2021 YEAR IN REVIEW

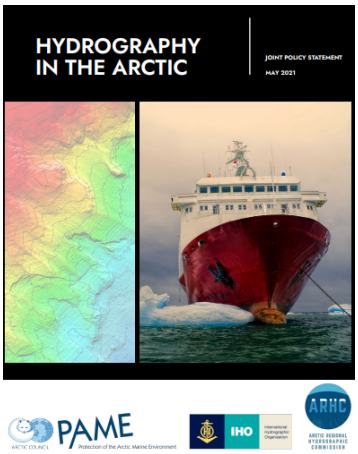
ARCTIC REGIONAL HYDROGRAPHIC COMMISSION

The Arctic Regional Hydrographic Commission (ARHC) is one of 15 (RHCs) recognized by the International Hydrographic Organization (IHO). RHCs coordinate hydrographic activity and cooperation at the regional level. At the 11th ARHC meeting hosted virtually by Canada on 9-10 November, 2021, Member States shared National Reports summarizing activities and points of interest since the 10th ARHC meeting.*

Members: Canada, Denmark, Norway, Russian Federation, United States
Associate Members: Finland, Iceland, Italy
Chair: Dr. Geneviève Bèchard (Canada)
Vice-Chair: Ms. Pia Dahl Højgaard

The Arctic Council-ARHC Joint Statement on Hydrography in the Arctic Region
Released May 2021

The Joint Statement recommends that the governments of the Arctic States review, update and improve existing, and collect new, bathymetry and hydrographic data in the Arctic region. It encourages these governments to find additional resources to strengthen hydrographic surveying and charting in the Arctic region and identifies several ways each of these recommendations may be pursued.



The S-100 hydrographic data model is the next generation framework for data integration and utilization. The standards are a common focus for nations, with many raising awareness and improving knowledge about benefits of the S-100 framework and cost effectiveness. Nations of the ARHC are working to employ this framework in the Arctic following the IHO's S-100 Implementation Strategy.

Hydrographic Surveying - 2021 update

- From 2017 to 2021 survey coverage in the **Canadian** Arctic went from 30.5% to 40.4%. This is double the amount of coverage that was obtained from 2011 to 2016
- **Canada** increased its ocean mapping capacity with the deployment of a sixth icebreaker, *Canadian Coast Guard Ship Henry Larson* (photo 1). Nearly 32,000 Km² of modern multi-beam data was collected from CCG vessels in 2021
- In 2020 and 2021, the **U.S.** (NOAA) surveyed approximately 2400 square nautical miles (SNM) of Arctic seafloor across six separate projects
- Surveying of **Iceland's** EEZ continues and 2021 surveys included Ísafjarðardjúp and the northern part of the Westfjords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Snapshots

- **Norway** has three, 3-year pilot projects that will investigate and test new technology for data collection and processing and develop a cost effective model for the implementation of a **Marine base maps** in Norway. The projects aim to provide new business opportunities, stimulate and/or optimize the growth of industries, promote better public administration and effective coastal zone management and support the marine spatial planning process in Norway with authoritative data
- **U.S.** *Coast Guard Cutter Healy* **transited the Northwest Passage** (Alaska to Greenland) in August and September, 2021 to collect data to fill gaps in current hydrographic coverage (photo 2)
- **U.S.** released **global vessel traffic density data** to the public in Fall 2021
- Launched in 2021, **Seascape Alaska** is a regional campaign to fully map **U.S.** waters off Alaska with benefits including: safe navigation, hazard and mitigation adaptation, identification of marine habitats, ocean and climate models and research, renewable energy, an fisheries management


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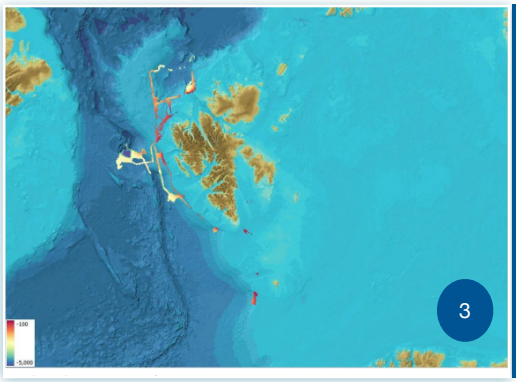
*For additional details on reports presented and discussions of the ARHC, please visit https://iho.int/en/arctic-rhc. We also encourage you to read the IHO's Bulletin report of the ARHC-11 meeting.



Italy's HIGH NORTH21 was successful, with hydrographic survey focused on two main Arctic areas: Molloy Hole and North-west Svalbard (photo 3)

HIGH NORTH21 is recognized as Action 35 of the UN Decade of Ocean Science for Sustainable Development by IOC UNESCO, and addresses the UN Decade's 'Early Career Ocean Professionals' program, including six young researchers on the scientific team. Research activities focus on the evolution of oceanic processes under different climate and environmental conditions.

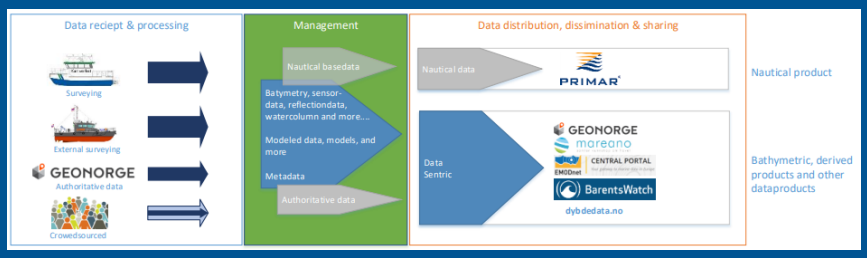
New National Strategies

- **Finland's new Strategy for Arctic Policy 2021 to 2030** has four priority areas: **climate change**, mitigation and adaptation; **inhabitants**, promotion of wellbeing and the rights of the Sámi as an indigenous people; **expertise**, livelihoods and leading edge research; **infrastructure and logistics**, including Strategic measures for maritime transport. An additional focus will be strengthening the development of shipping infrastructure and the nautical charting in the Arctic region by means of hydrographic surveys. The goal is a peaceful Arctic region marked by constructive cooperation.
- **Denmark** has developed a **new strategy for 2021 to 2030** focusing on efficient production, new technologies for depth data collection, accessible and targeted data and products for maritime users, coordination and collaboration of marine data, integration of S-100, and a long term finance model.

New and Noteworthy

Norway's new hydrographic infrastructure - **Nautilus**

The new system, which will take five years to complete (2022-2026) is expected to be an integrated and complete management solution supporting effective preparation and dissemination of a broad range of marine geodata, including also bathymetric and derived bathymetric products, while ensuring an effective production of authorized nautical products



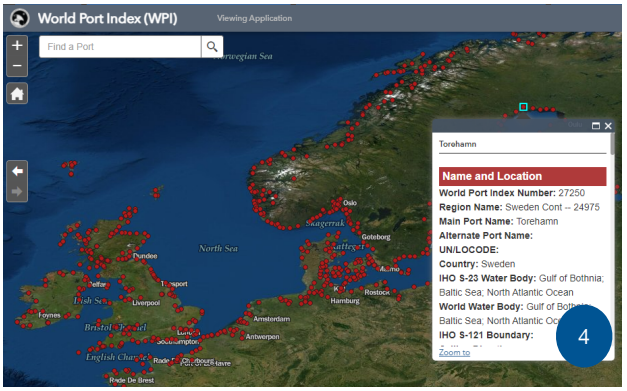
2021 Charting Highlights

- **Denmark's** Nautical Chart Production System (NCPS) is based on Esri's ArcGIS for maritime and came into production in April. When fully implemented, there will be one common, database-based production system for both the Greelandic and Danish productions
- **Norway** achieved full coverage of the Coastal usage band ENCs along the Norwegian coast
- By March 2022 it will be possible to navigate the primary Northwest Passage entirely on ENCS produced by **Canada**
- The **U.S.** NOAA Custom Chart Tool was released in March to provide an alternative to traditional paper charts, which are being phased out. The tool allows users to choose their own chart scale and location in a printable PDF format.

Uncrewed Systems and Autonomous Surface Vehicles

- U.S. utilized Saildrone in the Bering Sea
- Canada saw operational deployment of an XOcean USV platform for multi-beam sonar bathymetric data collection in the Arctic (photo 5)

- **U.S.** released a World Port Index which includes **major ports** and terminals worldwide (photo 4)
- Norway is standardizing port data with the goal to make it easy to share and update **port data** through a common national infrastructure. Port Data 2.0 was released in October 2021 and includes an updated version of the Port Data standard, updated Guidance document, available in Norwegian and English
- **Iceland** expects eight new harbor plans and editions by 2022 for a handful of ports in small villages that have not been updated for a long time or had not previously existed



Questions? Contact hydrographer@noaa.gov
For more information visit https://iho.int/en/arctic-rhc