

**15th MEETING OF THE IHO INTER-REGIONAL COORDINATING COMMITTEE
IHO-IRCC15
Tokyo, Japan, 12-14 June 2023**

ARCTIC REGIONAL HYDROGRAPHIC COMMISSION

ARHC report to IRCC15

1. Chair

Chair: Pia Dahl Højgaard (Denmark) from Sep. 2022
Dr. Geneviève Béchar, (Canada) from Nov. 2021 to Sep. 2022
RDML Shepard Smith, RDML Rick Brennan, (US) from Sep. 2019 to Nov. 2021

Vice-Chair: Birte Borrevik (Norway) from Sep. 2022
Pia Dahl Højgaard (Denmark) from Nov. 2021 to Sep. 2022
Dr. Geneviève Béchar, (Canada) from Sep. 2019 to Nov. 2021

2. Membership

Members: Canada, Denmark, Norway, Russian Federation, United States

Associate member(s): Finland, Iceland, Italy, United Kingdom

Permanent Observers: IHO Secretariat

3. Meetings:

Following ARHC meetings have taken place:

11th ARHC Meeting – VTC, hosted by CA (9 - 10 Nov. 2021)

12th ARHC Meeting – St.John's, Canada (12 - 16 Sep. 2022)

Next meeting: 13th ARHC Meeting will take place 5 - 8 Sep. 2023 in Nuuk, Greenland

4. Current [RHC] Working Groups:

- a) ARHC Marine Spatial Data Infrastructure Working Group (ARMSDIWG)
- b) ARHC Operations and Technology Working Group (OTWG)
- c) Arctic International Charting Coordination Working Group (AICCWG)

5. Status of IRCC actions and recommendations to RHCs

a) Status of actions (relevant for the ARHC):

IRCC14/ Action 1: IRCC invited RHCs and Subordinate bodies to provide comments and inputs on the governance document on Dual Fuel Concept for S-100 ECDIS, intersessionally. (Permanent)

Ongoing

b) Status of Recommendations to RHCs:

IRCC14/Recommendation 1: RHC are encouraged to increase the collaboration with the Data Quality WG and to try to find candidates for the vacancy of the Chair and Secretary positions.

Ongoing.

IRCC14/Recommendation 2: RHC to discuss how HO's can assume a geo-coordinating role to help ensure provision of data on a regional level.

Ongoing. The ARHC Marine Spatial Data Infrastructure Working Group is tasked to lead discussions based on the approved work plan. ARHC intends to coordinate with Arctic SDI.

IRCC14/Recommendation 4: RHC to start or proceed with the debate on how the climate change related activities can be further investigated and what can be the role of the IHO.

Ongoing. ARHC members are invited to share experiences with respect to options and opportunities for the greening of hydrographic activities. Also, more broadly, during Open Forums preceding the formal ARHC, perspectives and challenges linked to climate change in the Arctic have been addressed.

IRCC14/Recommendation 5: RHC to Encourage relevant Member States to report to the IMO Secretariat and the Chair of the EGC Coordinating Panel on the progress and status of implementation of newly recognized mobile satellite services by MSI providers.

Completed. MS informed at ARHC11.

IRCC14/Recommendation 6: RHCs to establish an S-100 Coordinator role.

Completed. The Arctic International Charting Coordination Working Group (AICCWG) took on the role of the S-100 Implementation Coordinator. AICCWG will report on the readiness to produce and availability of S-101 data within the region.

IRCC14/Recommendation 7: RHCs to apply Action WENDWG12/33 (WEND-100 Product Matrix will be made available on the WENDWG Repository webpage when finalized).

Completed.

IRCC14/Recommendation 8: RHC to encourage Member States and submitting institutions to engage with the IHO Secretariat early in the process of them preparing submissions for program recognition.

Ongoing

IRCC14/Recommendation 9: RHC encourage Member States and submitting institutions to consult the Guidelines, the FAQs and the White Paper (IHR-Nov-2017 – Article: Maintaining the Standards of Competence for Hydrographic Surveyors and Nautical Cartographers) early in the process of preparing submissions for program recognition.

Ongoing.

IRCC14/Recommendation 10: RHC to encourage all Member States to respond to IHO CL 21/2020 and, if possible, offer a positive response, even if qualified, to enable provision of CSB data into the public domain collected from ships within waters subject to their national jurisdiction.

Ongoing

IRCC14/Recommendation 11: RHC Chairs to bring the IRCC CL 1/2020 to the attention of all coastal states within their respective RHC, encouraging them to offer a positive response, even if qualified, to enable provision of CSB data into the public domain collected from ships within waters subject to their national jurisdiction.

N/A.

IRCC14/Recommendation 12: RHC to encourage Member States to release datasets or subsets into the public domain via the IHO DCDB.

Ongoing. Nearly 30 surveys from the ARHC region were added to the DCDB database since June 2022. Data contributors include: U.S. Academic Fleet (10), Caladan Oceanic LLC (1),

National Oceanic and Atmospheric Administration (1), U.S. Coast Guard (8), Japan Agency for Marine-Earth Science and Technology (6).

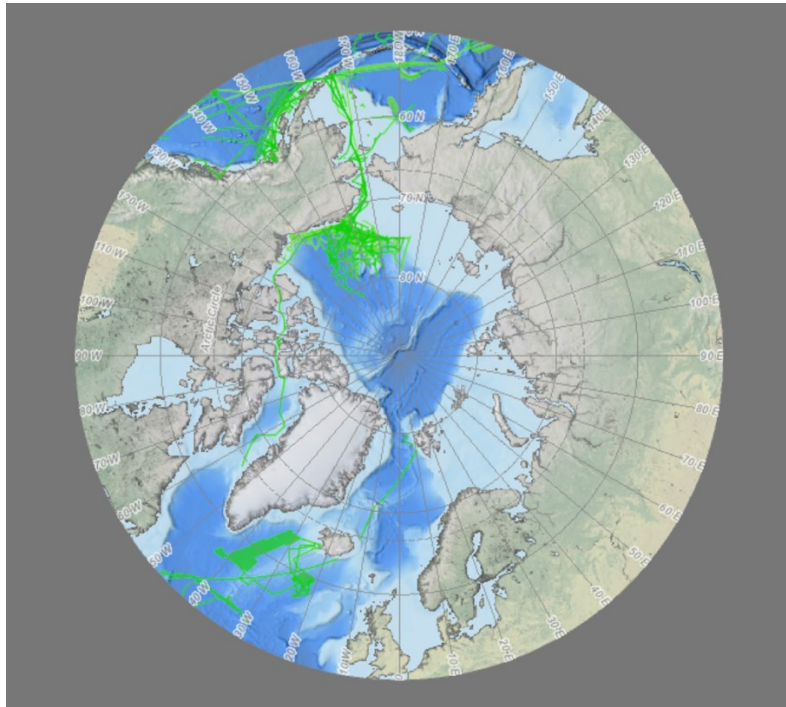


Figure 1: Multibeam bathymetry data added to the IHO DCDB database between June 2022-present.

IRCC14/Recommendation 13: RHC to encourage Member States to support the CSB initiative with positive actions, such as requiring all research vessels to collect bathymetric data for late uploading, when on passage or when it does not interfere with other research activities.

Ongoing. New data continues to be recorded in the region by Petroleum Geo-Services (PGS) and users of Rosepoint's Coastal Explorer software. These data, when collected within the waters of Canada, Denmark, Norway, U.S., Finland, Iceland and Italy, are able to be made publicly discoverable after the DCDB addresses the caveats captured in IHO CL 21/2020.

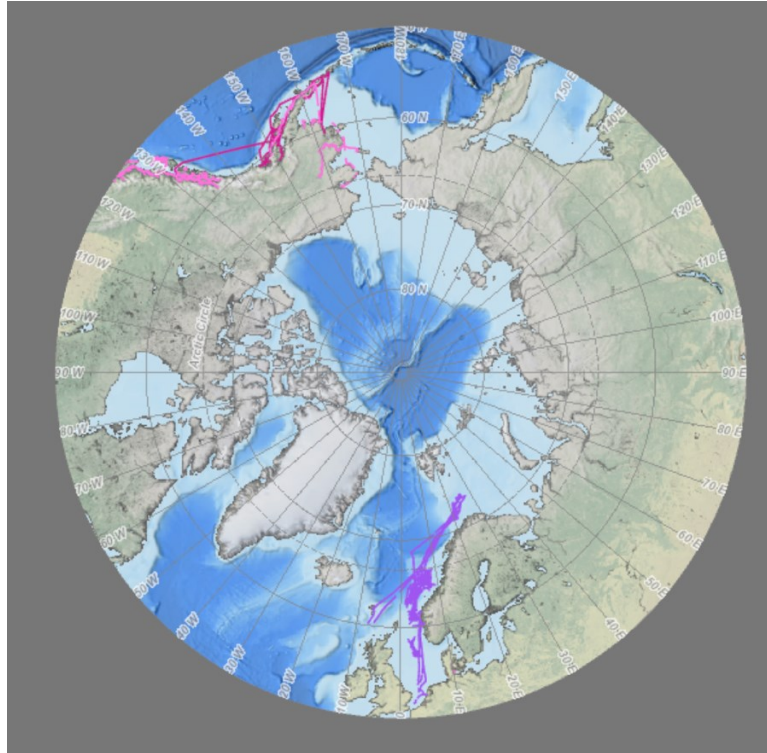


Figure 2: Crowdsourced bathymetry data added to the IHO DCDB database between June 2022-present.

IRCC14/Recommendation 14: Encourage RHCs to actively contribute with new data to GEBCO. Ongoing. ARHC has a GEBCO/Seabed 2020 coordinator. Member States have actively been encouraged to respond to the Data Contribution Request for IBCAO (GebcO) 5.0.

IRCC14/Recommendation 15: Encourage RHCs to discuss how nations can share existing data. Ongoing

IRCC14/Recommendation 16: RHCs to encourage Member State and stakeholder bathymetric data contributions to the DCDB, regardless of origin. Ongoing

6. Agenda Items:

ARMSDIWG

The United States continue to chair the ARMSDIWG. At ARHC12, the WG's revised ToR and Work Plan were approved. MS were asked to re-commit to, and confirm participation in the ARMSDIWG, particularly, taking on the leadership for specific tasks or roles. All ARMSDIWG members have been invited to observe in the Federated Marine SDI-Pilot (FMSDI-Pilot) phase 3 which is being supported by NGA. It will focus on a use case for cruise ship grounding in the Arctic. The relationship with Arctic SDI has not fully matured as the Arctic SDI has paused all meetings. However, as Norway takes over the Chair of Arctic SDI, the ARMSDIWG is confident to collaborate better in the near future.

OTWG

The OTWG is chaired by the United States. The group focuses on technical exchange, innovative technologies and collaboration. Additionally, the OTWG, under liaison of NOAA OCS, is in charge of

updating the ARHC Arctic Chart Adequacy Assessment – conducted every five years. By partnering with PAME the Adequacy Assessment maps Arctic vessel traffic locations and the current state of Arctic Charting, providing a genuine overview of the state of nautical charting in the Arctic region. The new report will be published in the second half of 2023.

AICCWG

Norway holds the chair of the AICCWG who takes on the role as S-100 Implementation Coordinator for the Arctic region. The AICCWG has been involved in the Arctic Grid Study project by IIC Technologies. The idea of a standardized IHO-endorsed grid has been around for a long time, but one has never taken form. However, there is a good opportunity to collaboration in Arctic as there is not that much data there, yet. A pan-Arctic grid would link to broader domains e.g., UN-GGIM/IGIF-H, OGC, WENDWG, Arctic Council/PAME etc., and would have applications beyond ENC's. IIC demonstrated two rectilinear and one equal area solutions. The later candidate was the OGC's Discrete Global Grid System (DGGS), which has some clear advantages for use in polar regions. More detailed information can be found on the project website www.arcticgrids.com including test dataset for ENC (S-57; S-101) and S-122 (MPAs), which are available for download.

ARHC Statutes

Update of ARHC Statutes. The new Statutes 3.0 were adopted in November 2021 in accordance with article 10.c of the Statutes 2.2 of 2017.

WENDWG

Norway represents the ARHC in the WEND Working Group, and their role includes reporting to the Commission on various aspects. These include reviewing progress on WEND work items, addressing any overlaps, managing ENC distribution and harmonization, assessing ENC coverage status, monitoring adherence to the WEND principles, and contributing to the development of the new WEND-100 principles. The ARHC receives the annual report and provides additional guidance to the WENDWG representative.

ARHC Implementation of the IHO Strategic Plan

The ARHC project team founded the gap analysis on the approach taken by the SWPHC and informed by the IRCC workshops on the strategic plan. Relevant questions based on observations by the project team were addressed at ARHC12, concluding with a list of possible actions or work plan items for the ARHC. It is the intent of ARHC to carry out a SP gap analysis on an annual basis.

7. ARHC cooperation with stakeholders (organizations, industry, etc.):

External outreach to inform of hydrographic interests and developments bearing on the safe navigation and marine environmental protection in the Arctic. Primary outreach and collaboration focus on the Arctic Council PAME Working Group, the Arctic SDI, the UNGGIM and its marine working group, and most recently the IMO Polar Maritime Seminar.

Additionally, open forums meaning scientific exchange, workshops and open input by external actors were organized by respective host nations. In recent years, challenges, innovation, engagement, community hydrography and the engagement with local and/or indigenous communities was of particular focus to the ARHC open forums.

8. Difficulties encountered and challenges yet to be addressed

The Arctic region's vastness, remoteness, and emergence as a unique operating environment present a challenge to the ARHC and the hydrographic offices making progress realizing the goals of the IHO to chart the ocean and protect the marine environment. These challenges are being addressed by testing and sharing news of technological solutions and enhancing partnerships.

9. Achievements and lessons learned:

Community Engagement

Open forums preceded the formal ARHC sessions and encouraged local scientific, governmental, and community representatives to contribute perspectives regarding hydrographic matters. The ARHC has placed particular emphasis on community hydrography and fostering involvement with local and/or indigenous communities.

Arctic Chart Adequacy Assessment

Collecting information to update the ARHC's 2018 Arctic Chart Adequacy Assessment – conducted every five years by the ARHC OTWG partnering with PAME to develop a report mapping Arctic vessel traffic locations and the current state of Arctic Charting. The OTWG is currently evaluating the Global Maritime Traffic Density Service for use in chart adequacy assessments. The new report will be published in 2023.

ARHC Strategic Plan Gap Analysis

A project team was tasked to implement the IHO SP including the reporting of strategic performance indicators.

Associate Membership

Following the process for Associate Membership, the United Kingdom formally joined ARHC as Associate Member in November 2022.

10. Conclusions:

The ARHC is a collegial and dynamic group. Based on collaboration and technical exchange, the ARHC addresses challenges across the Arctic region, and works on improving collection and dissemination of hydrographic knowledge for the benefit of mariners and other stakeholders.

11. Actions required of IRCC:

The IRCC is invited to:

- a. Note the report of the Arctic Regional Hydrographic Commission
- b. Take any action considered appropriate.

Pia Dahl Højgaard

ARHC Chair