#### **REPORT**

# 1<sup>st</sup> MEETING OF THE ARCTIC REGIONAL HYDROGRAPHIC COMMISSION OCTOBER 4-6, 2010 – OTTAWA, CANADA

The five Arctic coastal states: Canada, Denmark, Norway, the Russian Federation and the United States met in Ottawa, Canada from October 4 - 6, 2010 with the objective of establishing the Arctic Regional Hydrographic Commission (ARHC). The list of participants is given in ARHC1-01A and attached as Annex A.

#### **ITEM 1 – Opening Formalities**

#### 1a. Canada's Opening Remarks

Dr. Savithri (Savi) Narayanan, Dominion Hydrographer of Canada opened the meeting. It was noted that during the short period from the initial discussions in Monaco in June 2009, when the ARHC concept was endorsed by all five Arctic Ocean coastal states to this meeting, the Statutes for the proposed Commission was drafted and has undergone rigorous reviews and is ready for the final review and possible approval.

In that regard, the participants thanked Mr. Aziz Saheb-Ettaba, from Canada who produced the first draft of the Statutes and provided the legal review of each proposed amendment.

Mr. Marc Grégoire, Commissioner of the Canadian Coast Guard welcomed the delegates on behalf of the Deputy Minister of the Fisheries and Oceans Canada. He highlighted that, inadequate, insufficient and/or non-existent hydrographic charting in many areas of the Arctic waters poses a serious threat to safety and the environment, and is a major financial and legal risk to the Governments. Furthermore, it is also a key gap in the foundational infrastructure necessary to enable social and economic development in the area. In the Arctic, one is almost completely dependent on marine transportation for the movement of goods and people as the maritime shipping lanes *are* the highways of the North.

Colonel Robert Williams, Director National Defence Geospatial Intelligence echoed the importance of having access to modern navigational products for the Arctic and expressed great enthusiasm for the potential creation of a collaborative framework for hydrography in the Arctic.

#### **1b. Election Chair & Vice Chair**

Canada opened the floor for discussion and nomination of the official Chair and Vice Chair to the meeting.



**DECISION:** Canada was elected as the Chair for the meeting with unanimous support following the nomination by the United States, seconded by Denmark. Dr. Savi Narayanan accepted on behalf of Canada and chaired the meeting.

**DECISION:** Denmark was elected unanimously as the Vice Chair for the meeting following the nomination by the Russian Federation, seconded by Norway. Mr. Svend Eskildsen accepted the Vice Chairmanship on behalf of Denmark.

# 1c. Adoption of Agenda

The agenda was approved with the following changes:

- Item 4a 'Report of the International Hydrographic Bureau' was moved to between Items 7b and 7c.
- A presentation on a Northern Sea Route transit by the Russian Federation was added under Item 4a.
- An agenda item titled 'Other Business' was added.
- A short information paper on Arctic Spatial Data Infrastructure (SDI) by Denmark was added under 'Other Business'.

The approved agenda is given in ARHC1-01B and attached as Annex B.

### ITEM 2 – National Status - Arctic Hydrography

#### 2a. Report of Canada

Canada has a portfolio of charts that cover the Arctic region but data and charts to modern standards remains a challenge. Canada has no dedicated hydrographic vessel for the Arctic, and therefore relies on Ships of Opportunity, launches and hydrographic ice camps (spot soundings with helicopter) for bathymetric data collection. Recently, Canada was able to acquire two Autonomous Underwater Vehicles and piloted them successfully in 2010. Canada uses both multibeam and single beam technologies in the Arctic. The report (ARHC1-02A) was noted.

#### **2b. Report of Denmark**

Denmark has been using multi-beam technology to collect data in the Arctic since 2003. In the area of Greenland several technologies are being utilized to gather knowledge of Greenland waters and ship traffic. Denmark has been utilizing AIS in order to confirm ship traffic locations. This is used as another tool to help determine charting priority. When possible, charts are being shifted to a known chart datum with associated ground-truthing to verify results. The report (ARHC1-02B) was noted.



#### **2c. Report of Norway**

Norway described three major initiatives underway. The MAREANO program has been underway for several years and is an effort to complete 100% multi-beam coverage of the coast of Northern Norway. The Norwegian Bathymetric Database is an initiative to develop a new management and distribution system for high resolution depth data as the NHS' commitment to the MAREANO project. The BLAST (Bringing Land And Sea Together) project will be a three year effort culminating in 2012 and bringing together 7 countries and 17 partners in the North Sea region to manage maritime information. Norway's hydrographic survey capacity was outlined as well as the challenge that exists for charts and good hydrographic data in the waters of Svalbard. The complete report (ARHC1-02C) was noted.

#### 2d. Report of the Russian Federation

The Russian Federation indicated their Arctic operations cover oceanographic, hydrographic and geophysical activities. A presentation of the status of hydrography was made for the Northern Sea Route showing areas where hydrography is planned to be improved. There are plans to expand the Aids to Navigation coverage in the area of the Northern Sea Route. NAVTEX stations have been established to augment the INMARSAT coverage and provide communication capacity along the entire Northern Sea Route. The complete report (ARHC1-02D) was noted.

# 2e. Report of the United States

The United States indicated their Arctic charting program was guided by the National Oceanographic and Atmospheric Administration (NOAA) Arctic Strategy and the Navy Arctic Roadmap. The water level network along the Alaskan Coast and the Aleutian Islands needs improvement. Automatic Identification System (AIS) data is being used to highlight shipping traffic and assist in setting survey and charting priorities. The complete report (ARHC2-02E) was noted.

#### **General summary of Item 2**

It was clear from these presentations that all States face similar challenges in terms of the hydrographic infrastructure, the complexity of the area to be charted, and the human and funding resource issues. There was a general agreement that less than 10% of the Arctic is currently charted to modern standards.

The Chair thanked participants for excellent National Reports.

# ITEM 3 Guest Speaker Dr. Lawson Brigham

The Chair introduced Dr. Brigham, a Distinguished Professor of Geography & Arctic Policy at the University of Alaska Fairbanks, and a Senior Fellow at the Institute of the

North in Anchorage, who made an excellent presentation titled 'The Arctic Marine Shipping Assessment (AMSA) ~ Arctic Council Policy Document'. Dr. Brigham made an impressive summary of the work undertaken by AMSA and published in their 2009 report. The discussion that followed the presentation touched on several aspects of Arctic shipping including support infrastructure, ice navigation requirements, ship reporting and application of the International Maritime Organization's Polar Code.

All members of the meeting were unanimous in expressing their appreciation to Dr. Brigham and thanked him for the presentation, recommendations and guidance.

# **ITEM 4 International Perspectives**

As the Chair was called away on unavoidable urgent business, Mr. Svend Eskildsen, the Vice Chair assumed the role of Chair for this session.

# 4a. Transit travel of "SKF Baltika" tanker and outlook for Northern Seaway

The Vice Chair invited the Russian Federation to make the presentation on the Transit of the "SKF Baltika"\_tanker, given the IHB Report was moved to Day 2.

Captain Shemetov made the presentation. He presented the experiences of a monitored transit of the SKF Baltika tanker through the Northern Sea Route. It was noted that Icebreaker support was required for the majority of the route. An important point of the presentation was that meteorological conditions coupled with heavy ice were of great concern in the Northern Sea Route often requiring ships to deviate from planned routes. This transit and presentation highlighted the benefit that could be realized by additional physical aids to navigation. It also demonstrated the importance of the NAVTEX broadcast network along the coast to complete gaps in INMARSAT coverage. The information presentation (ARHC1-INF1) was noted.

# 4b. United States – Canada Hydrographic Commission (USCHC) Report

The United States provided a report of the United States – Canada Hydrographic Commission (USCHC). The USCHC has identified the harmonization of Electronic Navigational Charts (ENC) in boundary waters between US and Canada as one of its high priorities and selected the Pacific Coast as the test pilot area to resolve several key issues such as Intellectual Property Rights and the presentation requirements for depicting disputed international boundary areas. In terms of the northern limit of the USCHC, the USCHC at its last meeting did not arrive at a concrete limit and had decided to wait until the meeting of the ARHC. The USCHC report (ARHC1-04B) was noted.

# 4c. North Sea Hydrographic Commission (NSHC) Report

Denmark provided a report of the North Sea Hydrographic Commission (NSHC). It was noted that at its recent meeting, the NSHC discussed several options for defining the

NSHC northern extent including INT Chart coverage and NAVAREA coverage. Decision of the NSHC was to wait outcomes of the ARHC1 on the subject of area of coverage. The NSHC report (ARHC1-04C) was noted.

#### 4d. Nordic Hydrographic Commission (NHC) Report

Norway provided a report of the Nordic Hydrographic Commission (NHC). It was noted that the NHC was structured a bit different from other Regional Hydrographic Commissions. NHC does not claim a distinct area of coverage but considers itself as a Regional Hydrographic Commission of governments with long-standing mutual hydrographic interests. A Norwegian program called Barents Watch, which is a monitoring and information system for Arctic areas, was highlighted. The ENC coverage for the Nordic seas was presented. Denmark reported that 5 new INT Charts at 1:2M scale were in production under the auspices of the NHC. The NHC report (ARHC1-04D) was noted.

The Vice Chair thanked the group for informative presentations and adjourned discussions for the day.

#### **Ice-Breaker Reception**

During the reception that followed the first day of the meeting, the Assistant Deputy Minister of Fisheries and Oceans Canada, Dr. Siddika Mithani, welcomed the participants to Canada, highlighted the importance of hydrography in the North for the safety of life at sea and the economic prosperity and protection of the ecosystem. She complimented the participants on their initiative and willingness to work together in the Arctic and wished the group a productive and enjoyable meeting and success in establishing strong collaborations.

# ITEM 5 Review Action Items from Day 1

The Chair opened the session with a note of appreciation for the enthusiasm exhibited on the first day and with a sense of optimism for the discussions ahead. There were no action items from Day 1.

#### **ITEM 6 Realities of Marine Operations in the Arctic - A Canadian Shipping** <u>Company Perspective</u>

Chair introduced Mr. Tom Paterson, Vice President of FEDNAV Ltd., a Montreal Canada-based shipping company, who made an excellent presentation on the scope and experience of Arctic shipping operations. These include the world's largest fleet if icestrengthened vessels requiring no ice-breaker support. He stated that destination traffic for re-supply or for resource extraction should be considered the primary Canadian Arctic vessel traffic for the foreseeable future. Economic viability or resource projects and availability of good nautical charting are the principle drivers for Arctic vessel operations. Referring to one of the potential mining operations in the Arctic, he





emphasized that it is not a mining project as much as a shipping project, that is to say the challenge is how to provide 365 days a year service for bulk ore shipping between the Canadian Arctic and processing locations. Mr. Paterson was clear in his message that economic development in the Arctic resource industry is ultimately reliant on sufficient chart coverage to facilitate their operations.

All members of the meeting greatly appreciated the information provided by Mr. Paterson and thanked him for his insights into the current and future requirements of commercial shipping operations in Arctic ice covered waters.

#### **ITEM 7 Formalizing the Commission**

#### 7a. Approval of Statutes

The Chair provided background on the origin of the draft Statutes. Canada's original proposal (ARCH1-07A) for the draft Statutes of the Arctic Regional Hydrographic Commission was introduced. It was noted that there had been some expressions of support for the draft Statutes over the past several months. One specific documented amendment was recently distributed in a proposal (ARHC1-07B) by United States and the Chair turned the floor over to the United States to table this.

United States introduced their proposed amendment to add Paragraph d) to Article 2:

Article 2

d) These Statutes are not binding under international law. Activities by Members, Associate Members, and Observers under the Statutes are undertaken voluntarily, on a consultative basis, and are subject to the availability of funds. The Commission has no authority over Members, Associate Members, or Observers.

The United States indicated that the proposed amendment expressed in specific terms the non-binding commitment of signatories to the Statutes that it is consistent with past practice and International Hydrographic Organizations (IHO) resolutions.

**DECISION:** The US proposal (ARHC1-07B) received unanimous approval following support by Norway and seconded by Denmark.

The Chair then recognized the Russian Federation who expressed interest for an additional amendment to define a process for including Associate Members and Observers to the ARHC.

The Russian Federation proposed (from the floor) the following amendment to Article 3 as follows:



#### Article 3

#### <u>Membership</u>

c) To become Associate Member, a State shall make a written proposal to the Chair of the Commission expressing how it will contribute to the work of the Commission; explain what kind of contribution will be made and when this contribution will be carried out.

The Chair distributes the proposal to the Members for consideration.

Decision on acceptance is made by consensus.

d) Other States and International Organizations involved in hydrographic surveying or nautical charting in the Arctic Ocean either by contributing to these activities or by providing support to these activities or as users of derived products, may propose to be an Observer, or may be invited by the Commission to participate as Observers. If they propose, the procedure described in paragraph 3(c) shall apply.

Observers may take part in the discussions but do not have voting rights.

During the discussion that followed it was noted that some Statutes of the other Regional Hydrographic Commissions (RHCs) have defined a process for adding membership to the Commission.

**DECISION:** The Russian Federation proposal for the amendment received unanimous approval following support by Denmark and seconded by United States.

With respect to the participation of the countries represented in the Arctic Council, but not members of the ARHC, there was unanimous agreement that it would be beneficial for ARHC to establish collaboration with them.

**DECISION**: Proposals for Associate Membership from States who are members of the Arctic Council would be viewed favourably should they provide a proposal in accordance with Article 3 c) of the ARHC Statutes.

#### **7b. Signing of Statutes**

The proposal by the Chair to formalize the Commission by signing the Statues (ARHC1-07C) was unanimously supported. The Chair considered the time of day and proposed that discussion on related matters continue but that formal signing ceremony be scheduled as the first agenda item on Day 3.

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# 4a. Report of the International Hydrographic Bureau (IHB)

The President of the IHB, Vice-Admiral Alexandros Maratos, provided his report on the activities of the IHB that included:

- Status of approval of the International Hydrographic Organization Protocol of Amendments
- Date of April 2012 for the next International Hydrographic Conference
- A status update of the Hydrographic Services & Standards Committee and the Inter-Regional Cooperation Committee
- Update on IHO cooperation with other international organizations

# 7c. General Discussions on the Commission

The Chair opened the floor for discussion on area of coverage of the ARHC.

Norway proposed that the ARHC consider the five new Arctic NAVAREAs as the area of coverage for the ARHC. United States seconded the motion.

Discussion followed with comments including:

- INT chart coverage might span across the areas of coverage of two RHCs;
- all Greenland waters do not fall within the area of the Arctic NAVAREAs
- NAVAREA limits are recognized by Arctic Ocean coastal states via their association with the International Maritime Organization (IMO)
- the Arctic NAVAREAs as area of coverage would need to be supported by the USCHC and the NSHC.

**DECISION:** it was agreed unanimously that the Arctic NAVAREAs be proposed as the ARHC area of coverage pending final confirmation at next Conference.

**ACTION:** Chairs of USCHC (Canada) and NSHC (Denmark) would introduce to their respective RHCs, the Arctic NAVAREAs XVII – XXI as the recommended area of coverage of the ARHC and report back at next Conference.

The Chair asked for comments on the determination of user needs. Good discussion followed with clear understanding of the need to solicit input from users of hydrography in the Arctic including shippers, resource industry, regulatory bodies for marine transportation, and others. It was also noted that communication and collaboration with other international organizations such as IMO and the Marine Aids to Navigation and International Association of Lighthouse Authorities (IALA) would be beneficial.

**ACTION**: The Chair to invite IMO and IALA to next ARHC Conference.

The Chair asked for comments regarding a communication strategy for the formation of the ARHC. There was general agreement that a single common template be drafted to ensure a reasonable degree of consistency in communication of the forming of the



ARHC. The IHO website was also endorsed as the central repository of ARHC Conference documentation.

Norway volunteered to lead a sessional drafting group to draft an ARHC Statement (ARHC1-07D) that could form the basis for a consistent communication message to be used by each of the Member States. This Statement was to be considered in the next day plenary.

With regard to the frequency of the ARHC Conferences, the participants felt that, at least during the initial phase of the Commission, it is important to meet at least once a year to maintain the momentum

**DECISION:** It was decided that Conferences of the ARHC would be held annually for the foreseeable future following the proposal by Denmark and seconded by Canada.

# ITEM 8 Review of Actions from Day 2

The Chair invited all the delegations to a group photo and then to the formal signing of the Statutes of the Arctic Regional Hydrographic Commission (ARHC1-P1, ARHC1-P2, ARHC1-P3, ARHC1-P4, ARHC1-P5, ARHC1-P6, ARHC1-P7).

Chair then presented the signed Statutes of the ARHC to the President of the IHB for retention in the repository of the IHO.





### **ITEM 9 Identify Working Groups and Next Steps**

Several subjects were discussed spanning all four agenda items of 9a, 9b, 9c and 9d.

Discussion of an ad Hoc Strategic Planning Working Group (SPWG) for the ARHC followed. It was considered that this SPWG could provide an overall view of the needs and gaps in hydrographic services Arctic-wide. For specifics beyond the capacity of the SPWG it would have authority to establish sub-working groups. It was suggested the work of SPWG may be assisted by the work done to date by the IHO such as C-55 Status of Hydrography and other IHO publications. It was also suggested that reports from any working groups established under ARHC should be delivered on an interim basis between Conferences to ensure gradual progress in the work. It was also noted that operations and technologies were a specialized field from nautical publications and as such a unique Operations & Technology Working Group (OTWG) was recommended.. Lesson learned, training and best practices in Arctic operational hydrography are considerations for OTWG. It was noted that Working Groups should be guided by an approved Terms of Reference (TOR).

Denmark presented a proposal (ARHC1-9E) for creation of a Mariners Routeing Guide for the Arctic. This generated discussion with the following points:

- Concern with overlapping information already published in official carriage requirement charts and publications
- The Mariners Routeing Guide is proposed to only bring together various information that is published across existing charts and publications
- Could this concept be incorporated into Sailing Directions
- There are resource implications to this work and there must be an owner who would be responsible to maintain the publication

Denmark presented a second proposal (ARHC1-9E) for creation of an ARHC Publication Working Group. This generated discussion with the following points being made:

- Current work plan of the Standardization of Nautical Publications Working Group (SNPWG) is focused on ENCs
- SNPWG could be asked to consider Arctic waters in their work plan and to make recommendations for better harmonization of Arctic publications
- Better to stand back and analyze the status of Arctic nautical publications overall and only then to decide if unique working group is required
- From a mariners perspective this consolidation of various Arctic navigational information may have value

**DECISION:** It was agreed by consensus that status of ARHC publications should be a topic of investigation by the Strategic Planning Working Group (SPWG) and therefore a specific WG need not be formed at this time for ARHC publications.



**DECISION:** There was unanimous agreement that the following Working Groups would be established:

- SPWG be established under Chair of Norway;
- OTWG be established under Chair of United States;
- Working Group to develop the Mariner Routeing Guide for the Arctic concept be established under the Chair of Denmark and assisted by United States.

**ACTION:** Norway, United States and Denmark to prepare the TOR for their respective working groups.

The Chair turned back to ITEM 7d) of Day 2 and asked Norway to present their draft text for the ARHC Statement.

**DECISION:** The ARHC Statement (ARHC1-07D) received unanimous approval following small editorial changes proposed by Canada. The ARHC Statement is attached as Annex C.

#### **ITEM 10 Other Business**

The Chair opened the floor for 'Other Business' and invited Denmark to provide their information paper (ARHC1-INF2) for Spatial Data Infrastructure in the Arctic. Denmark indicated the Arctic SDI is being supported by the Arctic Council and that the ARHC should note this initiative.

The Chair thanked Denmark for their informative paper.

#### **ITEM 11 Closing Formalities**

#### **11a. Next Conference**

The Chair introduced the item by reminding participants that the Statutes is now signed and that protocols are now in effect for the determination of Conferences which are linked to the position of Chair and Vice Chair. The Chair opened the floor to the Commission to consider nominations for positions of Chair and Vice Chair for the coming year.

**DECISION:** Canada was elected unanimously as the next Chair of the ARHC following nomination by Denmark and seconded by United States.

**DECISION:** Denmark was elected unanimously as the next Vice Chair of the ARHC following nomination by United States and seconded by Norway.

Denmark expressed its delight to host the next ARHC Conference and indicated it would propose a Conference date in near future for September/October 2011.



# 11b. Closing Remarks

The Chair and Vice Chair thanked all participants for their collective achievement of this historical event. The Vice Chair expressed congratulations to the President, IHB, knowing that this achievement completes a patchwork of RHCs around the globe.

The Chair called this inaugural meeting of the ARHC to a close.





ARHC1 Report Final

Annex A

ARHC1-01A rev2

# PARTICIPANTS LIST

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	s	pecial Guests	
Paterson	Tom	VP FedNav Ltd., Canarctic Shipping Professor of Geography & Arctic Policy	
Brigham	Lawson	University of Alaska & Chair of AMSA	



ARHC1 Report Final

> Annex B ARHC1-01C

# <u>Agenda</u>

# <u>October 4,</u> 09:00 to 17:00; <u>October 5,</u> 09:00 – 17:00; <u>October 6</u>, 09:00 to 12:00

Item	Subject	Doc. Ref. #	Lead
09:00	DAY 1		
1	Opening Formalities		
1a	Canada's opening remarks	ARHC1-01A	Canada
9:45	Group Photo		
1b	Designation of Chair and Vice-Chair		Chair, All
1c	Adoption of the agenda	ARHC1-01C	Chair
		rev3	
2	National Status - Arctic Hydrography		
	(charting, surveying, technologies,		
	readiness ECDIS mandation)		
2a	Report of Canada	ARHC1-02A	Canada
2b	Report of Denmark	ARHC1-02B	Denmark
2c	Report of Norway	ARHC1-02C	Norway
2d	Report of the Russian Federation	ARHC1-02D	<b>Russian Federation</b>
2e	Report of the United States	ARHC1-02E	USA
13:00			
3	Guest Presenter		
3a	Topic: The Arctic Marine Shipping		Lawson Brigham;
	Assessment (AMSA) ~ Arctic Council		University of Alaska
	Policy Document		
15:00			
4	International Perspective (15-20 minutes		
	each)		
4a	Report of the International Hydrographic	Moved to	President, IHB
	Bureau	item #7	
	Transit of the "SKF Baltika" <u>tanker</u>	ARHC1-INF1	Russian Federation
4b	USCHC Report (Arctic INT coverage, ENC	ARHC1-04B	USCHC Co-Chair
	harmonization, Commission north limit)		USA
4c	NSHC Report (Arctic INT coverage, ENC	ARHC1-04C	NSHC Chair
	harmonization, Commission north limit)		Denmark
4d	NHC Report (Arctic INT coverage, ENC	ARHC1-04D	NHC Chair Norway
	harmonization, Commission north limit)		
1700	Adjourn		
18:00	Ice Breaker Reception –		All



# 20:00 HMCS Bytown 78 Lisgar St. Ottawa

09:00	DAY 2		
5	Review Actions From Day 1		Chair
6	Guest Presenter		
6a	Topic: Realities of Marine Operations in		Tom Paterson;
	the Arctic - A Canadian Shipping Company		FedNav Limited
	Perspective		
10:30			
7	Formalizing the Commission		
7a	Approval of the Statutes (version Sept.	ARHC1-07A	All
	21, 2010)	ARHC1-07B	
7b	Signing of the Statutes (tentative)	Formal	All
		signing day 3	
7c	General discussion on Commission	ARHC1-07C	All
	<ul> <li>principles of future membership</li> </ul>	ARHC1-07D	
	<ul> <li>geographic area of ARHC interest</li> </ul>		
	- other matters arising		
17:00	Adjourn		
	-		
09:00	DAY 3		
8	DAY 3 Review Actions From Day 2		
8 9	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps		
<b>8</b> <b>9</b> 9a	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination		All
<b>8</b> <b>9</b> 9a 9b	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination		All
<b>8</b> <b>9</b> 9a	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities:		
<b>8</b> <b>9</b> 9a 9b	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities: hydrographic surveys, nautical charting,		All
8 9 9a 9b 9c	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities: hydrographic surveys, nautical charting, R&D, etc.		All All
8 9 9a 9b 9c 9d	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities: hydrographic surveys, nautical charting, R&D, etc. Identify pilot projects		All All All
8 9 9a 9b 9c 9c 9d 9e	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities: hydrographic surveys, nautical charting, R&D, etc. Identify pilot projects Mariners Routeing Guide for the Arctic	ARHC1-9E	All All All All Denmark
8 9 9b 9c 9d 9e 9f	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities: hydrographic surveys, nautical charting, R&D, etc. Identify pilot projects Mariners Routeing Guide for the Arctic ARHC Publication Working Group	ARHC1-9E ARHC1-9E	All All All
8 9 9a 9b 9c 9c 9d 9e 9f 10	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities: hydrographic surveys, nautical charting, R&D, etc. Identify pilot projects Mariners Routeing Guide for the Arctic ARHC Publication Working Group Other Business	ARHC1-9E	All All All Denmark Denmark
8 9 9a 9b 9c 9d 9d 9e 9f 10 10a	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities: hydrographic surveys, nautical charting, R&D, etc. Identify pilot projects Mariners Routeing Guide for the Arctic ARHC Publication Working Group Other Business Spatial Data Infrastructure		All All All All Denmark
8 9 9a 9b 9c 9c 9d 9e 9f 10 10a 11	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities: hydrographic surveys, nautical charting, R&D, etc. Identify pilot projects Mariners Routeing Guide for the Arctic ARHC Publication Working Group Other Business Spatial Data Infrastructure Closing Formalities	ARHC1-9E	All All All Denmark Denmark Denmark
8 9 9b 9c 9d 9e 9f 10a 10a 11 11a	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities: hydrographic surveys, nautical charting, R&D, etc. Identify pilot projects Mariners Routeing Guide for the Arctic ARHC Publication Working Group Other Business Spatial Data Infrastructure Closing Formalities Next Conference	ARHC1-9E	All All All Denmark Denmark Denmark All
8 9 9a 9b 9c 9c 9d 9e 9f 10 10a 11	DAY 3 Review Actions From Day 2 Identify Working Groups and Next Steps INT chart coordination ENC Coordination Identify collaborative opportunities: hydrographic surveys, nautical charting, R&D, etc. Identify pilot projects Mariners Routeing Guide for the Arctic ARHC Publication Working Group Other Business Spatial Data Infrastructure Closing Formalities	ARHC1-9E	All All All Denmark Denmark Denmark



Annex C

ARHC1-07D

### Statement of the Arctic Regional Hydrographic Commission

On October 6, 2010, the five Arctic Coastal States; Canada, Denmark, Norway, the Russian Federation and the United States, under the leadership of Canada established the Arctic Regional Hydrographic Commission (ARHC).

The establishment of the ARHC is a historic event. Since the establishment of the International Hydrographic Organization in 1921, fifteen Regional Hydrographic Commissions have been established worldwide. The Arctic Ocean remained without such a Commission until today.

The Arctic is undergoing extraordinary transformations facilitating increased natural resource development and marine traffic at a time when little reliable navigational and environmental data exists. At present, less than 10% of Arctic waters are charted to modern standards. To meet current and emerging challenges, the Arctic Coastal States represented by their Hydrographic Offices, have recognized the need for enhanced collaboration and coordination of their Arctic activities and established the ARHC.

By exchanging knowledge and information and by providing quality assured data, the Members of the ARHC aim to facilitate an environmentally responsible exploration of Arctic waters. The ARHC will thereby contribute in the development of the maritime infrastructure required for safe navigation and protection of the marine environment in the Arctic.

The ARHC is committed to enhancing cooperation with other intergovernmental organizations and the international hydrographic and maritime transportation community with a perspective towards advancing the much needed Arctic maritime infrastructure.