11th Meeting of the Hydrographic Commission on Antarctica (HCA)
Hobart, Tasmania, Australia, 5-7 October 2011

FINAL MINUTES

Notes: 1) A list of acronyms used in these Minutes is at Annex A.
2) A list of all actions from HCA11 is at Annex E.

1.- OPENING

Docs: HCA11-01A rev8 List of Documents (also Annex C)
HCA11-01B rev5 List of Participants (also Annex B)

The 11th Meeting of the Hydrographic Commission on Antarctica (HCA) took place at the Mercure Hotel in Hobart, Tasmania, Australia, from 5 to 7 October 2011. The meeting was organised by the Australian Hydrographic Service (AHS) with the support of the Australian Antarctic Division (AAD). Fifteen HCA Member States[1], out of 23, were represented at this meeting, plus observers from COMNAP, IAATO, IALA, GEBCO and SCAR, and one expert contributor (Fugro-Pelagos). In total, 29 delegates were in attendance.

Participants were welcomed by Dr. Tony FLEMING, AAD Director. He mentioned that Hobart, where AAD headquarters are located, is a gateway to Antarctica, e.g. many tourist operators to Antarctica operate from Hobart, and that AAD operate the Australian scientific stations of Casey, Davis and Mawson. He highlighted the strong involvement of AAD in environment protection in Antarctica and climate change. He noted the centenary of Mawson's expedition which would be celebrated in 2012.

Opening Remarks were provided by Commodore Rod NAIRN, AHS Director and HCA Vice-Chair, who chaired the meeting in the absence of Captain Hugo GORZIGLIA, HCA Chair and IHB Director, who was unable to attend. He stressed the need for better charts and improved chart coverage in Antarctica as there are more and more tourist vessels visiting this region. HCA work is critical to best support shipping operations and advancing science knowledge in Antarctica. He thanked AAD for their support in organizing this meeting. He reported that apologies for absence had been received from Japan and the Antarctic Treaty Secretariat.

The HCA Secretary, Ing. en chef Michel HUET (IHB), reviewed the documentation available to the meeting, noting that all documents had been posted on the IHO website (www.iho.int/mtg_docs/rhc/HCA/HCA11/HCA11Docs.htm).

Outcome:
- The Commission noted the documents introduced.

2.- HCA MEMBERSHIP STATUS

Docs: HCA11-02A HCA Membership and Observers List
HCA11-INF1 Current HCA Statutes

The Chair (Comdre NAIRN) indicated that HCA currently comprised 23 IHO Members States. As 15 HCA members were in attendance – one third of the total number is required – decisions could be taken by a simple majority of members present, that is eight, should a vote be necessary.

Outcome:
- The Commission noted the two papers.

[1] Australia, Brazil, Chile, Ecuador, France, Germany, Korea (Rep. of), New Zealand, Norway, South Africa, Spain, United Kingdom, USA, Uruguay and Venezuela.

3.- APPROVAL OF THE AGENDA

Docs: *HCA11-03A rev6* *Agenda* (also Annex D)
HCA11-03C rev2 *Programme*

The Chair proposed adding the following item under Agenda 6 *Relevant International Organizations' Report*, which was agreed:

- 6.7 IALA

> Outcome:
> ➢ The Commission approved the agenda, as amended (see Annex D).

4.- ELECTION OF VICE-CHAIRMAN

The Chair reminded that, according to the HCA statutes, an HCA Vice-Chair must be elected at each HCA meeting. RAdm Nicholas LAMBERT (UK) nominated Comdre NAIRN who agreed to continue as HCA Vice-Chair. This was unanimously supported and Comdre NAIRN was elected by acclamations.

> Outcome:
> ➢ Comdre Rod NAIRN (Australia) was re-elected as Vice-Chairman of HCA.

5.- STATUS OF LIST OF ACTIONS RESULTING FROM THE 9TH HCA MEETING

Docs: *HCA11-05A rev5* *Status of Actions List from the 10th HCA Meeting*
HCA11-05B *Draft IMO SN circular on polar regions* *(HCA Action 10/18)*
HCA11-INF2 *Minutes of the 10th HCA Meeting* *(Cambridge, UK, 2010)*
HCA11-INF3 *IHO Report submitted to ATCM-34* *(Buenos Aires, Argentina, June 2011)*
HCA11-INF4 *Speaking Notes to IAATO Meeting* *(Hobart, Australia, May 2011)*
HCA11-INF7 *Comments by Australian Maritime Safety Authority (AMSA) on IMO issues which may be relevant to HCA members*
HCA11-INF8 *Arctic-Antarctic Seafloor Mapping Meeting 2011*, *Stockholm, Sweden, 03/05 May 2011 (HCA Action 10/6)*

The Chair and the Secretary reviewed all actions arising from the 10th HCA meeting. Most of the actions had been completed and the pending ones were being addressed by this meeting under various agenda items. Particular comments were made as follows (Action nos. are those in HCA11-05A):

- **Action 10/1 –** *Release of IAATO past bathymetric data.* It was reported that some data had already been supplied to UK and agreed this should be an ongoing action.

> Outcome:
> ➢ **Routine Action HCA/1**: **IAATO** to encourage IAATO members to provide the IHB with available bathymetric data, to enable improvement of the Antarctic chart coverage.

- **Action 10/2** – *Development of guidelines on the IAATO ship visit process*. It was reported that such guidelines had still to be developed.

> Outcome:
> ➢ **New Action 11/1**: **Team on IAATO Ship Visit Scheme** (AR, NZ (lead), UK and IAATO) to develop guidelines for ships of opportunity data collection and Hydrographic Offices' ship visit process and participation schemes. IHB to disseminate such procedures to relevant parties. (see

also Routine Action HCA/2). Due date: June 2012.

- **Action 10/3 –** *Coordinating the visit of HOs' surveyors to IAATO ships when calling in ports on her way to Antarctica*. New Zealand (GREENLAND) reported on a LINZ visit on the IAATO vessel *Orion* in January 2011 in Christchurch, where a LINZ Information Pack was delivered to assist in sounding collection. He also gave a presentation "IHO/IAATO *'H-Scheme'* – from mud maps to ENCs" aiming to encourage technical cooperation and exchange of information between IAATO vessels and HCA. The general feeling however was that there have been little concrete results from such visits, for various reasons including:
  - Difficulty to implement (IAATO - WILKINS).
  - No work done between HCA meetings (UK – LAMBERT).
  - Antarctic issues were not given high priority in recent years due the urgent need for ENC production (Chair).
  - Lack of available resource from HOs (France – GUILLAM).

  It was agreed this should be an ongoing action.

Outcome:

- **Routine Action HCA/2**: **AR, AU, BR, CL, NZ and UK** – in liaison with IAATO – to arrange the visit of hydrographic surveyors to IAATO ships, when calling in ports on her way to Antarctica, or in Antarctica, to advice on the collection and rendering of hydrographic data.

- **Action 10/4 –** *Briefing of ATCM national delegate(s).* It was reported that ATCM national delegates of Brazil, Chile, France, Germany South Africa, Spain and UK only had been contacted and briefed on the importance of hydrography for safety of navigation in Antarctica. It was agreed this should be an ongoing action.

Outcome:

- **Routine Action HCA/3**: **HCA Members** to contact and brief their ATCM national delegate(s) on the importance of improving hydrography and nautical charting for safety of navigation in Antarctica, and to support IHO reports to ATCM meetings (ATCM-35, Hobart, 11-20 June 2012).

- **Action 10/5 -** *Distribution of ENCs via a RENC*. It was noted that those HCA members that are not members of any RENC are:
  - India that has not produced any ENC in Antarctica;
  - Rep of Korea that has not produced any ENC in Antarctica; and
  - United States that will make NOAA-produced ENCs available to a RENC.

  Therefore, all Antarctic ENCs were or would be distributed via a RENC. No further action was required.

- **Action 10/10 –** *New INT Charts*. COMNAP/SCAR (BROLSMA) clarified that the title of the new chart INT 9038 / AUS448 should be *Kirkby Head to Magnet Bay* instead of *Kirby Island to Magnet Bay*, as there is no such Kirby Island. This was noted.

- **Action 10/13 –** *Establishing links /arrangements with relevant national scientific institutions for the collection of bathymetric information.* It was reported that such links /arrangements were in place for Australia, France, Germany, Korea (Rep of), New Zealand, Norway, South Africa, UK and USA. Further, this action was not relevant for the HOs of Spain, Brazil, Chile and Ecuador, as they had national responsibility for the collection of bathymetric information.

- **Action 10/14** – *India to provide collected bathymetric data in the vicinity of Larsemann Hills to Australia for the update of INT 9030.* Australia recently received initial information on the survey from India and was determining whether it is suitable for charting action.

- **Action 10/15** – *Release of Rep. of Korea's collected bathymetric data of Antarctic waters*. Rep. of Korea (HWANG) reported that internal coordination in Korea is required first. There is a need for KHOA to obtain

collected bathymetric data from appropriate institutions in Korea, which will then be supplied to the IHB for further dissemination to the relevant HOs.

- **Action 10/18** – *Reporting on the real ENC coverage to IMO*. Referring to HCA11-05B proposing a draft submission to IMO "*Precautions in Using Navigational Charts in Polar Waters*" (Draft IMO SN Circ. on polar safety of navigation), UK (LAMBERT) recommended that this paper be expanded to cover digital navigation as well. It was agreed that a sub working group be set up to discuss this paper during the meeting and make any recommendations for improvement. Australia (lead), New Zealand and UK volunteered to form SWG 1. Australia (LEMON) subsequently reported on the work of SWG 1, resulting in an improved paper which, in particular, included an Antarctic Appendix (see Annex F). It was agreed that the IHB would circulate the revised paper to all HCA members, for them to review it and comment as appropriate to the Danish Maritime Authority that was monitoring this issue, via their national IMO representatives.

  Outcome:
  - **New Action 11/2**: **IHB** to Circulate by HCA Letter the latest draft of the Danish paper "*Precautions in Using Navigational Charts in Polar Waters*" (Draft IMO SN Circ. on polar safety of navigation) and its Antarctic appendix.
  - **New Action 11/3: HCA Members** to communicate their willingness to co-sponsor the paper referred to under Action 11/2, to Denmark through their IMO representatives.

  New Zealand (GREENLAND) expressed strong support for voluntary participation in data collection activities in Antarctic waters to be included into the IMO Polar Code. He further suggested that the above proposed SN Circ. be referenced under the Polar Code. It was agreed that another sub working group be set up during the meeting to discuss which strategy should be embedded into the Polar Code and what should be addressed to IHC-18. Australia, Brazil, France (lead), Germany, New Zealand, South Africa, UK, IALA and SCAR volunteered to form SWG 2. Noting the key role that ATCM should play on this matter, SWG 2 work is reported under section 6.1 (ATCM).

- **Action 10/20** – *Large scale ENCs*. IHB (HUET) reported that information on which large scale national charts should be converted into ENCs – not duplicating existing INT charts, had been received from Argentina, Brazil, Chile and UK. Australia (NAIRN) mentioned that all paper charts produced by Australia in Antarctica are INT charts which will be converted into ENCs. It was considered that there was now enough information available to start developing a large scale ENC scheme for Antarctica.

  Outcome:
  - **New Action 11/4**: **IHB** to develop a large scale ENC scheme (navigational purposes 4 and 5) and submit to HCA for comments / approval.

- **Action 10/22** – *Updating C-55.* UK (LAMBERT) reminded that there was an ongoing action from IRCC-3 for UK to lead the design of a framework for C-55 development by correspondence. It was agreed that updating of C-55 for the Antarctic waters be postponed until that IRCC action is completed.

  Outcome:
  - The Commission agreed that no updating work on C-55 for Antarctica was needed until completion of the ongoing IRCC action to re-design C-55, lead by UK.

- **Action 10/25** – *HCA component of the IHO WP 2013-17*. It was agreed that this action would be addressed by the SWG 2 and reviewed later during the meeting (see section 6.1).

- **Action 10/26** - *HCA-related capacity building initiatives*. It was reported that no submission was made to CBSC in 2011 regarding capacity building in Antarctica. The need to identify suitable initiatives was however confirmed.

Outcome:

- **New Action 11/5**: **Australia, Argentina and South Africa (lead)** to identify any HCA-related capacity building initiatives, to be submitted to the CBSC.

- **Action 10/29** - *List of Antarctic national charts*. IHB (HUET) reported that a new HCA document had been prepared and completed at the IHB as a result of this action. This document "Chart Production in Antarctica - Catalogue of National / INTernational Charts" has been posted on the IHO website under http://www.iho.int/mtg_docs/rhc/HCA/HCA_Misc/Antarctic_Charts/Chart_Production_Antarctica_v1.1.0.pdf. The need to keep this catalogue up-to-date was agreed.

Outcome:

- **Routine Action HCA/4**: **IHB** to maintain/update the document "Chart Production in Antarctica - Catalogue of National / INTernational Charts" on the IHO website from national reports.

- **Action 10/30** – *Search for bathymetric data, e.g. Olex*. Regretfully, no representative from Olex could attend the meeting. IAATO (WILKINS) reported that the Canadian Hydrographic Service was working on a new concept to attract geospatial data and know as "citizen chart source".

  UK (WILLETT) gave a presentation "*Crowd Sourcing Trial Season 2011-12*" on a project involving UKHO and the Caris company, and aiming to improve data coverage in Antarctica (predominately the Peninsula) for all shipping. The system is known as ARGUS (Autonomous Remote Global Underwater Surveillance) and will provide cooperative surveying through the acquisition and collective processing of vessel GPS and Echo Sounder data via a black box recorder. The cost of a box should be about USD2,000. By comparison, GEBCO/IBCSO (GOLEBY) remarked that the cost of an Olex box is about USD 4,500.

This concluded the review of action items arising from HCA-10.

Outcome:

- The Commission noted the 7 papers.
- The Commission agreed the Minutes of HCA10 as a true record.
- The Commission noted the list of actions reviewed.
- The Commission approved continuation of the IAATO ship visit scheme.

6.- RELEVANT INTERNATIONAL ORGANIZATIONS' REPORT

6.1 Antarctic Treaty Secretariat (ATS) (www.ats.aq)

Docs: HCA11-INF3 IHO Report submitted to ATCM-34 (Buenos Aires, Argentina, June 2011)

There was no representative of the ATCM Secretariat at the meeting and no report was received. Brief reference was made to the IHO report submitted to the 34th ATCM in 2011.

UK (LAMBERT) suggested that SOLAS responsibility for Antarctica should be taken by ATCM. COMNAP/SCAR (BROLSMA) noted that within ATCM it is the Committee on Environment Protection which is concerned with safety of navigation. France (GUILLAM) suggested that any IHO/HCA report to ATCM should be concise, focusing on recommendations relating to safety of navigation.

After discussion, it was agreed that there was a need to define how safety of navigation, including hydrography and aids to navigation, should be administered in Antarctica, noting the unique status of Antarctica as administered through ATCM and the imminent introduction of the IMO Polar Code. COMNAP/SCAR (BROLSMA) suggested that the Polar Code should include risk assessment. IALA

(PROSSER) mentioned a cooperative agreement for the Malacca Strait which could be used as a model for Antarctica.

France (GUILLAM) reported on the work of SWG 2 (HCA strategy and the IMO Polar Code) and gave a presentation. A new strategic approach was proposed for raising awareness on safety of navigation and environmental protection in Antarctica, through the submission of a set of recommendations at the next IHC focusing on a collaborative effort/mechanism for data gathering. This included a pragmatic implementation plan involving IMO, ATCM and IHO/HCA.

The Chair felt that a strategic intent was missing in this proposal. There followed a discussion on how to use crowd sourcing data. There was general agreement that crowd sourcing data are an improvement in areas with no data or very old data. UK (WILLETT) referred to "mud charts" with data which never went to a chart. IAATO (WILKINS) mentioned that old data are held by the Norwegian whaling fleet.

At a subsequent discussion of the SWG 2 work, France (GUILLAM) indicated that a presentation given by Comdre Nairn at the 31st ATCM (Kiev, Ukraine, 2008) proposed "Practical initiatives to improve the current situation relating to hydrography & charting in Antarctica" which are still valid. The Chair felt that the development of an HCA strategic plan, including risk assessment, could take three months for a suitable expert under contract, and that this work could possibly be funded from the Capacity Building Fund.

IAATO (WILKINS) expressed his frustration that data collected by IAATO ships are not quickly enough included on charts. UK (WILLETT) suggested that IAATO needs to indicate which INT charts, among those not yet published should be produced first.

After discussion, it was agreed that SWG 2 would continue its work by correspondence to develop a proposal for IHC-18 to present HCA strategic direction for endorsement by Member States, as part of the HCA report, and to prepare a draft HCA Work Programme 2013-2017, including capacity building matters; this work being monitored by the HCA Vice Chair.

Post-meeting note: Subsequent work by SWG 2 resulted in HCA Strategic Statement and HCA Strategic Direction (see Annex G), supporting proposed HCA tasks for inclusion in the IHO Work Programme (see Annex H), and in two new actions from HCA11, as detailed below.

It was noted that the 35th ATCM will take place in this city, i.e. Hobart, Australia, from 11 to 20 Jun 2012.

Outcome:

- The commission noted the paper.
- **New Action 11/6 – HCA Chair**, through the IHB, to send a short covering letter to ATCM Secretary General (together with the HCA report) explaining that SOLAS obligations (limited to Chap V, Reg. 2, 4, 9, 27) [and environmental protection mechanisms] and related efforts in Antarctica rely on the efforts of the nations that are party to the Antarctic Treaty in meeting those obligations.
- **New Action 11/7 – HCA Chair**, through the IHB, to seek support from the ATCM for the IMO to encourage voluntary participation in data collection activities to be included into the Polar Code (IMO's mandatory code for ships operating in polar waters), noting that the remote nature and environmental constraints of the Antarctic region coupled with the limited suitable resources available to conduct surveying and charting drives a focus on investigating alternate methods for data gathering.

6.2 Council of Managers of National Antarctic Programs (COMNAP) (www.comnap.aq)

Docs: *HCA11-06.2A* COMNAP Report

Dr. Henk BROLSMA (Australian Antarctic Division) reported on COMNAP activities. The main purpose of COMNAP is to develop and promote best practice in managing the support to scientific research in Antarctica. COMNAP provides the Antarctic Treaty System with practical and technical advice drawn from the National Antarctic Programs' pool of expertise. Recent COMNAP activities included:

- Formation of a COMNAP/SCAR Action Group, which developed a list of areas to collaborate together, including education, outreach and communications, sustainability, non-native species, and the King George Island Project. As part of the education component, a Research Fellowship has been established.
- Holding a symposium "*Responding to Change through New Approaches*" on 11 August 2010, in Buenos Aires, Argentina.
- Holding a workshop on non-native species on 8 August 2010 in Buenos Aires, Argentina, to raise awareness of the risks of non-native species introductions by human vectors. Checklists of non-native species have been made available to all National Antarctic Programs.
- Holding an energy management workshop on 8 August 2010 in Buenos Aires, Argentina, in order to share best practice related to energy management in Antarctica.
- Holding IPY outreach workshops in June 2010 in Tromso and Oslo, Norway, to share best professional practice and discuss past examples of successful joint communication and outreach projects and examine in-depth how this network would continue to work successfully post-IPY.
- Holding a medical expert group workshop on 8 August 2010 in Buenos Aires, Argentina, to discuss pandemic management in Antarctica

The 23rd COMNAP Annual General Meeting (AGM) took place on 1-5 August 2011 in Stockholm, Sweden. The 24th COMNAP AGM will be held on 16-19 July 2012 in Portland, Oregon, USA.

Outcome:

- The Commission noted the report.

6.3 International Maritime Organization (IMO) (www.imo.org)

There was no IMO representative at, nor IMO report to the meeting. However see section 5, Action 10/18, and section 6.1 where an IMO Polar Code and an IMO SN Circ. on polar safety of navigation, under preparation, are discussed.

6.4 International Association of Antarctica Tour Operators (IAATO) (www.iaato.org)

Docs: *HCA11-INF5* *IAATO Report submitted to ATCM-34 (Buenos Aires, Argentina, June 2011)*
HCA11-INF6 *IAATO Overview of Antarctic Tourism: 2010-11 Season and Preliminary Estimates for the 2011-12 Season*
HCA11-INF9 *Spatial patterns of tour ship traffic in the Antarctic Peninsula region (2003-2007)*

IAATO (WILKINS) introduced these papers. IAATO is a global network of tour operators that banded together in 1991 to advocate, promote and practice safe and environmentally responsible private-sector travel to the Antarctic.

He reported a decline in Antarctic tourism in the past three years, from 21,622 passengers who landed in Antarctica from seaborne vessels during the 2009-10 season, to 19,065 for the 2010-11 season and an estimate of ~ 14,000 landing passengers for the 2011-12 season, which represents some 20/25% drop per year. This is due to the worldwide economic downturn, but also the withdrawal from the market of several IAATO members that operate cruise-only programs that are affected by amendments to the IMO MARPOL convention that bans the use and carriage of heavy fuel oil in the Antarctic Treaty area and came into effect 1st August 2011. He noted that smaller IAATO ships are going further south in the Antarctic Peninsula.

He mentioned that all commercial SOLAS passenger ships in the IAATO fleet are now equipped with a web-based satellite vessel tracking system, with a view to enhancing contingency response. He referred to the paper *Spatial patterns of tour ship traffic in the Antarctic Peninsula Region* (HCA11-INF9), showing the changes in tour ship traffic over time, based on ships post visit reports, further noting that vessel tracking will make this exercise simpler in the future.

There was general interest in having vessel tracking information made available to HCA members, via the IHB, for chart and survey priority purpose. IAATO (WILKINS) agreed to convey this request to IAATO members.

The 22nd IAATO Annual Meeting took place on 9-12 May 2011 in this city, i.e. Hobart, Australia. The 23rd IAATO Annual Meeting will be held on 1-3 May 2012 in Providence, Rhode Island, USA.

Outcome:
- The Commission noted the three information papers.
- **New Action 11/8 – IAATO** to seek IAATO members' agreement to routinely provide ships' track information to the IHB.

6.5 Scientific Committee on Antarctic Research (SCAR) (www.scar.org)

Doc: HCA11-06.5A SCAR-SCAGI Report

Dr. Henk BROLSMA (Australian Antarctic Division) reported on SCAR-SCAGI activities. The main function of the SCAR Standing Committee on Antarctic Geographic Information (SCAGI) is to manage and improve the geographic framework not only for Antarctic scientific research but also for other activities including operations, environmental management and tourism. The core SCAR SCAGI products are the SCAR Antarctic Digital Database, the SCAR Composite Gazetteer of Antarctica, the SCAR Map Catalogue and the SCAR Feature Catalogue

The Antarctic Digital Database (ADD) is a compilation of medium scale topographic data for the continent of Antarctica, derived from a wide variety of sources and aiming to provide the best currently available data in all areas. The Composite Gazetteer of Antarctica (CGA) consists of 36,722 place names, received from 23 countries and that correspond to 18,715 features. The Antarctic Map Catalogue is a database of those aeronautical maps and nautical charts that SCAR SCAGI is aware of and distributed by members countries.

Outcome:
- The Commission noted the report.

6.6 Intergovernmental Oceanographic Commission (IOC) (http://ioc.unesco.org)

There was no IOC representative at, nor IOC report to the meeting. However, see section 7.3 (Interaction with IOC).

6.7 International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) (www.iala-aism.org/)

IALA (PROSSER) briefly presented the activities of this association and its role and function. Recent activities that were considered of interest to the HCA included the following:

- IALA move into new premises at Saint Germain en Laye in France, which now provided delegates with appropriate resources for its growing committee base.
- Work on IALA's waterways risk management program which includes the qualitative and quantitative sub programs of PAWSA (Ports and Waterways Safety Assessment) and IWRAP (Integrated Waterways Risk Assessment Program). These programs may have relevance to future work in the Antarctic and particularly an adaptation of the PAWSA process.
- IALAnet was briefly presented which is IALA's global platform for vessel position exchange, primarily based on terrestrial AIS but is also capable of receiving input from other sources. Satellite AIS tracking was seen as potentially beneficial to Antarctic operations.
- Vessel Traffic Services (VTS) was briefly discussed and the outcomes of the recently hosted workshop at IALA on the Global Sharing of Maritime Data.
- IALA's activities with the development of eNavigation were introduced and there was a brief discussion on how eNavigation could have utility in the Antarctic in the future, including the use of Virtual Aids to Navigation.
- With respect to subject of Capacity Building, IALA is thankful for the support it has been receiving from the IHO and Mr Prosser briefly mentioned some of the recent capacity building activities it has been involved with including the work of the IALA Worldwide Academy.

Outcome:
➢ The Commission noted the verbal report.

7.- HCA ACTIVITIES IN THE LIGHT OF THE IHO WORK PROGRAM:

7.1 INT chart scheme: progress made since last meeting and actual charting status; new requirements and modifications proposed to the scheme (S-11).

Docs: *HCA11-07.1A rev2* *INT Chart Scheme and Production Status for Region 'M'*
HCA11-07.1B rev2 *INT Charts in Progress or Not Produced*
HCA11-07.1C *Layout of INT Production Status for Region 'M'*
HCA11-07.1D *Changes proposed to limits of INT 9142* *(Argentina)*

IHB (HUET) introduced this topic and gave a brief presentation. Six new INT charts have been approved for inclusion in the scheme (see HCA Letters 01/2011 and 02/2011), to be produced by Ecuador (INT 9129), Spain (INT 9128), Australia (INT 9022 and INT 9038) and UK (INT 9117 and INT 9133). As a result, the total number of INT charts in the scheme now amounts to 108. Of these, 65 INT charts had been published as of September 2011, which is reflected in HCA-07.1C providing a lay-out of the status of INT chart production in Antarctica. Over the past year, two new charts were published by Australia (INT 9037) and Japan (INT 9045), and one new edition by Australia (INT 9014). 30 INT Charts (NC or NE) are planned for publication in the period 2011 – 2014 as either new publication or new edition.

The need to ensure due diligence in search of data prior to chart compilation was agreed in order to ensure that any new chart / edition will make use of all available data. UK (WILLETT) accepted to define a form to be used for asking data to HCA members.

The Commission then reviewed HCA11-07.1B focusing on INT charts not yet published. The review results are summarized in the table below.

INT No.	Producer	Scale 1:	Comments
9038	AU	500 000	Publication planned in late 2011.
9000	IT	500 000	Publication planned in late 2011.
9022	AU	500 000	Publication planned in late 2013.

908	GB	2 000 000	Publication planned after 2015.
909	NO	2 000 000	Publication planned in 2012.
905	DE	2 000 000	Publication planned in 2012.
9062	US	200 000	Publication planned in 2012.
9140	AR	150 000	Publication planned after 2015.
9142	AR	10 000	Publication planned in 2012 (see also HCA11-07.1D).
9103	CL	50 000	Publication planned in 2013.
9104	CL	50 000	Publication planned in 2012.
9105	US	25 000	Publication planned in 2012.
9107	GB	50 000	Publication planned after 2015.
9108	CL	50 000	No date for the time being.
9110	CL	30 000	No date for the time being.
9111	AR	25 000	Publication planned in 2012/2013
9117	GB	10 000	Publication planned in 2013.
9131	GB	75 000	No date for the time being.
9132	GB	75 000	No date for the time being.
9133	GB	75 00	No date for the time being.
9157	CL	150 000	Publication planned after 2015.
9159	GB	150 000	Publication planned in 2013.
9160	GB	150 000	Publication planned in 2013.
9161	CL	150 000	No date for the time being.
9162	CL	150 000	Publication planned in 2013.
9163	GB	150 000	Publication planned in 2012.
9164	CL	150 000	Publication planned in 2013.
9171	GB	500 000	Publication planned after 2015.
9100	AR	25 000	No date for the time being.
9101	AR	10 000	Publication planned in 2012/2013.
9112	GB	Various	Publication planned after 2015.
9113	GB	Various	Publication planned after 2015.
9114	GB	Various	Publication planned after 2015.
9115	AR	50 000	No date for the time being.
9116	GB	Various	Publication planned after 2015.
9125	BR & PE	40 000	Publication planned in 2012.
9126	BR	40 000	Publication planned in 2014.
9127	BR	40 000	Publication planned in 2014.
9128	ES	5 000	Publication planned in 2012/2013.
9129	EC	10 000	Publication planned in 2012.
9130	GB	75 000	Publication planned in 2015.
9151	CL & BR	200 000	Publication planned in 2015.
9152	CL & BR	200 000	Publication planned in 2015.

UK (LAMBERT) and NZ (GREENLAND) suggested, as a strategic issue, warning ATCM delegates of the danger for tourism navigation in areas where no INT charts have been published, and the consequent need to reduce shipping to surveyed routes, with the expectation that ATCM delegates would then exert pressure on their respective governments, resulting in HOs being urged to produce the charts and, hopefully, appropriate resources being allocated. France (GUILLAM), Germany (JONAS), Chile (CARRASCO) and Brazil (PEGAS) believed such action would have no impact on ATCM delegates and therefore no effect.

IHB (HUET) drew attention to HCA11-07.1D conveying Argentina's request to slightly change the limits of INT 9142, planned for publication in 2012. There was no objection to these changes.

Outcome:

- The Commission noted the four reports/papers and the presentation.
- The Commission agreed Argentina's proposal to change the limits of INT 9142 to 60°47.3'S; 60°44.0'S; 044°44.8'W; 044°36.0'W, as in HCA11-07.1D.
- **New Action 11/9 – UK** to produce a proforma data request form for chart producers to request data to other HCA members.
- **Routine Action HCA/5 – HCA Members** to ensure full diligence in data search prior to chart production, including IHO Data Centre for Digital Bathymetry (DCDB), GEBCO and other HCA members via proforma data request.

7.2 ENC scheme and production status

Doc: HCA11-07.2A rev1 *ENC Schemes and Production Status in Antarctica*

IHB (HUET) presented the ENC status for Region 'M', as described in HCA11-07.2A. An ENC scheme for bands 1 "overview" and 2 "general" was agreed in 2007 and an ENC scheme for band 3 was agreed in 2009. They are available from the IHO website (see http://www.iho.int/mtg_docs/rhc/HCA/HCA_Misc/ENC_Scheme_Small_Scales.pdf and http://www.iho.int/mtg_docs/rhc/HCA/HCA_Misc/ENC_Scheme_Medium_Scales.pdf. From the information available at the IHB, 52 ENCs had been published as of September 2011, based on various national charts and on 27 INT charts. These ENCs include 11 "overview", 3 "general", 14 "coastal", 12 "approach", 11 "harbour" and 1 "berthing". Current status of ENC production was as follows:

HCA Member	ENC published	ENC planned (2011/2012/2013)
Argentina	None	- 1 general ENC (AR207000) based on INT 9170 and AR H-724 - 1 coastal ENC (AR307240) based on INT 9156 and AR H-724 - 1 approach ENC based on INT 9111 - 2 harbour ENCs based on INT 9142 and INT 9101

Australia	- 2 approach ENCs (AU468062 and AU468063) in 2008 - 1 harbour ENC based on INT 9036 (AU5600P1) in 2008	- 4 overview ENCs based on INT 74 (AU190060, AU190090, AU190120 and AU190150). - 7 general ENCs based on INT 9035 (AU270050), INT 9035 & 9033 (AU270060), INT 9033 & 9030 (AU270070), INT 9030 & 9031 (AU270080), INT 9031 (AU270090), INT 9020 (AU270100 and AU270110) - 1 coastal ENC based on INT 9014 (AU367142) - 7 approach ENCs based on INT 9037 (AU68060 and AU68061), INT 9021 (AU466110 and AU467110), on INT 9032 (AU468077 and AU469077), INT 9014 (AU468142) - 2 harbour ENCs based on INT 9014 (AU5603P1) and INT 9021 (AU601P1)
Brazil	- 1 coastal ENC based on INT 9150 (BR325110) - 1 approaches ENC based on BR 25121 (BR425121) - 1 harbour ENC based on BR 25121 (BR525121)	None
Chile	- 1 coastal ENC (CL3MA850) - 3 harbour ENCs based on INT 9102 (CL5MA890) and INT 9155 (CL5MA800 and CL5MA860)	None
France	- 1 approach ENC based on INT 9016 FR475940) in 2008 - 1 harbour ENC based on INT 9017 (FR575930) in 2008 - 1 berthing ENC based on INT 9017 (FR67593A) in 2008	- 1 overview ENC based on INT 901 (FR175910). - several coastal ENCs based on FR charts 6741, 6498 and 7171.
Germany	- 1 general ENC based on INT 9055 (DE260001) in 2009 - 1 coastal ENC based on INT 9057 (DE3600010) in 2009	- 1 overview ENC based on INT 905
Italy	- 2 coastal ENCs based on INT 9004 (IT300884) and INT 9005 (IT300881) in 2007 - 1 harbour ENC (IT400881).	- 1 general ENC based on INT 9000

Japan	- 4 coastal ENCs based on INT 9046 (JP30ODCO, JP30ODCS, JP30PKEO, JP30PKES) in 2011 - 4 approach ENCs based on INT 9047 (JP40P0TS, JP40P0TU, JP40PKES, JP40PKEU) in 2011 - 2 harbour ENCs based on INT 9047 (JP50PAME, JP50PKEU) in 2011	- 1 general ENC based on INT 9045
New Zealand	None	- 2 overview ENCs based on INT 65 (NZ14065E and NZ14065W). To replace GB14065W and GB14065E - 1 general ENC based on INT 900. - 4 coastal ENCs based on INT 9008, INT 9009 and INT 9012 - 5 approach ENCs based on INT 9001, INT 9003, INT 9006 and INT 9007 - 4 harbour ENCs based on INT 9002, INT 9003 and INT 9006
Norway	- 1 overview ENC based on INT 904 (NO1A5500) in 2008	- 1 overview ENC based on INT 909.
South Africa	- 1 coastal ENC based on INT 9056 (ZA300300) in 2010	None
Spain	None	- 1 approach ENC based on INT 9121 - 1 harbour ENC based on INT 9128
UK	- 10 overview ENCs based on INT 24 (GB104024A and GB104024B), INT 64 (GB104064A and GB104064B), INT 75 (GB104075), INT 63 (GB104063), INT 74 (GB104074), INT 907 (GB104907), and on national charts BA 4213 (GB104213) and BA 3200 (GB103200) - 1 general ENC based on BA 3593 (GB203593) - 4 coastal ENCs based on INT 9158 (GB372110), INT 9153 (GB372220), INT 9154 (GB372210) and BA 2010 (GB372010) - 4 approach ENCs based on INT 9106 (GB47211A), INT 9109 (GB47201A) and BA 3593 (GB43593A and GB43593B) - 2 harbour ENCs based on INT 9158 (GB57211A and GB57211B)	- 1 coastal ENC (GB368506) based on INT 9163
USA	None	- 1 approach ENC based on INT 9105

Noting that the current small-scale ENC scheme includes two still unpublished “overview” ENCs based on INT 902 and INT 903, respectively (Russia producer for both INT charts), the Chair suggested that a new “overview” ENC based on these two INT charts be included in the ENC scheme instead. He further offered that Australia produce this ENC in 2012.

There was general support for this proposal and UK (LAMBERT), who had a plan to pay a visit to the Russian HO (DNO), offered to inform DNO accordingly. It was suggested that this opportunity should be taken to encourage participation of Russia in HCA activities.

Outcome:

- The Commission noted the report.
- **New Action 11/10** – **UK** to encourage Russia's participation in HCA and inform Russia of Australia's plan to produce in 2012 an "overview" ENC based on INT 902 and 903, both published by Russia in 2000 and 2001, respectively.

7.3 Interaction with IOC

The IOC-IHO GEBCO Project and the IOC-IHO-SCAR IBCSO Project

Dr. Bruce GOLEBY (Geosciences Australia) reported on GEBCO and IBCSO, and gave a presentation. He referred to a GEBCO Data Flow Workshop (Boulder, CO, USA, 9-11 March 2011), an Arctic-Antarctic Seafloor Mapping Meeting (Stockholm, Sweden, 3-5 May 2011 – see HCA11-INF8), and the GEBCO 2011 Annual Meetings that were taking place in San Diego, CA, USA at the same time that HCA11.

He described the GEBCO Digital Atlas, available on CD and on-line from the GEBCO website (www.gebco.net), which includes a global bathymetric grid at 30 arc-second intervals, contours and coastlines, and the GEBCO Gazetteer of undersea feature names. The above bathymetric grid is also available as a Web Map Service.

He mentioned that a new GEBCO Sub-Committee on Regional Undersea Mapping (SCRUM) was being established to coordinate all existing regional mapping efforts, including the International Bathymetric Chart of the Southern Ocean (IBCSO). He reported on the GEBCO Sub-Committee on Undersea Feature Names (SCUFN) which maintains a worldwide Gazetteer of some 3,500 names, including about 200 names in the HCA area. The GEBCO Gazetteer is being migrated to a geospatially enabled database on Internet. The current GEBCO Gazetteer, name proposal forms (English, French and Spanish), and publication B-6 *Standardization of Undersea Feature Names* are available on the GEBCO website.

He referred to a 12-month course, leading to a Postgraduate Certificate in Ocean Bathymetry at the University of New Hampshire, USA, and funded by the Nippon Foundation. He also mentioned the IHO Data Centre for Digital Bathymetry (DCDB), hosted by the US National Geophysical Data Center in Boulder, CO, where a worldwide digital data bank of oceanic soundings is maintained.

He explained the current status of the IBCSO project, chaired by Dr. Hans Werner SCHENKE, Alfred-Wegener-Institut für Polar- und Meeresforschung (AWI), Germany. The aim is to develop a 1 arc-minute bathymetric grid covering the HCA area, i.e. south of 60°S. The coastline used will be the ice surface (GLAS/ICESat) Antarctic coastline. Contributions to the IBCSO bathymetry are coming from various scientific institutions in the world. Currently, GEBCO is funding the production of the first version of IBCSO, which is taking place at AWI.

Outcome:

- The Commission noted the verbal report and the presentation.

7.4 Hydrographic surveying, nautical charting, nautical publications and information status.

A. Presentation of National Reports. Experiences with new techniques and equipment. Project proposals to speed-up compilation and production.

Docs: HCA11-07.4A National Reports, from Argentina, Australia, Brazil, Chile, Ecuador, Germany, Japan, Korea (Rep. of), New Zealand, Norway, Spain, South Africa, UK and USA

HCA members briefly introduced their national reports. Presentations were given by Chile, Ecuador, Rep. of Korea, Norway, New Zealand, Spain, and UK. The following particulars were noted (see national reports for more details):

Australia – More support is being received from Geoscience Australia (GA) and the Australian Antarctic Division (AAD). The AHS processed approximately 100 000 nm of ADD passage sounding data. Hydrographic surveys are planned for 2011/12 in the area of Commonwealth Bay and Mawson Station. INT 9037 was published in 2011 as well as a new edition of INT 9014. Chart production plan for the next two years includes one new edition (INT 9032) and two new charts (INT 9022 and INT 9038). Data recently received from India (Action 10/14) was being assessed to determine its suitability to update INT 9030. ENC coverage under Australia's responsibility should be completed in 2011.

Chile – In February 2011, SHOA carried out hydrographic surveys on Gerlache Strait. The resulting data will be used to update INT 9104 and two national charts of this area. Data was received from UK (Action 10/7) for INT 9103. No new INT chart or ENC has been published by SHOA since HCA10.

Ecuador – Hydrographic surveys were carried out in Bahia Chile in early 2011 in support of INT 9129.

France – No surveys were conducted in the HCA area and no new INT chart or ENC has been published since HCA10. France may not systematically participate in the future HCA meetings.

Germany – A draft of INT 905, planned for publication in 2012 together with its equivalent ENC, was presented to the meeting.

Korea (Rep. of) – Multibeam sounding "on passage" were collected in 2010 by the new Korean ice breaker *Araon* operated by the Korean Polar Research Institute (KOPRI), in the northern part of the Antarctic Peninsula and in the Ross Sea.

New Zealand – No surveys were conducted in the Ross Sea, i.e. the area of interest of NZ, and no new INT chart or ENC has been published since HCA10. Several ENCs under NZ responsibility are planned for publication in 2012/13.

Norway - No surveys or charting activities in Antarctica took place since HCA10. INT 909 and the corresponding ENC are planned for publication in 2012. Norway plans to celebrate the 100 years of Roald Amundsen reaching the South Pole on 14 December 1911.

Spain – Hydrographic surveys are planned in January/February 2012 in the area of Deception and Livingston islands, in support of INT 9128 and INT 9121. Data was received from UK (Action 10/17) for INT 9121.

UK –. *HMS Protector* has been commissioned as the replacement for *HMS Endurance* for the next 3 years, for operations in Antarctica. HMS SCOTT carried out a number of hydrographic surveys during 2010/11, in particular to the southern side of Shetland Islands.INT 9120 was published in 2011 and three further INT charts, i.e. INT 9163, INT 9154 and INT 9153, are planned for publication during the coming year, as well as their equivalent ENCs. Eighteen ENCs have so far been published by UK in the HCA area. Based on the surveys already carried out in Antarctica, UK intends to submit a number of undersea feature name proposals to the GEBCO-SCUFN.

USA – Data was supplied to Italy in support of INT 9000 (Action 10/19). INT 9105 and 9062 are planned for publication in late 2011 and 2012, respectively. NOAA will produce the equivalent ENCs.

Venezuela – Building of an Antarctic ship is planned.

Outcome:
- The Commission noted all national reports.

B. C-55 Status: Hydrographic surveying, nautical charting and provision of MSI – Antarctic GIS
Docs: HCA11-07.4B Antarctic GIS – Progress Report

IHB (HUET) reported on this matter and gave a presentation. Regarding C-55, see section 5 "Action 10/22".

An "Antarctic GIS" is being developed at the IHB, which comprises a number of layers of information relating to Hydrography, e.g. surveys, INT charts or ENCs. It provides metadata and geometry for each layer. Assistance in this development is provided by an officer kindly seconded to the IHB by Japan (JHOD). Currently, the layers of information being considered include Coastline; Hydrographic Surveys; INT Charts; ENCs; Tide Records; Undersea Feature Names; and Facilities (Scientific Stations). Additional layers may include background bathymetry, land topography, land geographical names and RNCs.

As part of the Antarctic GIS development process, a Data Model is being prepared. See Excel table showing the metadata which will be presented for each layer of information.

Outcome:
- The Commission noted the report and the presentation.
- **New Action 11/11 – HCA Members & Observers** to review the draft Antarctic GIS (see HCA11-07.4B) and provide comments and updating information, as appropriate.

7.5 Nautical Publications and Information. IHO/HCA web page.

IHB (HUET) briefly described the list of nautical publications on Antarctica, which appears on the IHO website (http://www.iho-ohi.net/mtg_docs/rhc/HCA/HCA_Misc/Nautical_Publications.htm). It currently includes information provided by Argentina, Australia, Chile, France, South Africa and UK.

Outcome:
- The Commission noted the verbal report.
- **Routine Action HCA/6 – IHB** to update the list of nautical publications on the IHO website from information in the national reports (HCA11-07.4A).

7.6 Capacity Building Issues

The Chair noted that this topic was already discussed at section 5 "Action 10/26"and resulted in New Action 11/5.

Outcome:

- See **New Action 11/5** under section 5.

8.- HCA SURVEY PRIORITIZATION WORKING GROUP (HSPWG)

Docs: *HCA11-08A* *HSPWG Report*
HCA11-08B *Revised Long Term Survey Plan (September 2011)*
HCA11-08C *Revised Survey Short List (September 2011)*

HSPWG Chair (WILLETT) presented his report. As a result of Actions 10/27 and 10/28, revised versions of the HCA Long Term Survey Plan (HCA11-08B) and the HCA Survey Short List (HCA11-08C) were produced to reflect new survey requirements arising from IAATO input based on previous season tourist statistics, e.g. in the areas of Booth Island, Port Charcot and Pleneau Island, in the Antarctic Peninsula.

He suggested adding two new INT charts in the scheme to complete the coverage, as follows:

- Melchior Islands, scale 1:30 000, with limits 64°23.0'S; 64°14.5'S; 63°04.0'W; 62°50.0'W.
- NW accesses to English Strait, scale 1:25 000, with limits 62°25.0'S; 62°16.5'S; 59°38.1'W; 59°51.0'W.

It was agreed that detailed justification for these new INT charts was needed.

He proposed adding two new sections to the "*IHO Collection and Rendering of Hydrographic Data Form*" (www.iho.int/mtg_docs/rhc/HCA/HCA_Misc/HCA_SPWG/Data_Rendering_Form_2010.doc), relating to "Whales, Marine Life" and "Deep scattering layer", respectively. This was agreed.

With a view to improving the general efficiency of HSPWG, he suggested having three meetings of the WG per year, one of them being held in conjunction with the annual HCA meeting. This was supported providing programs of such meetings be prepared by the WG Chair and made available to WG members well in advance of meetings. The HSPWG Chair reminded that the WG is composed of the following HCA members and observers:

Argentina; Australia; Brazil; Chile; Germany; Greece; New Zealand; South Africa; Spain; UK; USA; COMNAP; and IAATO

Outcome:

- The Commission noted the report and the two papers.
- The Commission agreed the revised HCA Long Term Survey Plan (HCA11-08B) and HCA Survey Short List (HCA11-08C).
- The Commission agreed the addition of two new sections in the "*IHO Collection and Rendering of Hydrographic Data Form*", dealing with "Whales, Marine Life" and "Deep scattering layer", respectively.
- The Commission agreed HSPWG to have three meetings per year, one of them being held in conjunction with the annual HCA meeting.
- **New Action 11/12 – HSPWG Chair** to provide justification for two proposed new INT charts, i.e.
  - Melchior Islands, scale 1:30 000
  - NW accesses to English Strait, scale 1:25 000
- **New Action 11/13 – IHB** to circulate the proposal for two new INT charts (Action 11/12 refers) to HCA members for comments / approval.
- **New Action 11/14 – HSPWG Chair** to coordinate quarterly HSPWG meetings to progress survey priorities.

9.- ANY OTHER BUSINESS

The Australian Antarctic Division (BROLSMA) gave a presentation on the history of Australian hydrographic surveying in Antarctica, to commemorate the 100th anniversary of Douglas Mawson's expedition in Antarctica (1911-14).

Furuno-Pelagos Inc. (VENTURA) gave a presentation "*Hydrographic Surveying for Nautical Charting in the Arctic (or other Areas)*".

10.- TIME AND PLACE OF NEXT MEETING

Docs: HCA11-10A Proposal from Uruguay to host the 12th HCA meeting

As indicated in HCA11-10A, Uruguay (TABAREZ) confirmed the offer by the *Servicio de Oceanografia, Hidrografia y Meteorologia de la Armada* (SOHMA), of Uruguay, to host the 12th HCA meeting in Montevideo or Punta Del Este. This offer was gratefully accepted by the meeting and, after discussion, it was agreed that HCA12 would be held on 10-12 October 2012, with the first morning being dedicated to an HSPWG meeting.

Outcome:

- **New Action 11/15 – HCA Chair** and **Uruguay** to coordinate the organization of the 12th HCA Meeting, to take place in Montevideo or Punta Del Este, Uruguay on 10-12 October 2012.

11.- APPROVAL OF ACTION LIST

The meeting reviewed the list of actions arising from HCA11. It was agreed to divide these actions into Routine Actions, which are normally performed each year, and New Actions actually resulting from the annual meeting. The agreed list is at Annex E.

12.- CLOSURE

On behalf of the meeting, the Chair warmly thanked the Australian Antarctic Division hosts for the excellent arrangements for HCA11. He also thanked all participants and observers for their valuable contribution to the meeting. He concluded that, in his view, the meeting was very successful.

The meeting closed at 13:00 on 7 October 2011.

Annex A to HCA11 Minutes

LIST OF ACRONYMS

AAD	Australian Antarctic Division
ADD	Antarctic Digital Database (SCAR-SCAGI)
AHS	Australian Hydrographic Service
AIS	Automatic Identification System
AMSA	Australian Maritime Safety Authority
ARGUS	Autonomous Remote Global Underwater Surveillance
ATCM	Antarctic Treaty Consultative Meeting
ATS	Antarctic Treaty System
AWI	Alfred-Wegener-Institut für Polar- und Meeresforschung (Germany)
C-55	Status of Hydrographic Surveying and Nautical Charting Worldwide (IHO publication)
CBSC	Capacity Building Sub-Committee (IHO)
CD	Compact Disc
CGA	Composite Gazetteer of Antarctica (SCAR-SCAGI)
CO	Colorado (USA)
COMNAP	Council of Managers of National Antarctic Programmes
DCDB	Data Centre for Digital Bathymetry (IHO)
DNO	Department of Navigation and Oceanography (Russian Federation)
ENC	Electronic Navigational Chart
GA	Geosciences Australia
GEBCO	General Bathymetric Chart of the Oceans (IHO-IOC)
GIS	Geographic Information System
GLAS	Geoscience Laser Altimeter System
GPS	Global Positionning System
HCA	Hydrographic Committee on Antarctica (IHO)
HMS	Her Majesty Ship (UK)
HSPWG	HCA Survey Prioritisation Working Group

IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IAATO	International Association of Antarctic Tour Operators
IBCSO	International Bathymetric Chart of the Southern Ocean (IOC-IHO-SCAR)
ICESat	Ice, Cloud, and land Elevation Satellite
IHB	International Hydrographic Bureau
IHC	International Hydrographic Conference
IHO	International Hydrographic Organization
IMO	International Maritime Organization
INT	International (Charts) (IHO)
IOC	Intergovernmental Oceanographic Commission (UNESCO)
IWRAP	Integrated Waterways Risk Assessment Program (IALA)
JHOD	Japan Hydrographic and Oceanographic Department
KHOA	Korean Hydrographic and Oceanographic Administration
KOPRI	Korean Polar Research Institute
LINZ	Land Information New Zealand
MARPOL	MARine POLlution (IMO convention)
MSI	Maritime Safety Information
NC	New Chart
NE	New Edition
NOAA	National Oceanographic and Atmospheric Administration (USA)
PAWSA	Ports and Waterways Safety Assessment (IALA)
RENC	Regional ENC Coordinating Centre
S-11	Guidance for the Preparation and Maintenance of INT Chart Schemes, and Catalogue of INT Charts (IHO publication)
SCAGI	Standing Committee on Antarctic Geographic Information (SCAR)
SCAR	Scientific Committee on Antarctic Research
SCRUM	Sub-Committee on Regional Undersea Mapping (GEBCO)
SCUFN	Sub-Committee on Undersea Feature Names (GEBCO)

SHOA	Servicio Hidrográfico y Oceanográfico de la Armada (Chile)
SN	Safety of Navigation
SOHMA	Servicio de Oceanografia, Hidrografia y Meteorologia de la Armada (Uruguay)
SOLAS	Safety Of Life At Sea (IMO convention)
SWG	Sub Working Group
UKHO	United Kingdom Hydrographic Office
VTS	Vessel Traffic Service

Annex B to HCA11 Minutes

LIST OF PARTICIPANTS

I. Members	Name	E-mail
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Annex C to HCA11 Minutes

LIST OF DOCUMENTS

Document	Content	Responsible
HCA11-01A rev8	List of Documents	Secretary
HCA11-01B rev5	List of Participants	Secretary
HCA11-02A	HCA Membership and Observers List	Secretary
HCA11-03A rev6	Agenda	Chairman
HCA11-03C rev2	Programme	Chairman
HCA11-05A rev5	Status of Actions List from the 10th HCA Meeting	Secretary
HCA11-05B	Draft IMO SN circular on polar regions (HCA Action 10/18)	Secretary
HCA11-06.2A	COMNAP Report	COMNAP
HCA11-06.4A	IAATO Report – see HCA11-INF5	IAATO
HCA11-06.5A	SCAR Report	SCAR
HCA11-07.1A rev2	INT Chart Scheme and Production Status for Region 'M'	Secretary
HCA11-07.1B rev2	INT Charts in Progress or Not Produced	Secretary
HCA11-07.1C	Layout of INT Production Status for Region 'M'	Secretary
HCA11-07.1D	Changes proposed to limits of INT 9142	Argentina
HCA11-07.2A rev1	ENC Schemes and Production Status in Antarctica	Secretary
HCA11-07.3A	GEBCO Report	GEBCO
HCA11-07.4Aa	National Report, Argentina	Argentina
HCA11-07.4Ab	National Report, Australia	Australia
HCA11-07.4Ac	National Report, Brazil	Brazil
HCA11-07.4Ad	National Report, Chile	Chile
HCA11-07.4Af	National Report, Germany	Germany
HCA11-07.4Ah	National Report, Japan	Japan
HCA11-07.4Ai	National Report, Korea (Rep. of)	Korea (Rep. of)
HCA11-07.4Aj	National Report, New Zealand	New Zealand
HCA11-07.4Ak	National Report, Norway	Norway
HCA11-07.4Al	National Report, South Africa	South Africa
HCA11-07.4Am	National Report, Spain	Spain
HCA11-07.4An	National Report, UK	UK
HCA11-07.4Ao	National Report, USA	USA
HCA11-07.4Ap	National Report, Ecuador	Ecuador
HCA11-07.4B	GIS for Antarctica – Progress Report	Secretary
HCA11-08A	HCA Survey Prioritisation Working Group - Progress Report	HSPWG Chair
HCA11-08B	Revised Long Term Survey Plan (September 2011)	HSPWG Chair
HCA11-08C	Revised Survey Short List (September 2011)	HSPWG Chair
HCA11-10A	Proposal from Uruguay to host the 12th HCA meeting	Uruguay
	INFORMATION DOCUMENTS	
HCA11-INF1	Current HCA Statutes	Secretary
HCA11-INF2	Minutes of the 10th HCA Meeting (Cambridge, UK, September 2010)	Secretary

HCA11-INF3	IHO Report submitted to ATCM-34 (Buenos Aires, Argentina, June 2011)	Chairman
HCA11-INF4	Speaking Notes to IAATO Meeting (Hobart, Australia, May 2011)	Vice-Chairman
HCA11-INF5	IAATO Report submitted to ATCM-34 (Buenos Aires, Argentina, June 2011)	IAATO
HCA11-INF6	IAATO Overview of Antarctic Tourism: 2010-11 Season and Preliminary Estimates for the 2011-12 Season	IAATO
HCA11-INF7	Comments by Australian Maritime Safety Authority (AMSA) on IMO issues which may be relevant to HCA members	AMSA
HCA11-INF8	Arctic-Antarctic Seafloor Mapping Meeting 2011, Stockholm, Sweden, 03/05 May 2011	Chairman
HCA11-INF9	Spatial patterns of tour ship traffic in the Antarctic Peninsula region (2003-2007)	IAATO

Annex D to HCA10 Minutes

AGENDA

1.- Opening

Docs: *HCA11-01A* *List of Documents*
HCA11-01B *List of Participants*

2.- HCA Membership Status

Docs: *HCA11-02A* *HCA Membership and Observers List*
HCA11-INF1 *Current HCA Statutes*

3.- Approval of Agenda

Docs: *HCA11-03A* *Agenda*
HCA11-03C *Time Table*

4.- Election of Vice-Chairman

5.- Status of List of Actions resulting from HCA-10

Docs: *HCA11-05A* *Status of Actions List from the 10th HCA Meeting*
HCA11-05B *Draft IMO SN circular on polar regions (HCA Action 10/18)*
HCA11-INF2 *Minutes of the 10th HCA Meeting (Cambridge, UK, 2010)*
HCA11-INF3 *IHO Report submitted to ATCM-34 (Buenos Aires, Argentina, June 2011)*
HCA11-INF4 *Speaking Notes to IAATO Meeting (Hobart, Australia, May 2011)*
HCA11-INF7 *Comments by Australian Maritime Safety Authority (AMSA) on IMO issues which may be relevant to HCA members*
HCA11-INF8 *Arctic-Antarctic Seafloor Mapping Meeting 2011, Stockholm, Sweden, 03/05 May 2011 (HCA Action 10/6)*

6.- Relevant International Organizations' Report

6.1 ATCM

6.2 COMNAP
Docs: *HCA11-06.2A* *COMNAP Report*

6.3 IMO

6.4 IAATO
Docs: *HCA11-INF5* *IAATO Report submitted to ATCM-34 (Buenos Aires, Argentina, June 2011)*
HCA11-INF6 *IAATO Overview of Antarctic Tourism: 2010-11 Season*
HCA11-INF9 Spatial patterns of tour ship traffic in the Antarctic Peninsula region (2003-2007)

6.5 SCAR
Docs: *HCA11-06.5A* *SCAR Report*

6.6 IOC

6.7 IALA

7.- HCA Activities in the light of the IHO Work Program

7.1 INT chart scheme: progress made since last meeting and actual charting status; new requirements and modifications proposed to the scheme (S-11).
Docs: *HCA11-07.1A* *INT Chart Scheme and Production Status for Region 'M'*

HCA11-07.1B INT Charts in Progress or Not Produced
HCA11-07.1C Layout of INT Production Status for Region 'M'
HCA11-07.1D Changes proposed by Argentina to limits of INT 9142

7.2 ENC scheme and production status
Doc: HCA11-07.2A ENC Schemes and Production Status in Antarctica

7.3 Interaction with IOC:
- The IOC/IHO GEBCO Project

7.4 Hydrographic surveying, nautical charting, nautical publications and information status.
- Presentation of National Reports. Experiences with new techniques and equipment. Project proposals to speed-up compilation and production.

Docs: HCA11-07.4A National Reports
- C-55 Status: hydrographic surveying, nautical charting and provision of MSI
- Antarctic GIS

Docs: HCA11-07.4B *GIS for Antarctica – Progress Report*

7.5 Nautical Publications and Information. IHO/HCA web page.

7.6 Capacity Building Issues

8. HCA Survey Prioritisation Working Group

Docs: HCA11-08A HSPWG Report
HCA11-08B Revised Long Term Survey Plan (September 2011)
HCA11-08C Revised Survey Short List (September 2011)

9.- Any other business

10.- Time and Place of next Meeting
Docs: HCA11-10A Proposal from Uruguay to host the 12th HCA meeting

11.- Approval of Action List

12.- Closure

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ACTIONS RESULTING FROM THE 11th HCA MEETING

NEW ACTIONS

Agenda Item	Action	Details	Responsible
5. (Action 10/2)	11/1	Develop guidelines for ships of opportunity data collection and Hydrographic Offices' ship visit process and participation schemes. IHB to disseminate such procedures to relevant parties. (see also Routine Action HCA/2)	AR, NZ(lead), UK and IAATO HCA Chair
5. (Action 10/18)	11/2	Circulate by HCA Letter the latest draft of the Danish paper "*Precautions in Using Navigational Charts in Polar Waters*" (Draft IMO SN Circ. on polar safety of navigation) and its Antarctic appendix.	IHB
5. (Action 10/18)	11/3	Communicate their willingness to co-sponsor the paper referred to under Action 11/2, to Denmark through their IMO representatives.	HCA Members
5. (Action 10/20)	11/4	Develop a large scale ENC scheme (navigational purposes 4 and 5) and submit to HCA for comments / approval.	IHB
5. (Action 10/26)	11/5	Identify any HCA-related capacity building initiatives, to be submitted to the CBSC.	AU, AR, ZA (lead)
6.1	11/6	Send, through the IHB, a short covering letter to ATCM Secretary General (together with the HCA report) explaining that SOLAS obligations (limited to Chap V, Reg. 2, 4, 9, 27) [and environmental protection mechanisms] and related efforts in Antarctica rely on the efforts of the nations that are party to the Antarctic Treaty in meeting those obligations.	HCA Chair
6.1	11/7	Seek, through the IHB, support from the ATCM for the IMO to encourage voluntary participation in data collection activities to be included into the Polar Code (IMO's mandatory code for ships operating in polar waters), noting that the remote nature and environmental constraints of the Antarctic region coupled with the limited suitable resources available to conduct surveying and charting drives a focus on investigating alternate methods for data gathering.	HCA Chair
6.4	11/8	Seek IAATO members' agreement to routinely provide ships' track information to the IHB.	IAATO
7.1	11/9	Produce a proforma data request form for chart producers to request data to other HCA members (see also Routine Action HCA/6).	UK
7.2	11/10	Encourage Russia's participation in HCA and inform Russia of Australia's plan to produce in 2012 an "overview" ENC based on INT 902 and 903, both published by Russia in 2000 and 2001, respectively.	UK
7.4.B	11/11	Review the draft Antarctic GIS (see HCA11-07.4B) and provide comments and updating information, as appropriate.	HCA Members & Observers
8.	11/12	Provide justification for the proposed two new INT charts, i.e. - Melchior Islands, scale 1:30 000 - NW accesses to English Strait, scale 1:25 000	HSPWG Chair

Agenda Item	Action	Details	Responsible
8.	11/13	Circulate the proposal for two new INT charts (Action 11/12 refers) to HCA members for comments / approval.	IHB
8.	11/14	Coordinate quarterly HSPWG meetings to progress survey priorities.	HSPWG Chair
10.	11/15	Coordinate the organization of the 12th HCA Meeting, to take place in Montevideo or Punta Del Este, Uruguay, on 10-12 October 2012.	Uruguay and HCA Chair

ROUTINES ACTIONS

Agenda Item	Action	Details	Responsible
5. (Action 10/1)	HCA/1	Encourage IAATO members to provide the IHB with available bathymetric data, to enable improvement of the Antarctic chart coverage.	IAATO
5. (Action 10/3)	HCA/2	Arrange the visit of hydrographic surveyors to IAATO ships, when calling in ports on her way to Antarctica, or in Antarctica, to advice on the collection and rendering of hydrographic data.	AR, AU, BR, CL, NZ UK, and IAATO
5. (Action 10/4)	HCA/3	Contact and brief their ATCM national delegate(s) on the importance of improving hydrography and nautical charting for safety of navigation in Antarctica, and to support IHO reports to ATCM meetings (ATCM-35, Hobart, 11-20 June 2012).	HCA Members
5. (Action 10/29)	HCA/4	Maintain/update the document “Chart Production in Antarctica - Catalogue of National / INTernational Charts” on the IHO website from national reports.	IHB
7.1	HCA/5	Ensure full diligence in data search prior to chart production, including IHO Data Centre for Digital Bathymetry (DCDB), GEBCO and other HCA members via proforma data request.	HCA members
7.5	HCA/6	Update the list of nautical publications on the IHO website from information in the national reports (HCA11-07.4A).	IHB

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APPENDIX ON ANTARCTICA

(to an Annex " Precautions in Using Navigational Charts in Polar Waters" of a draft IMO Circular on Polar Navigation – Denmark Lead)

As agreed at the 11th meeting of HCA

Australia, Brazil, Chile, Ecuador, France, Germany, Korea, New Zealand, Norway, UK, USA, France, Norway, Uruguay, Spain, South Africa and Venezuela

The unique status of Antarctica and nautical chart production

1. Under the Antarctic Treaty System there are unique arrangements for the conduct of hydrographic surveys and the production of nautical charts. The International Hydrographic Organization's (IHO) Hydrographic Commission on Antarctica (HCA) oversees an international chart scheme (INT chart scheme) for the Southern Ocean. INT charts are steadily being produced within this scheme by the hydrographic offices belonging to member countries of the Antarctic Treaty (Argentina, Australia, Brazil, Chile, Ecuador, France, Germany, Italy, Japan, New Zealand, Norway, Peru, Russian Federation, South Africa, Spain, United Kingdom and United States of America).

State of Antarctic charting

2. Progress of chart production is dependent upon demand for new charts and resources available for the conduct of new surveys and subsequent chart production. Until the INT chart series for Antarctica is complete some existing charts (paper and ENC) are not compatible with GNSS navigation due to different or undefined horizontal datums or the use of old or inaccurate source material.

3. Since October 2004 approximately half of the IHO HCA members have conducted surveys aimed at improving the portfolio of Antarctic charts. Due to limited resources and national charting priorities Antarctic waters are often considered to be a low priority. The majority of national operations conducted in Antarctica are for geophysical and oceanographic research rather than for hydrography.

Hydrographic surveying and source material collection

4. IHO HCA members have plans for ongoing hydrographic data collection and paper chart and ENC production in Antarctica. The isolation, harsh conditions and subsequent lack of support has been noted by many IHO HCA members as a constraint on their survey activities.

5. Members of the IHO HCA produce national reports that detail the status of navigational charts and national surveying and charting operations in Antarctica. These reports show that considerable collaborative work is taking place under the Antarctic Treaty System. Improved arrangements for information exchange are being developed and an increasingly strategic approach is being taken ensure the effectiveness of survey and charting activities.

Assisting Antarctic chart producers

6. Operators of all vessels sailing in Antarctic waters are strongly encouraged to engage with relevant hydrographic authorities in order to establish arrangements to provide information that will subsequently enable the quality of nautical charts to be improved. Mariners are reminded of the use of Hydrographic Notes as a means of providing of important information to hydrgraphic offices. Of particular use in the Antarctic is the provision of feedback to hydrographic offices on charting anomalies, errors or deficiencies (refer to advice on Hydrographic Notes in relevant nautical publications).

Antarctic characteristics relevant to navigation and nautical charts

7. Navigable Antarctic waters are some distance from the South Pole and hence the Mercator projection is used for the majority of charting in Antarctica.

8. The weight of ice on the Antarctic continent has depressed the continental shelf and hence the water is generally deep offshore. However, closer to the coast the sea bed can be irregular, with deep holes, shallows, reefs, and the possibility of uncharted rocks, making both navigation by soundings, and anchoring, difficult.

9. Transit routes to and from Antarctic research bases and frequently visited tourist sites are generally well surveyed and charted. Seasonal ice may sometimes block such transit routes and great care is required if navigation is conducted away from usual transit routes. When planning passages mariners are advised to always ascertain the quality of a chart's source material (Source or ZOC diagrams and ENC source data quality indicators).

10. Mariners navigating in Antarctic waters are reminded of the need to take great care when determining their position and placing position information on charts. Whether navigating using paper charts or ECDIS (including ECDIS in RCDS mode) reliance on a single source of position should be avoided. In particular great care is required when using GNSS and it should never be solely relied upon.

11. Terrestrial navigation information should always be used whenever possible (e.g. radar, gyro, log, echo sounder and visual bearings). Nonetheless, care needs to be taken when using terrestrial navigation in areas where shore or glacial ice may conceal the coastline. Further, poor quality depth information may prevent navigation using echo sounder information.

12. As with most polar regions very few aids to navigation, such as buoys, beacons and lighthouses are available. In the future it is possible that there could be a greater use of virtual aids to navigation, provided through equipment such as Automatic Identification of Ships (AIS) transceivers.

13. Further Antarctic specific information my be found from the following sources:

- Antarctic pilots
- Special publications produced by hydrographic offices
- IHO HCA webpage: www.iho.int > Committees & WGs > Hydrographic Commission on Antarctica (HCA)

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IHO Hydrographic Committee on Antarctica (HCA)

HCA Strategic Statement

HCA – what we do

To promote technical co-operation in the domain of hydrographic surveying, marine cartography, and nautical information within the region.

Article 3 of the HCA Statutes

AIMS

The aims of the HCA, which is an integral part of the IHO, shall be:

3.1 To promote technical co-operation in the domain of hydrographic surveying, marine cartography, and nautical information within the region.

3.2 To stimulate the Members, Associate Members and Observers forming the HCA to widen hydrographic activity in the region in accordance with Antarctic Treaty Consultative Meeting (ATCM) Resolution 5 of 2008, and to encourage them to seek technical advice and assistance from the International Hydrographic Bureau (IHB) in establishing and strengthening their hydrographic capabilities in order to promote safe navigation in the region.

3.3 To facilitate the exchange of information between Hydrographic Authorities and with other organisations concerning surveys, research or scientific, technical and operational developments, to aid in the planning and organization of hydrographic activities in the widest sense of the term.

3.4 To encourage Members, Associate Members and Observers forming the HCA to participate actively, of their own free will, on all possible occasions – whether in the form of advice or of assistance – in those hydrographic programmes requiring concerted action, but without prejudice to or interference with their national activities.

3.5 To examine the implications, in its area of interest, of matters of general interest with which the IHO is concerned, avoiding any interference with the prerogatives of the IHB and of any other Regional Commissions set up by the IHO.

3.6 To implement the INT chart scheme for the region and to monitor its suitability.

3.7 To define the needs for new surveys and if necessary to develop co-operative approaches to meet those needs.

3.8 To facilitate the provision and wide dissemination of information for scientific purposes (for example through the GEBCO programme).

3.9 To establish working groups to carry out studies, when considered appropriate.

3.10 To develop an annual report of the status and plans for hydrographic surveys in the region, including updating and amplifying relevant IHO Publications.

3.11 The HCA may appoint working groups of Members and Associate Members interested in particular projects with the object of examining and executing such projects.

HCA Strategic Direction

To assist in meeting the aim of the HCA, the following direction for the period 2013-2017 is proposed:

To raise awareness on safety of navigation and environmental protection in Antarctica through a collaborative effort/mechanism for data acquisition, discovery and ready access and availability, to be progressed by the submission of these recommendations to the IRCC.

In order to achieve the strategic direction of the HCA, the following Strategic Goals are identified.

Strategic Goal 1:Ensure priorities are captured.

Limited resources are available to conduct surveying and charting within the Antarctic region. Greater effort can be focused where it is most needed and duplication of effort eliminated, by ensuring high risk areas with high traffic density are identified. To achieve this, the HCA will facilitate the formation of a formal risk assessment for the Antarctic charting area, in cooperation with the relevant observer organizations, such as IAATO and COMNAP. This risk assessment will inform the Survey Prioritisation Working Group on areas of high risk.

Strategic Goal 2:Improve access to charting

Efficient data sharing within the Antarctic region will ensure that all INT charts produced include the best possible data available for the mariner. The inclusion of suitable data on an INT chart in a reasonable time frame will provide users with visibility that action is being taken on reports provided by the maritime community. This goal will be progressed through on-line tools (such as the Antarctic GIS) to provide visibility of data that exists in areas of interest and processes to ensure that routine data requests are made to HCA members in the INT chart compilation process.

Strategic Goal 3:Enhance data collection methods

The remote nature of the Antarctic region makes systematic Hydrographic surveys difficult and expensive to conduct on a routine basis. Every opportunity to obtain information suitable for charting should be encouraged including using ships of opportunity fitted with appropriate instruments. The HCA will support the trial of data collection by ships of opportunity, e.g. IAATO and/or COMNAP ships, using data logger technology.

Strategic Goal 4:Encourage reporting of observations

The HCA will foster and assist in the routine reporting of information by the mariner and facilitate methods by which such reporting can be shared, and where appropriate included in charts.

Strategic Goal 5:HCA work programme

To assist in meeting the aims of the HCA, the development and endorsement of an enduring work programme is required. The review, updating and reporting of the work programme is to take place at the annual HCA meeting. The HCA work programme should be included in the IHO work programme.

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Proposed HCA Input to the 2013-17 IHO Work Programme

To assist in meeting the Strategic Goals of the HCA the following tasks are forwarded for consideration by the IRCC.

HCA Task 1 Hydrographic Committee on Antarctica

The Chairman of the HCA, with support of the IHB as needed, to organise, prepare and conduct meetings annually, reporting their outcome to its members and the IHB. Coordinate and encourage the participation of other relevant Antarctic International organisations. Follow-up the coordination required to execute that action lists agreed, and to report to the next IHC and the IRCC.

Years: 2013, 2014, 2015, 2016 and 2017

HCA Task 2 Antarctic Region Risk Assessment and Work Programme

HCA to conduct a risk assessment for the Antarctic region and develop a work program to improve Antarctic charting.

Years: 2013-14

HCA Task 3 Presentation of Risk Assessment and HCA Work Program

HCA through the IHB to submit to ATCM the risk assessment conducted by HCA for the Antarctic Region together with a proposed HCA work program to improve Antarctic charting, for consideration, endorsement and support from ATCM.

Year: 2015