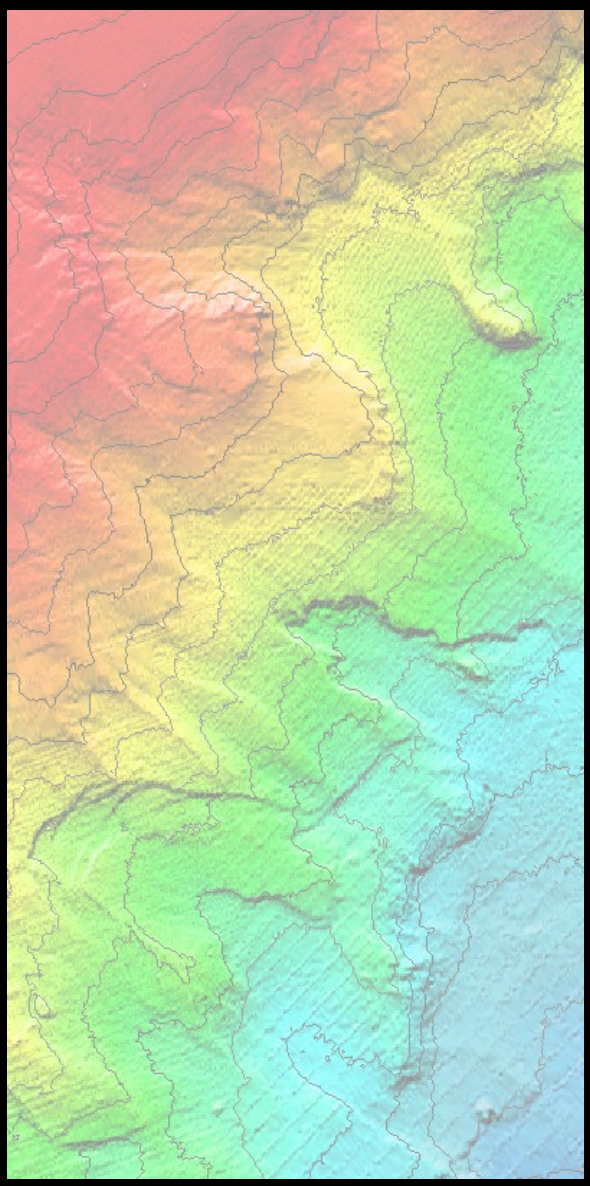
HYDROGRAPHY IN THE ARCTIC

JOINT POLICY STATEMENT

MAY 2021



ARCTIC COUNCIL

PAME Protection of the Arctic Marine Environment

IHO International Hydrographic Organization

ARHC ARCTIC REGIONAL HYDROGRAPHIC COMMISSION

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IHO

Arctic Council-ARHC Joint Statement on Hydrography in the Arctic Region

(May 2021)

The Arctic States,

As stewards of the Arctic region, recognizing the diminishment of sea ice and the increased accessibility of the Arctic Ocean and adjacent seas, including for oil and gas exploration, cruises, fishing activity, and other maritime pursuits;

Noting the paramount importance of better understanding current and developing new maps, charts, and data pertaining to Arctic hydrography and bathymetry to further promote safe maritime operations and the protection of the Arctic marine environment;

Acknowledging the current lack of adequate nautical maps, charts, and data, coupled with the vastness and harshness of the Arctic marine environment, significantly complicates emergency response in the region;

Recognizing the unpredictability of sea ice, including inter-annual ice variability, scattered hidden ice floes, icebergs, ice moved by winds and currents, and variability in the onset of autumn-freeze, and other hazards, solidifies the critical need for accurate bathymetric and hydrographic maps, charts, and data;

Considering that the understanding of current and the development of novel Arctic hydrographic and bathymetric maps, charts, and data will significantly improve navigational safety and further support other applications, including scientific research, management and monitoring of the marine environment, search and rescue activities, emergency incident response, and other operational activities;

Mindful of international initiatives to improve knowledge of the oceans such as the UN Decade of Ocean Science for Sustainable Development and the Seabed 2030 Project;

Acknowledging the efforts of the International Hydrographic Organization ("IHO"), specifically the Arctic Regional Hydrographic Commission ("ARHC"); and

Further, recognizing the efforts of the Arctic States;

Recommend that the Governments of Arctic States:

I Review, update, and improve existing bathymetric and hydrographic data, and collect new bathymetric and hydrographic data in the Arctic region by:

1. sharing data with others in the international hydrographic community, to the extent practicable;

2. supporting the increased analysis and exchange of meteorological, oceanographic, sea ice, and iceberg information;

3. encouraging cooperation between national Arctic-focused research and mapping institutions and authorities on hydrographic surveying and charting in the Arctic region to ensure the maps, charts, and data collected are of the highest utility;

4. encouraging the vessels under their jurisdiction, including non-governmental vessels, as appropriate, to:

   i. increase efforts to produce hydrographic surveys to improve the quality of navigation charts, including in areas not yet surveyed or surveyed with low accuracy or detail, to a standard that supports current and future safe navigation in the Arctic region;

   ii. undertake hydrographic and bathymetric data collection on all their Arctic voyages, as practicable;

   iii. review existing data holdings to share, either directly or through their national hydrographic office, with the IHO Data Center for Digital Bathymetry ("DCDB");

   iv. share all data collected on future Arctic voyages with the IHO DCDB, through their national hydrographic office, where applicable, or directly; and

   v. utilize IHO guidelines where appropriate, such as those contained in the IHO Guidance on Crowdsourced Bathymetry, in IHO Publication B-12; and

5. Invite Arctic Council Observers and Associate Members of the ARHC to support the Arctic States in their efforts under this Statement.

II Endeavor to find additional resources for improving hydrographic surveying and charting in the Arctic region by:

1. researching technologies to improve hydrographic data collection in the Arctic region, including the use of autonomous, uncrewed, or underwater (under-ice) craft, multi-beam technology, through-the ice data collection, and airborne systems for the collection of nearshore depths and shoreline identification;

2. researching satellite remote sensing and surface validation to further develop means of monitoring ice thickness across the Arctic Ocean; and

3. developing Electronic Chart Display and Information Systems ("ECDIS"), which will provide precise, real-time positioning along with the holistic display of navigation and environmental information critical for safe navigation in the Arctic.

Navigation in the Arctic

The Arctic is undergoing unprecedented change, which will only increase in the coming years. This change includes growing vessel traffic, underscoring the importance of avoiding incidents and decreasing the risk of vessels venturing into poorly surveyed waters. Collaboration among all Arctic States is crucial for expanding hydrographic knowledge on a pan-Arctic scale.

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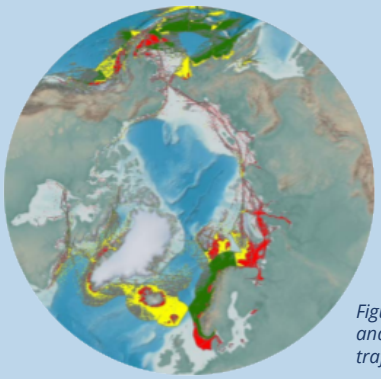
Arctic Council-ARHC Joint Statement on Hydrography in the Arctic Region

On May 20, 2021, the Arctic Council and the Arctic Regional Hydrographic Commission (ARHC) released a Joint Statement on Hydrography in the Arctic Region. The Joint Statement highlights the importance of hydrography in the Arctic region to safe and sustainable maritime navigation. 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. Second, it encourages these governments to find additional resources to strengthen hydrographic surveying and charting in the Arctic region. The Joint Statement identifies several ways each of these recommendations may be pursued.

The **Arctic Council's Working Group on the Protection of the Arctic Marine Environment (PAME)** addresses marine policy measures in response to environmental change from both land and sea-based activities. PAME develops and coordinates strategic plans, programs, assessments and guidelines, complementing existing legal arrangements aimed at protection of the Arctic marine environment. For further information, please visit https://pame.is/.

The **Arctic Regional Hydrographic Commission (ARHC)** is one of 15 Regional Hydrographic Commissions (RHCs) recognized by the International Hydrographic Organization (IHO). RHCs coordinate hydrographic activity and cooperation at the regional level. The national hydrographic offices of the ARHC include those of Canada, Denmark, Norway, the Russian Federation and the United States. For further information, please visit https://iho.int/en/arctic-rhc.



Areas of priority
Concern level

- High
- Medium
- Low

Figure 1: Areas of navigational concern, and thus priority, based on 2017 AIS traffic and areas of potential concern

Arctic Hydrography Adequacy*

Reduction in ice cover of the Arctic has led to increased ship traffic, yet in many areas of the Arctic the available survey data is old, incomplete, or non-existent. Nations with charting responsibility in the Arctic jointly developed a risk-based method in 2015 to identify areas of concern, and thus prioritize areas in the Arctic for hydrographic surveying and charting. A 2017 update to the 2015 study incorporates updated information on survey confidence and vessel traffic.

Summary of areas of concern based on 2017 AIS traffic, depths from Global Multi-Resolution Topography (GMRT) Synthesis, and potential concern

Canada, Denmark, Norway, Russian Federation, United States													
Areas of Potential Concern with Traffic (No threshold on number of ships)													
		High			Medium			Low			All		
		M km²	% of Study area	% of Traffic area	M km²	% of Study area	% of Traffic area	M km²	% of Study area	% of Traffic area	M km²	% of Study area	% of Traffic area
Depth bands	Shallow	0.7	6%	21%	0.1	1%	2%	0.0	0%	0%	0.7	6%	24%
	Mid-depth	0.6	6%	21%	0.0	0%	1%	0.0	0%	0%	0.7	6%	23%
	Deep	0.0	0%	0%	0.8	7%	26%	0.8	7%	28%	1.6	14%	53%
	Total	1.3	11%	42%	0.9	8%	29%	0.9	8%	28%	3.0	27%	100%

*Lt Cmd. Samuel F. Greenaway and Amber Batts. ARHC8-C1a - Arctic Hydrographic Adequacy – an update.

Wish to help? Please contact:
ARHC Chair
pame@pame.is

PAME SECRETARIAT
Borgir, v. Nordurslod
Akureyri - Iceland
Tel: +354 461 1355
pame@pame.is
pame.is