

# 10th Meeting of the Arctic Regional Hydrographic Commission

National Report by  
United States of America

August 13, 2020



**IHO**

International  
Hydrographic  
Organization



# U.S. Hydrographic Leadership



- **NOAA**

- Director, Office of Coast Survey
  - **Rear Admiral Shep Smith**
- Deputy Director, Office of Coast Survey
  - **Katie Ries**

- **NGA**

- Senior GEOINT Authority-Maritime
  - **John Lowell**
- Director, Maritime Office
  - **Capt. Richard Kennedy**

- **Navy**

- Commander Naval Meteorological and Oceanography Command (CNMOC) Oceanographer of the Navy, Hydrographer of the Navy, and Navigator of the Navy
  - **Rear Admiral John Okon**
- Deputy Hydrographer of the Navy
  - **Matthew Borbash**



# Rescheming U.S. ENCs (NOAA)

- Current scheme of 1513 ENC
- Final rescheming will produce suite of more than 9,000 ENC

Planned ENC Scheme for Usage Bands 4  
ENCs already created are shown in **green**

Schemes and real-time status updates for  
usage Bands 2-6 are at:

<https://distribution.charts.noaa.gov/ENC/rescheme>

Point of contact: [Colby.Harmon@noaa.gov](mailto:Colby.Harmon@noaa.gov)



# Future of the paper chart



- US and CA submitting paper to HSSC-12
- National Charting Plan: A strategy to transform nautical charting
  - <https://nauticalcharts.noaa.gov/charts/docs/NCP-1-pager-v2.pdf>
- Five-year plan to sunset raster
  - <https://nauticalcharts.noaa.gov/charts/noaa-raster-charts.html>

## How to transition from traditional NOAA paper nautical charts to ENC-based products, including paper NOAA Custom Charts.

**End of Traditional Paper Charts** - In November 2019, NOAA initiated a five-year process to end all raster nautical chart production, including the five traditional paper chart products described on this webpage and within the expandable blue bars below. NOAA is intent on easing the transition to ENC-based products while continuing to support safe navigation. This includes improving data consistency and providing larger scale coverage for the electronic navigational chart (NOAA ENC®).

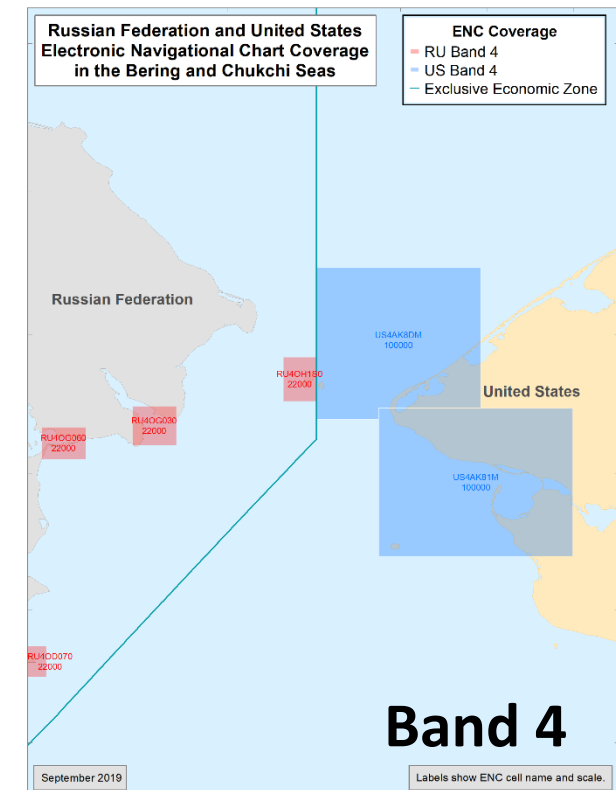
**New Paper Chart Product** - NOAA is aware that some chart users prefer paper charts. Although production of traditional paper charts will stop, a new form of paper nautical chart will be available through the [NOAA Custom Chart](#) capability (currently in prototype form). This system will enable users to create, customize, and print paper charts themselves, or have large format charts printed and delivered by a NOAA certified print-on-demand (POD) chart agent. We encourage those who want to continue using paper charts to become familiar with the NOAA Custom Chart prototype and [let us know](#) how to improve the system.

These documents provide more details about the sunsetting of NOAA raster/paper charts, ongoing improvements to NOAA's premier electronic navigational chart product, and NOAA Custom Charts.

- [Initial NOAA announcement to end production of traditional paper nautical charts](#) – November 2019
- [Sunsetting Traditional Paper Charts](#)  – Explains the sunsetting process, rationale, and affected products.
- [Transforming the NOAA ENC®](#)  – Provides more information about ENC improvements.
- [NOAA Nav-cast: How to obtain ENC-based paper nautical charts after NOAA ends production of traditional paper charts?](#) – Recorded presentation that (1) discusses the decision and timeline to sunset raster charts, and (2) provides a demonstration of the NOAA Custom Chart prototype.



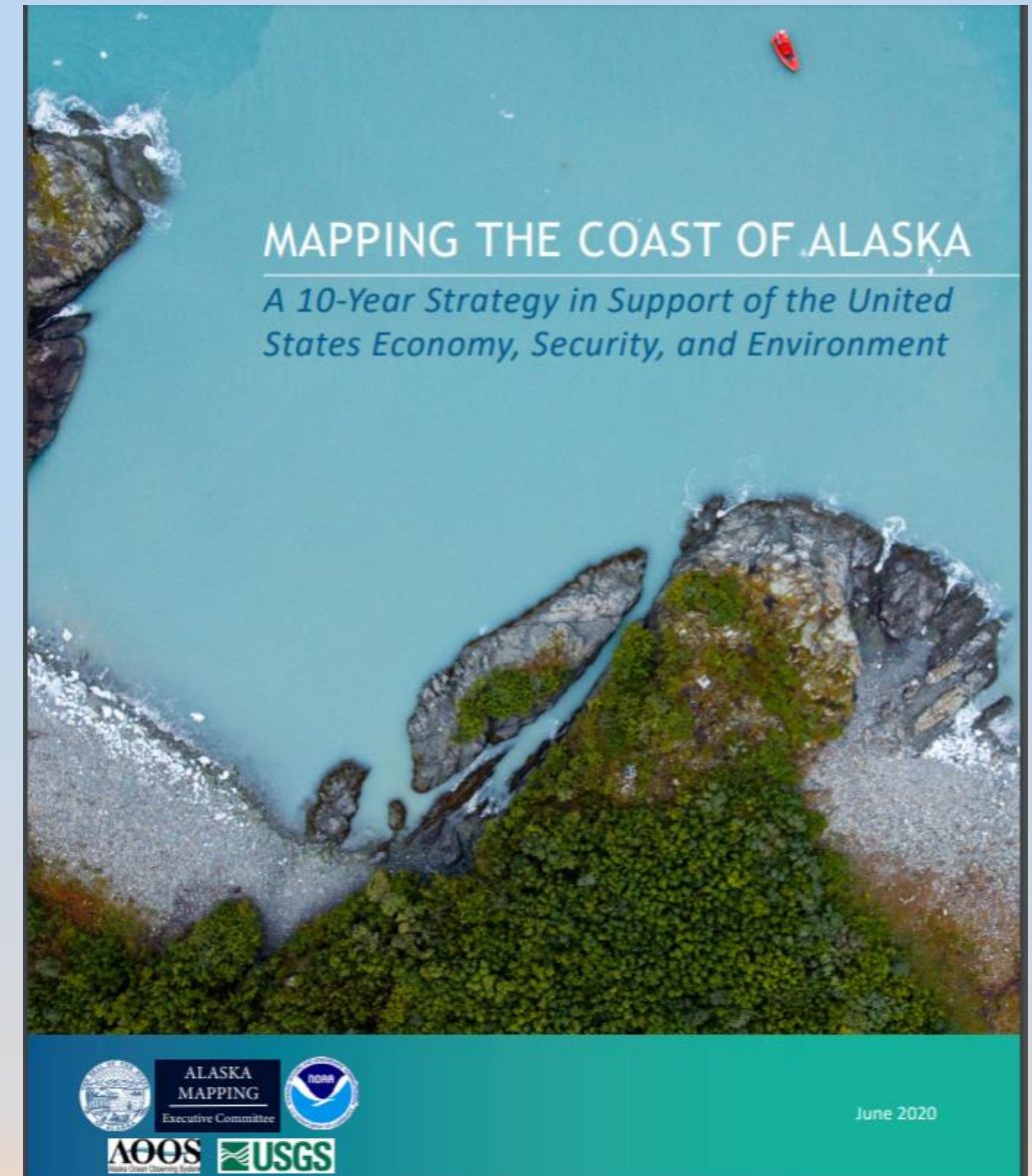
- # RU-US ENC Overlaps

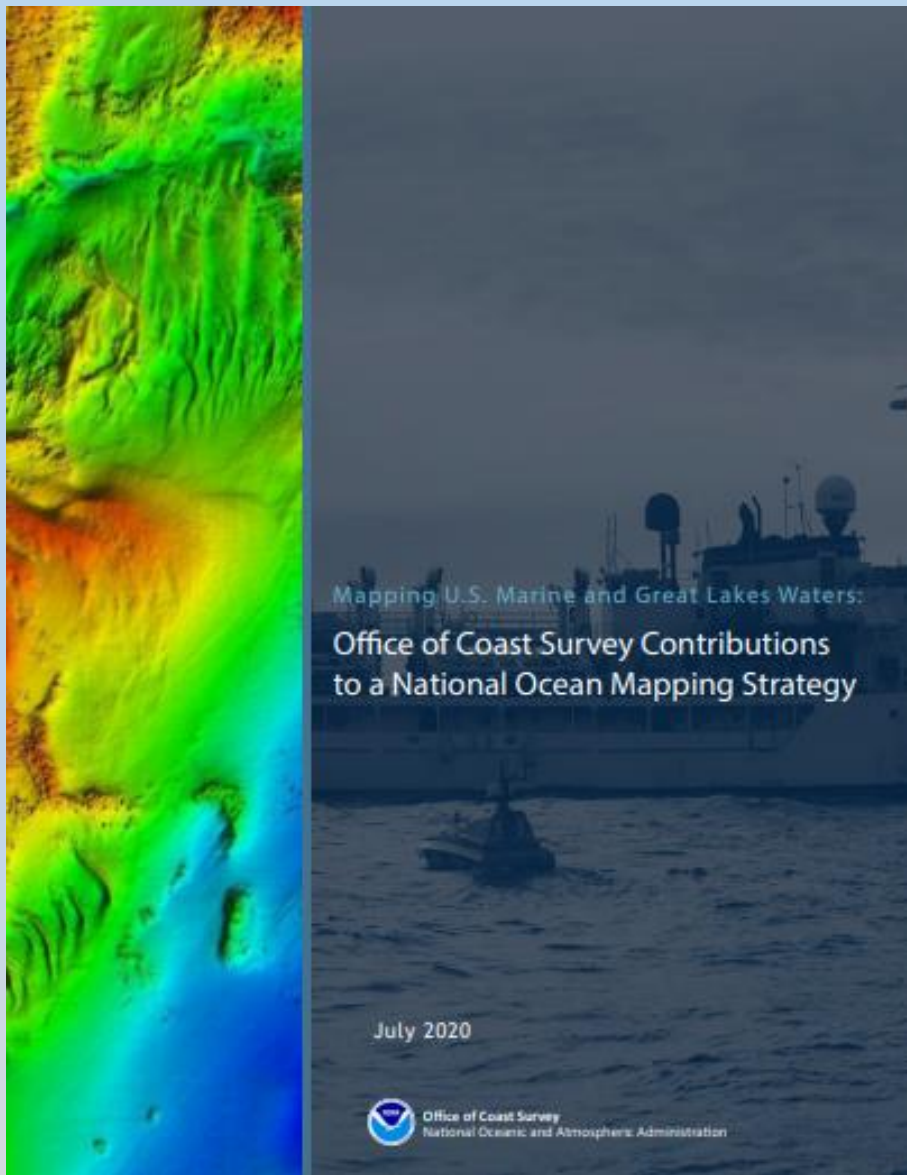


# “Mapping the Coast of Alaska: A Ten-Year Strategy”

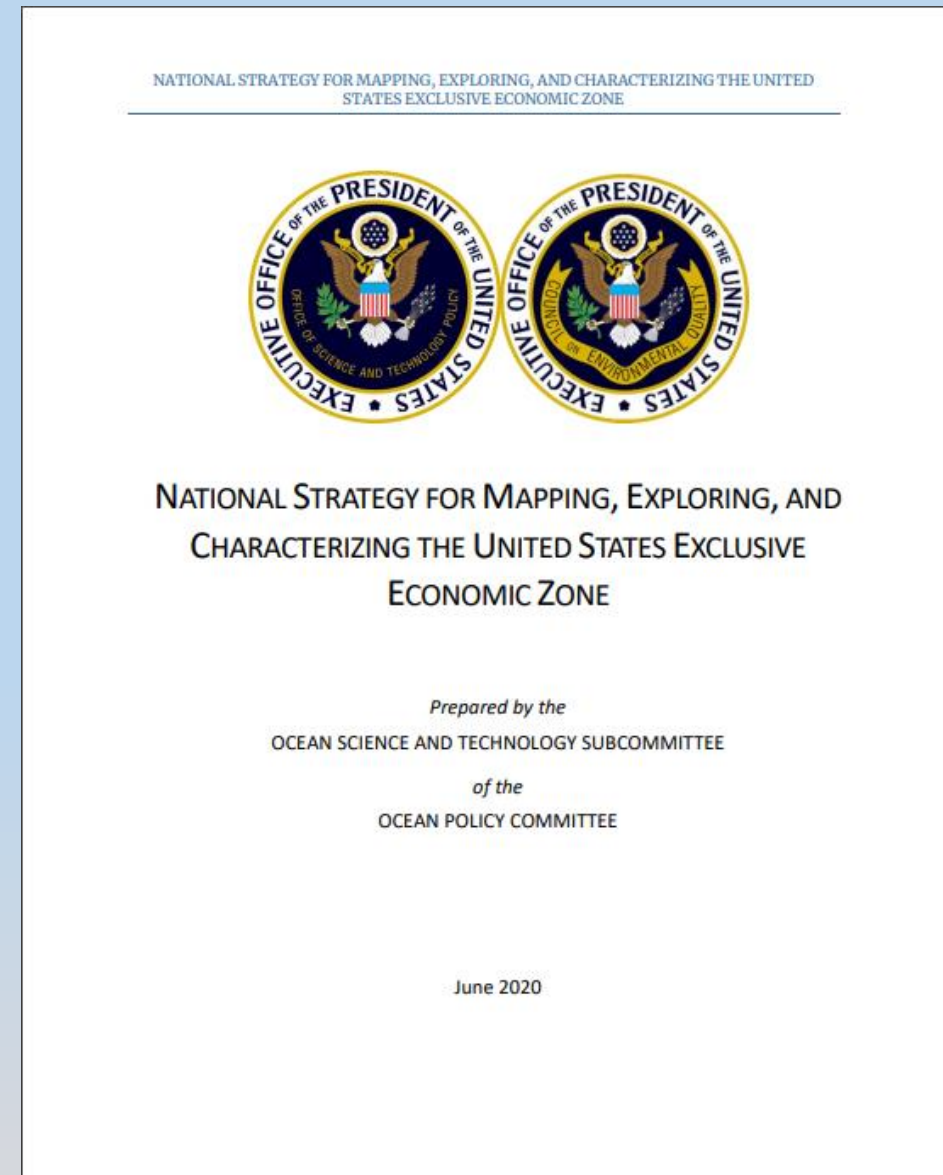
(June 2020)

- Interagency strategy
- By 2030:
  - Build on Existing Mapping Partnerships to Meet Alaska’s Coastal Mapping Needs
  - Expand Coastal Data Collection to Deliver the Priority Geospatial Products Stakeholders Require
  - Leverage Innovation in Mapping Technology Development
  - Conduct Strategic Communications to Promote Widespread Stakeholder Engagement
- <https://iocm.noaa.gov/about/documents/strategic-plans/alaska-mapping-strategy-june2020.pdf>
- Point of contact: Ashley.Chappell@noaa.gov





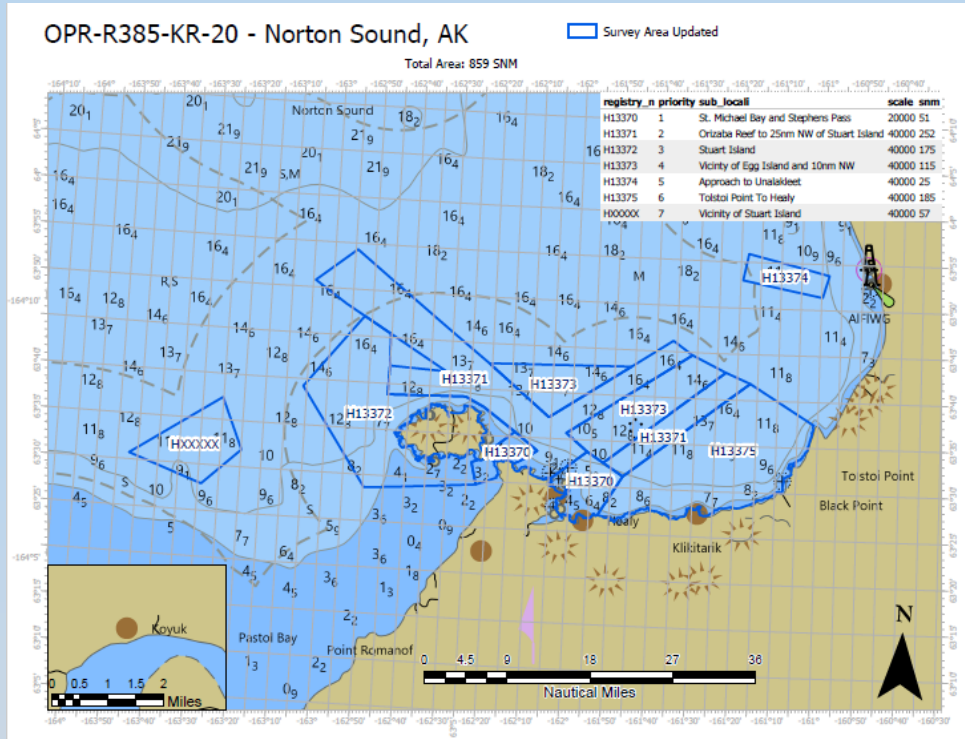
OCS National Ocean Mapping Strategy



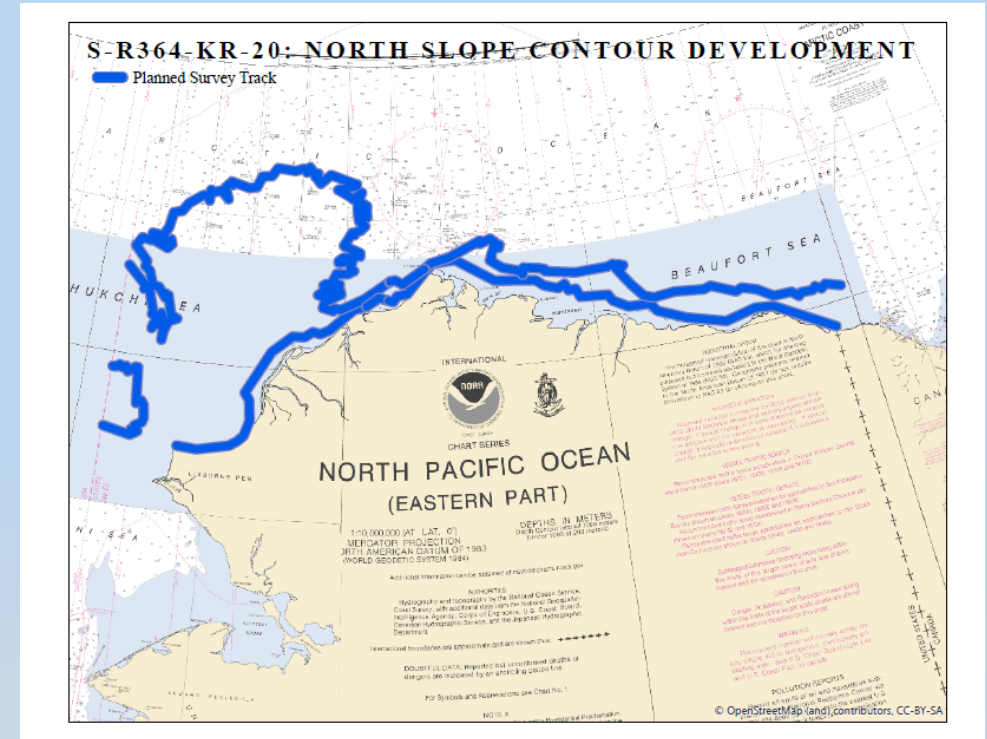
NATIONAL STRATEGY FOR MAPPING, EXPLORING, AND CHARACTERIZING THE UNITED STATES EXCLUSIVE ECONOMIC ZONE



# Arctic Surveys since ARHC-9



OPR-R385-KR-20, Norton Sound, AK  
 TerraSond Ltd.  
 April 24, 2020 – January 17, 2021  
 Planned days at sea: 61  
 Area: approx. 756 square nautical miles



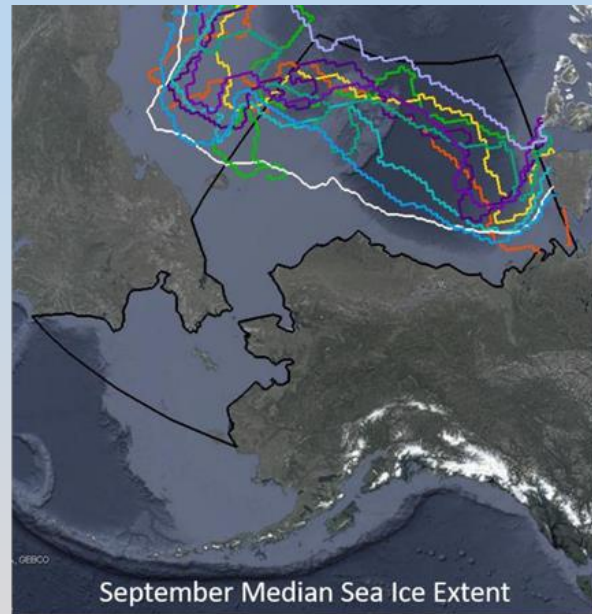
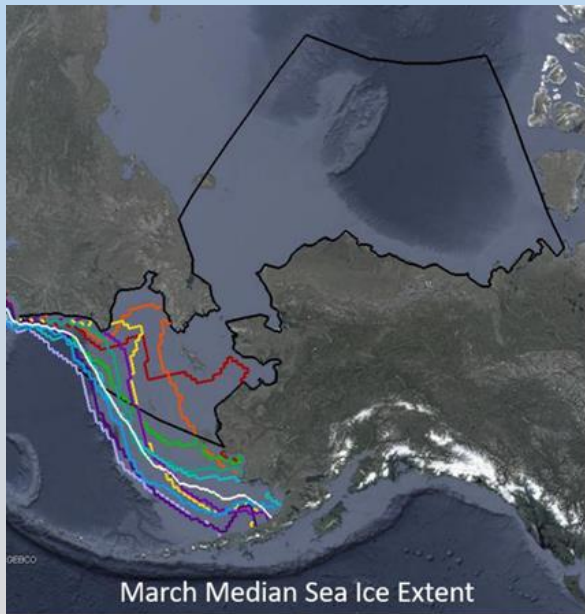
S-R364-KR-20, North Slope Contour Development, AK  
 Terrasond Ltd.  
 May 21, 2020 to January 31, 2020  
 Planned days at sea: 60  
 Area: approx. 5500 square nautical miles

More on ASV testing results in the OTWG Report

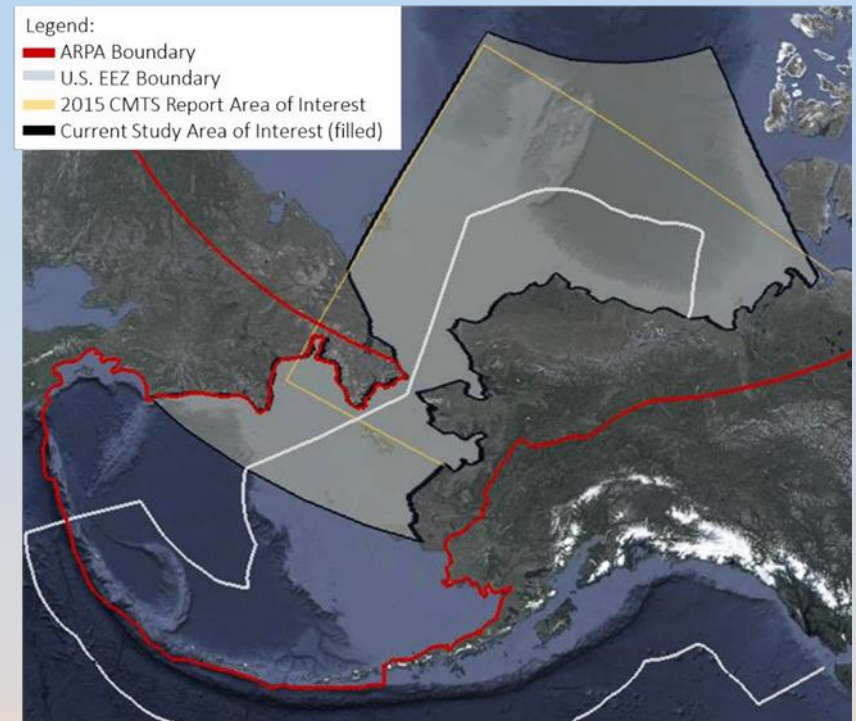


# “Projection of Maritime Activity in the U.S. Arctic, 2020–2030”

- Committee on the Marine Transportation System
- Draft analysis was briefed at ARHC-9; Final report released September 2019
- Full Report: <https://www.gao.gov/products/GAO-20-460>



2010  
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2019



Point of contact: [Heather.Gilbert@noaa.gov](mailto:Heather.Gilbert@noaa.gov)

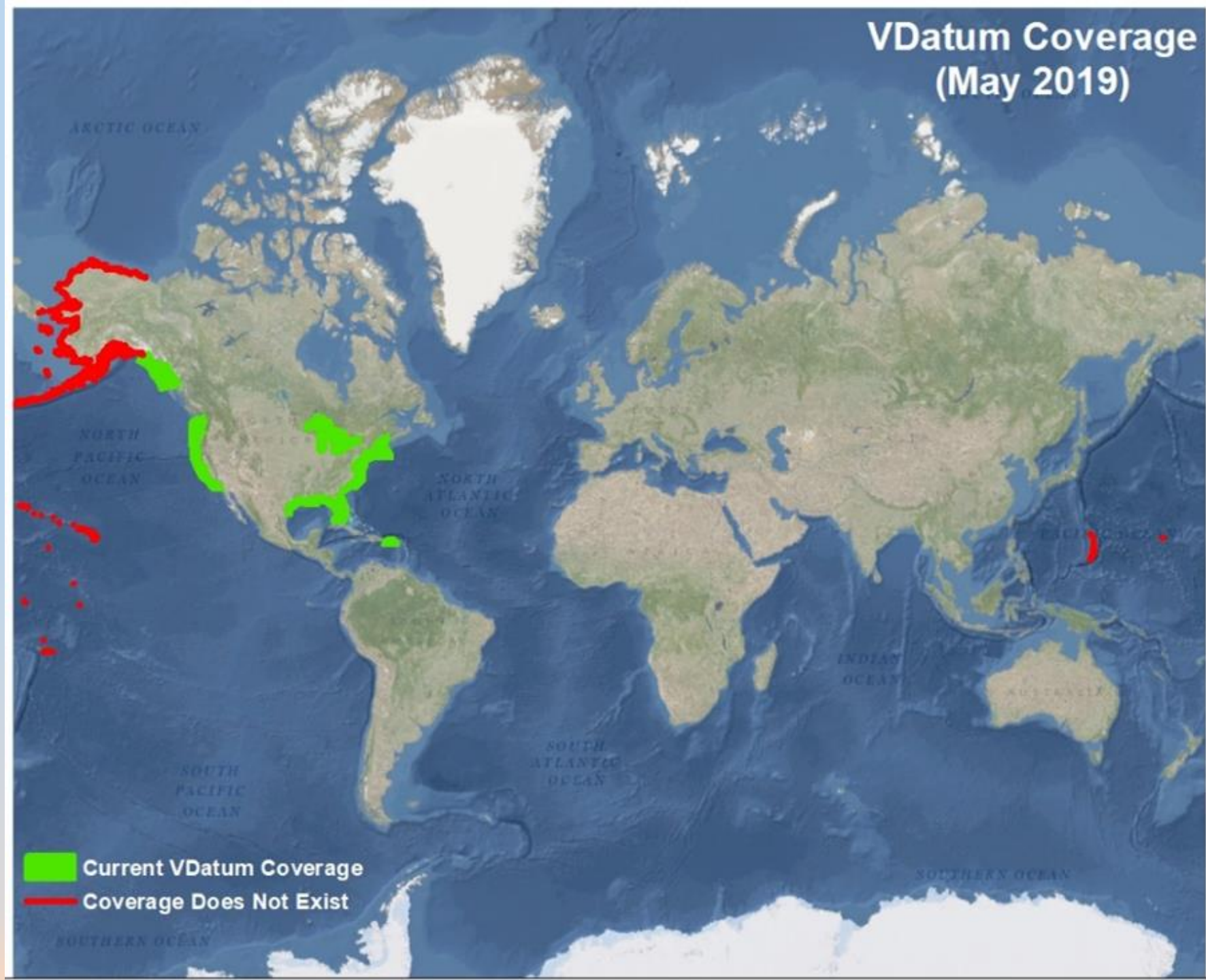
# V DATUM

## Vertical Transformation Models

- Tidal and chart datums to Orthometric and Geodetic datums
- Enables ellipsoid-referenced surveying
- Ties land datums to hydrographic datums

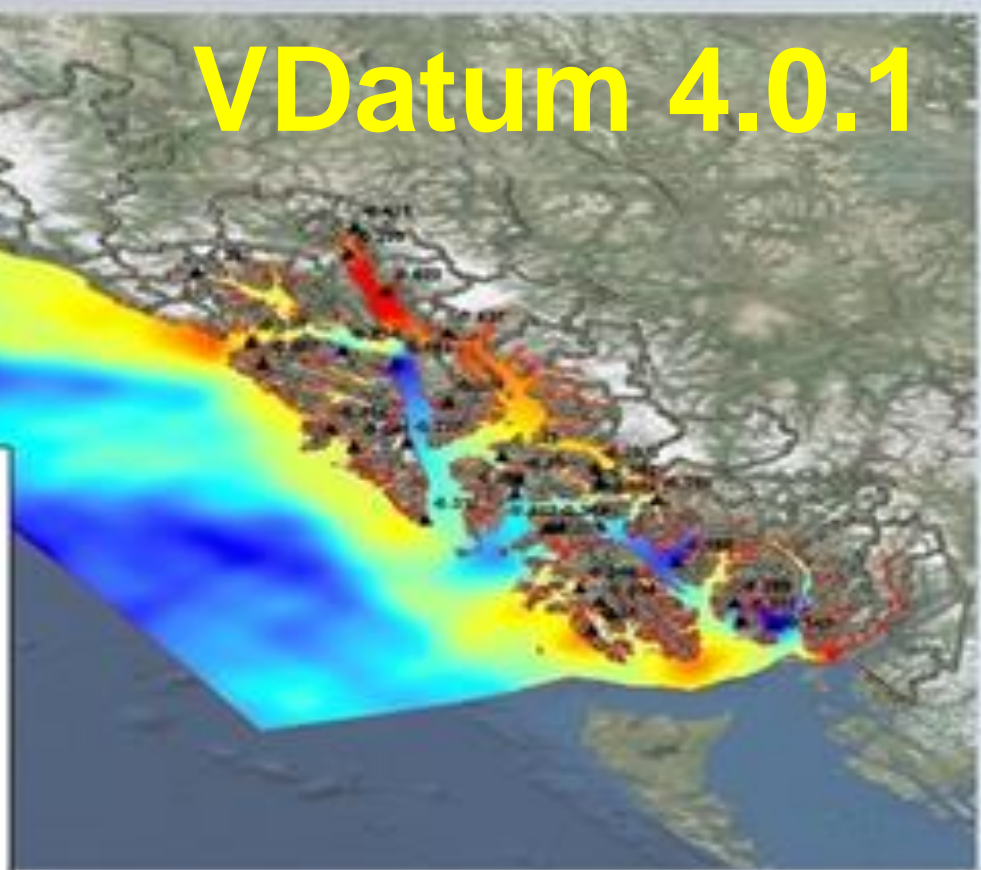
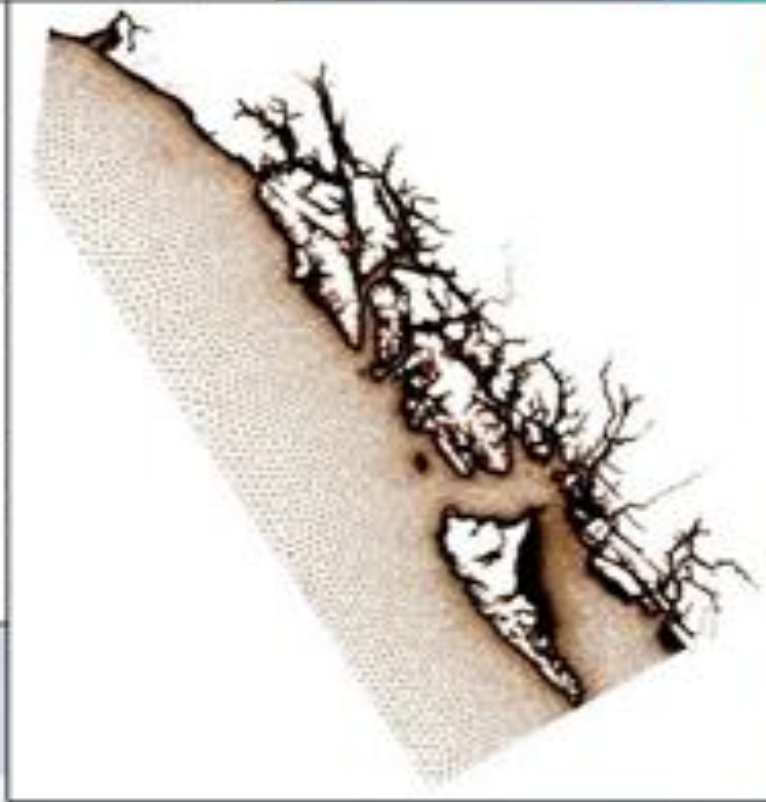
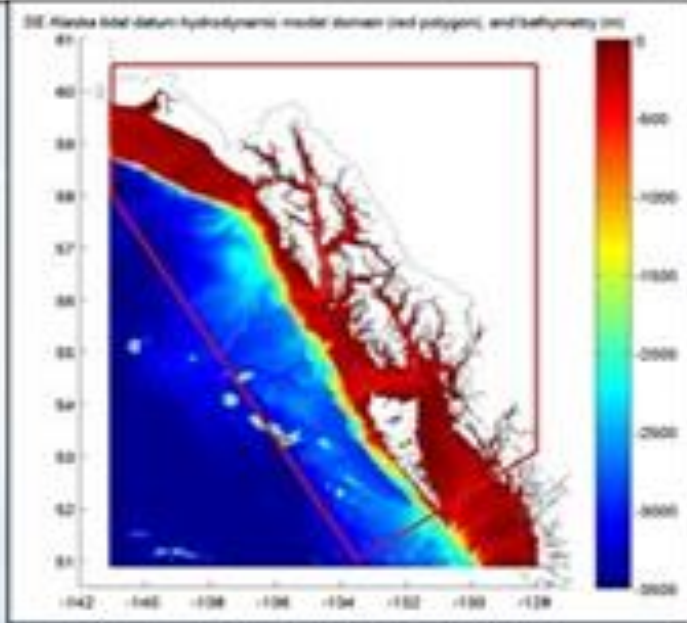
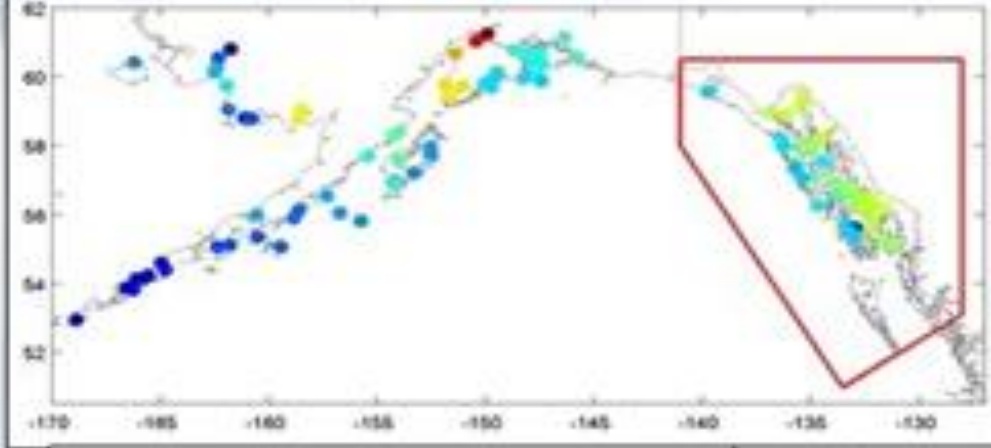
## Ongoing development

- Extend to Western/northern Alaska
- Updated existing models with spatial-varying uncertainty





# VDatum 4.0.1



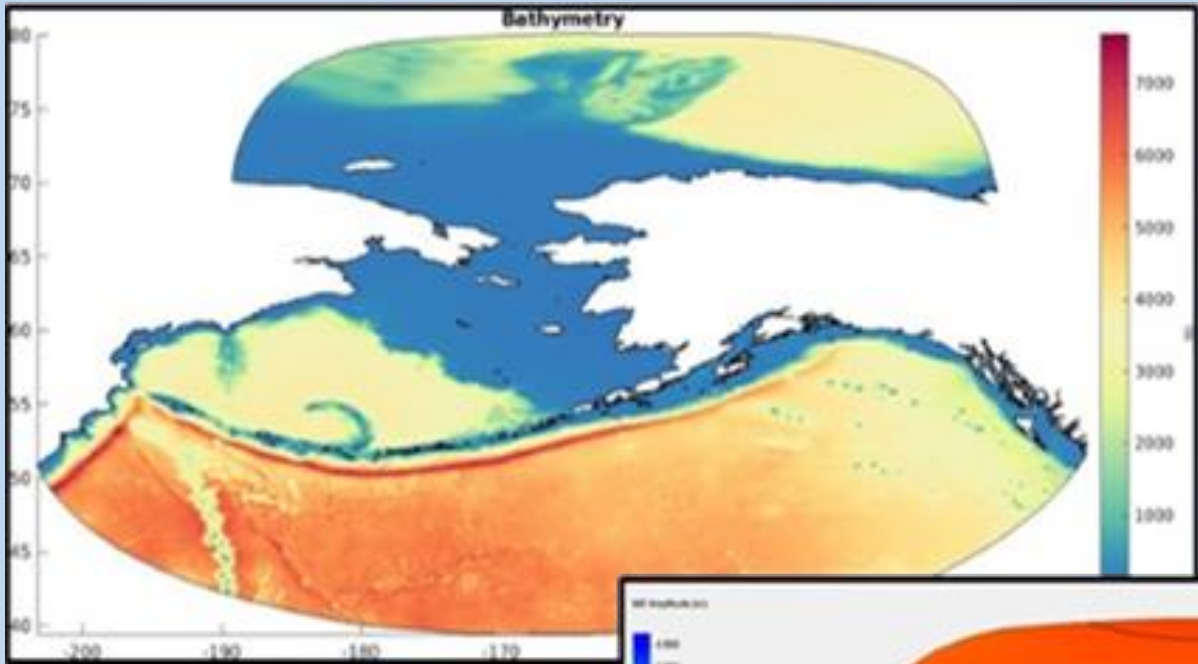
The VDatum 4.0.1 release on October 28, 2019 includes support for transformations involving the tidal datums of southeast Alaska (SE AK): local mean sea level (LMSL), mean lower low water (MLLW), mean high water (MHW), mean higher high water (MHHW), etc.



National Oceanic and Atmospheric Administration



To enable marine geodesy through vertical transformation capabilities with associated uncertainty estimates. An exploratory hydrodynamic model is being developed by NOAA (in collaboration with University of Notre Dame) for comprehensive VDatum coverage of Alaska.

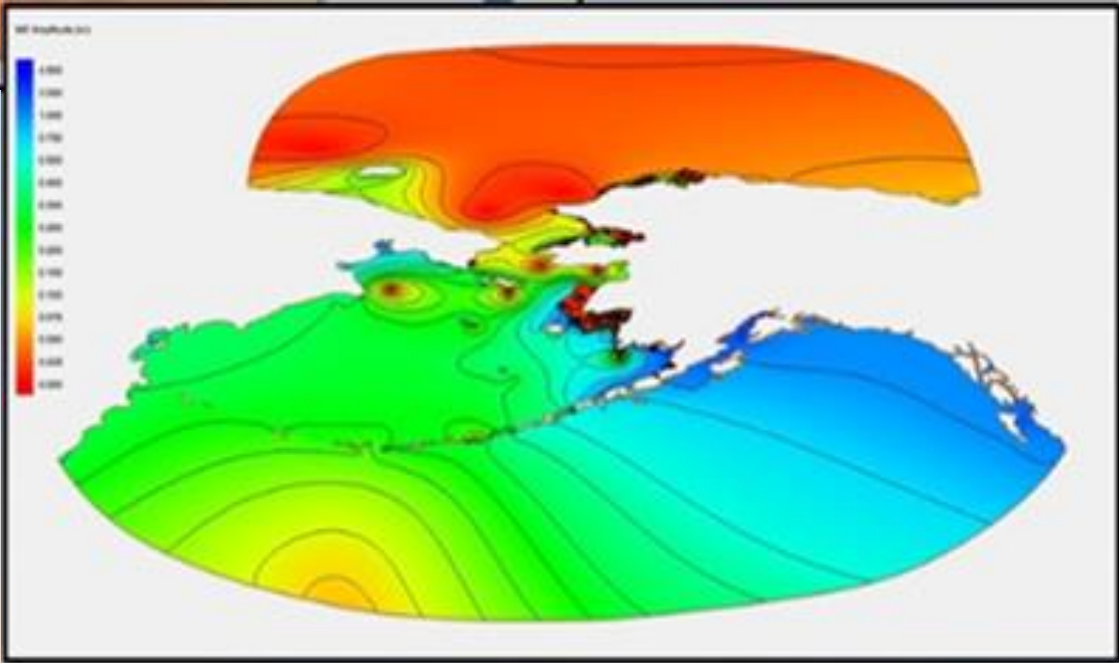


An exploratory hydrodynamic model is being developed by NOAA for comprehensive VDatum coverage of Alaska. The current model consists of several million mesh elements and includes tidal datum points from 240 water level stations.

**Model's nominal bathymetry using GEBCO2019**

Model runs will be used to resolve tidal datums and to help identify areas where improvements might be needed, including additional water level and datum observations with GPS/GNSS ties, and bathymetry and shoreline data.

**Model's M2 tidal constituent amplitudes**



Images courtesy of  
University of Notre Dame

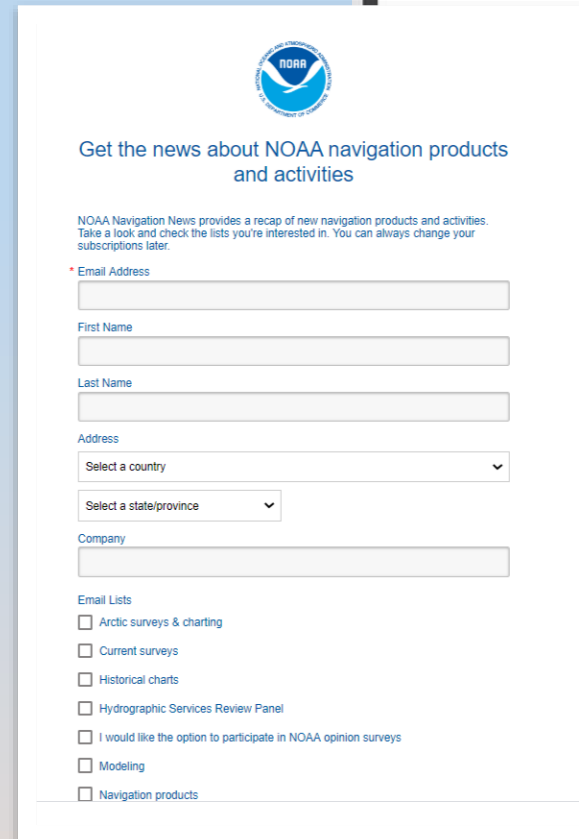
# NOAA Navigation News

- Quarterly newsletter (via email) highlighting NOAA navigation products and services
- **Sign up here:**  
[https://visitor.r20.constantcontact.com/manage/optin?v=001WY2H\\_3RLHWqbwLQo0UF9xdJfDBpzbTT](https://visitor.r20.constantcontact.com/manage/optin?v=001WY2H_3RLHWqbwLQo0UF9xdJfDBpzbTT)

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Point of contact:

[Kristen.Crossett@noaa.gov](mailto:Kristen.Crossett@noaa.gov)



The form is titled "Get the news about NOAA navigation products and activities". It includes a NOAA logo at the top. Below the title, there is a small paragraph: "NOAA Navigation News provides a recap of new navigation products and activities. Take a look and check the lists you're interested in. You can always change your subscriptions later." The form fields are: "Email Address" (required), "First Name", "Last Name", "Address" (with a dropdown for "Select a country" and "Select a state/province"), and "Company". At the bottom, there is a section for "Email Lists" with checkboxes for: "Arctic surveys & charting", "Current surveys", "Historical charts", "Hydrographic Services Review Panel", "I would like the option to participate in NOAA opinion surveys", "Modeling", and "Navigation products".

