

**REPORT of the 2nd MEETING OF THE
ARCTIC REGIONAL HYDROGRAPHIC COMMISSION
SEPTEMBER 28-29, 2011 – COPENHAGEN, DENMARK**

ITEM 1 – Opening Formalities

1a. Chair's Opening Remarks

The Chair, Savrithi (Savi) Narayanan, Dominion Hydrographer, Canadian Hydrographic Service, opened the session and welcomed the participants to the 2nd meeting of the Arctic Regional Hydrographic Commission meeting. Special welcome was made to Finland and Iceland, who are given the Observer status in accordance to the Statutes of the Commission.

She thanked Denmark and particularly the Danish Maritime Safety Administration for the excellent venue for the meeting and all the detailed arrangements, which made the Chair's task easier.

She expressed her appreciation for the breadth and depth of the technical information presented during the Scientific Forum on Arctic Hydrography held the previous day September 27; these presentations stimulated open and valuable discussions and helped arrive at recommendations towards establishing the workplan for the ARHC. A summary of the topics covered and the Panel discussion is in Annex A

1b. Vice Chair's Welcome Remarks

The Vice-Chair, Svend Eskildsen, Director General of the Danish Maritime Safety Administration, welcomed participants to Copenhagen and wished the group a good meeting. Lars Hansen outlined the detailed logistical arrangements for the meeting.

1c. Approval of the Agenda

ARHC2-01B Participants List was circulated for any changes and is given in Annex B. ARHC2-01C Agenda was adopted as proposed and is attached as Annex C

1d. Status of actions arising from ARHC1

The Chair tabled the record of actions from ARHC1 indicating that each of these would be addressed with the ARHC2 agenda. It was agreed to close this item and to move to the subsequent agenda items of the meeting.

ITEM 2 – National Updates Arctic Hydrography

2a. Report of United States

United States (John Lowell) presented their report and addressed questions as they arose. The US experience in the use of contract hydrographic surveys for charting was discussed. The US indicated they are developing a minimum standard for non-professional hydrographic data collection which will be made available and shared with the ARHC members on completion.

2b. Report of Russian Federation

Russia Federation (Alexander Shemetov) presented its report and addressed questions as they arose. Specific attention was given to recent events and experiences related to activities that affect the voyages through Northern Sea Route including significant transits, hydrographic survey activities and updates to the status of the GLONASS constellation in 2012 bring the constellation to 23 active satellites. The report (ARHC2-02B) was noted.

2c. Report of Norway

Norway (Evert Flier) presented its report and addressed questions as they arose. Specific mention was made regarding the Rockness law suit (translated report on the Norway web), survey activity in Svalbard waters and the recent adoption of Print-on-Demand (POD) technology for provision of paper charts. The report (ARHC2-02C) was noted.

2d. Report of Denmark

Denmark (Lars Hansen and Jens-Peter Hartmann) presented their report and addressed questions as they arose. On hydrographic survey activities special mention was made on surveys in Greenland waters, the digitizing survey sheets for the Northern Lights project and recent red and blue spectrum satellite imagery that is being applied to assist in the prioritization of hydrographic surveys. Charting activities in Greenland waters was also presented with note of intention to rectify datum inconsistencies along the west coast of Greenland by 2018. The reports (ARHC2-02D and ARHC2-02Da) were noted.

2e. Report of Canada

Canada (Savi Narayanan) presented an overview of the 2011 Arctic Pilot project that featured the use of multiple platforms for hydrographic data collection and involving Canadian inter-departmental collaboration. The multi-platform contribution to this survey were satellite imagery (Canadian Space Agency), including preliminary efforts to identify shallow underwater features, Remote Operated Vehicles, LiDAR (contract Fugro) and traditional launch and ship operations. Data processing and integration are underway with the objective of chart updates of the area. The CHS priorities are increased data management focus and greater attention to acquiring and integrating data obtained from partnerships, non-traditional sources and ships-of-opportunity. The report (ARHC2-02E) was noted.

ITEM 3 - ARHC Area of Coverage

3a: United States – Canada Hydrographic Commission

Canada presented an update of the ARHC1 request for the United States-Canada Hydrographic Commission (USCHC) consideration of the use of Arctic NAVAREAS to define the area of responsibility. The outcome from USCHC34 held in April 2011, was an endorsement of the ARHC1 proposal to use Arctic NAVAREAS. The report (ARHC2-03A) was noted.

3b: North Sea Hydrographic Commission

Norway presented an amendment to the ARHC1 proposal on behalf of the North Sea Hydrographic Commission (NSHC), to use latitude of 69⁰N between Greenland and Norway as the bordering limit between the ARHC and the NSHC. The report (ARHC2-03B) was noted.

ARHC endorsed the NSHC proposal recognizing that the proposal was the most practical division line in light of the current INT Chart scheme in the region and its close approximation to the ARHC NAVAREA proposal.

DECISION: ARHC has agreed to adopt the area defined by the Arctic NAVAREAS XVII – XXI with the exception of the area between Greenland and Norway which will be defined as area north of the 69⁰N parallel.

ACTION: The incoming ARHC Chair (Denmark) to inform IRCC and the NSHC that the 69⁰N proposal for the border limit between ARHC and the NSHC, is accepted and adopted. This effectively assigns ARHC the responsibility for the waters north of the 69⁰N parallel extending between Greenland and Norway.

DECISION: Norway accepted the role of INTernational Chart Coordinator for the ARHC.

ACTION: Norway to take the necessary steps to formalize the establishment of an INT Chart Region 'N' coincident with the ARHC; including informing IHB of the details that require adjustment.

ACTION: Norway to prepare a proposal on the establishment of a chart advisory group with a draft TOR for ARHC3 consideration.

ITEM 4 - Report of the Strategic Planning Working Group (SPWG)

4a: SPWG Overview

The SPWG Chair (Norway) presented a brief overview of the work undertaken during the year and invited Member States (MS) to present the results of specific actions to which they were assigned.

4b: ARHC Members to update IHO Publication C-55 Status of Surveying and Charting
Only United States provided a paper (ARHC2-04B) noting their updates to C-55 Status of Surveying and Charting. It was noted in the meeting the importance for Members to regularly update C-55 recognizing that it is a principle document for the International Maritime Organization (IMO) in its audit activity regarding the Safety Of Life At Sea (SOLAS) expectations. It was further noted that the Inter-Regional Coordination Committee (IRCC) was identified a working group to consider revisions to the C-55 database.

4c. Regional Marine Traffic Patterns:

Norway presented a report (ARHC2-04C) on Arctic marine traffic patterns and trends. References were made to the 2009 Arctic Marine Shipping Assessment (AMSA) report sponsored by the Arctic Council's Pan-Arctic Marine Environment committee (PAME). It was noted that the ARHC should be using the AMSA data and the upcoming updated AMSA report as indicators for where hydrography gaps may exist in the future.

ACTION: Canada to monitor the progress of the next revision of the AMSA report and report back to ARHC3.

ACTION: Denmark to develop a conceptual model of indicators that could be monitored as guidance for planning for Arctic hydrographic priorities

4d. Paper and Digital Chart Coverage

Canada presented the status of hydrographic surveying and charting in the Canadian Arctic with emphasis on chart coverage of the North-west Passage (ARHC2-04D). Even with complete paper chart coverage in the Canadian Arctic it was noted that sparse coverage and the age/quality of data was a concern.

Canada presented a second paper (ARHC2-04DINF1) demonstrating an ArcGIS circumpolar view of paper and digital chart coverage in Arctic waters, which also indicated significant gaps in the coverage, as well as issues regarding the quality of data and the content. Source for this presentation were Canada, Denmark, Norway United States and the IHO-WENDWG. This presentation showing the collective view of chart coverage by the five Arctic Ocean coastal states has potential to indicate gaps in Arctic charting and overlaps between chart coverage of neighbouring states.

ACTION: Canada to extract ENC coverage presentation for ARHC and report this to the WENDWG for their use in compiling IHO ENC coverage report to IHC2012.

4e. Investigate status of nautical publications and recommend development or harmonization

Denmark informed the group of the Nordic Hydrographic Commission and Baltic Sea Hydrographic Commission efforts with a nautical publications harmonization working group investigating coordination potential, best practices, use of open source etc. Denmark suggested Canada and the United States may wish to participate in this effort given that the other three ARHC members were actively involved. Denmark committed to informing Canada and the United States of the date for the next Baltic Sea working group meeting. The report (ARHC2-04E) was noted.

4f. Assessment of relevant stakeholders to contribute to ARHC work program

Norway indicated that only United States had provided feedback to this item and asked Member States to take note of the USA report (ARHC2-04F).

4g. Outline a proposal on how to raise awareness of the importance of hydrography to stakeholders

Norway introduced a general discussion on how to raise awareness of Arctic hydrography within both the national and international arenas. Denmark offered an example of Danish Maritime Safety Administration having been successful at inserting reference to the Arctic Regional Hydrographic Commission into the Kingdom of Denmark Arctic Strategy document.

4h. Outline possibilities for enhanced cooperation between relevant HOs on a regional, sub-regional and bilateral level

Different strategies and experiences in obtaining hydrographic data were discussed including using contract and ships-of-opportunity. Several countries mentioned the general lack of qualified contract services. The United States explained their experiences in using contract surveyors.

ACTION: United States to circulate the cost-benefit analysis of utilizing private sector contract data collection recognizing that core expertise should be retained by Hydrographic Offices.

4i: Outline the potential for increased bathymetric data collection by utilizing ships-of-opportunity

Norway provided a presentation on the Norwegian firm, OLEX, and their penetration into ships-of-opportunity hydrographic data collection on a communal basis whereby members who use OLEX acoustic sounding systems can get access to a shared site where processed bathymetric data is available based on fishing, scientific and other vessels track soundings. It was noted in discussion that there are about 5,000 OLEX users; about 25% take advantage of the shared bathymetry opportunity; there is no additional costs to access bathymetry; Norway uses the shared bathymetry as a source for hydrographic planning.

ITEM 5 - Summary Day 1 actions

References were made to the panel discussion from the Scientific Forum on Arctic Hydrography that proposed the ARHC consider international funding opportunities.

ACTION: The incoming ARHC Chair and IHB to investigate the base requirements and follow-up actions to enable ARHC to build a proposal to access funding from international funding organizations for Arctic charting

Potential benefits from LiDAR (Light Detection and Ranging) technology and satellite imagery were discussed with Denmark, United States and Canada being able to indicate recent experiences in these areas. The topic was considered worthy of further discussion and ongoing reporting.

ACTION: Canada and the OTWG to collaborate in preparation of a white paper to capture experiences in using satellite and LiDAR technologies for improving ARHC planning and charting of Arctic waters.

ACTION: ARHC Member States to report on experiences in the utilization use of vessels-of-opportunity for hydrographic data collection in the Arctic and any applicable Survey Standards used as guiding quality criteria.

The United States noted the “2011 NOAA Hydrographic Surveys Specifications and Deliverables” is available at: <http://www.nauticalcharts.noaa.gov/hsd/specs/specs.htm>

ACTION: Denmark to develop a draft agenda for a workshop to be held in conjunction with ARHC3 based on 1 or 2 themes such as remote sensing as a tool for ARHC Hydrographic Office charting prioritization and production.

ITEM 6 - Report of the Arctic Mariners Routeing Guide working group

Denmark presented the outcome of the working group questionnaire and the subsequent Arctic Mariners Routeing Guide (MRG) paper and pdf prototype, produced by United States, highlighting Canadian and Alaskan arctic waters. The report (ARHC2-06A) and draft pdf presentation were noted.

Canada made a presentation of a conceptual circumpolar digital MRG based on a Google Earth engine. The report (ARHC2-06B) was noted.

It was agreed that a product of this type was an appropriate activity of the ARHC though further stakeholder investigation was now required to identify the most suitable content along with the appropriate governance structure and specific national interest items.

ACTION: Member States to provide feedback to the ARHCWG Chair on the prototype Arctic Mariners Routeing Guides.

ACTION: ARHCWG to assess Member State feedback in preparation for a follow-on workshop.

ACTION: Russian Federation to circulate the mariner’s routeing guidelines for the Northern Sea Route

ITEM 7 - Report of the Operational and Technical Working Group(OTWG)

United States presented a revised Terms of Reference and a work plan proposal for the OTWG. Canada agreed to undertake the role of Vice-Chair for this working group. The technology scope of the OTWG will focus for now on hydrographic surveying where new applications of satellite imagery and LiDAR are being considered as tools to aid data collection. The reports (ARHC2-07A and ARHC207B) were noted.

DECISION: the revised OTWG Terms of Reference and the proposed workplan was approved with no changes

DECISION: Canada would undertake the role of Vice Chair of the OTWG.

ITEM 8 - Consideration of Polar Projections for Electronic Navigational Charts

United States introduced the subject of developing suitable polar projections for Electronic Navigational Charts and the subsequent incorporation into Electronic Chart Display and Information System (ECDIS) performance. It was noted that Denmark had submitted a paper to the Transfer Standards Maintenance and Development (TSMAD) working group. It was decided that this work item would be best monitored and encouraged by ARHC.

ACTION: Denmark to monitor the work led by TSMAD in the determination of a suitable polar projection for ENCs and report to ARHC3.

ITEM 9 - Safety of Navigation Circular on Polar Nautical Charts

Denmark made the ARHC aware of a draft Safety of Navigation circular that is out for comment related to the poor condition of nautical charts in polar waters. This circular is intended to be presented to the International Maritime Organization (IMO) in preparation for the adoption of mandatory ECDIS carriage. ARHC Member States are encouraged to comment through their IMO representatives.

Discussion on the poor quality of some Arctic nautical charts was discussed including the significant level of effort required to remedy the poor positional accuracy of these products. United States (Chris Andreasen) indicated that geo-referenced shoreline imagery is available to be used as one tool in the repair of poor geo-reference charts. This imagery may be made available on request to the National Geospatial Intelligence Agency (NGA).

ITEM 10 - Actions Arising from IRCC3

The Chair considered the extent of this agenda item and recommended it be accomplished by correspondence.

DECISION: Canada accepted to be the ARHC representative to the Editorial Board of the International Hydrographic Review.

ACTION: ARHC Members: to provide to the Chair (copying all Members) their views on each of the IRCC action items identified in the ARHC2 Agenda Item (see ARHC2-10A).

Denmark raised the matter of informing the IHO-WENDWG of the status of Arctic nautical charting. It was noted that Canada is tasked to send an abbreviated version of the ARHC2-04DINF1 document to WENDWG to indicate ARHC status of ENC coverage.

ARHC was informed that Canada will be participating in the October 2011 WENDWG meeting, by video conference, as the USCHC representative.

DECISION: Canada will represent the interests of the ARHC in WEND-WG until an ARHC member is formally appointed.

11. Arctic Spatial Data Infrastructure

Denmark introduced this information item and encouraged ARHC to interact with this Arctic Council initiative through their national administrations. The report (ARHC2-11A) was noted.

12. Discussion of the International Hydrographic Conference 2012

It was agreed this could be undertaken inter-sessionally should discussions be required.

ACTION: ARHC Chair to prepare a proposal to the XVIIIth IHC to amend the Annex (related to Article 8) to the General Regulations of the International Hydrographic Organization (not yet in force) in order to reflect the newly created Arctic Regional Hydrographic Commission.

ITEM 13 - Next Steps

It was suggested that an inter-sessional meeting be considered in conjunction with the International Hydrographic Conference in Monaco. This opportunity could be used to advance discussions and action items.

Finland and Iceland each expressed their appreciation of inclusion in the Commission meeting and their intentions of being contributors to the work of the ARHC.

ITEM 14 – Closing Remarks

The Chair, Savi Narayanan, expressed her appreciation and satisfaction at having the honour of being first Chair of the ARHC. Her words of encouragement included a commitment from Canada to continue to make strides in Arctic hydrography and to share these as contributions to the work of the ARHC.

Canada expressed her appreciation to the wonderful hospitality of Svend Eskildsen, Lars Hansen, Julie Kiilerich, and others in their hosting of ARHC2 and for the hard work of Vice-Chair over the past year. Canada noted that the ARHC Chairmanship would pass to Mr. Svend Eskildsen of Denmark at the close of this meeting and in turn, she congratulated Mr. Evert Flier of Norway for becoming the next Vice-Chair of the ARHC.

The incoming Chair, Svend Eskildsen, thanked the ARHC for an energetic ARHC meeting and for Member's participation in the Scientific Forum on Arctic Hydrography. The three days had shown there are many common concerns and goals amongst participants on how to collectively improve hydrography and charting in Arctic waters.

Norway invited the ARHC to hold its next Conference in Tromso, Norway, October 10-11, 2011 with an associated Scientific Forum on Arctic Hydrography to be held October 9, 2011..

Canada thanked all Members and Observers for another strong and positive Commission meeting and brought the 2nd meeting of the ARHC to a close.



Scientific Forum – Arctic Hydrography September 27, 2001

Objective: The Scientific Forum on Arctic Hydrography was initiated to bring together a range of scientific views to stimulate open and valuable discussions and help arrive at recommendations towards establishing the workplan for the ARHC.

Summary of key points from presentations and discussion:

- Navigating in the Arctic is highly risky due to the poor quality, coverage and content related to hydrography in the navigational charts. Every effort should be made by the ARHC MS to collaborate to make use of all available resources on a pan-Arctic basis and make data available as quickly as possible after the surveys.
- The Northern Sea Route is indeed a viable transit route through Arctic waters given appropriate understanding, planning and support of the marine services made available by the Russian Federation.
- Satellite technology has now been accepted as having potential for many navigational uses including ship Automatic Identification System (AIS) tracking, ice and iceberg monitoring, reconnaissance shallow-water detection and other applications to assist Hydrographic Offices' data collection to improve nautical charts and aid in the establishment of hydrographic priorities.
- Strategic understanding of Arctic hydrographic requirements will be aided by the assembly of key infrastructure and incident factors through Geographic Information System technology. These factors would include but not be limited to ship transits, oil and gas installations; marine incident information and radio nav-aid locations and broadcast coverage information.
- Evaluation of data from non-traditional sources including platforms-of-opportunity and available gridded data from international sources should be used in setting survey and charting priorities and evaluated for use nautical chart construction in light of the extent of sparse modern hydrographic data.
- Regular monitoring and consideration of the resource and socio-economic uses of the vast Arctic Ocean space such as oil and gas development, fishing and human population centres of the Arctic region should be undertaken to enable strategic planning of near and future needs for Arctic hydrography.
- The Arctic Regional Hydrographic Commission as an integral part of the International Hydrographic Organization, should strategically seek avenues to raise its profile with international bodies including the International Maritime Organization, the World Meteorological Organization, the Arctic Council and others with scientific, environmental and socio-economic commitments to a secure and healthy Arctic environment.

Special Guest Presenters: The ARHC acknowledges and extends its deep appreciation to those international scientific experts who participated with such passion and commitment to this Scientific Forum. These professional contributors and their subjects of expertise are as follows:

Dennis Anthony: Head of Centre of Marine Information, Danish Maritime Safety Administration, *'A GIS-based Planning and Decision-Making Tool for the Arctic – A Case Study from Greenland Waters'*

Lars Christiansen: Technical Director ID Shipping Denmark, *'Experiences in the 2010 transport of iron ore via the Northern Sea Route'*

Charlotte Havsteen: Danish Space Council, Division Head, Danish Maritime Safety Administration, *'Safety of navigation in the Arctic- A Space Perspective'*

Rob Hensley: Head External Relations United Kingdom Hydrographic Office, *'World-wide surveying and charting experience'*

Martin Jakobsson: Chair International Bathymetric Chart of the Arctic Ocean, *'Integrating data and leveraging ships-of-opportunity'*

Arnfinn Jørgensen-Dahl: Senior Research Fellow, OCEAN FUTURES, *'Arctic Oil and Gas – What Now'*

Per Sønderstrup: Head of Centre, Danish Maritime Authority, *'Shipping safety in the Arctic – A perspective for Greenland'*

Participant List

Name	Country	Titel/Position	Role	Email
Savithri Narayanan	CA	Dominion Hydrographer / Director General Canadian Hydrographic Service	Chair	Savithri.narayanan@dfo-mpo.gc.ca
Sean Hinds	CA	Senior Advisor, Canadian Hydrographic Service	Delegate	Sean.hinds@dfo-mpo.gc.ca
Michael Hecimovich	CA	Director, Hydrography Central and Arctic	Delegate	Michael.hecimovich@dfo-mpo.gc.ca
Svend Eskildsen	DA	Director DaMSA	Vice Chair	ses@frv.dk
Charlotte Havsteen	DA	Head of Department DaMSA	Delegate	cwc@frv.dk
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John Lowell	US	OCS Director & U.S. Hydrographer	Delegate	John.Lowell@noaa.gov
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Keith	US	Chief, Maritime Products &	Delegate	Keith.E.Alexander@nga.mil

**2nd ARHC Conference
Copenhagen, Denmark**

ARHC2 Report

Alexander		Services		
Peter Doherty	US	Chair, IHO WWNWS	Delegate	Peter.M.Doherty@nga.mil
Stanley B. Harvey	US	Deputy Assistant Chief of Staff/Supervisor/Hydrographer	Delegate	Stanley.b.harvey@navy.mil

Agenda

Day 1 & 2 - September 28-29, 2011

Item Point	Times	Subject	Documents	Lead
	08h40	REGISTRATION		
	09h00	DAY 1		
1		Opening		
		1a Opening Remarks		S. Narayanan
		1b Denmark Welcome Remarks		S. Eskildsen
		1c Approval of the Agenda	ARHC2-01A ARHC2-01B ARHC2-01C	S. Narayanan
		1d Status of actions arising from ARHC1	ARHC2-01D	S. Narayanan
	09h30			
2		National Updates Arctic Hydrography - Update from ARHC Members regarding significant status change or activities regarding Arctic hydrography since last meeting (20-30 minutes each)		
		2a United States - National Report	ARHC2-02A	J. Lowell
		2b Russian Federation – National Report ; Development of safety of navigation system on Russian Federation Arctic Coast	ARHC2-02B	A. Shemetov
		2c Norway – Update Arctic Hydrography	ARHC2-02C	E. Flier
		2d Denmark – National Report “Advances in Greenland Charting”	ARHC2-2D ARHC2-02Da	L. Hansen J.P.Hartmann

		2e Canada – Arctic Pilot 2011	ARHC2-02E	S. Narayanan
	12h00	LUNCH AND GROUP PHOTO		
	13h00			
3		Area of Coverage for the Arctic Regional Hydrographic Commission - Status of neighbouring RHC's consideration of NAVAREA coverage		
		3a United States – Canada Hydrographic Commission consideration of NAVAREA coverage for ARHC	ARHC2-03A	Canada
		3b North Sea Hydrographic Commission consideration of NAVAREA coverage for ARHC	ARHC2-03B	Norway
	14h00			
4		Report of the Strategic Planning WG (15-20 minutes each)		
		4a Brief SPWG summary and next steps		Norway
		4b Status of surveying and charting C-55	ARHC2-04B	All
		4c Regional marine traffic patterns	ARHC2-04C	Norway
	•	4d Paper and digital chart coverage	ARHC2-04D ARHC2-04DINF1	Canada, Russian Federation
		4e Investigate status of nautical publications and recommend development or harmonization	ARHC2-04E	Denmark
		4f Assessment of relevant stakeholders to contribute to ARHC work program	ARHC2-04F	USA, All
		4g Outline a proposal on how to raise awareness of the importance of hydrography to stakeholders		Canada
		4h Outline possibilities for enhanced cooperation between relevant HOs		All

		on a regional, sub-regional and bilateral level		
		4i Outline the potential for increased bathymetric data collection by utilizing ships-of-opportunity		Norway, All
		ADJOURN		
	19h00 – 22h00	Dinner at the Naval Officers Club		
	09h00	DAY 2		
5		Summary of Day 1 (actions arising)		Chair
6		Report of the Arctic Routeing Guide WG		
		6a Working Group status and refinement of the Arctic Mariners Routeing Guide proposal	ARHC2-06D	Denmark
		6b Demonstration of the concept of a web-based portal as a Routeing Guide planning tool for the Arctic	ARHC2-06B	Canada
7		Report of the Operational & Technical WG - status	ARHC2-07A ARHC2-07B	United States
8		Consideration of Polar Projections for Electronic Navigational Charts		
		8a Observations of chart projections for electronic navigational charts	ARHC2-08A ARHC2-08 INF1	United States
		08b Northern ENC & ECDIS Greenland	ARHC-08B	Denmark
9		Safety of Navigation Circular on Polar Nautical Charts		
		09a Proposal of Draft Safety of Navigation Circular regarding status of polar charting	ARHC2-09A ARHC2-09AINF1	Denmark
		09b Status of Greenlandic Nautical Charts	ARHC2-09B	Denmark

10		Actions Arising from IRCC3	ARHC2-10A	All
		Denmark – ARHC Considerations For WEND WG	ARHC2-10B	Denmark
11		Arctic Spatial Data Infrastructure	ARHC2-11A	Denmark
	12h00	<i>LUNCH</i>		
	13h00			
12		Discussions of the International Hydrographic Conference 2012	IHC2012 documents on IHO website	All
13		Next Steps		
		13a What heard in Scientific Forum – Arctic Hydrography		Chair
		13b Strategy and next steps during inter-sessional period		All
14		Closing		
		14a Next Conference		Chair
		14b Closing Remarks		Chair Vice Chair
		ADJOURN		

SOCIAL FUNCTIONS

Tuesday evening, September 27 (17h30 – 21h00): Technical visit and ice-breaker, onboard the DAMSA ship “Jens Sørensen”, hosted by the Director General of the Danish Maritime Safety Administration.

Wednesday evening, September 28: Dinner at the Naval Officers Club in the DAMSA building

2nd IHO-ARHC Meeting – Summary of Actions
Eigtveds Pakhus, Copenhagen, Denmark
September 28-29, 2011

Agenda Item	Subject	ACTION No.	ACTIONS (in bold, action by)	Status
1.	Coverage are for ARHC	ARHC2-03B	Denmark To inform IRCC and the NSHC that the 69 ⁰ N proposal for the INT chart limit between ARHC and the NSHC, is accepted and adopted.	
2.	Coverage are for ARHC	ARHC2-03B	Norway to take the necessary steps to formalize the establishment of an INT Chart Region 'N' coincident with the ARHC; including informing IHB of the details that require adjustment.	
3.	Coverage are for ARHC	ARHC2-03B	Norway to prepare a proposal on the establishment of a chart advisory group with a draft TOR for ARHC consideration.	ARHC3
4.	Regional Marine Traffic Patterns	ARHC-04C	Canada to monitor the progress of the next revision to the Arctic Marine Shipping Assessment.	ARHC3
5.	Regional Marine Traffic Patterns	ARHC2-04C	Denmark to develop a conceptual model of indicators that could be monitored as guidance for HOs planning for Arctic hydrographic priorities	ARHC3
6.	Paper & Digital Chart	ARHC2-04D	Canada to forward ARHC ENC coverage	Oct. 7, 2011

	Coverage		to the WENDWG Chair, based on ARHC2-04DINF1 data, as its response to the WENDWG request of RHCs for status of IHO ENC coverage report to IHC 2012. ARHC participation in the WENDWG October, 2011, meeting to be achieved through the USCHC WENDWG representative (Sean Hinds).	
7.	Enhanced cooperation between HO's	ARHC2-04H	USA to circulate the cost-benefit analysis of utilizing private sector contract data collection recognizing that core expertise should be retained by Hydrographic Offices.	Oct. 2011
8.	Accessing International Funding Organizations	ARHC2-05	ARHC Chair to investigate with IHB base requirements and follow-up actions to enable ARHC to build a proposal to access funding from international funding organizations for Arctic charting	
9.	Utilizing technology to improve HO planning & charting	ARHC2-05	OTWG to prepare a draft paper sharing experiences of using satellite and LiDAR technologies for improving ARHC Hydrographic Office planning and charting of Arctic waters.	ARHC3
10.	Feasibility of alternate data collection	ARHC2-05	Member States to report on the feasibility and/or use of vessels-	ARHC3

	methods and application of Survey Standards		of-opportunity for hydrographic surveys in the Arctic and their Survey Standards used for this application.	
11.	Workshops for next meeting of the ARHC	ARHC2-05	Denmark to develop a draft agenda for a workshop to be held in conjunction with ARHC3 based on 1 or 2 themes such as remote sensing as a tool for ARHC Hydrographic Office charting prioritization and production.	April 2012
12.	Arctic Routeing Guide	ARHC2-06	Member States to provide feedback to the ARHCWG Chair (Denmark) on the two prototype Arctic Mariners Routeing Guides.	Dec. 1, 2011
13.	Arctic Routeing Guide	ARHC2-06	ARHCWG Chair to assess Member State feedback in preparation for a follow-on workshop.	
14.	Arctic Routeing Guide	ARHC2-06	Russian Federation to circulate the mariners routeing guide for the Northern Sea Route	Jan 2012
15.	Polar Projections for ENCs	ARHC2-08	Denmark to monitor the work led by TSMAD in the determination of a suitable polar projection for ENCs and report to ARHC3.	ARHC3
16.	Actions Arising from IRCC3	ARHC2-10	ARHC Members to provide to the Chair	October 7, 2011

			(copying all Members) their views on each of the IRCC action items identified in the ARHC2 Agenda Item.	
17.	Discussions of the International Hydrographic Conference 2012	ARHC2-12	ARHC Chair to prepare a proposal to IHC2012 to amend the Annex (related to Article 8) to the General Regulation of the International Hydrographic Organization (not yet in force) in order to reflect the newly created Arctic Regional Hydrographic Commission.	Jan 2012