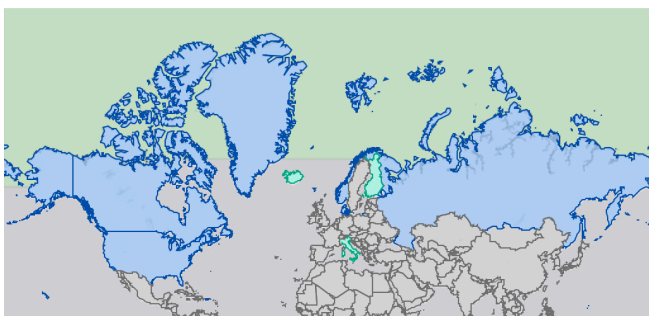


# ARCTIC REGIONAL HYDROGRAPHIC COMMISSION (ARHC) YEAR IN REVIEW\*

The **Arctic Regional Hydrographic Commission (ARHC)**, is one of 14 Regional Hydrographic Commissions (RHCs) of the International Hydrographic Organization (IHO). RHCs coordinate hydrographic activity and cooperation at the regional level. At the 9th ARHC Conference, 17-19 September 2019, Murmansk, Russian Federation, Member States submitted **National Reports** summarizing activities and points of interest happening within each Nation since September, 2018.

The Arctic is undergoing unprecedented change, which will only increase in the coming years. This includes growing maritime traffic, and the importance of avoiding incidents and decreasing the risk of vessels venturing into poorly surveyed waters.

Collaboration between all ARHC members is crucial for hydrographic knowledge and navigational products and services on a pan-Arctic scale.



**Members:** Canada, Denmark, Norway, Russian Federation, United States  
**Associate Members:** Finland, Iceland, Italy  
**Chair:** Admiral Shepard Smith (USA)  
**Vice-Chair:** Dr. Geneviève Bèchard (Canada)



2018 and 2019 saw many steps forward at the national level regarding surveying and charting Arctic areas. Canada, Denmark, Norway, Finland, and Iceland reported new Arctic surveys, with a general wave of updated charts and re-scheming of ENC's.

## Collaboration and Cooperation in the Arctic Region

- Efforts have been made by Canada and the U.S. to build relationships with **local and indigenous communities**
- Canada has collaborated with Denmark, Sweden and the U.S. on joint surveys and scientific collaboration covering **1.2 million square kilometers**
- Norway has continued increased activity in the **MAREANO Project** in both coastal and open sea Arctic areas
- Finland has **bilateral arrangements** with Estonia, Sweden, Norway, Germany and UK
- Italy held a conference titled *Arctic Connections: A trust-building Arctic cooperation on Energy, Security, and Blue Economy*, highlighting the **geopolitics** of resources and transport, Arctic governance and sustainable economic development, strengthening the collaboration between Italy and Norway
- The U.S. Strategic approach to the Arctic Region, outlined by a national strategy, highlights the importance of **international partnerships**

## News Bulletin

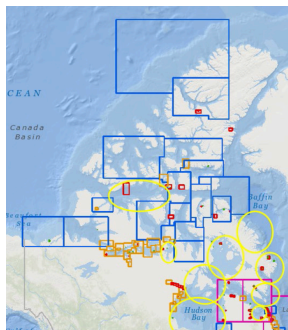
- In 2018, the Faroe Islands announced their intention to take over the production of nautical charts and surveys around the Faroe Islands. Denmark has written a report describing the tasks of mapping the waters. Responsibilities shifted on January 1, 2020
- Joint proposal by the Russian Federation and the U.S. (with concurrence from Italy and Finland) approved by IMO at the 99<sup>th</sup> Session of the IMO Maritime Safety Committee in London, 2018. The proposal is the first internationally recognized measure for navigation in the Arctic Region

## Featured Publication

The U.S. released a draft report, *A Ten-Year Projection of Maritime Activity in the U.S. Arctic Region, 2020-2030*, which aims to inform partners and stakeholders about potential changes in the U.S. Arctic's rapidly changing marine transportation system to support a safe Arctic marine transportation system

## Looking Ahead

- Canada has goals to cover all ENC gaps of Arctic areas by 2025 (shown in yellow to the right), and to help achieve this goal to deploy the *Harry DeWolf* vessel to the Canadian Arctic in 2020
- Denmark and Sweden are preparing a revision of routes from Skagen through the Kattegat, in part by processing new depth and coastline data



\*The review is in no way exhaustive, but a selective review of updates in 2019 using the National Reports of ARHC members

**Marine Spatial Data Infrastructure (MSDI) and geospatial data saw growing recognition in 2018 and 2019 among member states. Norway has focused increasingly on MSDI efforts, and Denmark and the U.S. also focused on MSDI and Geodata in their National Reports. The U.S. introduced *MarineCadastre.gov*, an integrated marine information system related to MSDI for ocean and Great Lakes planning.**

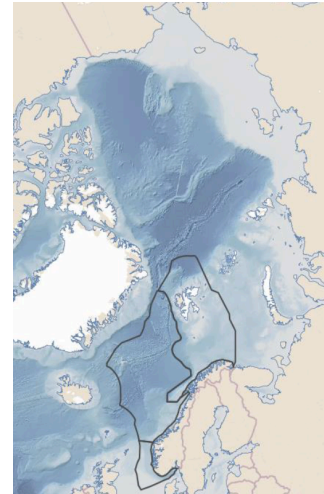
**Bathymetric Data was a focus of ARHC membership.** Canada, Denmark, Finland, Norway, and the U.S., all discussed bathymetric data coverage and management in their National Reports, seeking increased bathymetric coverage in the Arctic Region through new and ongoing projects, systems, and databases.

**Bathymetric Data Highlights:**

- Canada reported that modern and adequate bathymetric coverage of corridors has increased from 26.97% to 30.63% in 2019
- Norway has contributed a substantial part of high resolution bathymetric data through the MAREANO project to the GEBCO database
- The U.S. is coordinating with the Association of Arctic Expedition Cruise Operators (AECO) to ingest Arctic data to test a new online database for crowdsourced bathymetry
- The U.S. released the final planned 3-D digital elevation models (DEMs) of the Arctic in 2-meter resolution in September 2018, which covers the entire Arctic and fills gaps from previous releases

**Capacity Building Focus**

- In 2019, three Canadian hydrographer participated in U.S. Alaska cruises. Canada plans to invite U.S. staff on selected upcoming Arctic operations in 2020
- Canada is willing to share its experiences with a new PC 2.0 project, which seeks to automatically generate paper charts from ENCs. The Arctic will serve as an excellent proving area for the project
- Norway has engaged with Montenegro to achieve modern survey of prioritized harbor and coastal areas through regional cooperation with Croatia
- The U.S. held its fifth annual Chart Adequacy Workshop on July 25, 2019, which was international in nature, hosting participants from over a dozen countries
- Italy has opened a museum exhibition in 2019: Italian Navy to the North Pole—from Duke of the Abruzzi to the High North expeditions *Training and Education*
- Norway has committed to follow-up support for a 2014-2017 project with Albania from 2018-2020. The project has trained two students in Cat B courses and one student in a Cat A course, with goals related to building competence, survey, and ENC production capacity. The survey launch stemming from the project is in operation
- A member of the Icelandic ICG-HMSD staff did a Hydrographic Survey CAT B course at Skilltrade in the Netherlands in 2019



Norway developed a Marine Spatial Management Tool (MSMT) in 2019—to the left see Norwegian management plans for the Barents Sea, Norwegian Sea, and the North Sea and Skagerak, representing 2.3 mill. km<sup>2</sup> (Norway National Report)

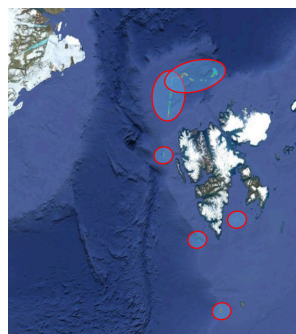


Modern hydrographic surveying echo-sounding launches in 2018-2019 (Russian Federation)

**HIGH NORTH Surveying and ARNACOSKY Project**

**Italy HIGH NORTH 18 hydrographic surveys focused on five areas:** INBIS channel, Storfjorden, Hornusund, Kongsfjord and Yermak Plateau/Ice edge

HighNorth19 will investigate uncharted area around Fram Strat, which will be mapped, and the edge of the Arctic ice pack surveyed, developing and increasing the performance of the ARNACOSKY experiment (Arctic Navigation with Cosmo SKymed), which aims to distribute information on the state of the ice ahead of the route, and maritime traffic of cooperative and non-cooperative vessels.



**New and Ongoing Projects**

**Canada** has a suite of exciting projects: 1) CHS is in year 3 of the 5 year Ocean Protection Plan (OPP), providing extra funding for Arctic surveying; 2) Paper Chart 2.0 seeks to automatically generate paper charts from ENCs, moving to a grid-based ENC scheme; 3) Four temporary submerged tide gauges retrieved from the Arctic in 2019; 4) The Arctic and Offshore Patrol Ship (AOPS) project launched its first vessel, the HMCS Harry DeWolf.

**Denmark** has been working on a pilot project called ENC-Simple.

**Norway** has ongoing pilot projects on digital nautical publications, S-102, Marine Base Maps, and Web-based climate services.

**Sources:** National Reports gathered from <https://iho.int/en/arctic-rhc>; Photo #1 Source <https://www.climatechangenews.com/2018/04/09/arctic-countries-call-regional-heavy-fuel-oil-ban-un-shipping-talks/>; Photo #2 Source <https://www.nauticalcharts.noaa.gov/updates/noaa-hosts-2019-nautical-cartography-open-house-and-chart-adequacy-workshop/>; Map Source <https://iho.int/en/arctic-rhc>