



# **“STATUS OF HYDROGRAPHIC SURVEYING AND NAUTICAL CHARTING IN ANTARCTICA”**

**TSCOM & iSCRUM Joint Meeting**

Scripps Institution, La Jolla, 3<sup>rd</sup> October 2011

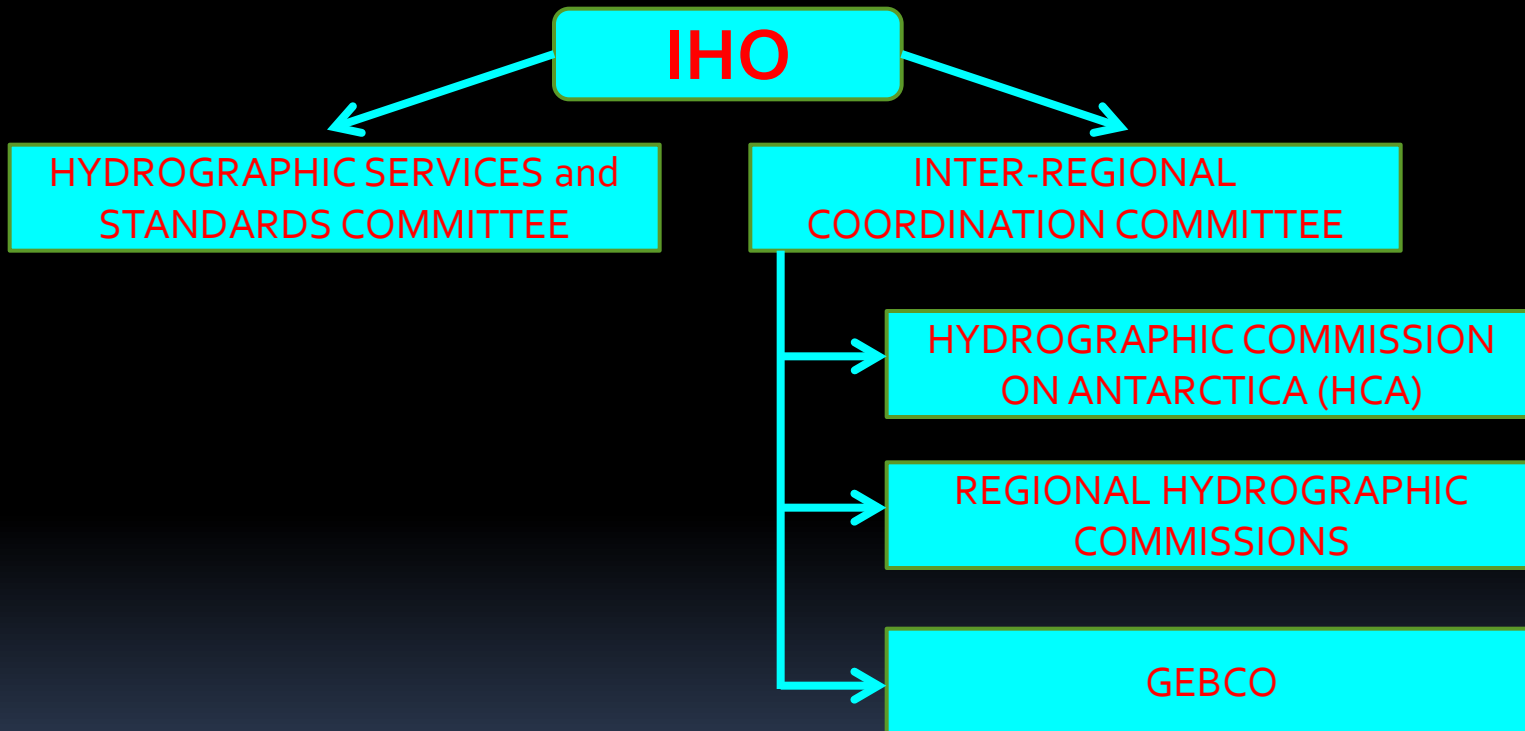
Steve Shipman, PA Hydrography IHB

# CONTENT



- Background
- Antarctic Cartographic Activities
- Antarctic Hydrographic Activities
- Initiatives for a cooperative and collaborative approach

# STRUCTURE in IHO



# HYDROGRAPHIC COMMISSION ON ANTARCTICA



- IHO invited to participate in ATCM XV in 1989.
- IHO at its XIV<sup>th</sup> IHC in 1992 established a “Permanent Working Group of Cooperation in Antarctica” (PWGCA).
- The first meeting of the PWGCA was held in Chile in 1993 and prepared a first draft INT Chart scheme.
- In 1994 the first INT Chart INT65 produced by New Zealand
- In 1996 full INT Chart scheme (89) charts approved with 16 Producer Nations.
- In 1997 PWGCA became Hydrographic Committee on Antarctica (HCA)
- In 2008 became Hydrographic Commission on Antarctica (HCA)

# HCA MEMBERS (23)



Argentina

Australia

Brazil

Chile

China

Ecuador

France

Germany

Greece

India

Italy

Japan

Korea (Rep. of)

New Zealand

Norway

Peru

Russian Federation

South Africa

Spain

Uruguay

United Kingdom

USA

Venezuela

# HCA MEETINGS



- 1993 1<sup>st</sup> Meeting PWGCA Valparaíso, Chile
- 1994 2<sup>nd</sup> Meeting PWGCA Buenos Aires, Argentina
- 1996 3<sup>rd</sup> Meeting PWGCA Wollongong, Australia
- 1998 1<sup>st</sup> Meeting HCA Christchurch, New Zealand
- 2001 2<sup>nd</sup> Meeting HCA Simon's Town, South Africa
- 2003 3<sup>rd</sup> Meeting HCA Monaco
- 2004 4<sup>th</sup> Meeting HCA Kythnos, Greece
- 2005 5<sup>th</sup> Meeting HCA Christchurch, New Zealand
- 2006 6<sup>th</sup> Meeting HCA Punta Arenas, Chile
- 2007 7<sup>th</sup> Meeting HCA Buenos Aires, Argentina
- 2008 8<sup>th</sup> Meeting HCA Rio de Janeiro, Brazil
- 2009 9<sup>th</sup> Meeting HCA Simon's Town, South Africa
- 2010 10<sup>th</sup> Meeting HCA Cambridge, UK
- 2011 11<sup>th</sup> Meeting HCA 5 - 7 October 2011, Hobart, Australia

# RECOMMENDATIONS & RESOLUTIONS



- ATCM XV (1989) Recommendation XV-19  
*Cooperation in the hydrographic charting of Antarctic waters*
- ATCM XIX (1995) Resolution 1  
*Strengthening Cooperation in Hydrographic Surveying and Charting of Antarctic Waters*
- ATCM XXVI (2003) Resolution 3  
*Co-operation in Hydrographic Survey and Charting of Antarctic Waters*
- ATCM XXXI (2008) Resolution 5  
*Improving hydrographic surveying and charting to support safety of navigation and environmental protection in the Antarctic region*
- ATCM XXXIII (2010) Resolution 2  
*The contribution of the IPY to hydrographic knowledge of waters of the Antarctic Treaty area*

# ANTARCTIC CARTOGRAPHIC ACTIVITIES

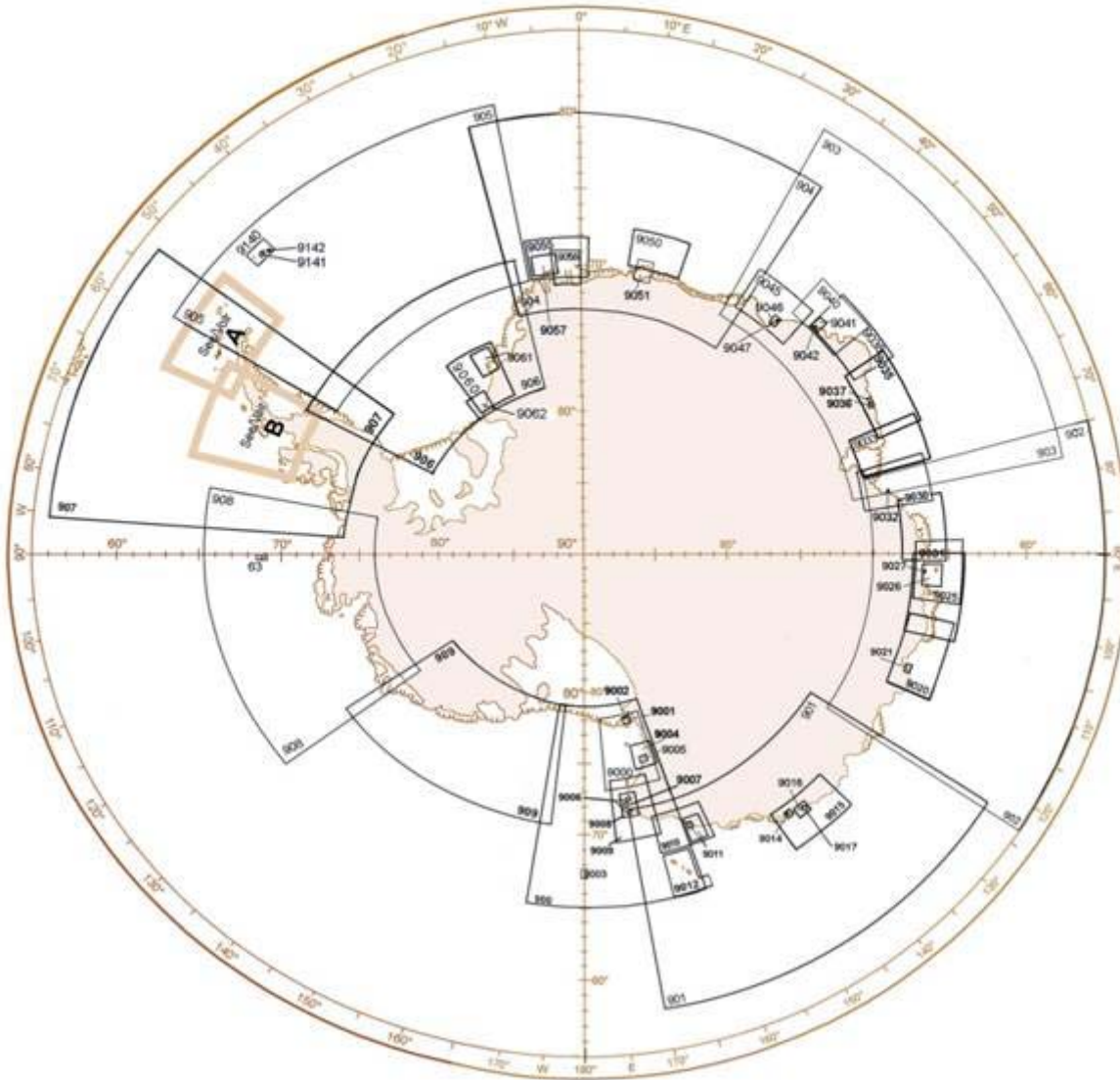


## Criteria:

- Adequate cover for international shipping.
- Conformance to IHO charts specifications.
- Number of charts kept to a minimum.
- Specific coverage for access to permanent scientific bases and those areas most frequently visited by cruise vessels.
- Responsibility for chart production shared by IHO Member States on a voluntary basis.
- Adoption of WGS-84 as the common geodetic datum.

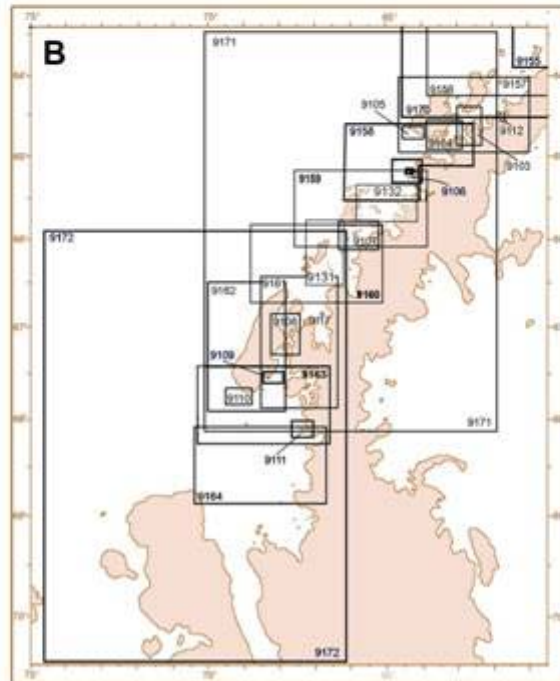
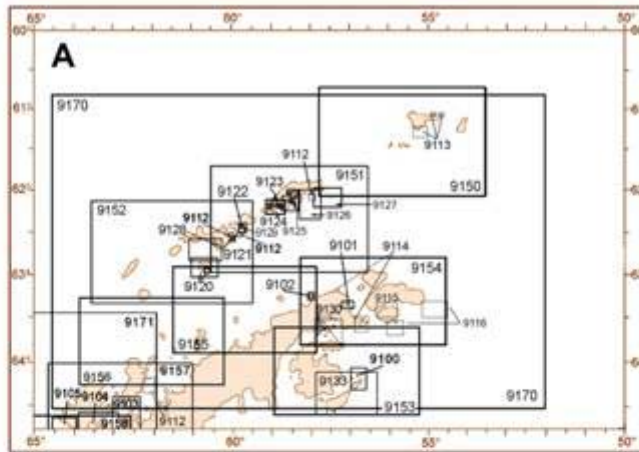


IHO SCHEME FOR INTERNATIONAL CHARTS IN ANTARCTICA  
(1 of 2)



IHO INT  
CHART  
SCHEME - 1

IHO SCHEME FOR INTERNATIONAL CHARTS IN ANTARCTICA  
(2 of 2)

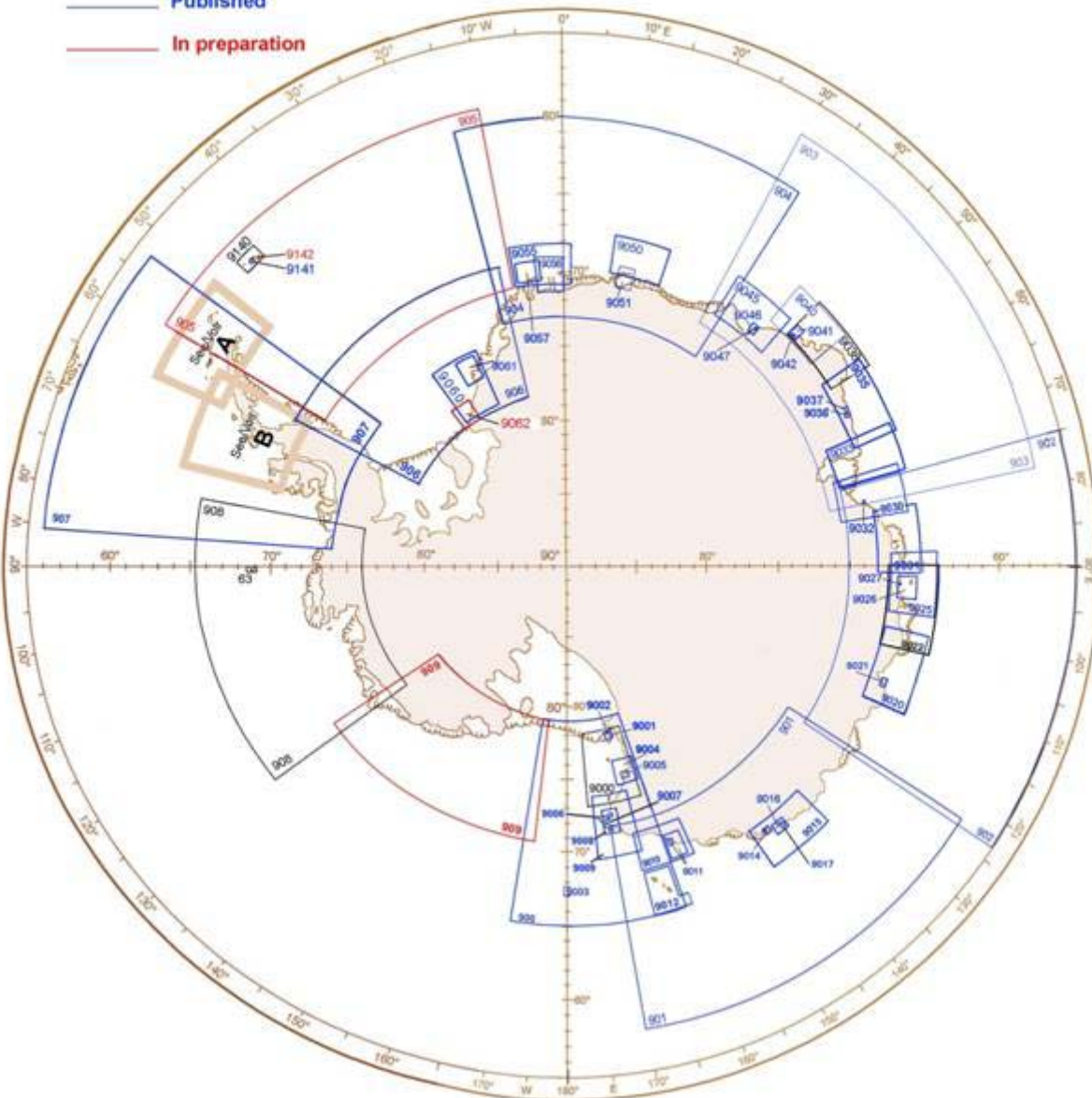


**IHO INT  
CHART  
SCHEME - 2**

# STATUS OF INTERNATIONAL CHART PRODUCTION IN ANTARCTICA

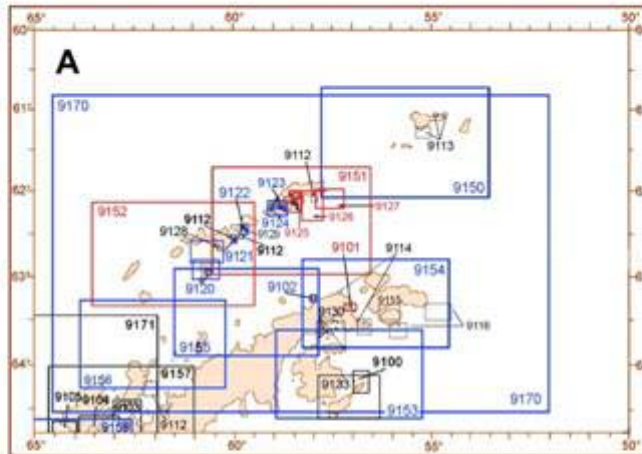
(1 of 2)

- Not published
- Published
- In preparation

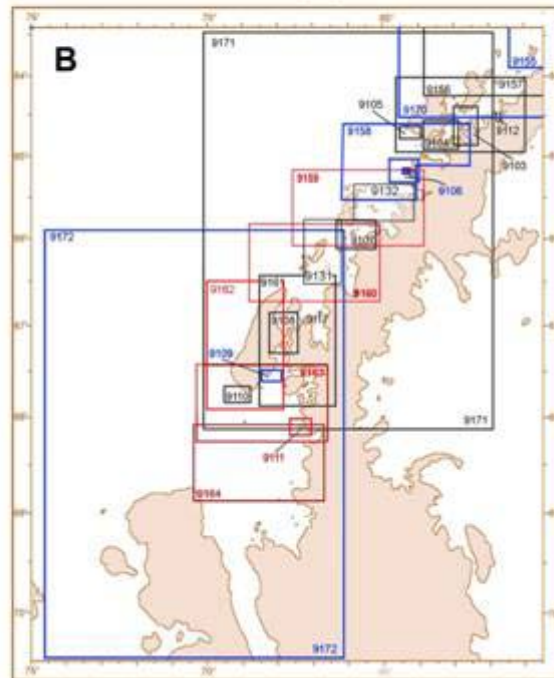


# INT CHART COVERAGE (Antarctica – 1)

# STATUS OF INTERNATIONAL CHART PRODUCTION IN ANTARCTICA (2 of 2)



— Not published  
— Published  
— In preparation



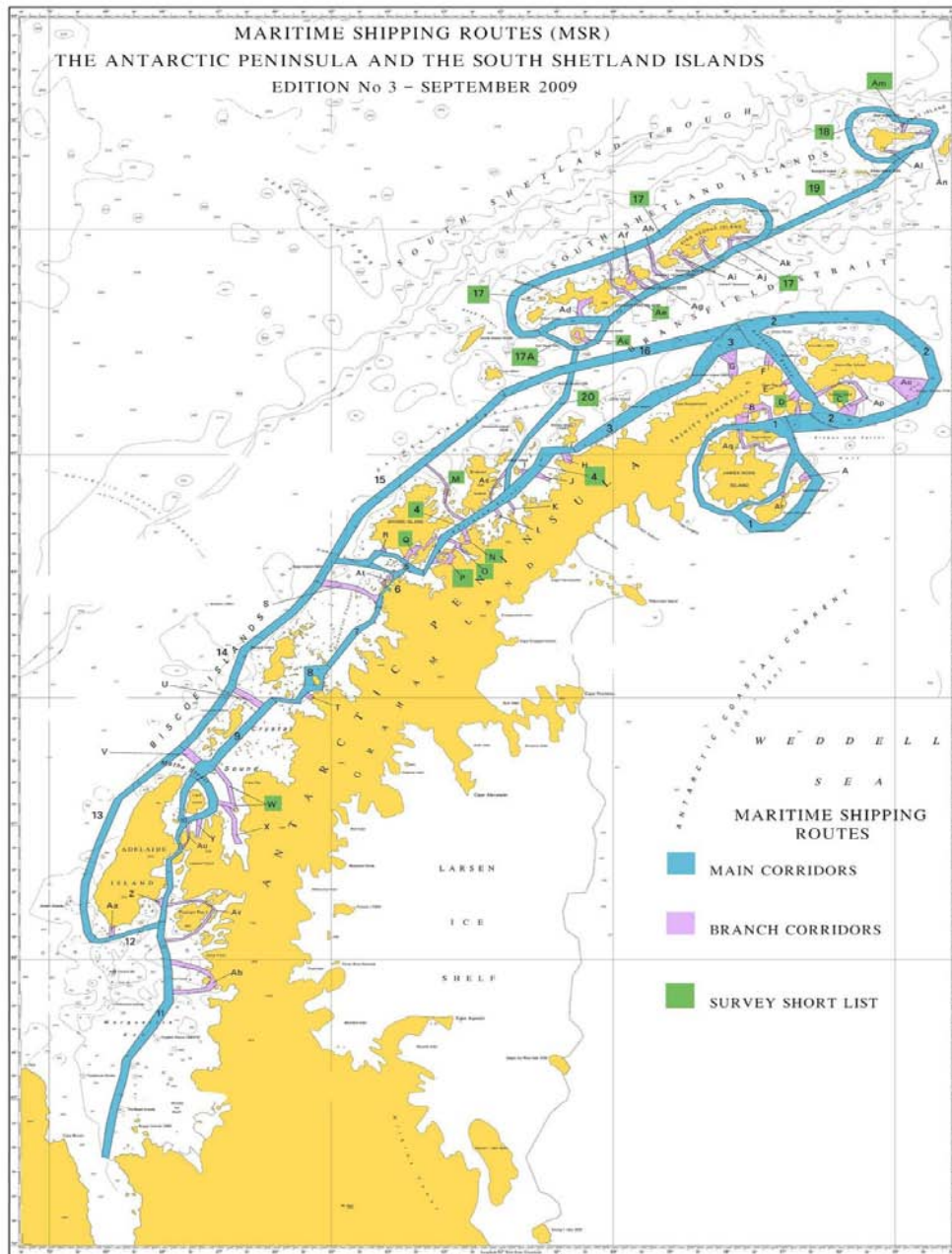
# INT CHART COVERAGE (Antarctica - 2)

# HCA SURVEY PRIORITISATION WG

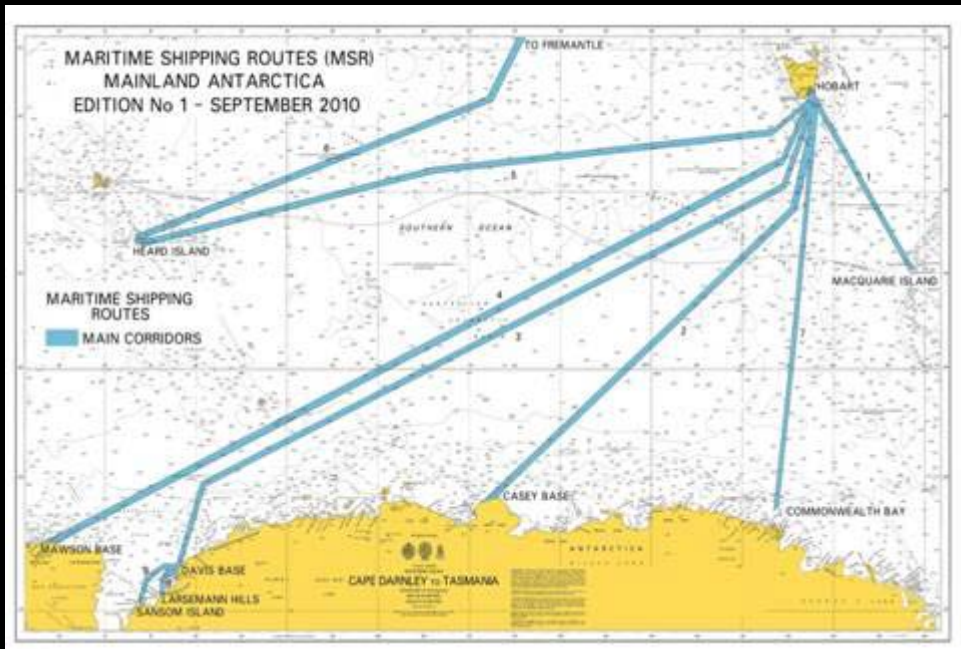


Three deliverables identified:

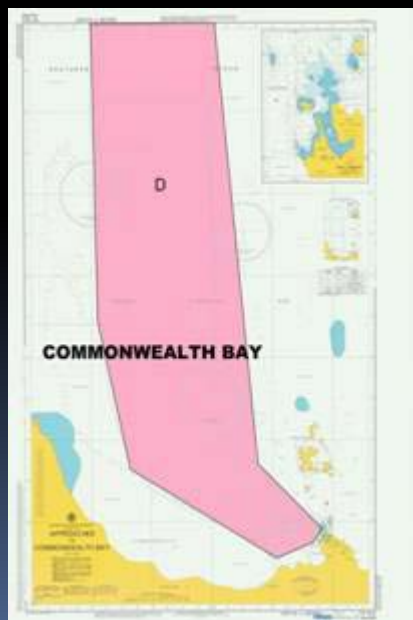
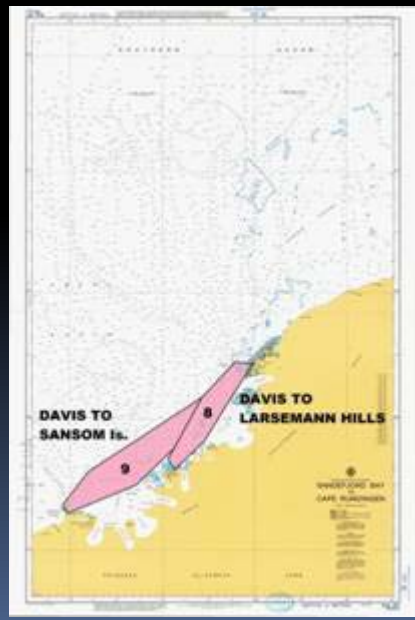
1. A list of areas of significance based on the themes:
  - a. Sensitivity of the Environment
  - b. Needs of scientific research
  - c. Demands of the tourism industry
  - d. Other identified maritime activities
2. Updated prioritized statement of HCA survey requirements
3. Updated “Guidelines for Collection and Rendering of Hydrographic Data for non-survey vessels”



# MARITIME SHIPPING ROUTES -1



# MARITIME SHIPPING ROUTES - 2





# RAISING AWARENESS

- a) XXXI ATCM 2008,
- b) XXI COMNAP Council 2009 and
- c) XXI IAATO Annual Meeting 2010.

- 1.- *"Hydrography in Antarctica"*.
- 2.- *"Hydrography and its contribution to the protection of the marine environment in Antarctic waters"*.
- 3.- *"Hydrography and its contribution to Antarctic Science"*.
- 4.- *"Hydrographic and Cartographic Status in Antarctica"*.
- 5.- *"Practical initiatives to improve hydrography and nautical charting in Antarctica"*.



# ANTARCTIC HYDROGRAPHIC ACTIVITIES



- 1.- Regular Hydrographic Surveys
- 2.- Ships of Opportunity (SOO)
- 3.- International Polar Year
- 4.- Call for Hydrographic Data
- 5.- Procedure for supplying Hydrographic Data



# REGULAR HYDROGRAPHIC SURVEYS





# SHIPS OF OPPORTUNITY (SOO)

At the IHO/HCA SOO are:

*“those non-survey vessels in Antarctic waters that if fitted with a set of modern navigational equipment could collect hydrographic data, principally bathymetry, of great value to update or complement current nautical charts”.*



# INTERNATIONAL POLAR YEAR



The contribution of the IPY to hydrographic knowledge of waters of the Antarctic Treaty Area has been recognized.

# CALL FOR HYDROGRAPHIC DATA

June 2010



## IHO Collection and Rendering of Hydrographic Data Form (To be used by Ships of Opportunity-SOO<sup>1</sup> in Antarctica)

The objective of this IHO Form is to facilitate the provision of the essential information required by the appropriate National Hydrographic Office to make use of the hydrographic data collected by a SOO in Antarctica. The Form has four sections: General information, Hydrographic Surveying information, Navigational Aids and Ancillary information and Data Format.

This Form together with all the documentation should be completed and made available to the:

**International Hydrographic Organization**  
4 quai Antoine 1er B.P. 445 MC 98011 Monaco Cedex, MONACO  
Phone +377 93108100 Fax + 377 93108140 e-mail [info@ihb.mc](mailto:info@ihb.mc)

### SECTION 1 « General Information »

|                         |  |  |   |
|-------------------------|--|--|---|
| General Area            | Antarctic Peninsula <input type="checkbox"/> | Antarctic Continent <input type="checkbox"/> | Other (Please specify) <input type="checkbox"/> |
|                         | South Orkneys <input type="checkbox"/>       | South Shetlands <input type="checkbox"/>     |   |
| Location                |  |  |   |
| Name of Vessel          |  |  | Draught : (in meters)                           |
| Name of Captain         |  |  | Date :  |
| OBSERVATIONS : (Note 1) |  |  |   |

<sup>1</sup>SOO for the purpose of this Form is any ship, with the exception of hydrographic and research platforms, volunteer to collect hydrographic data during routine transit utilizing her own equipment.

<sup>2</sup>To tick box, double click on box> default value = activate



June 2010

### SECTION 2 « Hydrographic Surveying Information »

|  |   |   |                             |                                 |                          |
|--|---|---|-----------------------------|---------------------------------|--------------------------|
| GPS  | <input type="checkbox"/>                        | Visual /Radar                                       | <input type="checkbox"/>    | Other (Please specify)          | <input type="checkbox"/> |
| Model of receiver                                      |   |   |                             |                                 |                          |
| Datum setting (ie WGS84)                               |   |   |                             |                                 |                          |
| Remarks: (eg Plotting errors between GPS and Chart)    |   |   |                             |                                 |                          |
| Manufacturer   |   |   | Name /Type                  |                                 |                          |
| Multibeam/Swathe                                       | <input type="checkbox"/>                        | Single Beam   | <input type="checkbox"/>    | Survey line (spacing in metres) |                          |
| Revolutions per minute                                 |   |   |                             |                                 |                          |
| Zero depth recorded from:                              | Sea Surface? <input type="checkbox"/>           | Under Keel? <input type="checkbox"/>                |                             |                                 |                          |
| Correction made?                                       | YES (if YES) Metres per second                  | <input type="checkbox"/>                            | NO <input type="checkbox"/> |                                 |                          |
|  | N/A <input type="checkbox"/>                    | YES <input type="checkbox"/>                        | NO <input type="checkbox"/> |                                 |                          |
| Transducer displacement:                               |   |   |                             |                                 |                          |
| X offset = Port (-) or Starboard (+) from GPS receiver | Y offset = Aft (-) or Fwd (+) from GPS receiver | Z offset = Above (-) or Below (+) from GPS receiver |                             |                                 |                          |
| .....metres  | .....metres                                     | .....metres   |                             |                                 |                          |
| Heard:   | YES <input type="checkbox"/>                    | NO <input type="checkbox"/>                         |                             |                                 |                          |
| Speed:   | ..... knots                                     |   |                             |                                 |                          |

June 2010

### SECTION 3 « Navigational Aids and Ancillary Information »

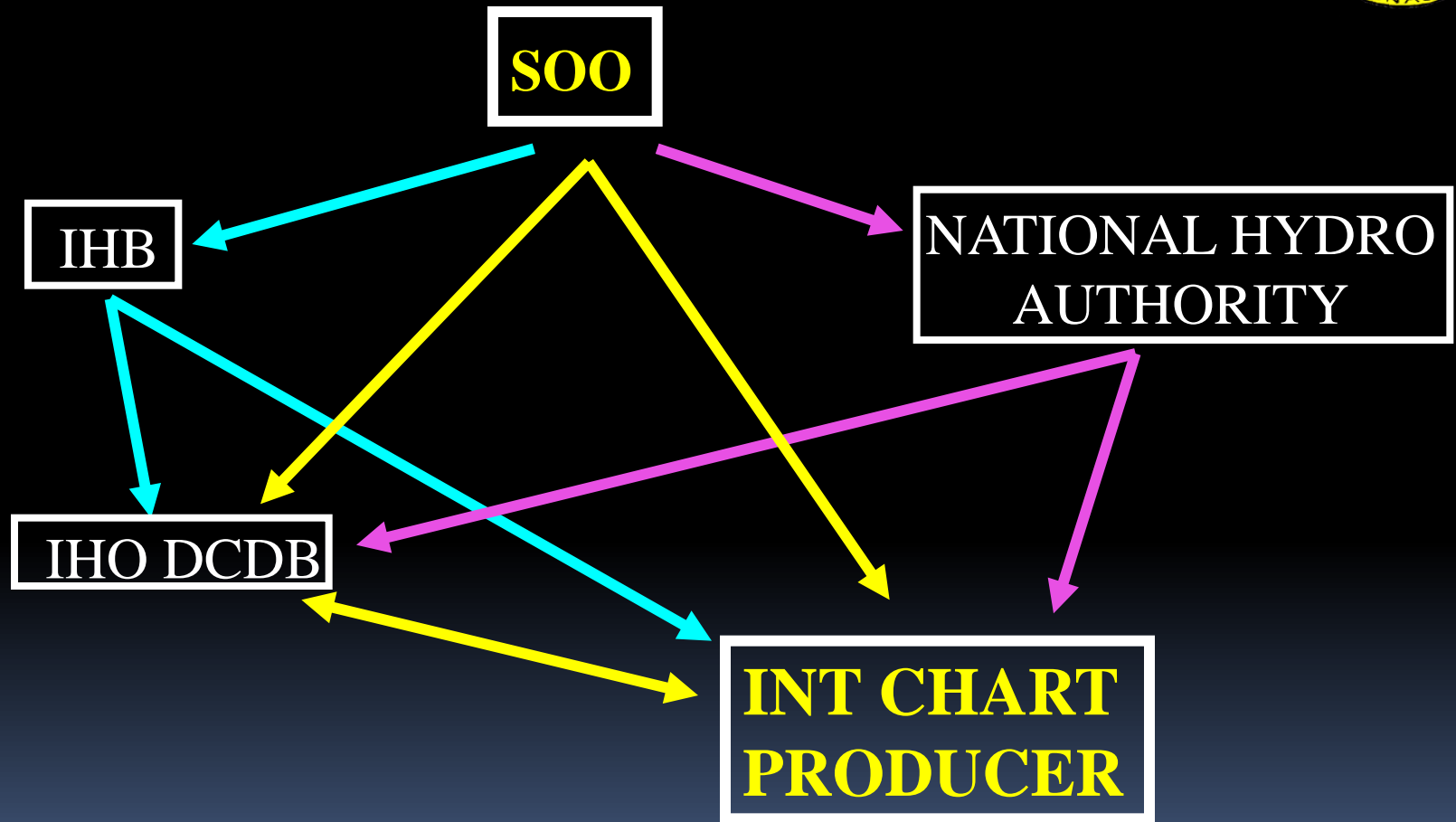
|    |                                    |          |                              |                             |
|----|------------------------------------|----------|------------------------------|-----------------------------|
| ?  | Characteristics Checked? YES or NO | Remarks: | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| 1: | Remarks:                           |          | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| 2: | Remarks:                           |          | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| 3: | Remarks:                           |          | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| 4: | Pilotage                           | Portrait | Close up                     | Remarks                     |

### SECTION 4 « Data Format »

|   |                                |             |                          |
|---|--------------------------------|-------------|--------------------------|
| ] | Corrected to NAD (...../.....) | Tracing     | <input type="checkbox"/> |
| ] | Floppy disc/CD rom             | Photographs | <input type="checkbox"/> |
| ] |                                |             |                          |

For the above Sections, please contact [info@ihb.mc](mailto:info@ihb.mc)

# PROCEDURE FOR SUPPLYING HYDROGRAPHIC DATA



# INITIATIVES FOR A COOPERATIVE AND COLLABORATIVE APPROACH



1. With regard to existing bathymetric data
  - Examine past collections
  - Communicate area and make data available
2. With regard to hydrographic data yet to be collected
  - Contact IHO/HCA for coordination of mutual benefit
  - Make use of the Collection and Rendering Form
3. With regard to Nautical Chart availability
  - Examine INT Chart scheme and provide input
  - Examine and report on priority areas not covered



**THANK YOU  
FOR YOUR ATTENTION**