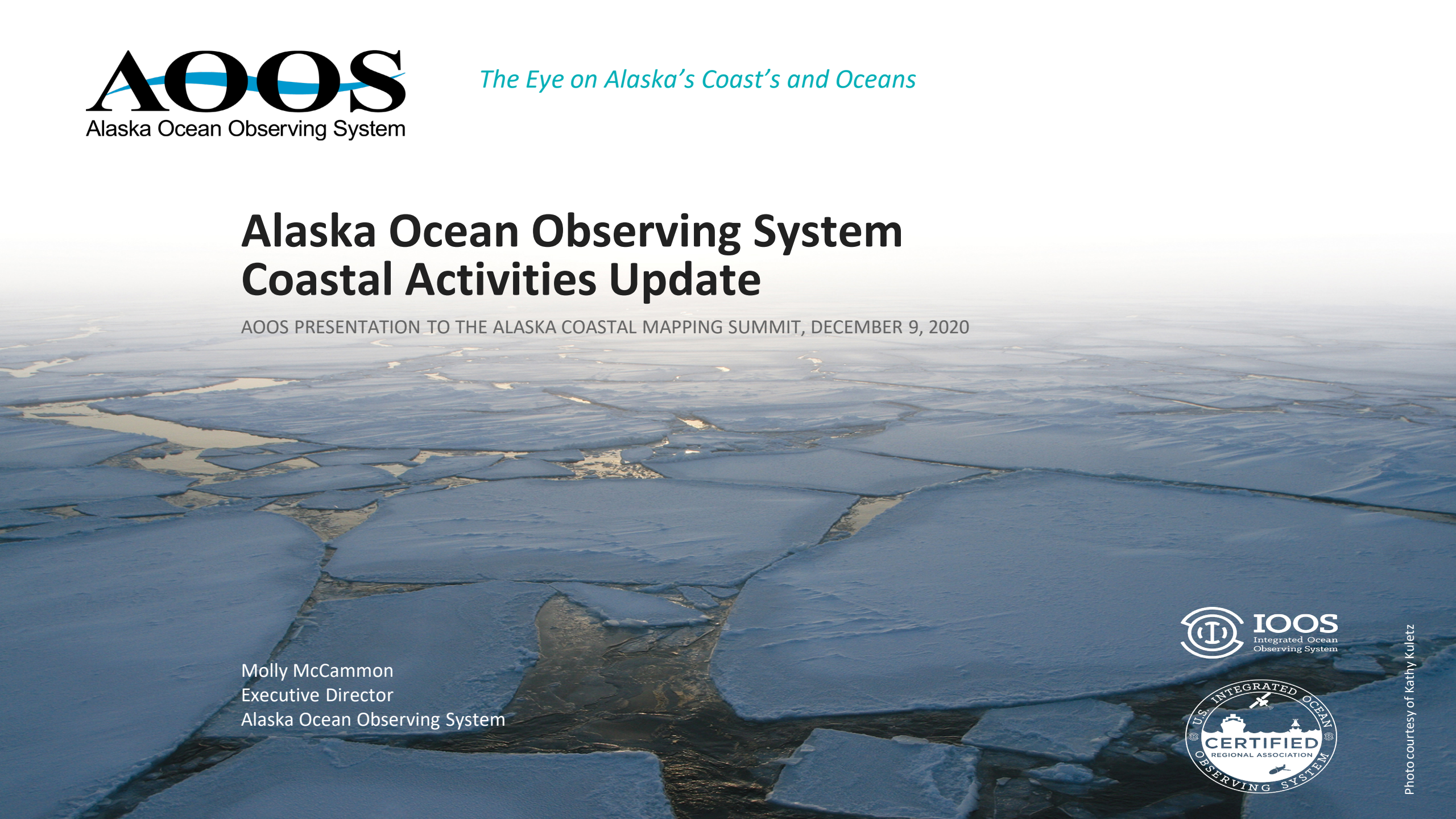
Tahzay Jones
Alaska Region
Ocean and Coastal Programs Coordinator
National Park Service
Tahzay_jones@Nps.gov

AOOS
Alaska Ocean Observing System

The Eye on Alaska's Coast's and Oceans

Alaska Ocean Observing System Coastal Activities Update

AOOS PRESENTATION TO THE ALASKA COASTAL MAPPING SUMMIT, DECEMBER 9, 2020



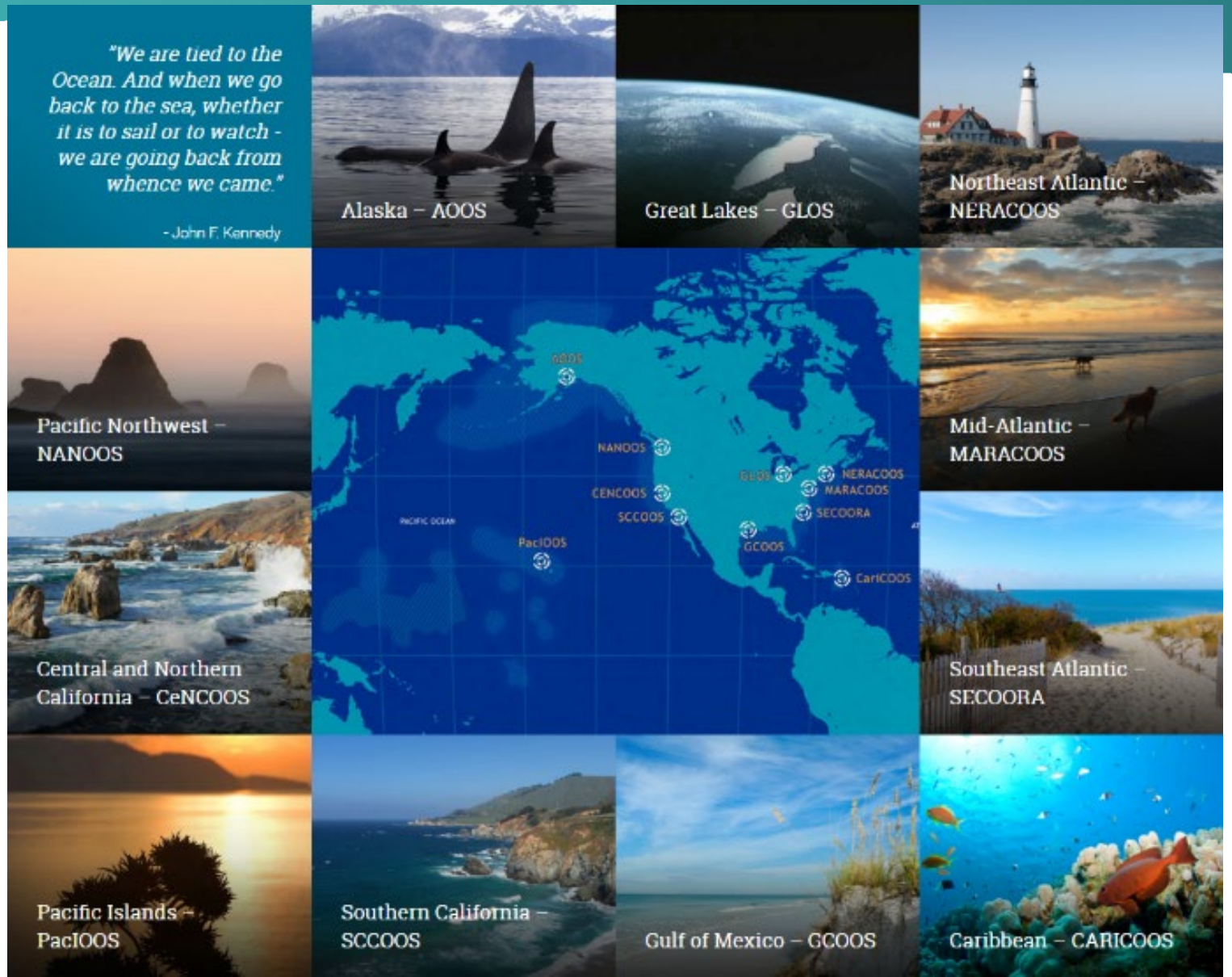
Molly McCammon
Executive Director
Alaska Ocean Observing System

IOOS
Integrated Ocean Observing System

U.S. INTEGRATED OCEAN OBSERVING SYSTEM
CERTIFIED
REGIONAL ASSOCIATION

Photo courtesy of Kathy Kuletz

AOOS: Part of a national network



What does AOOS do?

- Increase observing & forecasting capacity & fill gaps
- Pilot alternative observing approaches
- Facilitate working groups & networks; serve convener role
- Host statewide data portal & regional data assembly center to increase access to existing coastal and ocean data
- Package information & data in useful ways to meet stakeholder needs
- Provide data management services for integrated research programs

Priorities based on stakeholder needs

Improve Safety of Marine Operations
- Safety at sea
- Search & rescue
- Spill response & prevention
- Offshore energy

Mitigate Coastal Hazards
- Emergency response & coastal erosion
- Sea level rise & flooding

Track Climate & Ecosystem Trends
- Food security: subsistence, recreational & commercial fishing & hunting
- Commercial fishing
- Impacts of climate change
- SOUND* (NEW)

Monitor Water Quality
- Ocean acidification
- Harmful algal blooms
- Invasive species & marine debris

Develop Data & Information Products to Support the Above

Updated Strategic Direction 2021-26

- Renewed commitment to engagement
- And…products and services for stakeholders
- Focus on Diversity, Equity and Inclusion
- Sustain existing and add new observing assets, with updated buildout plans
- NEW: nearshore bathymetry & ocean sound

AOOS and Coastal Mapping

Primary AOOS products are online maps for data distribution:

(https://aoos.org/aoos-data-resources/)

Ocean Data Explorer

AK Water Level Watch Tiered Data Portal

ShoreZone maps & imagery

Community flood maps

Real-time Sensor Map

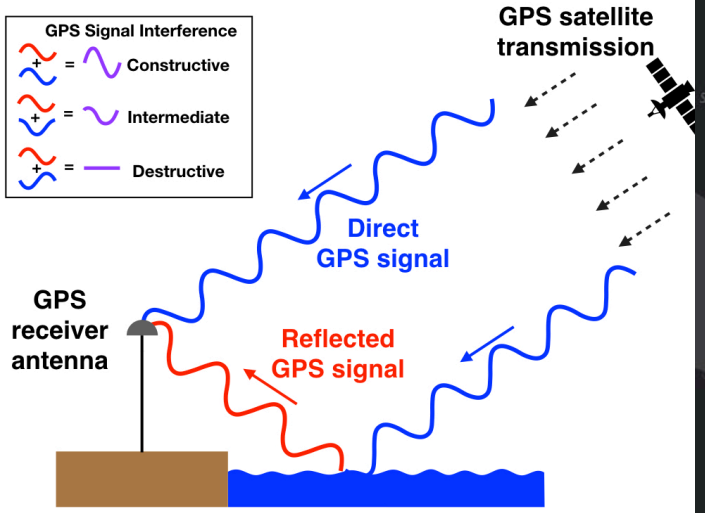
Model Explorer

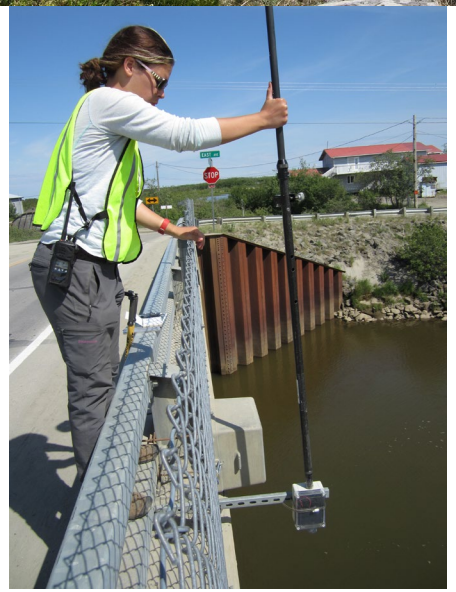
Cook Inlet Response Tool

Historic Sea Ice Atlas

Seabird Portal

Implementing new water level technologies to serve remote regions



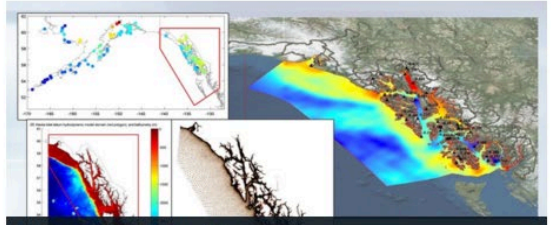


Alaska Water Level Watch: Website, Portal & Buildout Plans

Alaska Water Level Watch

Home | About | Data Portal | Resources | Community Monitoring | Annual Meetings

Alaska Water Level Watch



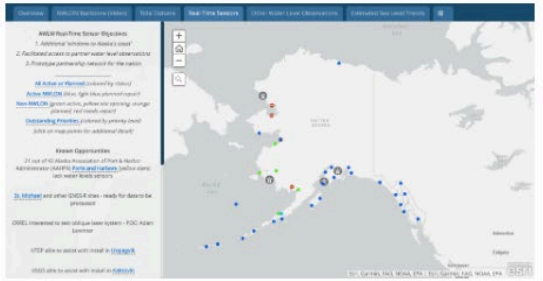
VDatum Efforts in Alaska

Southeast Alaska Model Release/Update The VDatum 4.0.1 release on October 28, 2019 includes support for transformations involving the tidal datums of southeast Alaska (SE AK): local mean sea level (LMSL), mean lower low water (MLLW), mean high water (...

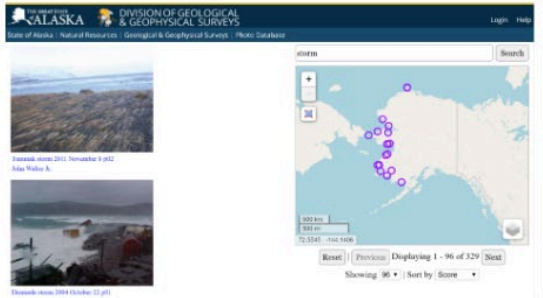
1 2 3 4 5 6 7

Alaska Water Level Watch Features archive

Water Level Build-Out Plan



Search Photos of Past Storms



Welcome

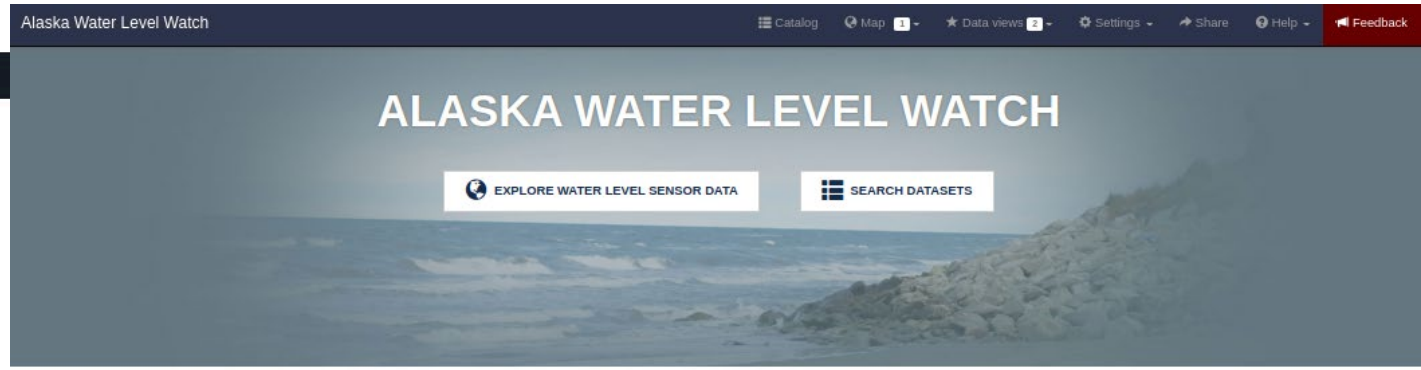
The Alaska Water Level Watch (AWLW) is a collaborative group working to improve the quality, coverage, and accessibility to water level observations in Alaska's coastal zone.

Water level data has many applications that contribute to safe navigation, storm modeling and mapping, tsunami warnings, watches, and advisories, incident response, search and. rescue operations, tidal datums, sea level trends, storm trends, and much more.

Contact Us

For more information regarding the Alaska Water Level Observing Network, contact Jacquelyn Overbeck, Alaska Division of Geological & Geophysical Surveys Coastal Hazards Program:

- Jacquelyn.overbeck@alaska.gov
- Facebook (https://www.facebook.com/AlaskaWaterLevelWatch/)



Alaska Water Level Watch is a water level data management system and associated interface to house data from NOAA and the AOOS Water Level Watch Program in tandem. This system mirrors critical functionality of CO-OPS's Tides Online, yet is designed to accommodate a wide range of observational water level data acquired from external sources through a partnership model. The portal is a complimentary extension of NOAA's authoritative National Water Level Observation Network (NWLON), and is under development in direct collaboration with NOAA staff to ensure consistency and compatibility of data products with downstream tools. Increased access to critical water level observation products (real-time stations, short time series, and high water mark measurements) derived from sites with lower accuracy standards or off-specification installations will help to meet a wide range of maritime applications, water resources management, and scientific research needs.

Please use the 'Feedback' tab in the upper right corner to help improve our services

Explore map | Catalog

Interactive map

Data Views

Explore highlighted views below. Or, create, save, and share your own custom views.

Featured Source: NOAA CO-OPS Stations

Featured Station: Kotzebue, Alaska

Featured Data View

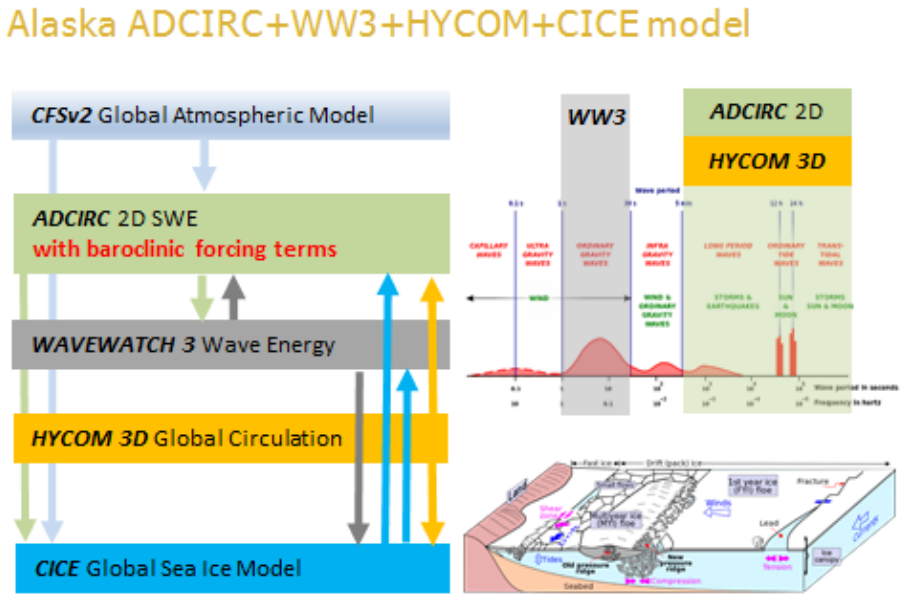
Piloting use of hydroball for nearshore bathymetry

- Collaborative project with ADNR, NOAA Office of Coast Survey, NOAA's Alaska Regional Collaboration Team
- Builds on prior 2012-13 nearshore bathymetry mapping using a portable sonar system
- Responds to coastal community needs:
  Golovin, Shishmaref, Savoonga, Gambell, Hooper Bay, Wales
- New hydroball – used in Canada, tested in AK lakes this summer
- More from Bart Buesseler later today

Building Coupled Storm Surge and Wave Operational Forecasting Capacity for Western Alaska: part of the Coastal Hazard Challenge

Additional wave observations are critical

Model now being tested by Fairbanks WFO

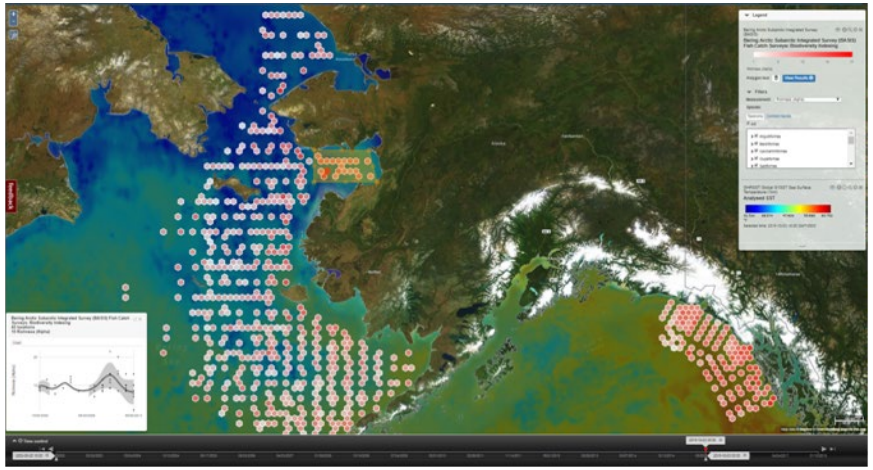


The integrated ALCOFS (ALaska Coastal Ocean Forecast System) showing linkages and interactions between model components.

AOOS Data Assembly Center & Ocean Data Explorer

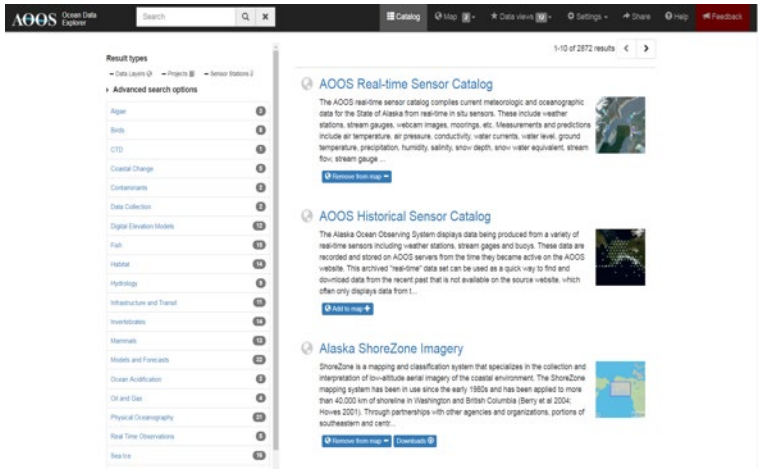
Map

Integrate & visualize data from many sources:
Grids, GIS, mobile sensors, platforms, products



Catalog

Search , metadata, & data download



Data Amount

- *2,300 data layers*
- *1,500 sensors*
- *35 parameters*
- *20+ data sources*
- *5 million obs/week*

Data Views

Rapidly assimilate & compare different data streams

U.S. INTEGRATED OCEAN OBSERVING SYSTEM
CERTIFIED
REGIONAL ASSOCIATION

AOOS

Alaska Ocean Observing System

The Eye on Alaska's Coasts and Oceans

U.S. INTEGRATED OCEAN OBSERVING SYSTEM
CERTIFIED
REGIONAL ASSOCIATION

Photo courtesy of Kathy Kuletz

NOAA FISHERIES

Alaska Regional Office

NMFS Nearshore and Coastal Habitat Work in Alaska

Alaska Coastal Mapping Summit
December 9, 2020

Ellen Ward, Ph.D.
Alaska Regional Office
Habitat Conservation Division

Outline

Updates from 2018-today

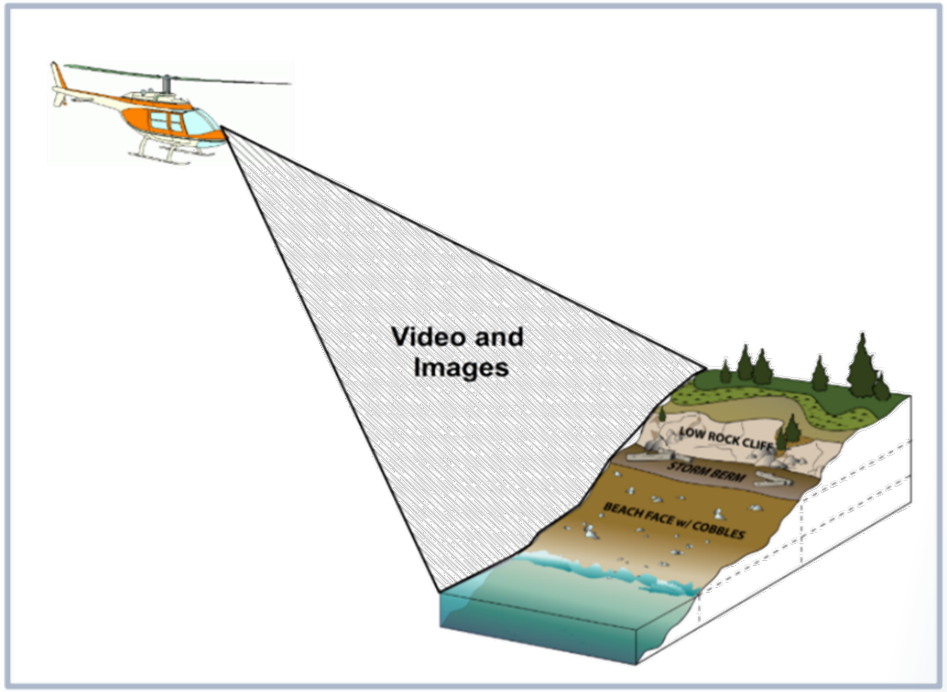
1) ShoreZone (SZ)
2) Nearshore Fish Atlas
3) Essential Fish Habitat (EFH)

NOAA FISHERIES

1) ShoreZone imagery and mapping

- Over 50 partners have contributed to this coastal mapping effort since the early 2000's
- 94% of Alaska's coastline has been imaged
- 98% of that imaged coastline has been mapped
- Data available online: https://alaskafisheries.noaa.gov/mapping/sz_js/

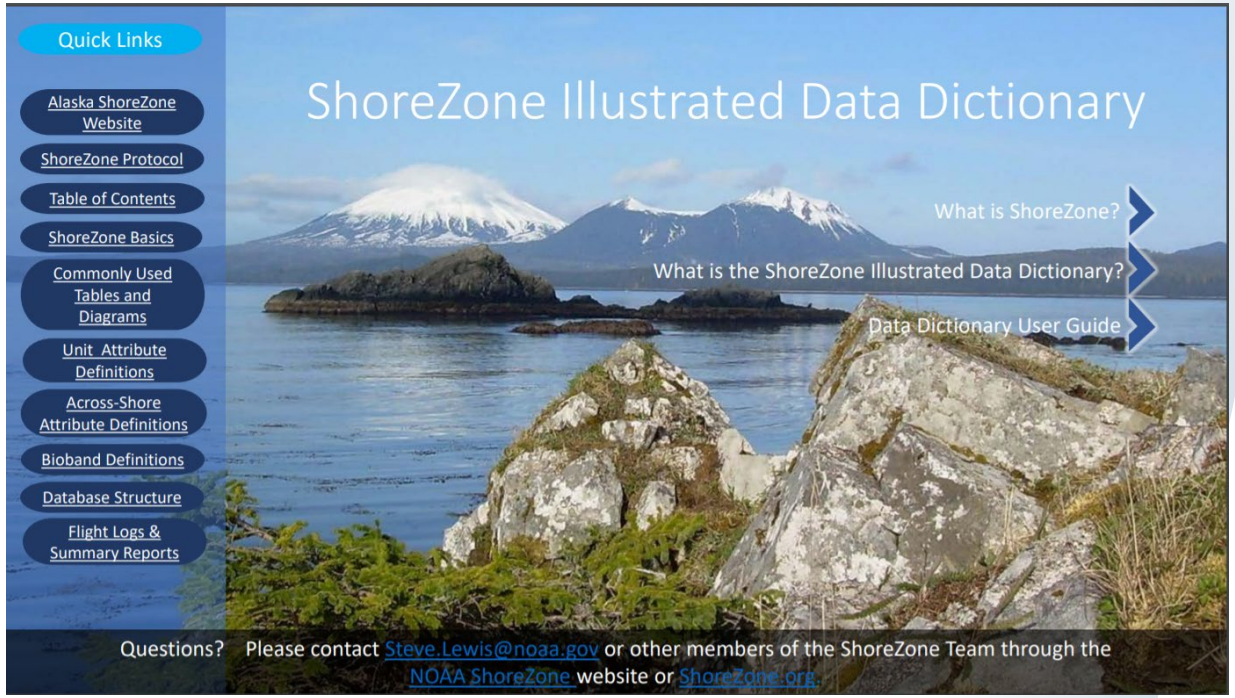
- Low-tide, oblique aerial digital photography and video record of the coastline



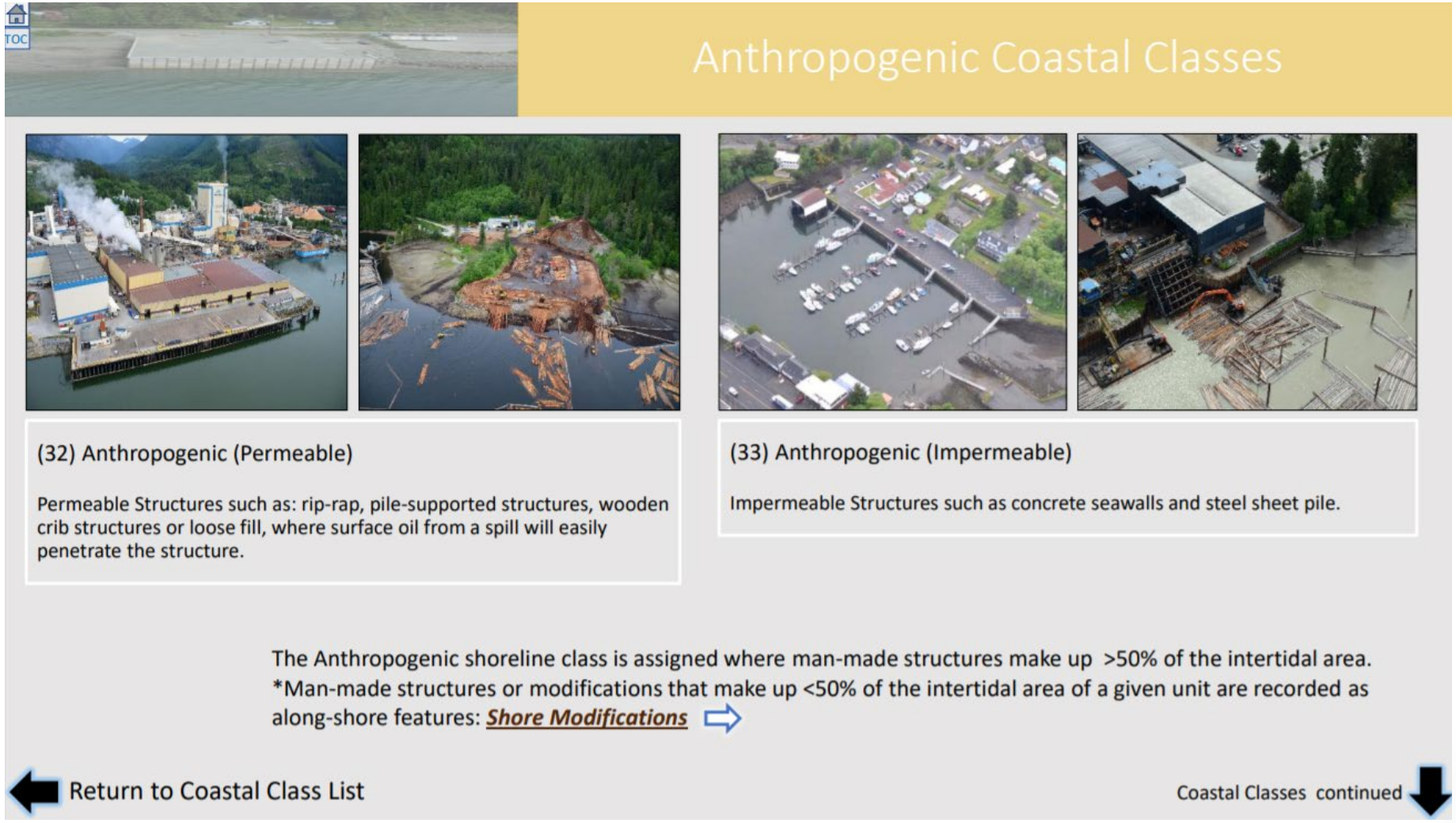
NOAA FISHERIES

New ShoreZone Illustrated Data Dictionary

- An interactive document to help users navigate SZ data
- Image examples provided for mapped shoreline attributes
- Available online: https://www.fisheries.noaa.gov/alaska/habitat-conservation/alaska-shorezone



New ShoreZone Illustrated Data Dictionary



New ShoreZone imagery

- Collected in Glacier Bay in 2018
- Complete coverage of imagery in Southeast Alaska

2) Nearshore Fish Atlas

- Distribution, relative abundance, and habitat use of nearshore fishes in Alaska
- Beach seine sampling method
- Data available online: https://alaskafisheries.noaa.gov/mapping/sz_js/

Sampling an eelgrass bed

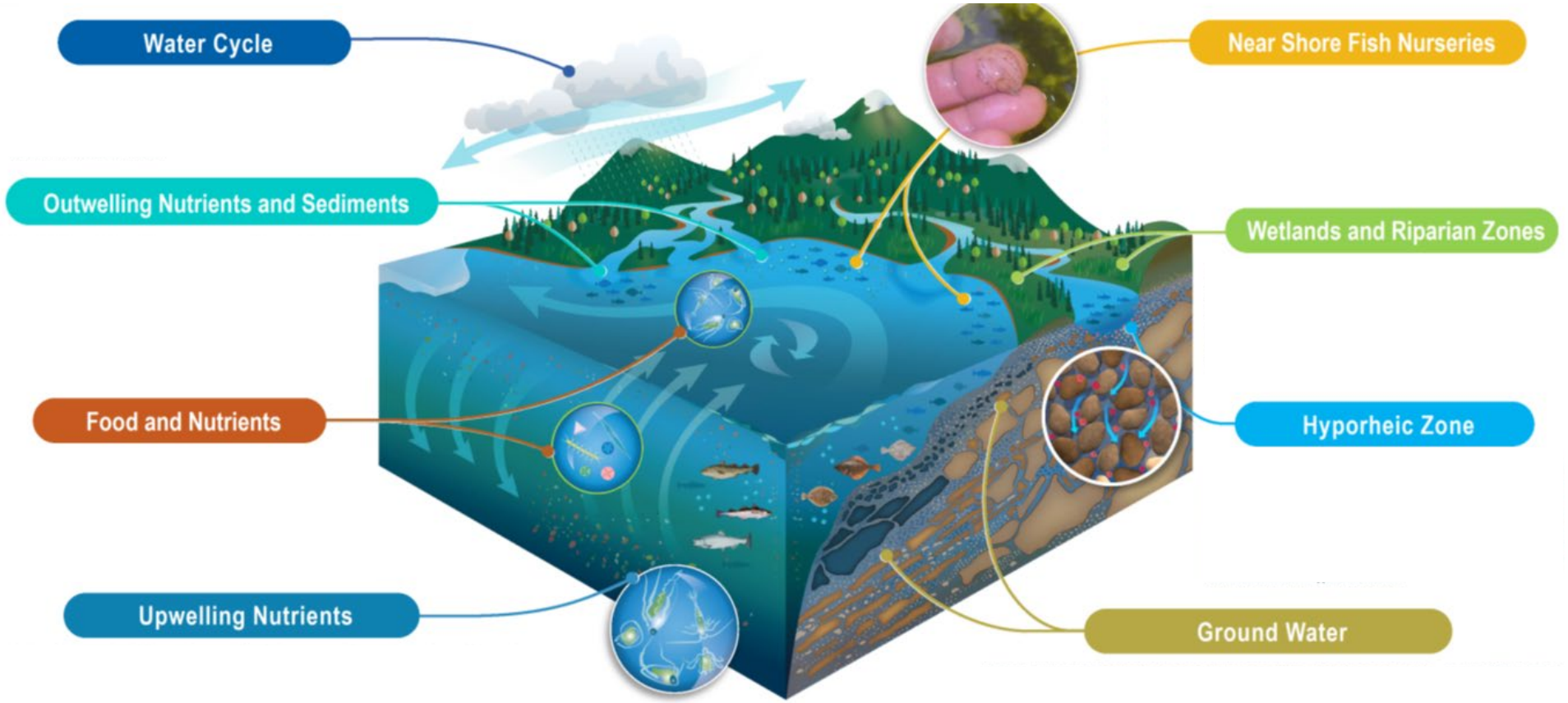
New Nearshore Fish Atlas Data

- New data online soon
- 25 new fish survey datasets
- 7 organizations contributing
- Additional 3,800 beach seine hauls, 768 nearshore trawls, spanning 1995-2018

Sampling an eelgrass bed

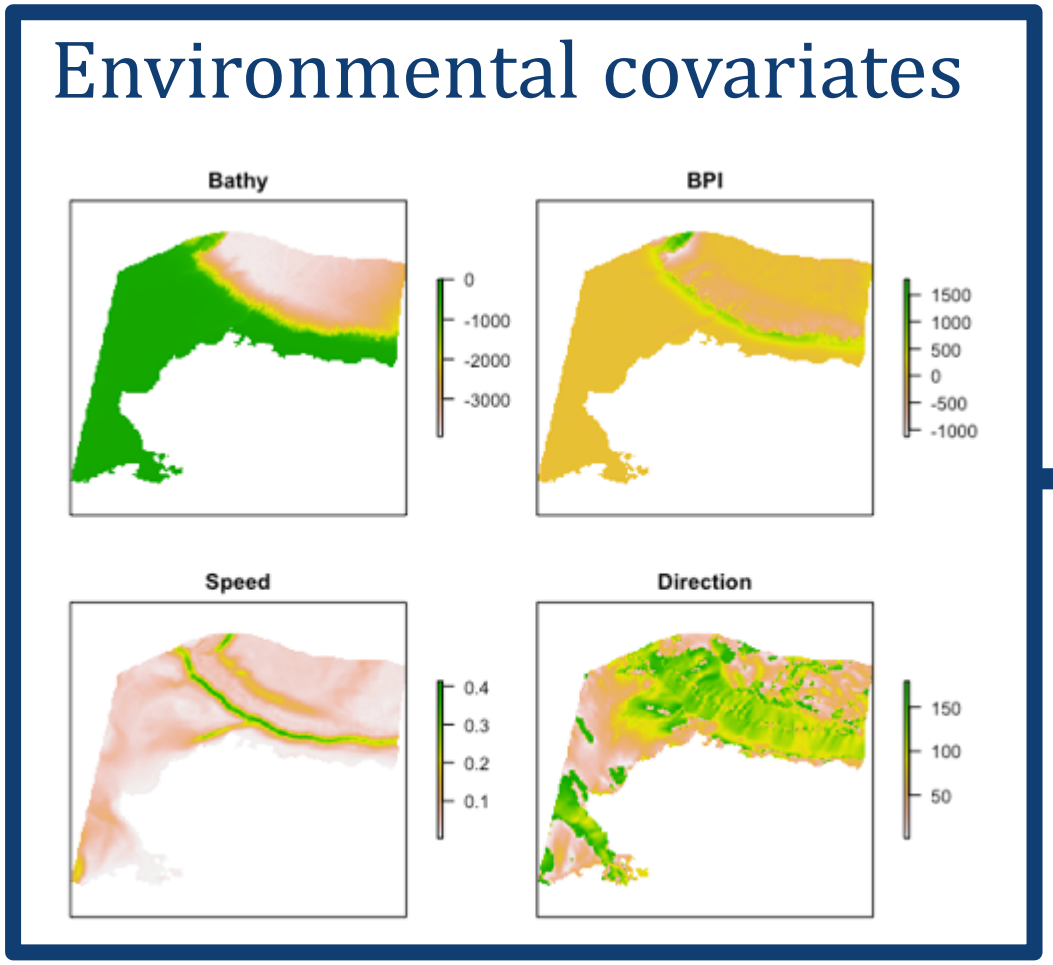
3) Essential Fish Habitat: An Ecosystem Approach

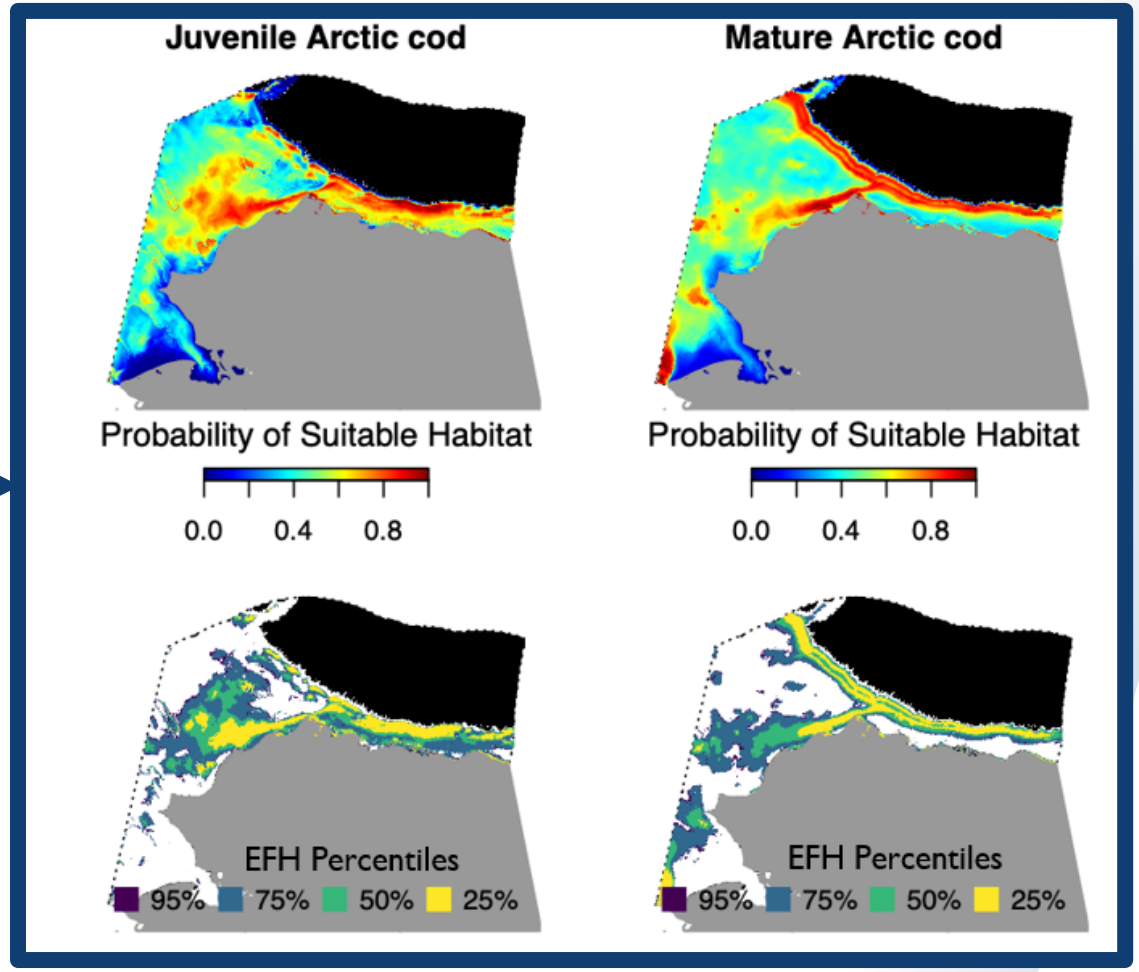
- EFH is: the physical, biological and chemical characteristics necessary to support fish for feeding, spawning, breeding, and growth to maturity



Doug Limpinsel and Paul Irvin, NOAA Fisheries

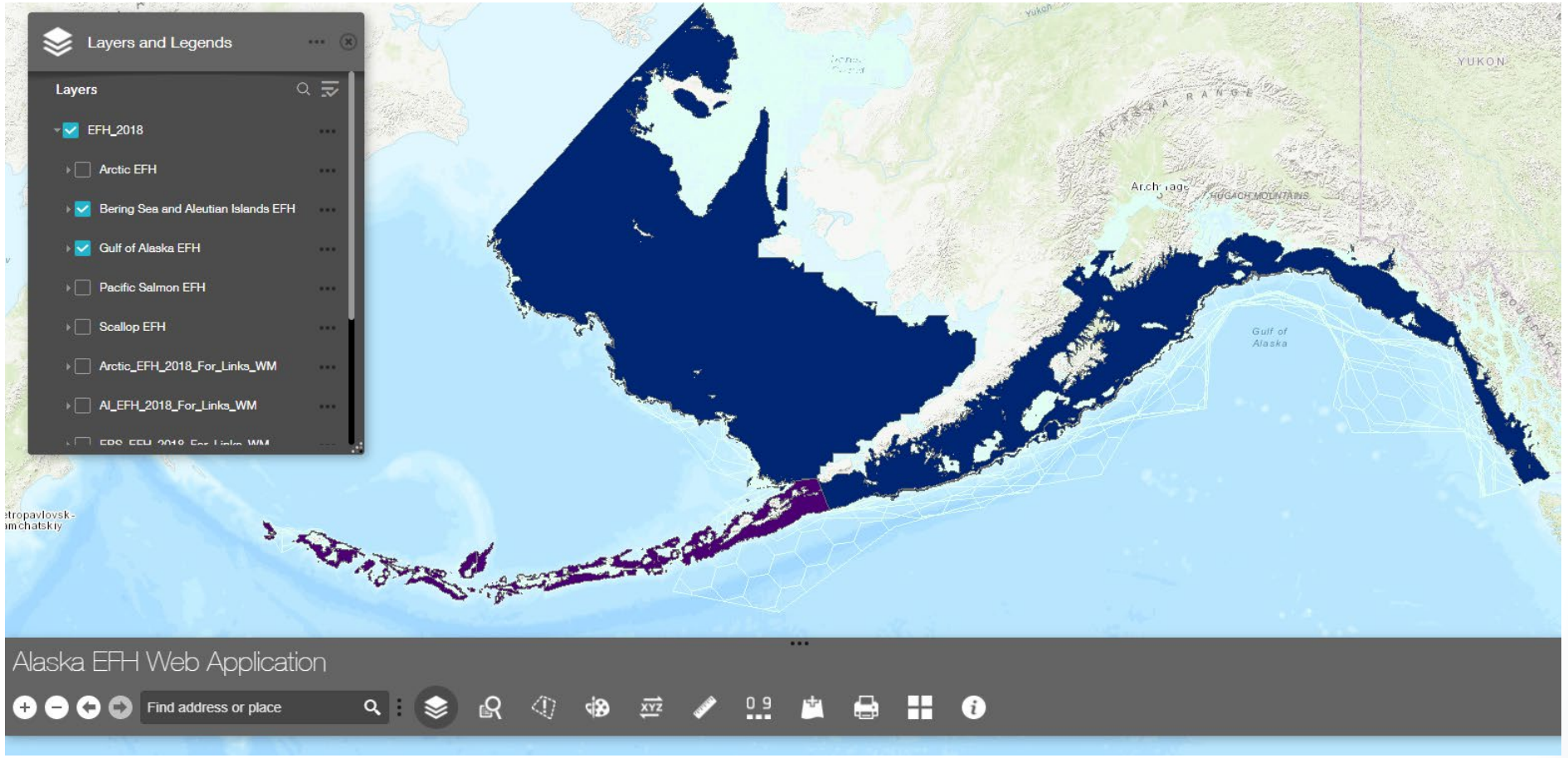
Ongoing EFH Mapping Research





Arctic cod SDM (upper) and EFH (lower) maps (Marsh et al. *in prep*)

New Alaska EFH Web Mapper

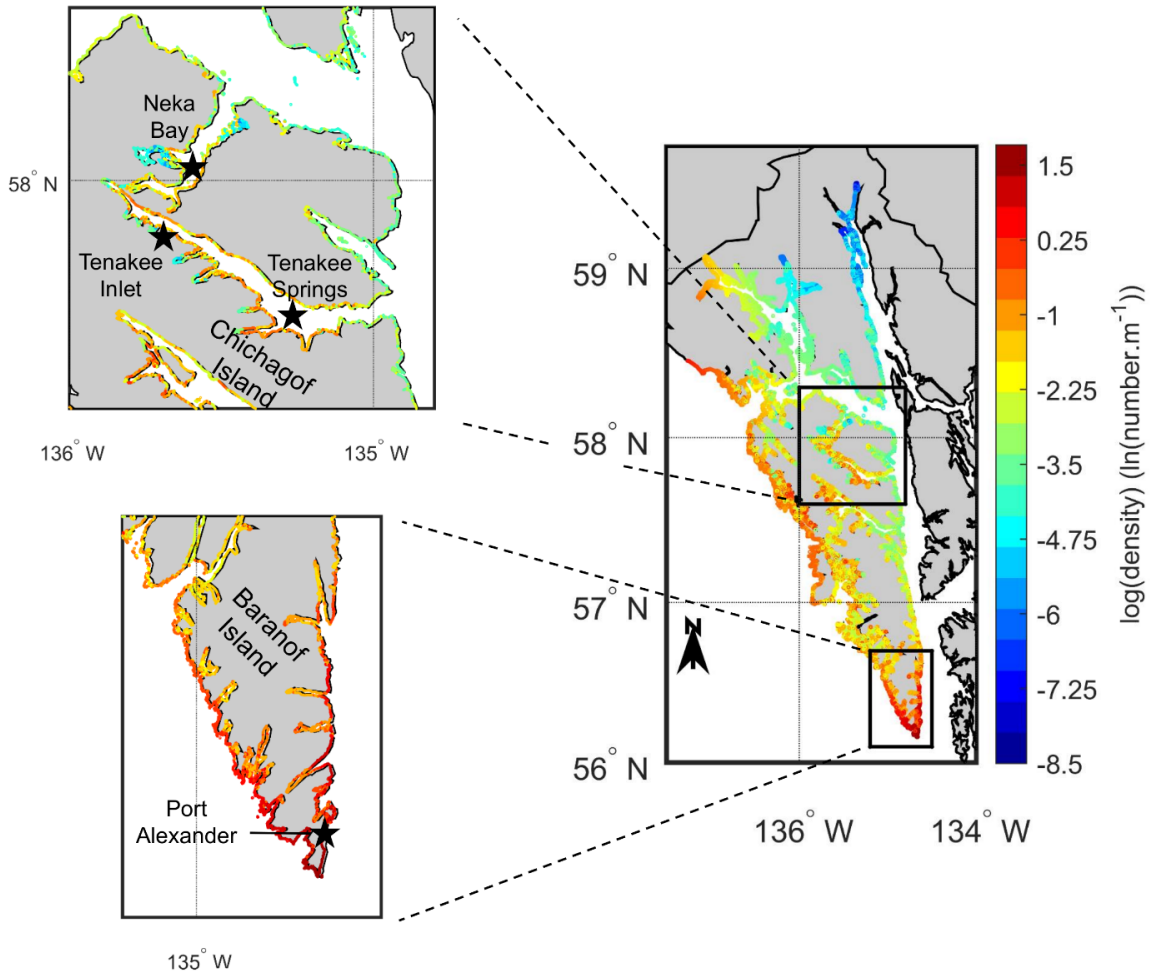


EFH slides content courtesy of Jodi Pirtle

New Nearshore EFH Mapping Research

Analysis combines:

- Species data from the Nearshore Fish Atlas
- Environmental data from ShoreZone
- Results show spatial predictions of habitat-related density in nearshore coastal areas



Grüss et al., *In Review*

Thank you!

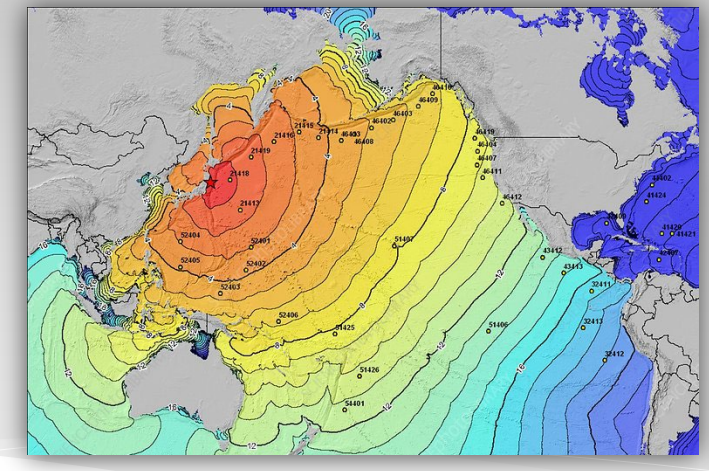
For questions and comments, contact:
Ellen Ward – ellen.ward@noaa.gov

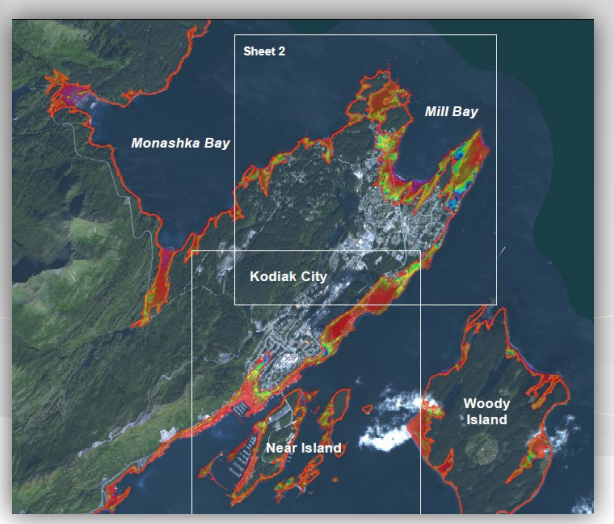
NOAA FISHERIES

National Tsunami Warning Center

Coastal Mapping Applications in Tsunami Operations and Mitigation

Dec. 9th, 2020 Alaska Coastal Mapping Summit





Kara Gately
NOAA / NWS / National Tsunami Warning Center
Palmer, AK

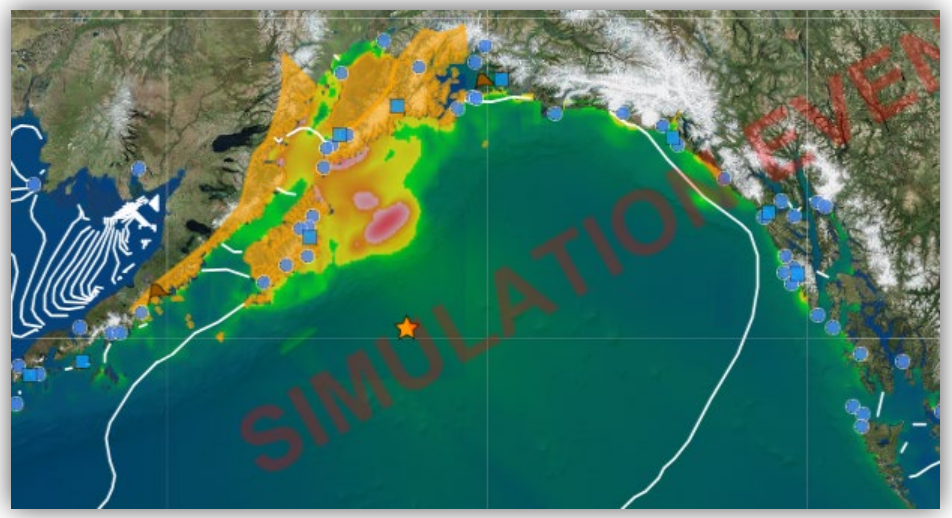
Tsunami Warnings

Initial Alert based on Earthquake

- Magnitude
- Location

Revise based on Expected Impacts

- Tsunami observations
- Updated earthquake information
- Run tsunami models



Kodiak, 2018 Tsunami Event

Tsunami Travel Times

Models were the earliest type used operationally

Wave speed

Dependent on depth (D) of the ocean

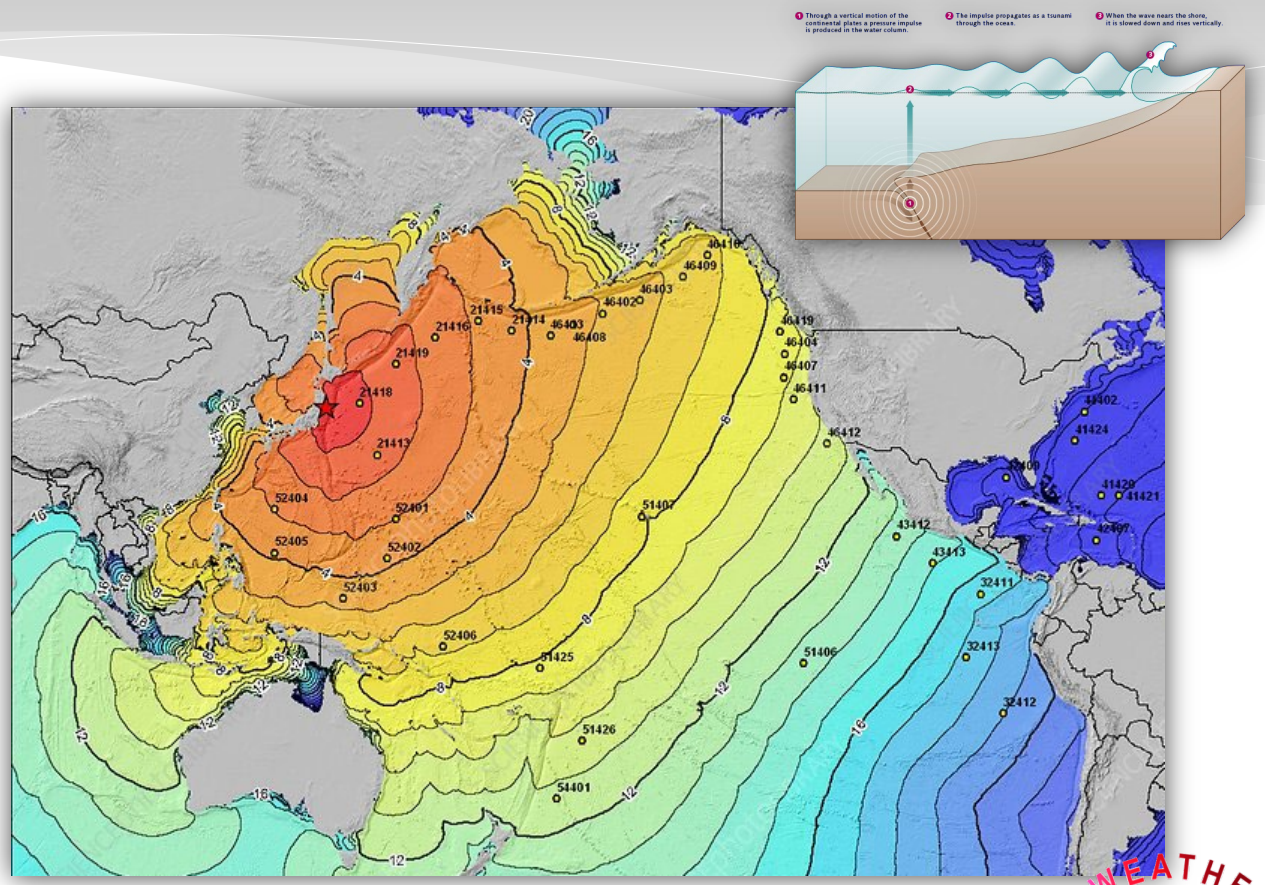
- 30 arc sec to 4 min ocean wide grids

$$c = \sqrt{gD}$$

$c \equiv wave\ speed$

$D \equiv depth$

$g \equiv gravity$



National Tsunami Warning Center

Tsunami Propagation

Models first used operationally in 1997

Deep Ocean

- Linear Physics
- 4 min to 30 arc sec

Bathymetry directly Impacts

- Wave directionality
- Amplification
- Offshore safety depths

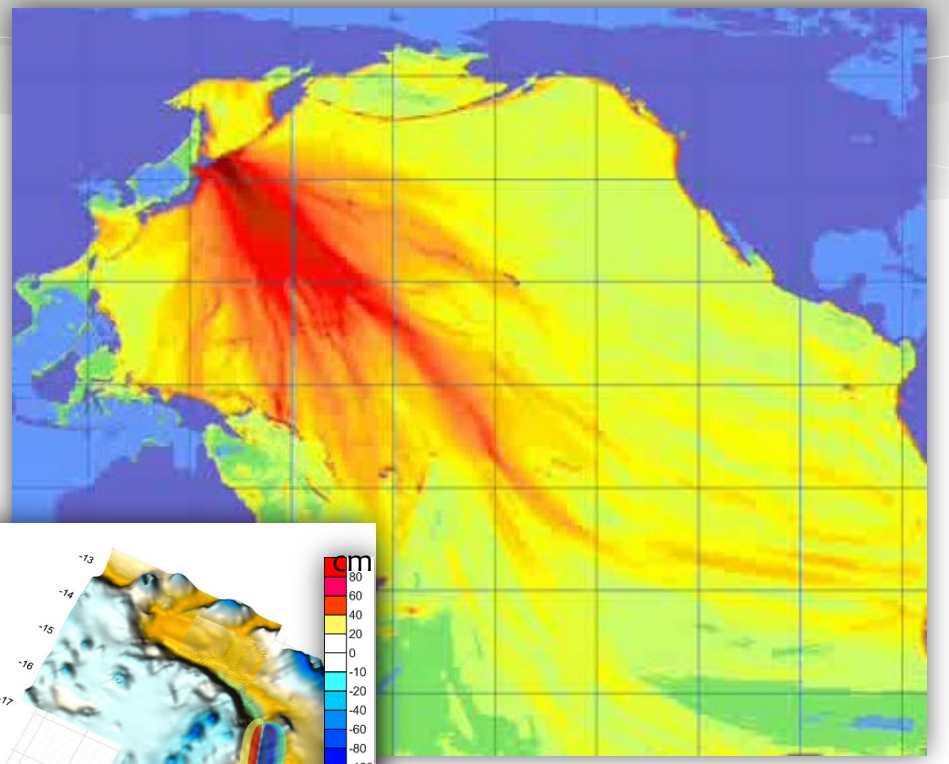


TABLE 1: Specific regional guidance for minimum offshore safe depths for maritime vessel evacuation prior to the arrival of tsunami.

State/Territory	Distant Source (ships in harbor)*	Local Source (ships at sea)*	Notes on this Update
California	30 fathoms	100 fathoms	Evaluated; evaluating potential safe areas within large bays and ports
Oregon	30 fathoms	100 fathoms	Evaluated; also evaluating Columbia River
Alaska	30 fathoms	100 fathoms	Evaluated; ships should be at least 1/2 mile from shore for all scenarios

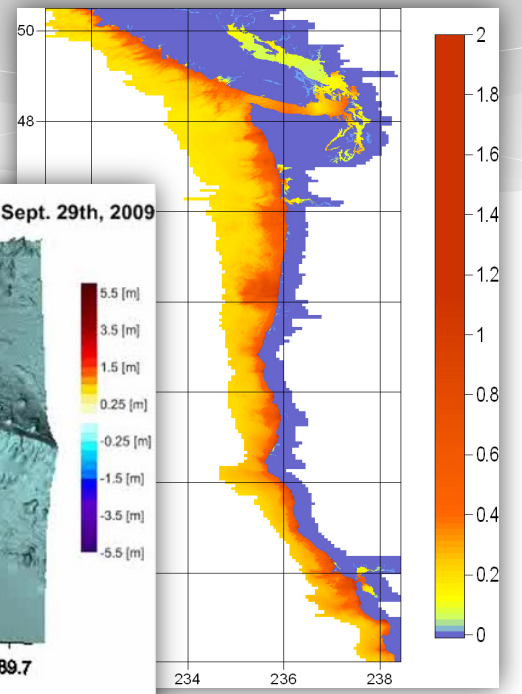
National Tsunami Warning Center

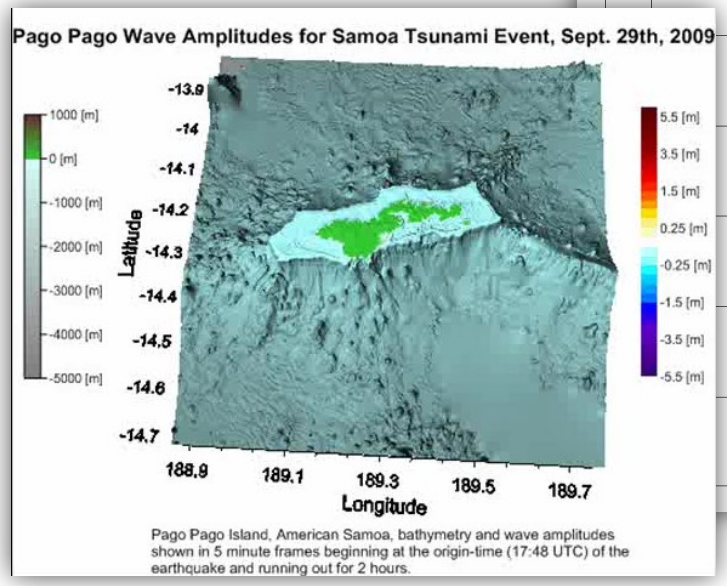
Tsunami Inundation and Currents

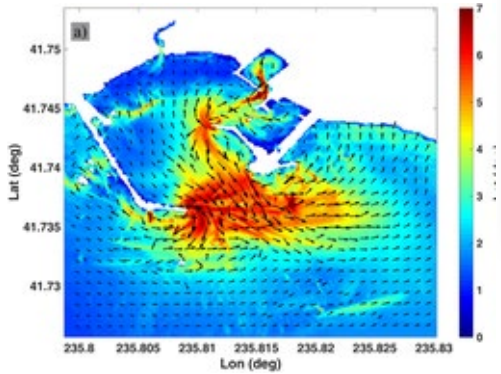
Models first used operationally in 2013

Coastal Ocean

- Complex Non-linear Physics
- 3 to 1/9 arc second
- Digital Elevation Models
  - Wave run-up
  - Coastal amplification
  - Inundation extent
  - Near-shore currents







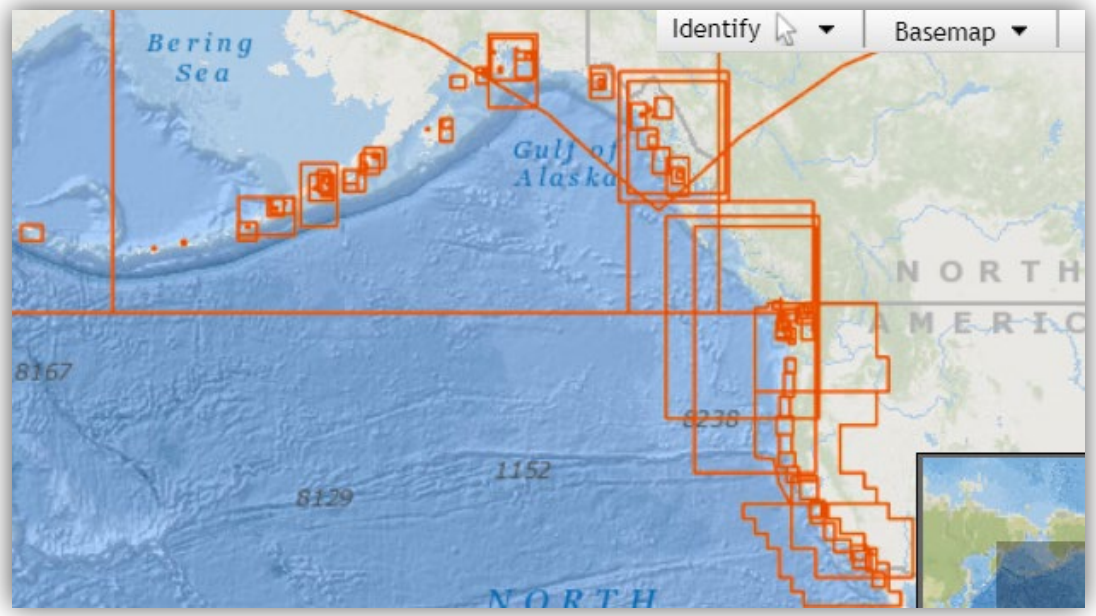
Alaska Tsunami Forecast Model (ATFM)

MOST https://doi.org/10.1002/2016JC012435

Tsunami Mitigation

National Tsunami Hazard Mitigation Program (NTHMP)
NOAA's National Centers for Environmental Information (NCEI)

Coastal Digital Elevation Models (DEMs)



DEM Development

- Began in 2006
- High-Resolution
  - Multibeam LIDAR
  - Hydrographic Surveys
  - 3 to 1/3 arc sec for Alaska
- Used for modeling tsunami
  - Run-up
  - Inundation
  - Currents

https://maps.ngdc.noaa.gov/viewers/bathymetry/

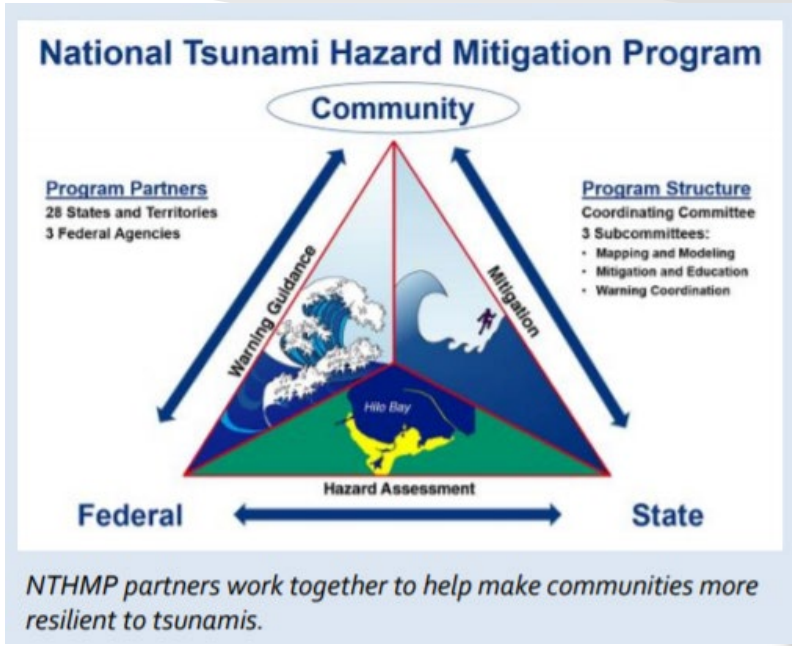
National Tsunami Warning Center

Tsunami Mitigation

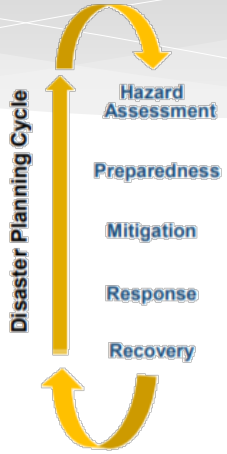
National Tsunami Hazard Mitigation Program (NTHMP)
State of Alaska: DGGS, DHS&EM, and Alaska Earthquake Center

NTHMP

- Tsunami Mitigation
- Outreach
- Hazard Assessment
- Modeling & Mapping
- Warning Coordination
- Guidance
- Model Benchmarking



NTHMP partners work together to help make communities more resilient to tsunamis.



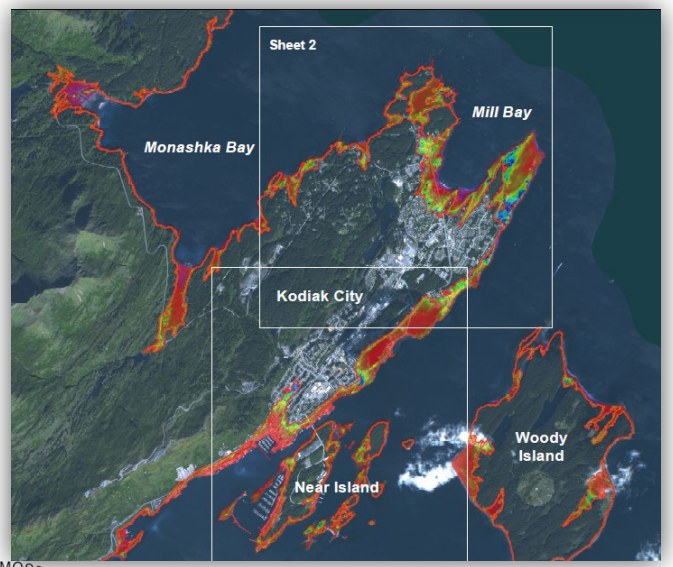
https://nws.weather.gov/nthmp/

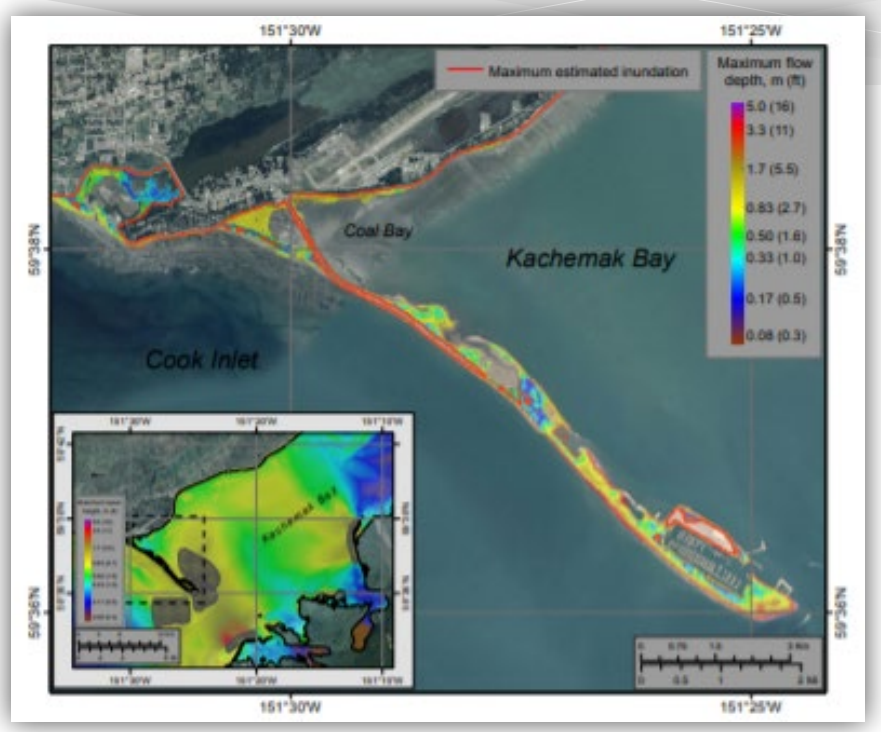
National Tsunami Warning Center

Tsunami Mitigation

State Tsunami Mapping

- Inundation Modeling
- Tsunami Evacuation Zones





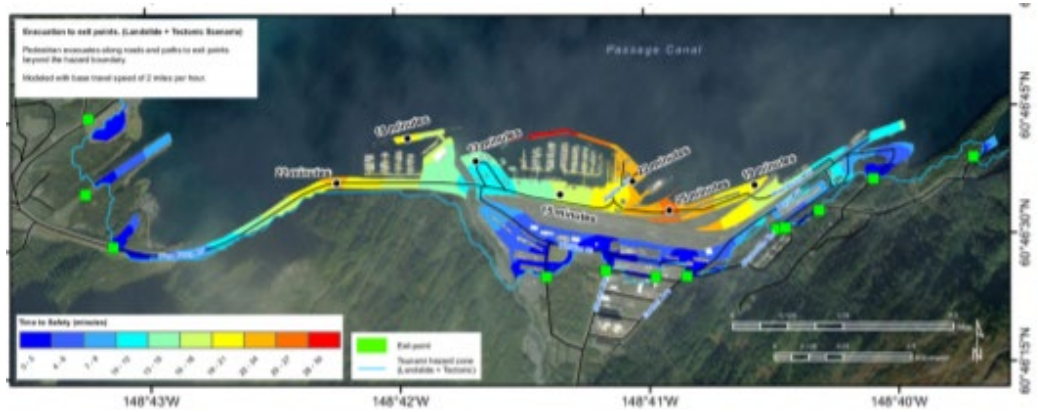
https://dggs.alaska.gov/

National Tsunami Warning Center

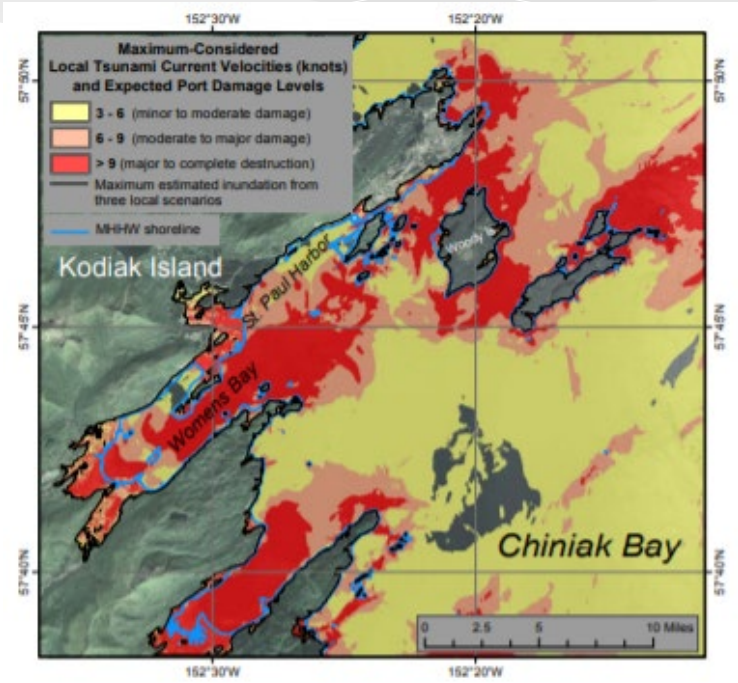
Tsunami Mitigation

State Tsunami Mapping

- Tsunami Currents / Maritime Guidance
- Pedestrian Evacuation Maps (PEM)



Seward, AK PEM

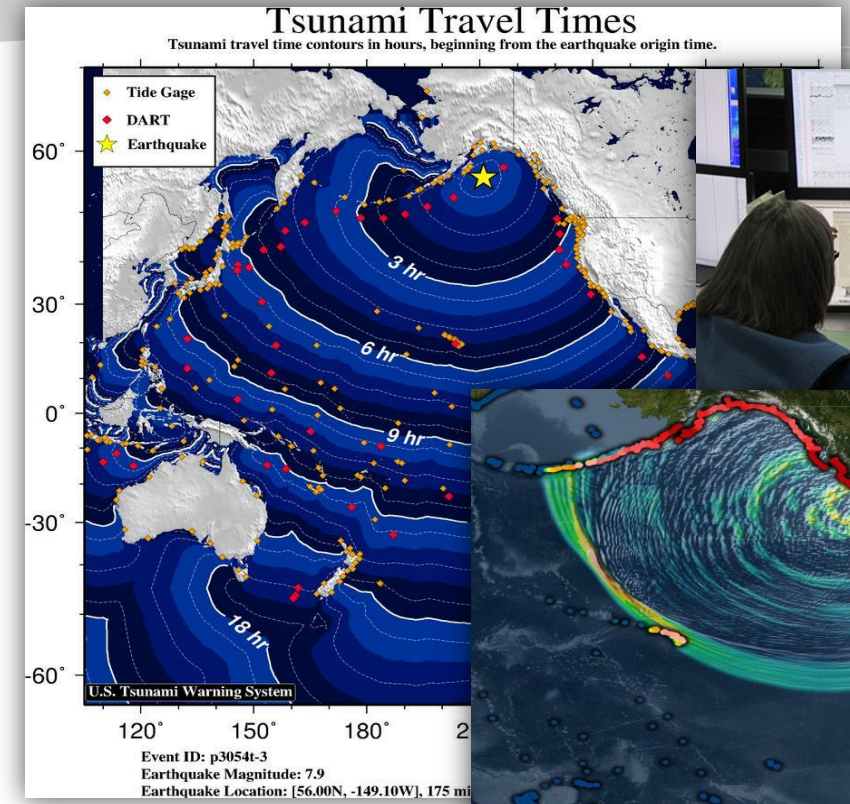


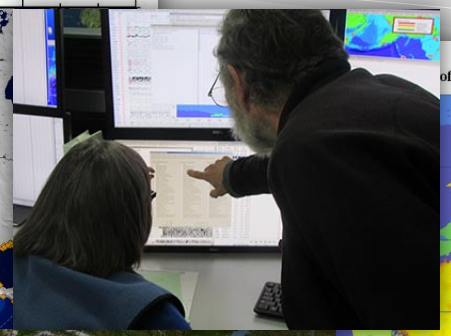
http://earthquake.alaska.edu/tsunamis

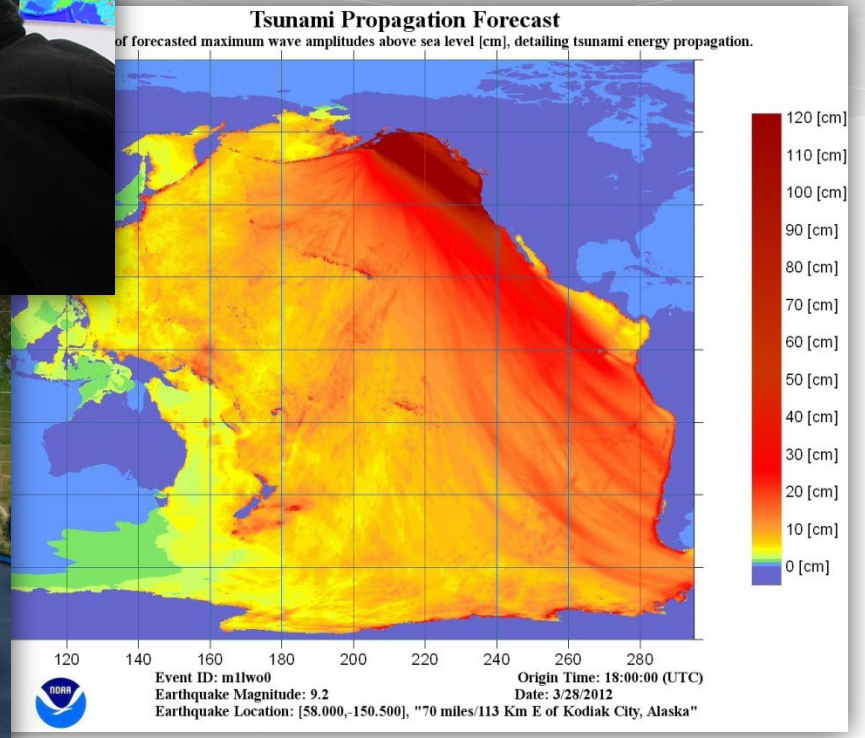
National Tsunami Warning Center

Tsunami Warning Operations

Minutes Matter







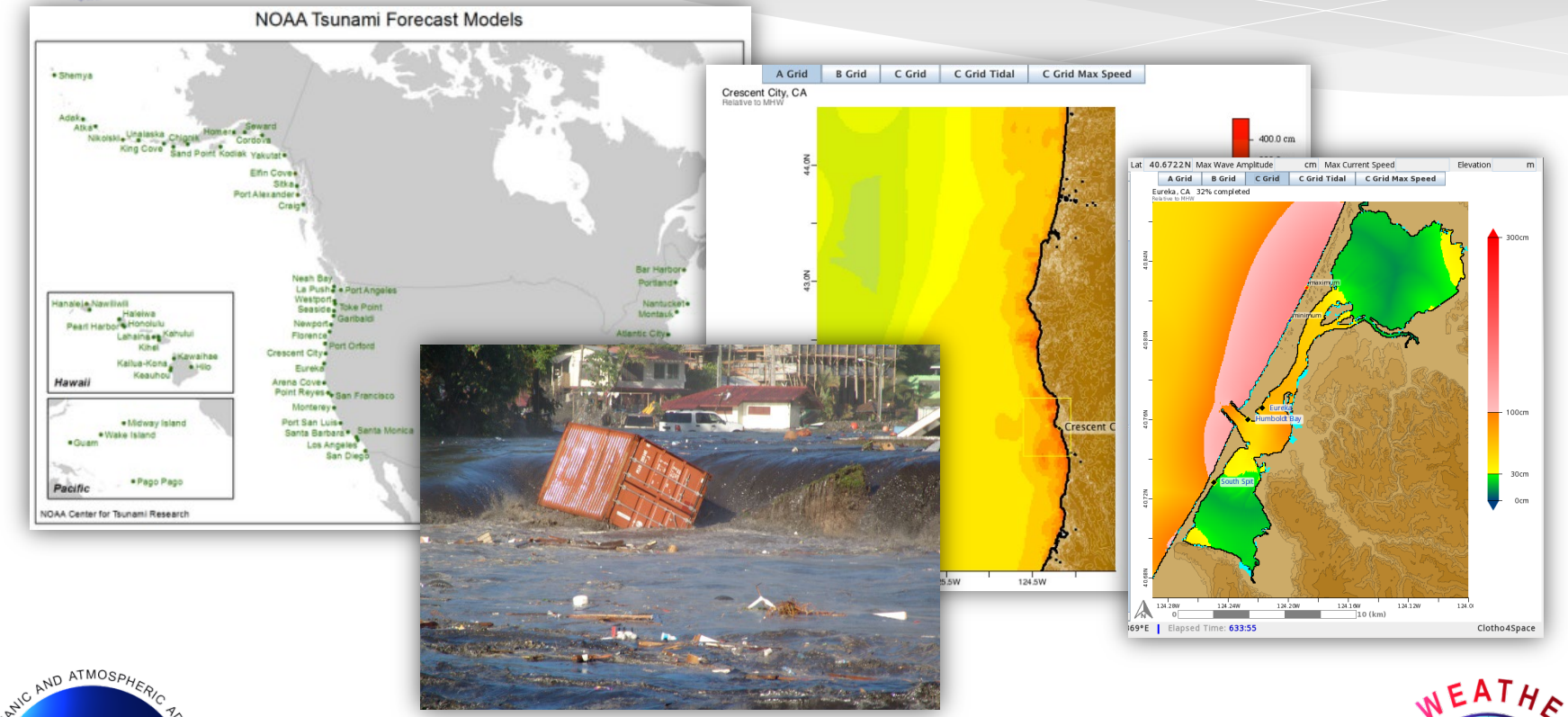
https://tsunami.gov

National Tsunami Warning Center

Tsunami Warning Operations

Short-term Inundation Forecasting for Tsunamis (SIFT)

Stand-by Inundation Models



National Tsunami Warning Center

Tsunami Warning Operations

Short-term Inundation Forecasting for Tsunamis (SIFT)

Tsunami Inundation

SIFT model post-event run (yellow) and observed (red) flooding in Midway. Japan 2011.

Bonin petrel rescued from being stuck in the sand
http://www.fws.gov/midway/tsunami.html

National Tsunami Warning Center

Tsunami Operations

Short-term Inundation Forecasting for Tsunamis (SIFT)

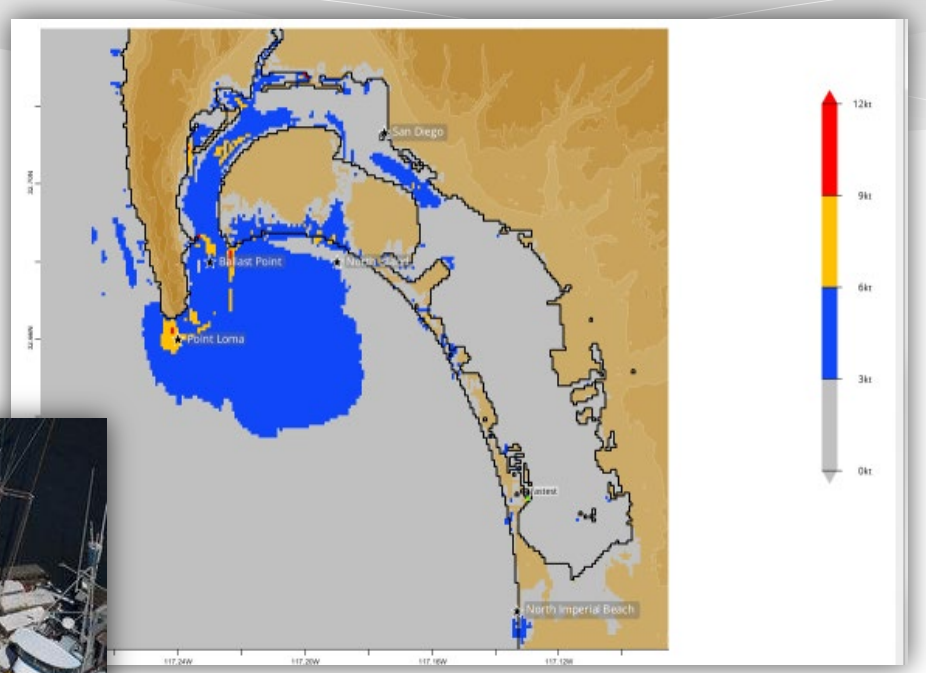
Tsunami Currents

RELATIONSHIP BETWEEN TSUNAMI CURRENT SPEED AND HARBOR DAMAGE: Analysis of recent tsunami damage indicates a relationship between current speed and harbor damage. The Damage Index (from Lynett and others, 2013) to the right has been used to determine the following relationship (see color codes here for blue, yellow, and red areas and on current threshold maps):

CURRENTS = DAMAGE

0-3 knots = No Damage
3-6 knots = Minor/Moderate Damage
6-9 knots = Moderate/Major Damage
>9 knots = Major/Complete Damage

Damage Index:	Damage Type:
0	no damage
1	small buoys moved
2	1-2 docks/small boats damaged, large buoys moved
3	Moderate dock/boat damage, mid-sized vessels off moorings
4	Major dock/boat damage, large vessels off moorings
5	Complete destruction



SIFT Model (San Diego, CA)

Damage from Tsunami Currents in Santa Cruz, CA. Japan 2011

National Tsunami Warning Center

Thank you.
Without mapping we cannot assess tsunami impacts.
We really appreciate all the ongoing efforts mapping coastal Alaska!

Kara.Gately@noaa.gov

National Tsunami Warning Center

Actionable Hazard Mapping in 144 Threatened Communities

Max Neale
Alaska Native Tribal Health Consortium
Center for Environmentally Threatened Communities

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM

OUR VISION:

Alaska Native people are the healthiest people in the w-orld.

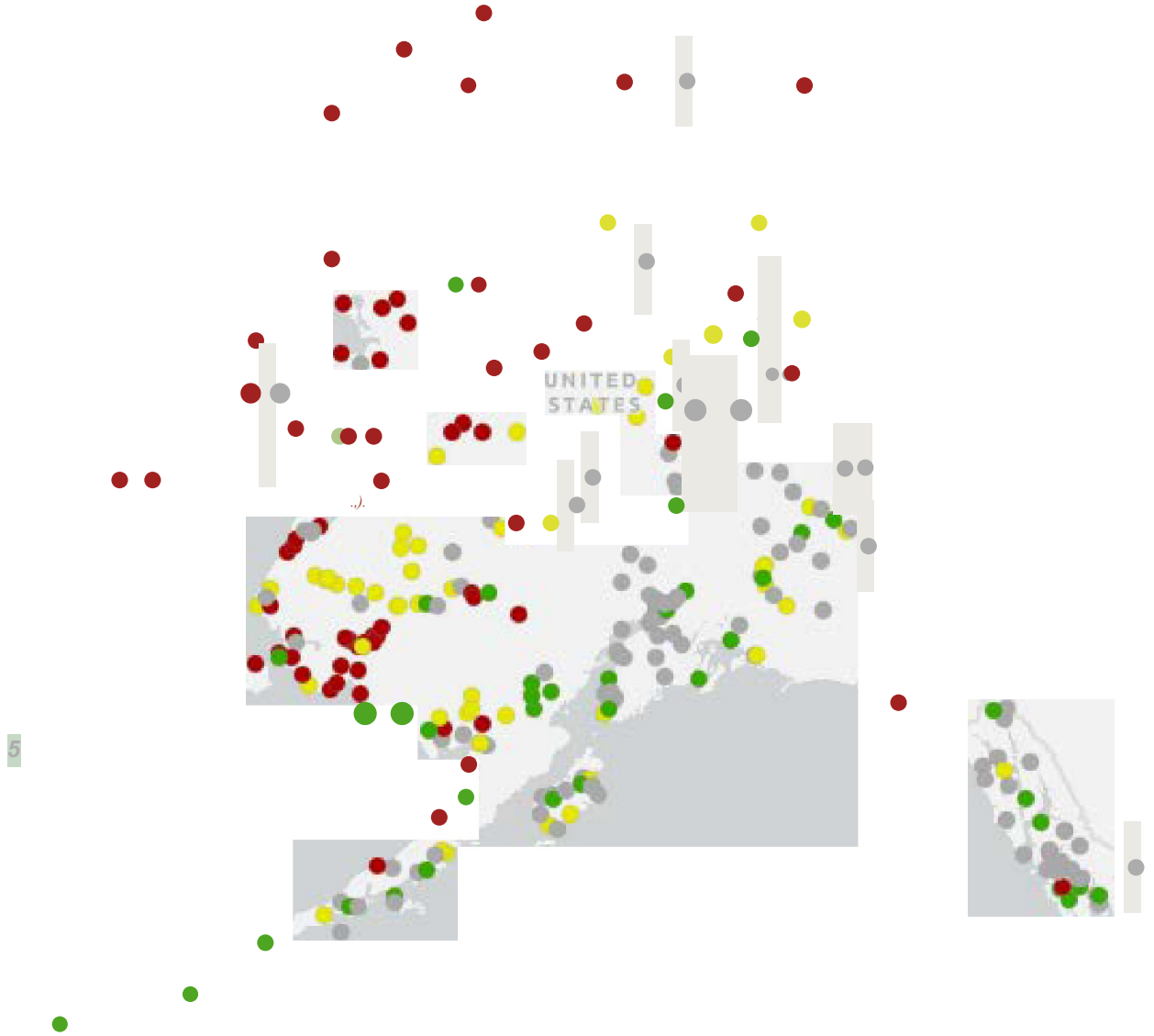
Center for Environmentally Threatened Communities

We support communities to understand risk and implement solutions to erosion, flooding, and permafrost degradation.

- Project development, strategy, and coordination
  - Grant writing
  - Technical assistance

144 threatened communities

$4.3 billion to protect existing infrastructure over the next 50 years



Statewide Threat Assessmen'f

Camb fiedGroup

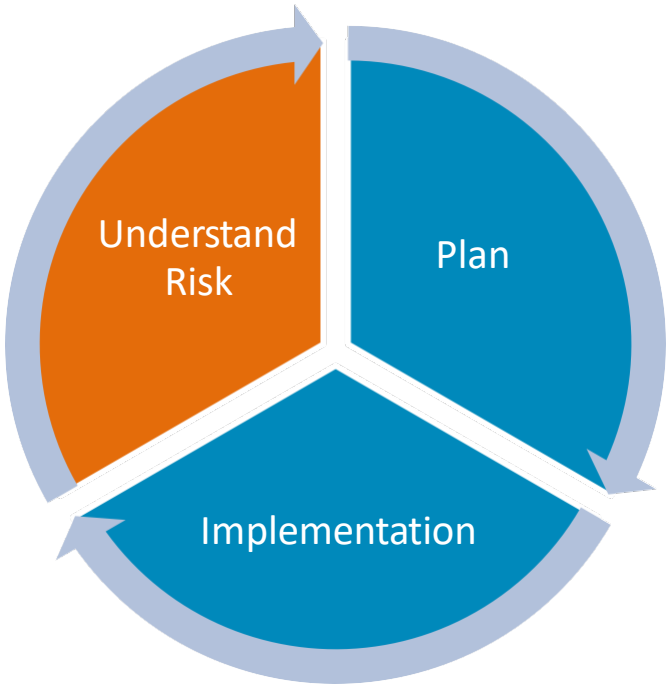
- 1
- 2
- 3
- othercommLmifes

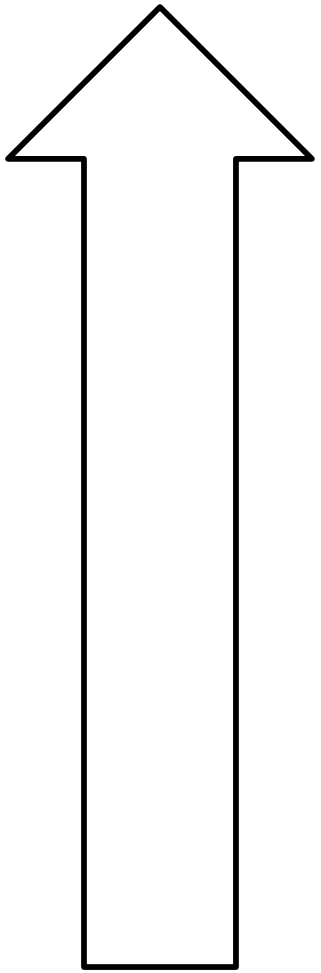
ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM

“Can we continue to live here?”

“If yes, how?

Only two threatened communities have access to long-term risk assessments





Engineering Analysis

- Assess options

Modeling

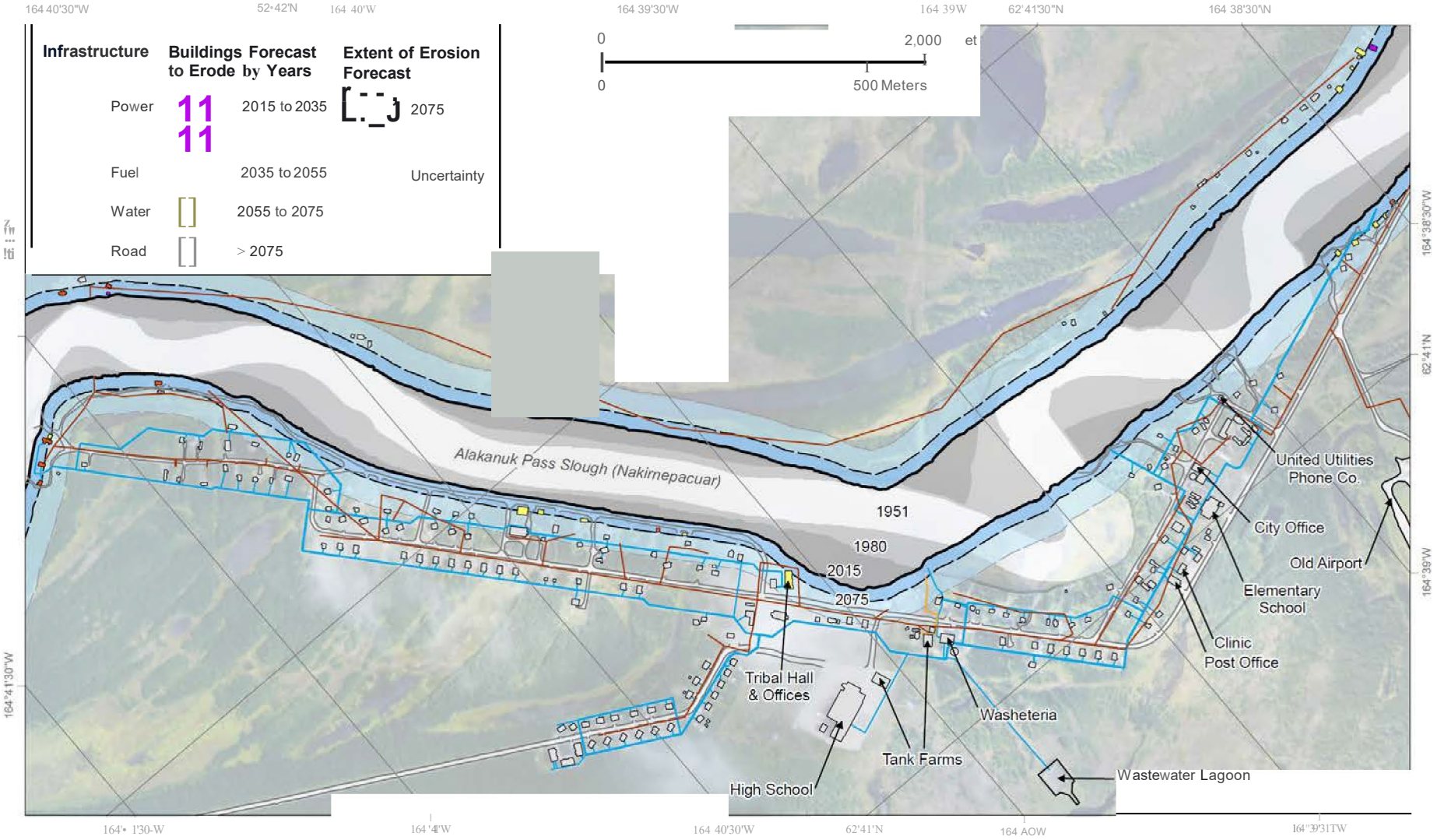
- Validated with historical data
- Climate change scenarios

Monitoring

- Storm events
- Chronic issues

Baseline Coastal Mapping

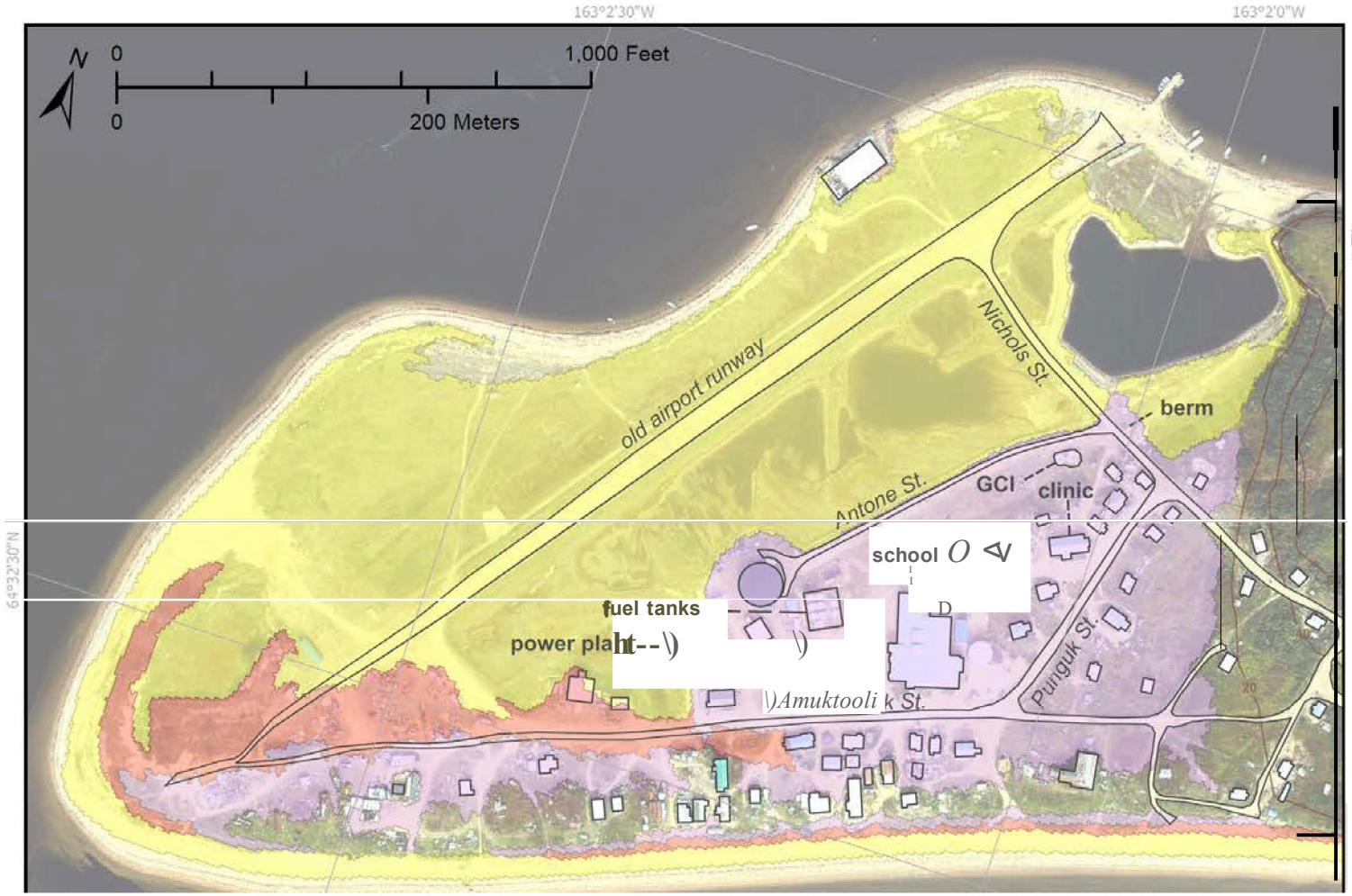
- Elevation (above and below the water, topography and bathymetry)
- Aerial Imagery
- Shoreline
- First floor elevations

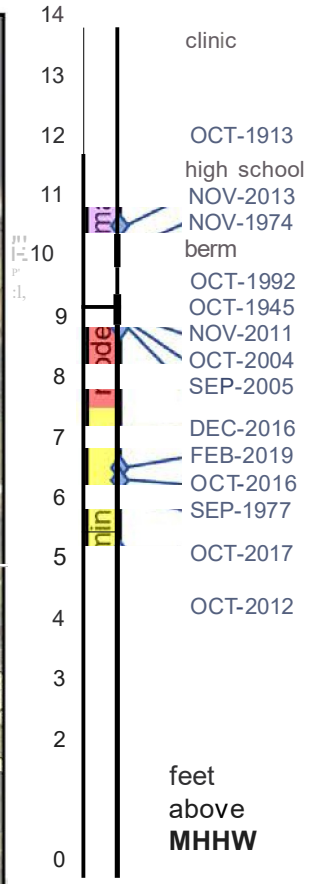


ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

DRAFT Coastal Flood Impact
Golovin, Alaska

REPORT OF INVESTIGATIONS 2020-X
Buzard and others, 2020
SHEET GOLOVIN





To calculate height above
MLLW: add 1.7 ft
NAVD88 : add 4.6 ft

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

- **How much will it cost?**

  ~$30 million

- **What are the best methods?**

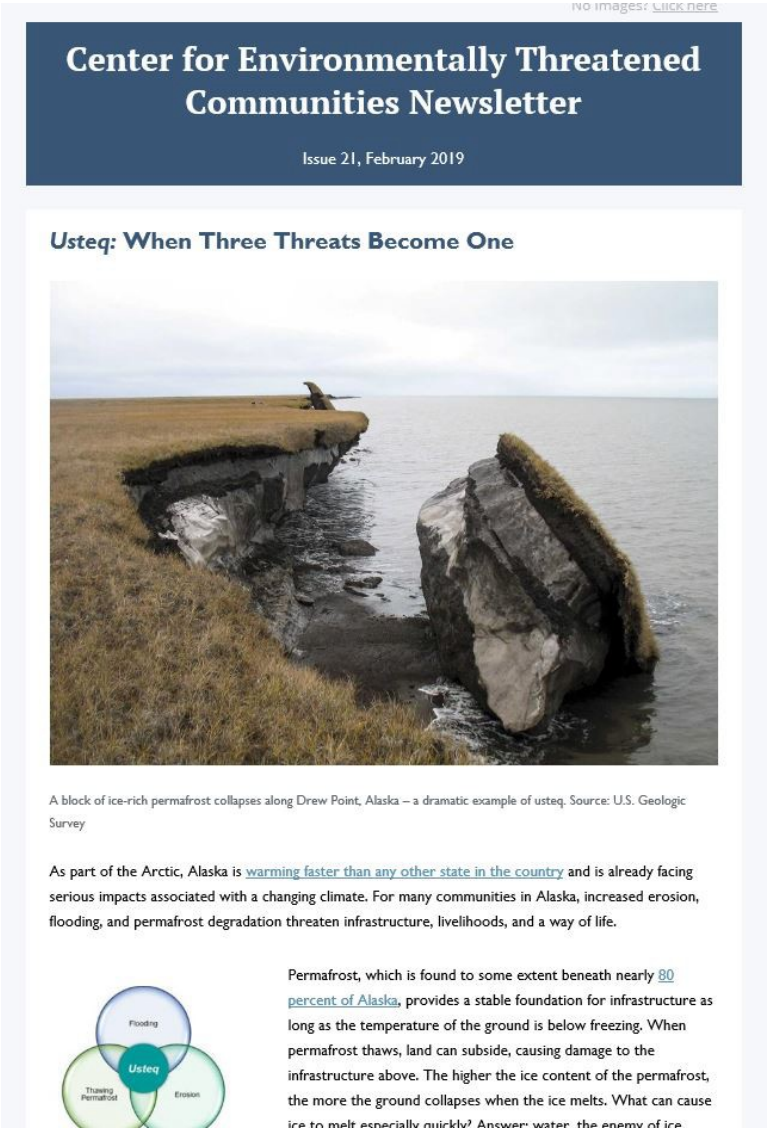
  See appendix B,C, and D in the Statewide Threat Assessment for prototype scopes of work

- **What are the priority communities and what is the current community-specific status statewide?**

  Map tool forthcoming @ dggs.alaska.gov/hazards/coastal/

Key Points

1. Most Arctic and climate change research has not benefited threatened communities
2. Site-specific baseline data and risk assessments are the highest priority statewide for threatened communities
3. See the prototype scopes of work in the Denali Commission Statewide Threat Assessment for methods
4. Communities are seeking funding partners



No images? Click here

Center for Environmentally Threatened Communities Newsletter

Issue 21, February 2019

***Usteq*: When Three Threats Become One**

A block of ice-rich permafrost collapses along Drew Point, Alaska – a dramatic example of usteq. Source: U.S. Geologic Survey

As part of the Arctic, Alaska is warming faster than any other state in the country and is already facing serious impacts associated with a changing climate. For many communities in Alaska, increased erosion, flooding, and permafrost degradation threaten infrastructure, livelihoods, and a way of life.

Permafrost, which is found to some extent beneath nearly 80 percent of Alaska, provides a stable foundation for infrastructure as long as the temperature of the ground is below freezing. When permafrost thaws, land can subside, causing damage to the infrastructure above. The higher the ice content of the permafrost, the more the ground collapses when the ice melts. What can cause ice to melt especially quickly? Answer: water, the enemy of ice

Thank you

- Subscribe to our newsletter: anthc.org/cetc
- Reach out any time: mdneale@anthc.org or 729-4521

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

BOEM

Bureau of Ocean Energy Management

Marine Mineral Priorities in Alaska

Alaska Coastal Mapping Summit

December 9, 2020

BOEM Mission

The Mission of the Bureau of Ocean Energy Management is to manage development of U.S. Outer Continental Shelf energy and mineral resources in an environmentally and economically responsible way.

Marine Minerals Program Mission and Vision

Vision

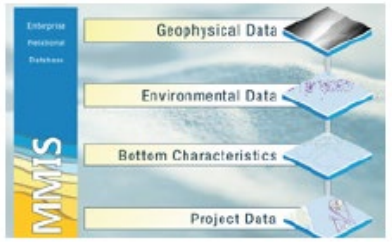
Serve as the lead agency proactively addressing the Nation's current and long-term interests in OCS non-energy marine minerals.

Mission

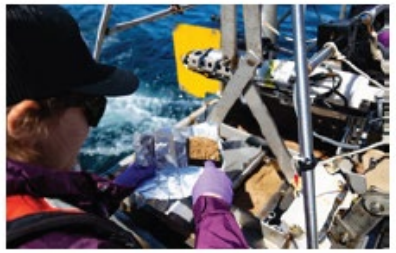
Facilitate access to and manage the Nation's Outer Continental Shelf (OCS) non-energy marine minerals through environmentally responsible stewardship, prudent exploration and leasing activities, coordination with governmental partners, stakeholder engagement, and mission-focused research to improve decision-making and risk management.

BOEM Marine Minerals Initiatives

National Offshore Sand Inventory



Marine Minerals Information System



Marine Minerals Research

National Offshore Critical Minerals Inventory

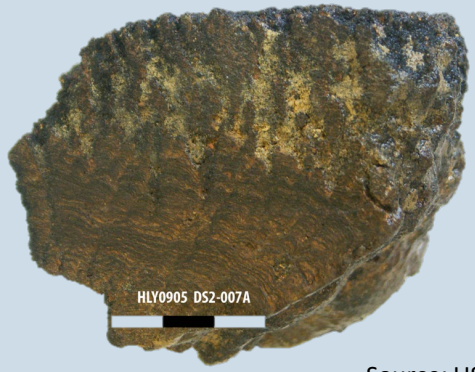
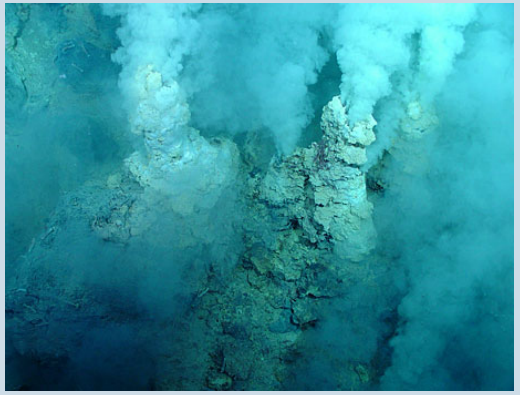
Environmental Oversight

Critical Minerals (per U.S. Geological Survey)

BLUE = Occur in marine minerals within the U.S. Exclusive Economic Zone

- Aluminum (bauxite)
- **Antimony**
- Arsenic
- Barite
- Beryllium
- **Bismuth**
- Cesium
- Chromium
- **Cobalt**
- Fluorspar
- **Gallium**
- **Germanium**
- Graphite (natural)
- Hafnium
- Helium
- Indium
- **Lithium**
- **Magnesium**
- **Manganese**
- **Niobium**
- **Platinum group metals**
- Potash
- **Rare earth elements**
- Rhenium
- Rubidium
- **Scandium**
- Strontium
- Tantalum
- **Tellurium**
- **Tin**
- **Titanium**
- Tungsten
- **Uranium**
- **Vanadium**
- **Zirconium**

Main Deposit Types

Manganese Nodules	Ferromanganese Crust	Seafloor Massive Sulfides
 Source: USGS	 Source: USGS	 Source: NOAA
Depth: 4,000 to 7,000m Occurrence: Authigenic precipitate in soft sediments of abyssal plains Extent: Occur in all ocean basins, most abundant in central Pacific Growth Rate: 2-10mm / million years Critical Minerals: Cobalt, manganese, REE, tellurium, platinum, bismuth, niobium, and zirconium	Depth: 600 to 7,000m Occurrence: Authigenic precipitate on flank and summit of seamounts Extent: Central and western Pacific Growth Rate: 1-4 mm / million years Critical Minerals: Cobalt, manganese, REE, tellurium, platinum, bismuth, niobium, and zirconium	Depth: 100 to 7,000m Occurrence: Precipitate of minerals leached from host rock and magmatic fluid Extent: Globally along active tectonic boundaries Growth Rate: variable to ≤ cm / day Critical Minerals: antimony, bismuth, gallium, tellurium, germanium

Main Deposit Types

Phosphorite-rich Crust	Nearshore Placer Deposits
	
Depth: 200-4000m Occurrence: Comingled with crusts on seamounts, also along continental shelves and slopes Extent: Atlantic and Pacific Continental Margins Habitat: Hard surface possibly populated by sponges and corals Critical Minerals: **REE, uranium,** phosphorous	Depth: less than 200m Occurrence: Continental Margins Extent: Adjacent to Terrestrial Deposits Habitat: Soft Sediment (e.g. sand, mud) with burrowing invertebrates and bottom fish Critical Minerals: **Titanium**, tin, **platinum**, gold, silver, and **REE**

BOEM's Role in Offshore Critical Minerals

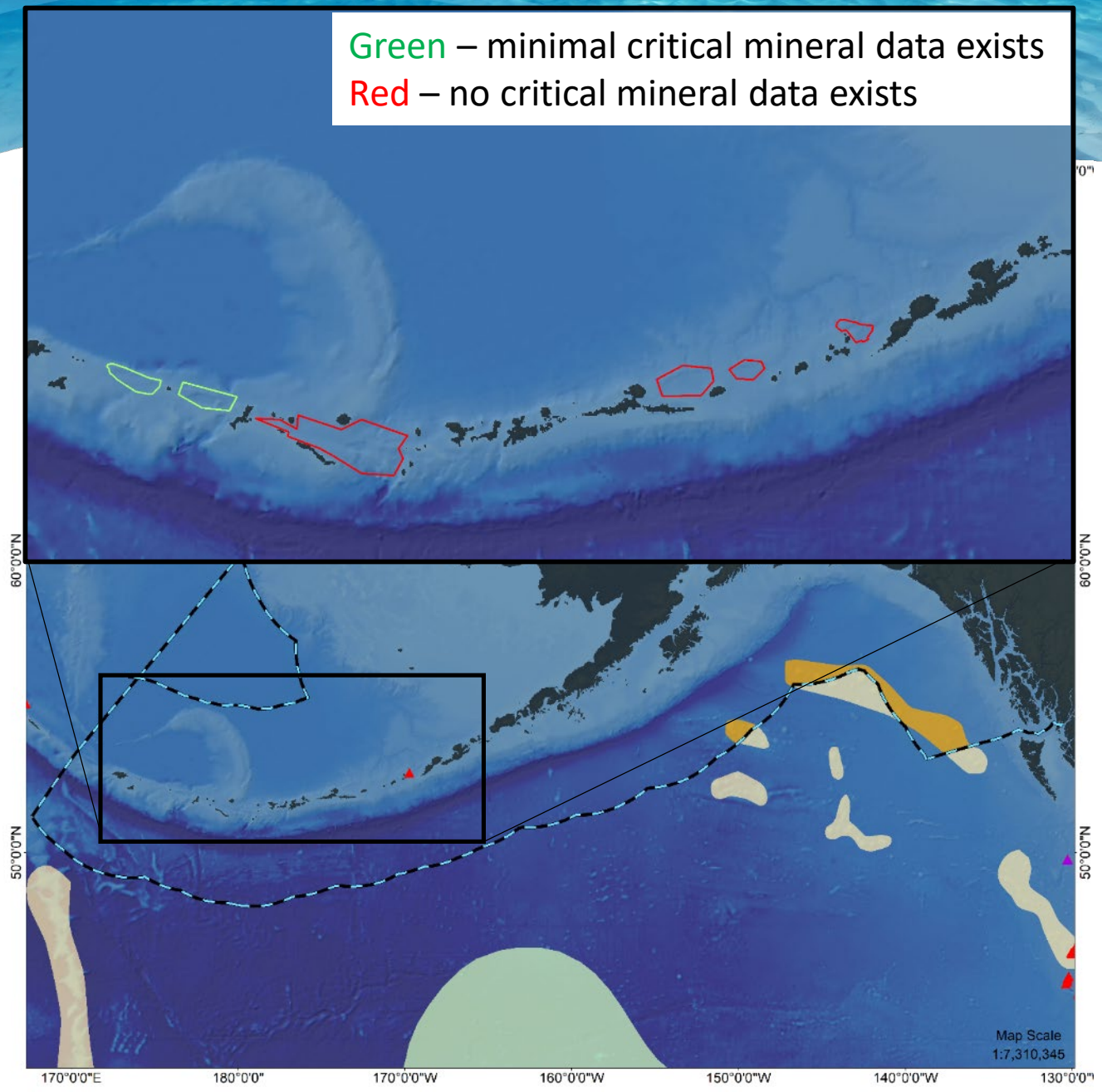
- BOEM oversees mineral development on Outer Continental Shelf (OCS)
  - Authority - OCS Lands Act (OCSLA) (43 U.S.C. 1331, *et. seq.*)
  - In process to develop a National Offshore Critical Mineral Inventory
  - As the nation's steward for these resources, BOEM must ensure that the removal of any mineral resource is done in a safe and environmentally sound manner
- Regulations - 30 CFR 580, 581, 582 (Prospecting, Leasing, and Operations on the OCS for Minerals other than Oil, Gas, and Sulfur)
- Lack statutory authority to lease offshore US territories and possessions
- BOEM staff are working to support the NOMEC Mapping Strategy (Sect 2 of 2019 Presidential Memo)

Executive Orders 13817, 13953 – BOEM Responsibilities

The order, "*A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals,*" directed development of an interagency report released in June 2019.

The report's recommendations task BOEM to assist with:

- Improving the data collection and discoverability of geophysical, geological, topographical, and bathymetrical mapping of the U.S. and associated coastal and ocean territory.
- Providing recommendations to revise regulations and consider proposing legislation to facilitate offshore critical mineral development.
- Enhancing international cooperation related to critical minerals.

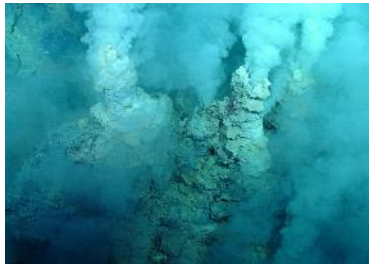


Resource Estimates from USGS

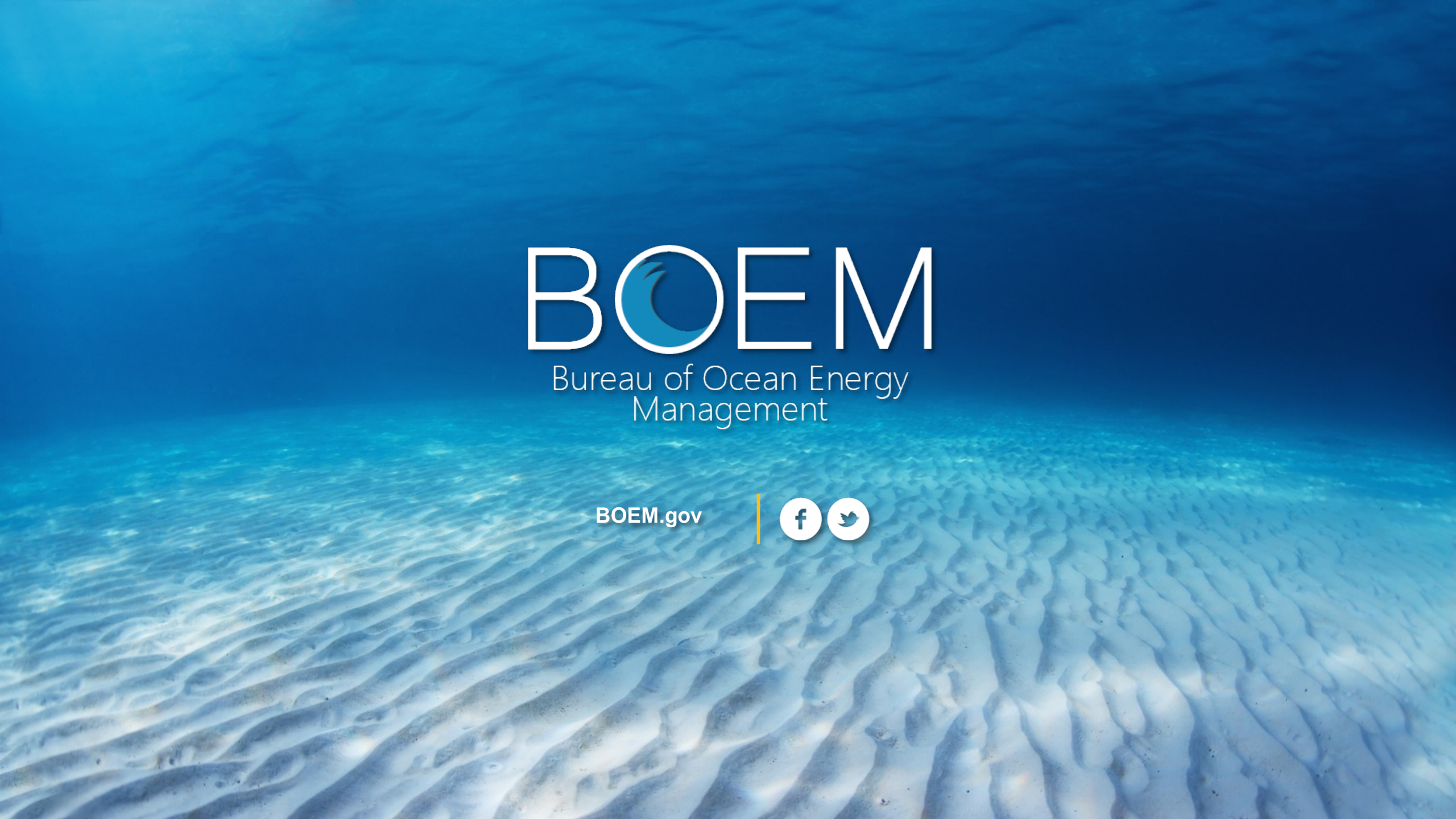
The Aleutian Island chain is likely host to multiple hydrothermal sulfide deposits.

This potential is largely unexplored. BOEM funded a desktop study in FY20 to refine the occurrence estimates and assist site selection for follow-up exploration.

Minerals (**Bold** = Critical):
Copper, zinc, **antimony, bismuth, gallium, tellurium, scandium,** silver, gold



Source: NOAA


BOEM
Bureau of Ocean Energy Management
BOEM.gov

Implementation Plan

Goals:

1. Build on Existing Mapping Partnerships to Meet Alaska's Coastal Mapping Needs
2. Expand Coastal Data Collection to Deliver the Priority Geospatial Products Stakeholders Require
3. Leverage Innovation in Mapping Technology Development
4. Conduct Strategic Communication to Promote Widespread Stakeholder Engagement

Goal 1: Build on Existing Mapping Partnerships to Meet Alaska's Coastal Mapping Needs

Objectives:

1.1: Establish a Team for Alaska Coastal Mapping Implementation

1.2: Refine Stakeholder Mapping Priorities, Costs, and Data Standards

1.3: Resource the Alaska Coastal Mapping Implementation Plan

1.4: Integration with Complementary AMEC Priority Mapping Themes

Goal 1: Build on Existing Mapping Partnerships to Meet Alaska's Coastal Mapping Needs

Objective 1.1:

Establish a Team for Alaska Coastal Mapping Implementation

- ✔ Federal/State team
- Ensure stakeholder engagement -- how?
  - Summits
  - Plan comments
  - Other opportunities?
- Stakeholder requirements -- gather these!
- Execute!

Goal 1: Build on Existing Mapping Partnerships to Meet Alaska's Coastal Mapping Needs

Objective 1.2:
Refine Stakeholder Mapping Priorities, Costs, and Data Standards

- Inventory existing data
- Gather priorities
- Validate costs
- Interest in an Alaska Coastal Mapping Protocol?
  - Topography
  - Bathymetry
  - Orthoimagery

Goal 1: Build on Existing Mapping Partnerships to Meet Alaska's Coastal Mapping Needs

Objective 1.3:

Resource the Alaska Coastal Mapping Implementation Plan

- Inventory available resources
- Outline and streamline tools available
  - interagency agreements
  - contract vehicles
  - how to enable "buy up" options for more data or more stringent requirements
  - options for "spec data" from contractors
- Regular coordination meetings

Goal 1: Build on Existing Mapping Partnerships to Meet Alaska's Coastal Mapping Needs

Objective 1.4:

Integration with Complementary AMEC Priority Mapping Priorities

- Coordinate across AMEC mapping themes (wetlands, hydrography, etc.)
- Maintain contact information for specific federal and state liaisons

Discussion
POLL

Goal 1: Build on Existing Mapping Partnerships to Meet Alaska's Coastal Mapping Needs

Discussion/Comments

Objectives:

1.1: Establish a Team for Alaska Coastal Mapping Implementation

1.2: Refine Stakeholder Mapping Priorities, Costs, and Data Standards

1.3: Resource the Alaska Coastal Mapping Implementation Plan

1.4: Integration with Complementary AMEC Priority Mapping Themes

BREAK

Goal 2: Expand Coastal Data Collection to Deliver the Priority Geospatial Products Stakeholders Require

Objectives:

2.1: Execute a Flexible Alaska Coastal Mapping Campaign

2.2: Upgrade Alaska National Spatial Reference System Components to Support Mapping Data Acquisition

2.3: Produce and Disseminate Key Datasets and Products from Alaska Coastal Mapping Data

Goal 2: Expand Coastal Data Collection to Deliver the Priority Geospatial Products Stakeholders Require

Objective 2.1:

Execute a Flexible Alaska Coastal Mapping Campaign

- Divide the coast into manageable sections
- Create a 10 year plan based on priorities and expected capacity
- Develop flexible operational plans
  - FY2022
  - FY23-2030, based on lessons learned in FY22

Goal 2: Expand Coastal Data Collection to Deliver the Priority Geospatial Products Stakeholders Require

Objective 2.2:

Upgrade Alaska National Spatial Reference System Components to Support Mapping Data Acquisition

- New geoid model for Alaska
- Build out Foundation CORS in Alaska for NSRS
- Build out tidal datum control in Alaska
- Complete VDatum coverage for all of Alaska
- Establish real-time water level network where there are NWLON gaps

Goal 2: Expand Coastal Data Collection to Deliver the Priority Geospatial Products Stakeholders Require

Objective 2.3:

Produce and Disseminate Key Datasets and Products from Alaska Coastal Mapping Data

- Enable access to data
- Formats, metadata, access to existing data need attention
- Promote data interoperability
- Routinely evaluate usability of data products (digital elevation models, etc.)

Discussion
POLL

Goal 2: Expand Coastal Data Collection to Deliver the Priority Geospatial Products Stakeholders Require

Discussion/Comments

Objectives:

2.1: Execute a Flexible Alaska Coastal Mapping Campaign

2.2: Upgrade Alaska National Spatial Reference System Components to Support Mapping Data Acquisition

2.3: Produce and Disseminate Key Datasets and Products from Alaska Coastal Mapping Data

Goal 3: Leverage Innovation in Mapping Technology Development

Objectives:

3.1: Upgrade Alaska Climatology Tool for Smart Application of Satellite and Airborne Lidar Bathymetry

3.2: Monitor and Test New Technologies for Acquisition Efficiencies

Goal 3: Leverage Innovation in Mapping Technology Development

Objective 3.1:

Upgrade Alaska Climatology Tool for Smart Application of Satellite and Airborne Lidar Bathymetry

- Use satellite imagery tools to evaluate water clarity for survey timing

Goal 3: Leverage Innovation in Mapping Technology Development

Objective 3.2:

Monitor and Test New Technologies for Acquisition Efficiencies

- Track science and technology advancements
- Test/evaluate in Alaska's unique conditions
- Pilot projects

Discussion
POLL

Goal 3: Leverage Innovation in Mapping Technology Development

Discussion/Comments

Objectives:

3.1: Upgrade Alaska Climatology Tool for Smart Application of Satellite and Airborne Lidar Bathymetry

3.2: Monitor and Test New Technologies for Acquisition Efficiencies

Goal 4: Conduct Strategic Communication to Promote Widespread Stakeholder Engagement

Objectives:

4.1: Strengthen Stakeholder Communications to Grow Participation in the Alaska Coastal Mapping Campaign

4.2: Use Online Tools and Technologies to Communicate Plans and Performance

Goal 4: Conduct Strategic Communication to Promote Widespread Stakeholder Engagement

Objective 4.1:

Strengthen Stakeholder Communications to Grow Participation in the Alaska Coastal Mapping Campaign

- Use agency and AGC websites share data acquisition progress
- Provide updates to AMEC at biannual meetings
- Host annual Alaska Coastal Mapping Summits
- Engage with stakeholders in Alaska through conferences and workshops

Goal 4: Conduct Strategic Communication to Promote Widespread Stakeholder Engagement

Objective 4.2:

Use Online Tools and Technologies to Communicate Plans and Performance

- Online interactive maps of prioritizations and data
- Report and track progress
  - regular updates as datasets are acquired

Discussion
POLL

Goal 4: Conduct Strategic Communication to Promote Widespread Stakeholder Engagement

Discussion/Comments

Objectives:

4.1: Strengthen Stakeholder Communications to Grow Participation in the Alaska Coastal Mapping Campaign

4.2: Use Online Tools and Technologies to Communicate Plans and Performance

Day 1 Closing Remarks

AMEC CS Co-Chair, State of Alaska

Jacquelyn Overbeck