

**Arctic Regional Hydrographic Commission (ARHC)
Iqaluit, Nunavut, Canada October 3 and 6, 2016**

Report of the OTWG

Submitted by:	United States of America (Chair) and Canada (Vice Chair)
Executive Summary:	This paper reports on efforts of the OTWG since October 2015
Related Documents:	IRCC7-11G
Related Projects:	“A Risk-based Methodology of Assessing the Adequacy of Charting Products in the Arctic Region: Identifying the Survey Priorities of the Future”

Introduction / Background

The Operations and Technology Working Group was established at ARHC-1. The Terms of Reference (ARHC2-07A) identifies the objectives of the group:

- a. To provide a core of expertise on hydrographic operations in the Arctic.
- b. To develop and maintain documented best practices, lessons learned, and advances in training and technology.

At ARHC-5, the following action item was identified for the OTWG:

- ARHC5-04: The OTWG to present Status Report on work priorities to ARHC 6

The Extraordinary Session of the ARHC (May 2016) identified the following action for the OTWG:

- ACTION 6 - US via the Operations and Technical Working Group (OTWG) will:
 - a) contact the Russian Federation to identify data missing and needed to complete the Risk Assessment Tool.
 - b) use the existing “public” Russian Data to get results for the entire Arctic until all data is available. The OTWG will share results with the Russian Federation first and will present at the ARHC-6.
 - c) At Denmark request, remove constraints in the Tool to allow all data provided along all Greenland coast and included in the Risk Tool result to be presented at ARHC-6.
- ACTION 7 – Russian Federation will provide the ARHC members an update by early September 2016, on how and when (realistic timeline) the whole Russian Federation Data will be shared for inclusion in the Risk Assessment tool.

Activities Update

- NOAA maintains an OTWG website to facilitate information exchange at: <https://coastsurvey.noaa.gov/arhcotwg/default.aspx>. Users must register for access (Attachment B). During the intersessional period, Iceland applied for access and a username and password were provided to Hilmar Helgason.
- In light of PAME correspondence to ARHC Chair Denis Hains (CA) (May 11, 2016) (Attachment D), the topic of updates to the “*A Risk-based Methodology of Assessing the Adequacy of Charting Products in the Arctic Region: Identifying the Survey Priorities of the Future*” (Michael Gonsalves, Douglas Brunt, Christina Fandel and Patrick Keown) was explored at the ARHC Extraordinary session held on the margins during the IRCC8 (May 2016). The OTWG chair was tasked to follow up with the WG membership (Attachment E).

ARHC Hains provided an interim update to the PAME Secretariat in September 2016 indicating the status and next steps in an update on the Assessment. These will be discussed at ARHC-6 with a subsequent report to PAME promised following that meeting. (Attachment F)

- As of the date of this report, LCDR Michael Gonsalves PhD (NOAA-USA) is the current Chair of the OTWG. Owing to assignment of new duties, LCDR Gonsalves will vacate the Chair position as of the conclusion of ARHC-6. LCDR Gonsalves informed the OTWG membership of this change and invited expression of interest to member states to nominate a new chair.

Other Developments

The ARHC is invited to note

- The Northwest Passage was considered nearly unnavigable 100 years ago. The Crystal cruise liner *Serenity* is the largest cruise liner to sail through the Northwest Passage. The ship departed Anchorage Alaska, travelled through the Bering Strait and across the Canadian Arctic, stopping in Greenland and ultimately concluding its voyage in New York. The 32-day cruise was scheduled from August 16-Sept 17, 2016.



Source: <http://www.crystalcruises.com/voyage-finder/voyage-detail/?voyageId=6319>

Canada is exploring interest and opportunities to partner with cruise lines to collect hydrographic data on such future cruises in order to support nautical charting.

- The University of New Hampshire Joint Hydrographic Center and Canadian Hydrographic Service will collect continental slope bathymetry in the Bering Sea and off the north coast of Alaska from September 18 to Oct 06
- As reported in general public media, “The Northern Fleet's hydrographic ship *Vizir* embarked on an expedition to the Arctic, Interfax reports. According the Northern Fleet's press service, surveys will be conducted in the Barents and Kara seas, the Laptev Sea, and in the East Siberian Sea if conditions are favorable” from August to October. (source: <http://arctic.ru/geographics/20160816/412181.html>)
- The Arctic Council PAME-II (2016) meeting was held in September 18-21, 2016 in Portland, Maine, USA. Papers drafted for discussion of potential interest to ARHC included:
 - “Criteria for Prioritizing PAME's Shipping-Related Work”;
 - “Joint PAME-EPPR Project to Produce a Compendium of Arctic Ship Accidents Since 2005”

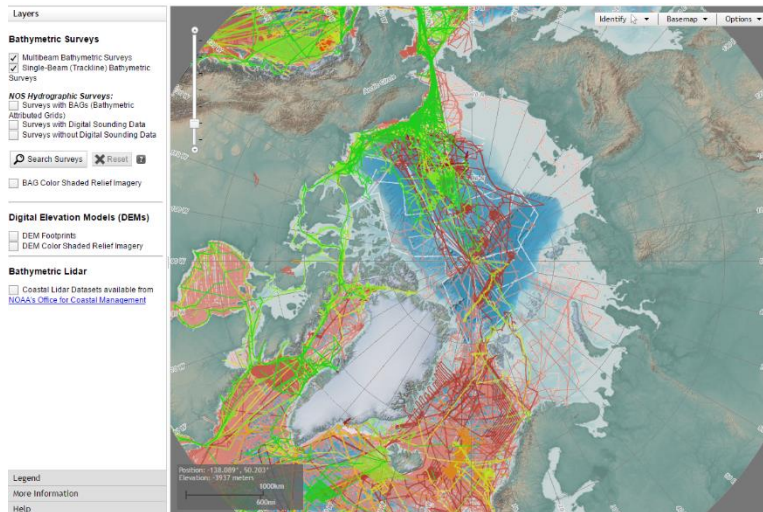
Analysis/Discussion

The OTWG continues to encourage contacts and information sharing among member states to support improvements in navigation safety infrastructure in the areas identified in the terms of reference and in subsequent ARHC meetings (see Attachment C).

Prospects of a forthcoming expansion of Arctic navigation appears increasingly anticipated, underscoring the importance of close cooperation among member states to support hydrography and marine charting in the Arctic.

The ARHC has an ongoing opportunity to inform the Arctic Council on hydrographic considerations as the Arctic is increasingly addressed. Following the ARHC-6, the ARHC should consider a correspondence with PAME to understand outcomes of PAME-II (2016) and ARHC-6 to be addressed in 2017.

In the course of conducting hydrographic operations in the Arctic, Member States are reminded of the invitation to contribute hydrographic data collected to the IHO Data Center for Digital Bathymetry.



Source: <https://maps.ngdc.noaa.gov/viewers/bathymetry/> (Arctic Tab)

Recommendations

IHO Member States of the ARHC are invited to consider this report and offer direction and guidance to the Working Group on future activities. Member States are also invited to provide updates to membership list.

IHO Member States of the ARHC are invited to discuss any response to the PAME.

Action Required of ARHC

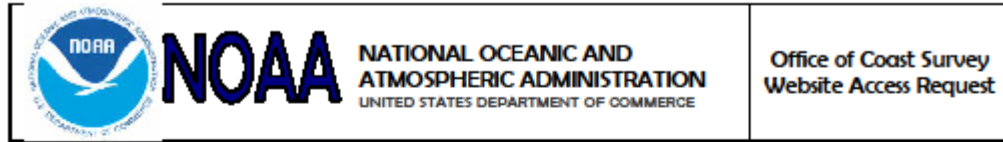
The ARHC is invited to:

1. to review the 2016 report;
2. consider the discussion points, including selection of new Chair;
3. discuss any proposed 2017 actions for the OTWG; and
4. make any adjustments and decisions as warranted.

Attachment A

Membership

Canada	Denmark	Finland	Iceland	Norway	Russian Federation	United States
scott.youngblut@dfo-mpo.gc.ca (Vice Chair) douglas.brunt@dfo-mpo.gc.ca	larsh@gst.dk jepha@gst.dk	seppo.h.makinen@liikennevirasto.fi	Hilmar.Helgason@ihg.is	Arne.ofstad@kartverket.no Noralf.Slotsvik@kartverket.no	main@gunio.ru	michael.gonsalves@noaa.gov (Chair) (vacant as of Oct 6, 2016) Stanley.B.Harvey@Navy.mil John.E.Lowell@nga.mil Keith.E.Alexander@nga.mil Keith.E.Dominic@nga.mil Jonathan.Justi@noaa.gov



**Office of Coast Survey Website
Application for New Account**

You have been recommended to the Office of Coast Survey, NOAA (OCS) for access to the Coast Survey SharePoint website which has a restricted access list. This collaboration website contains data pertinent to daily OCS operations, some of which may be proprietary. Prior to your gaining access, the Office of Coast Survey will need information from you that will become part of our integrated database and website.

Effective January 1, 2011, the OFFICE OF COAST SURVEY IT Security Office requires each website user requesting access to a multi-user IT system to submit an Account Request Document for approval.

Please complete the following application and return (with signature) to the the website Point-of-Contact who will process the application. You will be notified when approved and account is created.

Instructions for Completing the Form

1. Name: Last Name, First Name, Middle Initial.
2. Functional Title: (e.g., Systems Engineer, Administrative Assistant, etc...)
3. Affiliation: Please indicate your government agency and organization. For non-government employees, please identify your official relationship to NOAA.
4. Address at Work (list City and State, or County only if outside the U.S.)
5. Email Address: If NOAA email address, provide "@NOAA.gov" address. If non-NOAA, please provide your official email address.
6. Phone numbers: Please provide a current Telephone number.
7. Citizenship of the requestor: If you are not a U.S. citizen, please indicate the nation of citizenship. If routinely accessing the system from outside the United States, indicate from what country or countries normal access will occur.
8. Site or Group of Sites for which an account is being requested: List the name or ID of the Coast Survey Site(s) to which you are requesting access.
9. Level of user privileges afforded to the account: Owner, Member, or Visitor.
10. Check the ownership of the primary computer that will be used to access this website.
11. Requesters Signature and Date: The request form will not be processed without the requester's signature and signature date.
Submit Application by Fax to 301-713-4019.
12. OFFICE OF COAST SURVEY Approval: To be filled out by the OFFICE OF COAST SURVEY Manager.
13. IT Security Officer Approval: To be filled out by the IT Security Officer (only required for Foreign National computer access.)



NOAA

NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

Office of Coast Survey
Website Access Request

**Office of Coast Survey Website
Application for New Account**

1. Full Name (Last, First, MI):
2. Title:
3. Affiliation: If Contractor, Contract & Task #:
4. Address at Work (City and State, or Country if outside U.S.)
5. Email Address:
6. Contact Telephone Number:
7. Citizenship of Requestor: US
8. Sites or Group of Site, for which the account is being requested: https://coastsurvey.noaa.gov/arhcotwg/default.aspx
9. Access Level: <input type="checkbox"/> Owner <input type="checkbox"/> Member <input type="checkbox"/> Visitor
10. Primary Computer: <input type="checkbox"/> Government <input type="checkbox"/> Company/Institution <input type="checkbox"/> Personal <input type="checkbox"/> Public

Acknowledgement Statement

I understand that the NOAA, Office of Coast Survey website may be accessed and used only for official business by authorized personnel. Unauthorized access or use of this computer system constitute grounds for termination of the account and may subject violators to criminal, civil, and/or administrative action. All information on this website may be intercepted, recorded, read, copied, and disclosed by and to authorized personnel for official purposes.

I will notify OCS should I no longer require access to this site and I will confirm yearly the requirement to maintain my account.

12. Requestor's Signature	Date
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Approval

13. Office of Coast Survey (Government Approval)	Date	Status of Request <input type="checkbox"/> Approved <input type="checkbox"/> Rejected
14. Office of Coast Survey (IT Security Officer)	Date	Status of Request <input type="checkbox"/> Approved <input type="checkbox"/> Rejected

Attachment C

**OTWG website:
Topics Highlighted of Priority Interest by the ARCH for the OTWG in 2014**

The Topic libraries currently on the OTWG site includes:

- Water Level observations in the Arctic
- OTWG Organizational Documents
- Arctic Cruise Reports
- Positioning at high latitudes
- Sound speed in the Arctic
- Collaborative OTWG Products and Reports
- Marine Mammal Interactions
- Documents shared by MS in the current RHC intersessional period
- User Registration
- General News Items
- Contacts

<https://coastsurvey.noaa.gov/arhcotwg/default.aspx>



May 11, 2016

To: Denis Hains
ARHC-IHO Chair (Canada)
Email: Denis.Hains@dfo-mpo.gc.ca

On behalf of the Arctic Council's Working Group on the Protection of the Arctic Marine Environment (PAME), I would like to extend a cordial invitation to the International Hydrographic Organization (IHO), in consultation with members of the Arctic Regional Hydrographic Commission (ARHC), to submit a report to the PAME Working Group on its recent work, *including any further developments on Arctic Voyage Planning Guides and ARHC plans to develop a marine spatial data infrastructure for the Arctic* for consideration at PAME's next meeting, which will be held in Portland, Maine from 18-21 September 2016.

We greatly appreciate the information exchange and collaboration with ARHC noting in particular the following:

- ✓ ARHC provided a report on status and currency of nautical charting in the Arctic to the PAME I-2014 (Feb) working group meeting.
- ✓ ARHC Vice-Chair Denis Hains gave an informative presentation on relevant topics at the PAME II-2014 (Sep) working group meeting.
- ✓ ARHC submitted a report on the update on activities of the ARHC to the PAME II-2015 (Sep) working group meeting.

PAME has noted these submissions and presentation in its respective meeting reports. Furthermore, the shipping experts group in PAME has discussed in more detail the critical importance of Arctic surveying, mapping and charting as well as possible crowdsourcing opportunities to help advance ongoing Arctic survey efforts. We are pleased that we were able to identify one such opportunity – depth sounding data collected by members of the Association of Arctic Expedition Cruise Operators – and we hope the transfer of that data to ARHC members proves successful.

Kindly send any update you may be able to supply to the PAME Secretariat (pame@pame.is) which will be shared with member governments in advance of the September meeting. If you have any questions or desire additional information, please do not hesitate to contact me or Peter Oppenheimer (peter.oppenheimer@noaa.gov) and Drummond Fraser (drummond.fraser@tc.gc.ca).

We look forward to continued information exchange and collaboration between PAME and the ARHC as we pursue the shared goal of improving the safety of Arctic navigation and the protection of the Arctic marine environment.

Sincerely,

A handwritten signature in black ink, appearing to read "Renée Sauvé".

Renée Sauvé
Chair, PAME Working Group
Email: Renee.Sauve@dfo-mpo.gc.ca

PAME International Secretariat-Borgir-600 Akureyri-Iceland-Tel: +354 461 1355-Fax: +354 462 3390-email: pame@pame.is

Attachment E

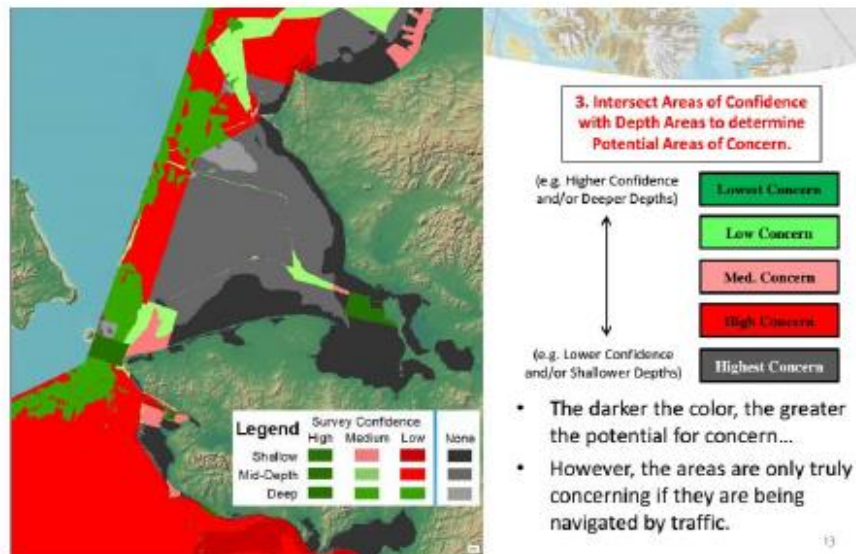
Potential OTWG response to PAME inquiry

1 message

Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov> Wed, Aug 10, 2016 at 10:12 AM
To: leonidshalnov@yandex.ru, "Brunt, Douglas" <Douglas.Brunt@dfompo.gc.ca>, "Hansen, Lars" <larsh@gst.dk>, "Hartmann, Jens Peter Weiss" <jepha@gst.dk>, maritimeinternational@nga.mil, "Harvey, Stanley B CIV CNMOC, N5B" <stanley.b.harvey@navy.mil>, marc.eckardt@navy.mil, Jonathan Justi - NOAA Federal <jonathan.justi@noaa.gov>, "Youngblut, Scott" <scott.youngblut@dfompo.gc.ca>, Arne Ofstad <Arne.Ofstad@kartverket.no>, Noralf Slotsvik <Noralf.Slotsvik@kartverket.no>, Dominic Keith E NGA-SHN USA CIV <keith.e.dominic@nga.mil>
Cc: "Hains, Denis" <denis.hains@dfompo.gc.ca>, evert.flier@kartverket.no, unio_main@mil.ru, Gerd Glang - NOAA Federal <gerd.glang@noaa.gov>, hilmar@lhg.is, rainer.mustaniemi@liikennevirasto.fi, Robert Ward <robert.ward@iho.int>, Richard Brennan - NOAA Federal <Richard.T.Brennan@noaa.gov>, Christina Fandel - NOAA Federal <christina.fandel@noaa.gov>

Greetings OTWG colleagues,

At the Extraordinary ARHC meeting convened in Abu Dhabi, in connection with the IRCC-6, I understand that member states discussed the invitation extended to the ARHC by the PAME Secretariat to provide any relevant hydrographic status updates to the PAME-II 2016 working group meeting to be held September 18-21, 2016 in Maine, USA (see attached). The Extraordinary session tasked me as Chair of the OTWG to explore this opportunity with you and to discuss the feasibility of updating the Chart Adequacy Assessment conducted in 2014 for the Arctic Ocean (see image below). With this email, I seek your support and input to this effort.



I understand the following points were offered in discussions at Abu Dhabi:

- All member states were supportive and appreciative of the opportunity to continue to inform the Arctic council and its PAME working group on the state of hydrography in the Arctic. This opportunity underscores the awareness that the ARHC and the IHO are the primary authoritative technical bodies of information on safety of life at sea and maritime safety in the Arctic.
- Denmark requested any further update include all the waters surrounding Greenland, not necessarily exclusive to waters within the bounds of INT Region N.
- Russia indicated it could identify which data sets it could contribute to completing coverage of the Arctic charting and survey assessment.
- The U.S. continues to offer its staff to conduct the GIS-based analysis using the methodology described earlier using CATZOC, depth and vessel traffic.

https://mail.google.com/mail/u/0/?ui=2&ik=b3fa54b4f8&view=pt&as_from=michael.gonsalves%40noaa.gov&as_sizeoperator=s_sl&as_sizeunit=s_smb&as_su... 1/2


9/23/2016

National Oceanic and Atmospheric Administration Mail - Potential OTWG response to PAME inquiry

The OTWG currently has complete pan-Arctic depth data (through IBCAO) and vessel traffic (through satellite-based AIS). The OTWG also has the CATZOC datasets previously provided by Canada, Denmark, Norway and the U.S. The most significant update could involve getting full CATZOC coverage from Denmark and Russia. Recalling IHO CL 52/2015, it is possible that CATZOC data could be readily accessed for the update via existing RENC distribution channels.

Please advise at your earliest conveniences if updates to the assessment are warranted from your collective perspective. Your earliest feedback and suggestions will be greatly appreciated so we may prepare an appropriate update to the PAME-II 2016.

Very respectfully,
~~ michael.gonsalves, LCDR/NOAA
ARHC, OTWG Chair

 **PAME letter to ARHC to submit paper to PAME II-2016 Sep meeting, 11 May 2016.pdf**
164K