Alaska Coastal Mapping
Summit 2.0

Data Supporting Science and Sound Decision-Making

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February 9, 2018
Alaska Coastal Mapping Summit 2016

June 14, 2016
Girdwood Alaska

- 4 hour inaugural coordination meeting
- Over 75 attendees from over 50 stakeholder entities
2016 Alaska Coastal Mapping Summit
The Interagency Working Group on Ocean and Coastal Mapping (IWG-OCM)

- Co-chaired by NOAA, USGS, and USACE
- Charged with facilitating “the coordination of ocean and coastal mapping activities and avoid[ing] duplicating mapping activities...”

WHO:
- NOAA
- USGS
- USACE
- NAVO
- BOEM
- NSF
- NGA
- USCG
- EPA
- FEMA
- NASA
- USDA
- and other appropriate Federal agencies involved in ocean and coastal mapping.
Recent Mandates

Ocean and Coastal Mapping Integration Act, 2009:
- Validated NOAA’s vision for IOCM
- Provided focus for interagency coordination
- Authorized previously ad-hoc efforts

SOST implementation plans (stemming from NOP)
- Identifies mapping actions to meet OCMIA
- Provides long term road map
- Coordinates across mapping agencies

National Strategy for the Arctic Region
- Identifies charting as an objective
- Coordination role

The term “ocean and coastal mapping” means the acquisition, processing, and management of physical, biological, geological, chemical, and archaeological characteristics and boundaries of ocean and coastal areas, resources, and sea beds through the use of acoustics, satellites, aerial photogrammetry, light and imaging, direct sampling, and other mapping technologies.
What is IOCM?

IOCM is planning, acquiring, integrating, and managing ocean and coastal geospatial data and derivative products for easy access and use by the greatest range of users.

Three primary tasks:

1. Data Acquisition
2. End-to-End Data Management
3. Maximum Use and Re-Use of data

Ocean and Coastal Mapping Integration Act of 2009
Why coordinate & collaborate on Data Acquisition?

- Avoid costly duplication of effort
- Maximize survey time
- Meet science & mission requirements
- R&D on technology, techniques

IOCM:
- Identifies mapped areas
- Improves planning
- Enables cross-agency collaboration
Why manage data?

- Enable Agency missions requiring scientific data
- Maximize use of data for multiple purposes
- Avoid costly data loss

IOCM:
- Ensures data collected are available for use
- Processes data for multiple uses
- Delivers bang for the buck

“Map Once, Use Many Times”
Data Stewardship, Access

- National Centers for Environmental Information
- Digital Coast
- Earth Explorer
- Rolling Deck to Repository
- Coastal and Marine Ecological Classification Standard
- Crowd-sourced Bathymetric Database
Why re-use data?

- Scientifically sound decisions require data
- Data expensive to collect
- Scientific data management is cost-effective
  - 3-month study, 2000% return on investment
- IOCM:
  - Ensures data are available
  - Enables use/re-use of data
  - Supports scientific and management missions

“Map Once, Use Many Times”
National Coastal Mapping Strategy 1.0
Coastal Lidar Elevation for a 3D Nation

**Components:**
Regional Coastal Mapping Summits for coordination
Common standards – Bathy Quality Levels aka 3DEP topo QL’s
Whole life cycle approach to data
R&D on new tools/techniques for data collection and use.
Regional/State Summits

JALBTCX meetings -- national (Mobile 2014, Corvallis 2015)
California 2014
Washington 2014, 2016, 2018
Northeast 2015, 2016, 2018
Alaska 2016, 2018
Great Lakes 2017
Southeast 2016, 2018
Florida 2018
Gulf 2018
Florida Coastal Mapping Program

**Vision**
Accessible, high resolution seafloor data of Florida’s coastal waters to support infrastructure, benthic habitat mapping, restoration projects, resource management, emergency response, and coastal resiliency and hazard studies for the citizens of Florida.

**Mission**
Coordinate across Federal and FL State agencies, academics, NGOs, and other stakeholders to evaluate the state and quality of existing data, establish and implement a prioritization for new data collection, and develop and implement a strategy to create a seamless, modern, high resolution topo-bathymetric map for Florida’s coastal waters from the shoreline to 200m water depth within 10 years.
National Coastal Mapping Strategy 1.0
Coastal Lidar Elevation for a 3D Nation

Components:
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3D Nation? Refresh cycle? ROI? NEEA-like study?
National Enhanced Elevation Assessment (NEEA)

A comprehensive inventory of user requirements and benefits for elevation data

- Conducted in 2010 – 2012
- Data collection
  - 34 Federal Agencies
  - 50 States
  - Local Government, tribal, private, not-for-profits
- Results
  - 602 Mission critical activities that need significantly better data than are currently available
  - Between $1.2 billion and $13 billion in benefits annually
  - Increases in President’s budget in FY14-17
  - [http://nationalmap.gov/3dep](http://nationalmap.gov/3dep)
3DEP Growth - Partnerships To Date

Strong coordination and increasing investments (FY13-17)

- Between FY13 and F17, 3DEP data (lidar and IfSAR) have been contracted for 37% of the entire US
- Alaska IfSAR – 92% of state available or in work to date in FY17

In FY17, 3DEP data have been contracted for 11.4% of the Nation
Updating User Requirements and Benefits for 3DEP

- Be able to assess new technologies against user requirements and identify the tradeoffs between different approaches
- Plan for the next round of 3DEP after nationwide coverage has been completed
- Improve our understanding and data about requirements and benefits at the state level for the existing and future program
- Improve our understanding of needs to guide development of the next generation of 3DEP Products and Services
Mapping a 3D Nation: Requirements and Benefits Study Goals

Understand 3D Data Requirements

- Refresh NEEA for the years beyond the initial 8-year acquisition program
- Understand inland, nearshore, and offshore bathymetric data requirements and benefits
- Understand how requirements and benefits dovetail in the coastal zone
- Sensor agnostic/Technology Neutral
  - Focused on need for, and value of, elevation data
3D Nation Study Context

Inland, Nearshore, Offshore and Topo, Bathy, Topo/Bathy

Coastal Zone Requirements

Technology Neutral Approach
Study Phases Timeline

**Information Gathering Phase**

1. **Study Preparation** (7 months)
   - Study Design
   - Questionnaire Development
   - OMB Approval
   - 9/2017 – 3/2018

2. **Initial Data Collection** (6 months)
   - Identify Fed POCs/State Champions
   - Questionnaire Open
   - Summary Reports for Interviews
   - 1/2018 – 6/2018

3. **Data Validation** (6 months)
   - Conduct Interviews
   - Validate Interview Results (Reports & Geodatabase)
   - 7/2018 – 12/2018

4. **Aggregate/Report** (3 months)
   - Aggregate Benefits by Business Use
   - Final Report & Geodatabase
   - 1/2019 – 3/2019

**Analysis/Development** (6 months)

- Develop Program Scenarios
- Analyze Benefit/Cost and ROI
- Determine Program Direction
- 4/2019 – 9/2019

**Follow on Study Tasks**
3D Nation Stakeholders
Federal, State, Local, Non-Profit, Private, & Academia

- Federal departments and agencies
- Federal commissions or committees
- 50 states plus D.C. and territories
- Local, regional, and Tribal stakeholders
- Non-profits
- Private/commercial
- Academia
State Agency Participant Types

- Archaeology/cultural heritage
- Biological survey
- Coastal resource management/Coastal zone management
- Economic and community development
- Emergency management
- Energy
- Environmental protection/management
- Fisheries management/aquaculture
- Forestry/rangeland management
- Geology
- GIS
- Habitat management
- Mining
- Natural resources/conservation
- Oil and gas
- Permitting/planning
- Recreation
- Regulatory
- State university
- Transportation
- Water management/resources
- Water quality
- Wildlife management

State Champions will help identify participants
Local and Regional Participant Types

- Tribal entities
- Local government agencies
- Integrated Ocean Observing System (IOOS) regional associations
- Metropolitan and/or regional councils/districts
- Port authorities
- Regional commissions or councils
- Scientific and research organizations
- Non-profits
What We Need Your Help With

- Take the survey
- Get the word out to your colleagues and associates
- Identify study participants and their contact information
- Help with questionnaire – invitations and follow ups with non-respondents if needed
- Participate in follow up interviews/workshops
- Help gain consensus on responses
- Review and sign off on validated responses
U.S. Federal Mapping Coordination Site

- IWG-OCM and 3DEP agencies are using Seasketch tool to share info on acquisition plans, data needs, coordination
- Additional tools available for use – forums, sketching

http://fedmap.seasketch.org
Hurricane Season 2017
Hurricane Supplemental Funding Request—Pending

- NOAA Hurricane Supplemental Funding Request pending approval through Congress
  - $20M Pres Request
  - $40M House Mark

- Outlined/highlighted areas in graphic represent impacted areas from Hurricane Irma and interagency priorities for mapping

- Collaborative effort involving NOAA’s OCS, NGS, CO-OPS, IOOS and other partner agencies and stakeholders

- Coordinated recovery mapping effort that brings the full suite of NOAA navigation, observation and positioning capabilities to impacted areas
Seabed 2030 is a global initiative led by the General Bathymetric Chart of Oceans (GEBCO) Guiding Committee and The Nippon Foundation with the aim to facilitate the complete mapping of the ocean floor by the year 2030.
## TARGET RESOLUTIONS

<table>
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<tr>
<th>Depth range</th>
<th>Grid-cell size</th>
<th>% of World Ocean</th>
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</thead>
<tbody>
<tr>
<td>0-1500 m</td>
<td>100 x 100 m</td>
<td>13.7</td>
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<tr>
<td>1500-3000 m</td>
<td>200 x 200 m</td>
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<tr>
<td>3000-5750 m</td>
<td>400 x 400 m</td>
<td>72.6</td>
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<tr>
<td>5750-11000 m</td>
<td>800 x 800 m</td>
<td>2.7</td>
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</table>

Feasible resolution based on state-of-the-art 2 deg x2 deg deep water multibeam installed in surface vessels, calculated at 60 degree from nadir
HOW CAN YOU CONTRIBUTE

U.S. Mapping Agencies and Partners will be KEY:

• U.S. is responsible for U.S. waters – EEZ, shelf
• U.S. leadership recognized: Will continue mapping international unknown ocean to explore & discover
• 24 govt/research institutions, universities, businesses already participating, and this number is growing
• First big step – Discovery, sharing of existing data to fill gaps
  ▪ Anything not already at NCEI or other accessible site
  ▪ Agency, partner, stakeholder data with good metadata
• Agreement on, and use of, common standards
• Sharing of plans at FEDMAP and collaborative mapping campaigns to fill more gaps
• IHO Crowdsourced Bathymetry initiative
Alaska Mapping Executive Committee

Updated AMEC Charter:
New AMEC charter runs 2018 through 2022
Language expanded to note additional Alaska mapping requirements that AMEC can consider in the future:

- imagery
- bathymetric mapping
- targeted lidar acquisitions
- continued improvements to hydrography
- geologic mapping
- geophysical surveys
- land classification

<table>
<thead>
<tr>
<th>Theme</th>
<th>Metric</th>
<th>2013 Goal</th>
<th>October 2017 Status</th>
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<tbody>
<tr>
<td>Elevation</td>
<td>% IFSAR acquired</td>
<td>Complete in 4 years</td>
<td>92% statewide coverage achieved</td>
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<tr>
<td>Hydrography</td>
<td>% NHD updated</td>
<td>Complete in 6 years</td>
<td>20% updated</td>
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<tr>
<td>Transportation</td>
<td>% of State completed and publicly available</td>
<td>Complete in 5 years</td>
<td>Baseline AK DOT roads dataset 100% complete; ongoing maintenance</td>
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<td>GRAV-D</td>
<td>% GRAV-D acquired</td>
<td>Complete in 2019</td>
<td>78.4%</td>
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<tr>
<td>Coastal Mapping</td>
<td>% AK shoreline updated</td>
<td>Complete in 5 years with budget increase, longer term if no budget increase</td>
<td>48.5%</td>
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</tbody>
</table>
Alaska IfSAR Status EOY FY2017

- 15% Statewide coverage acquired in FY2017
- 92% of the State Available or In-Work at end of FY2017
Working Groups: develop strategic plans and implementation plans for data acquisition, maintenance and distribution, set data standards, and define data models. Additional working groups and subgroups can be deployed as needed. Orange border indicates groups with approved charters.
TODAY – Set Some Goals for Alaska Coastal Mapping

- 2016 Alaska Coastal Mapping Summit
- Strategist position jointly funded by State of Alaska and NOAA – Marta Kumle
- 2nd Alaska Coastal Mapping Summit (Feb 9, 2018)
- Alaska Coastal Mapping Roadmap, Strategy, Prioritization, Standards, Leveraging -- ACTION
Questions?

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