



HCA9-08Aa

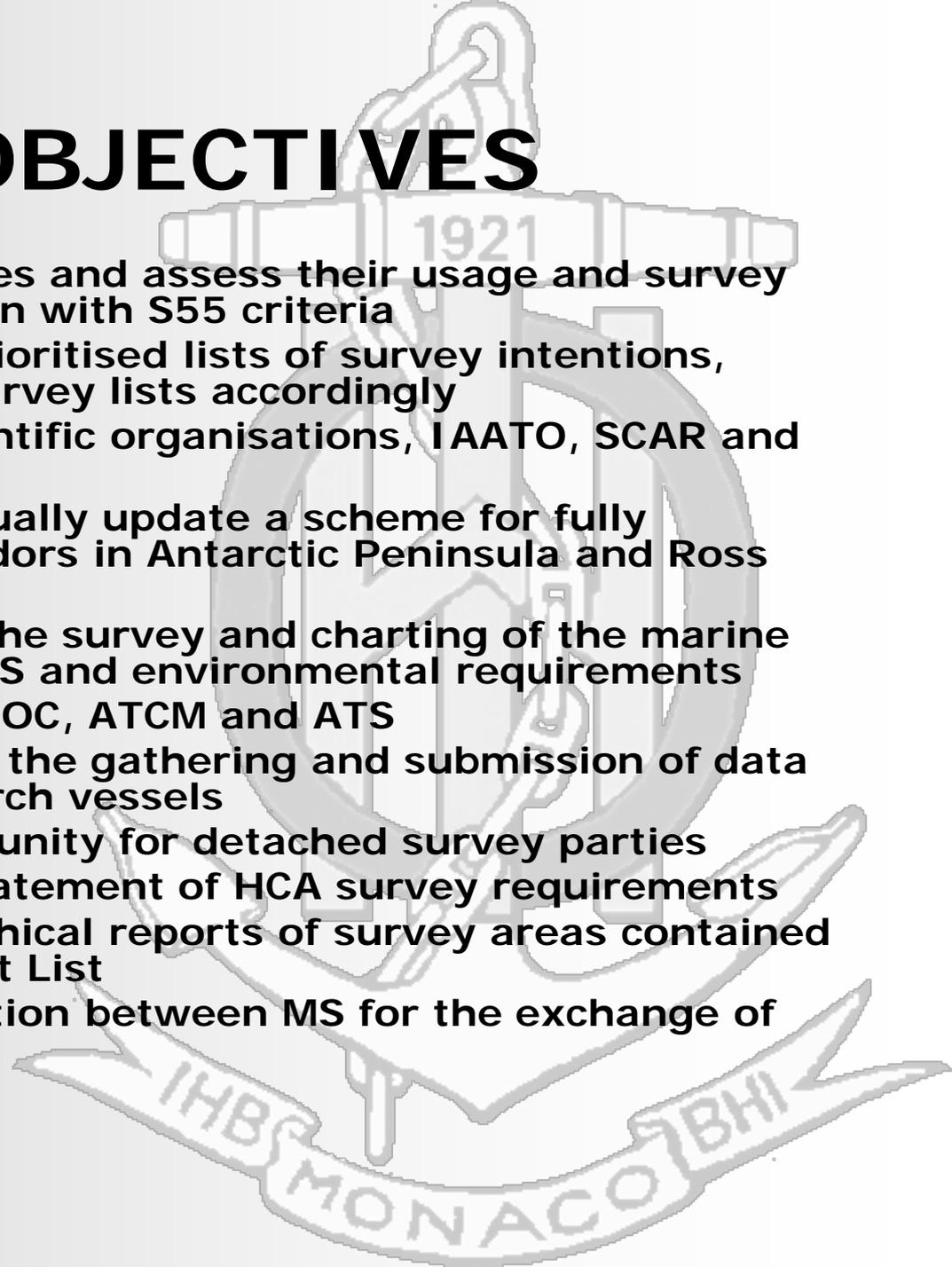
HYDROGRAPHIC COMMITTEE FOR ANTARCTICA

SURVEY PRIORITISATION WORKING GROUP

PROGRESS REPORT 2009

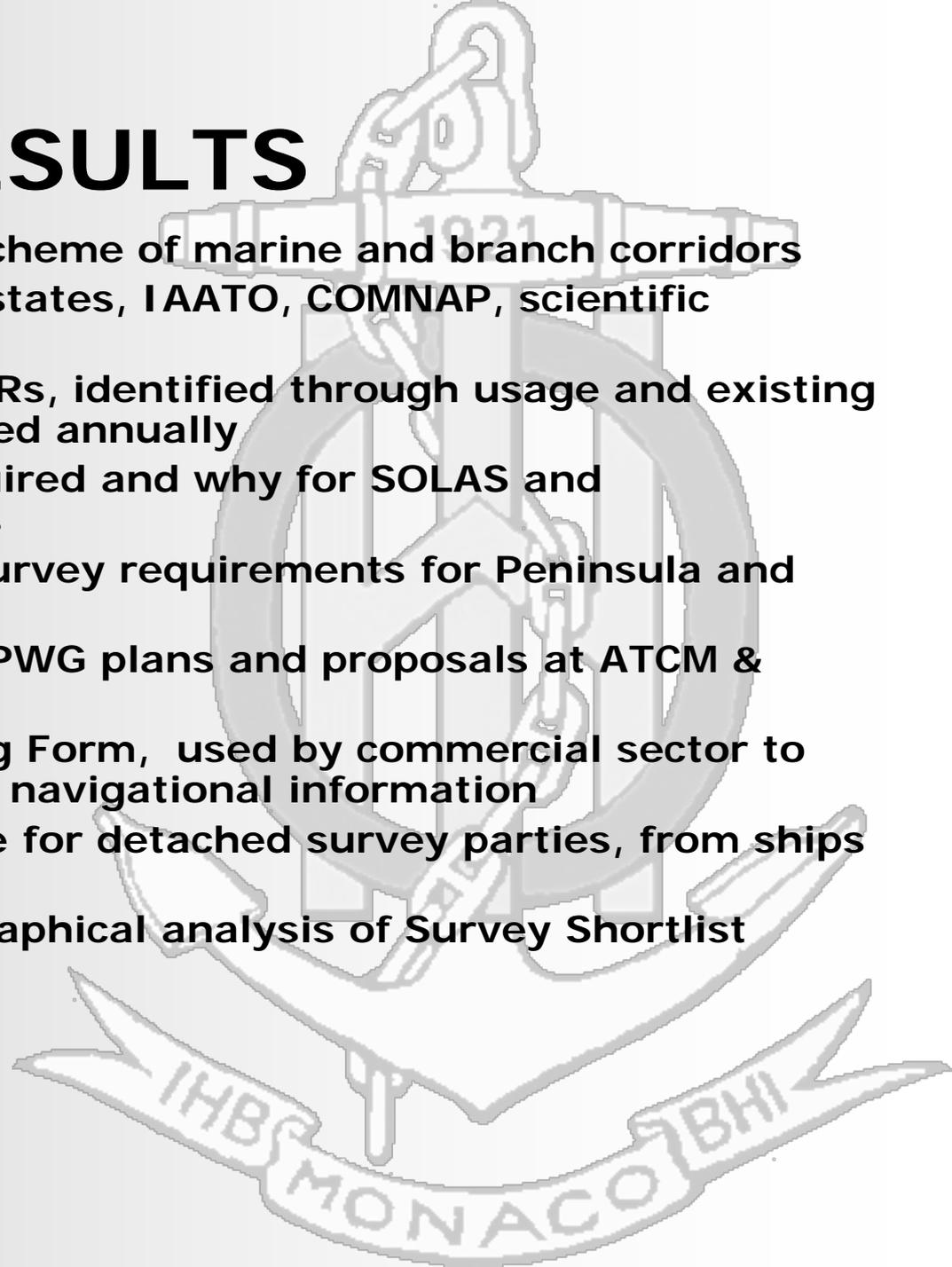
MAIN OBJECTIVES

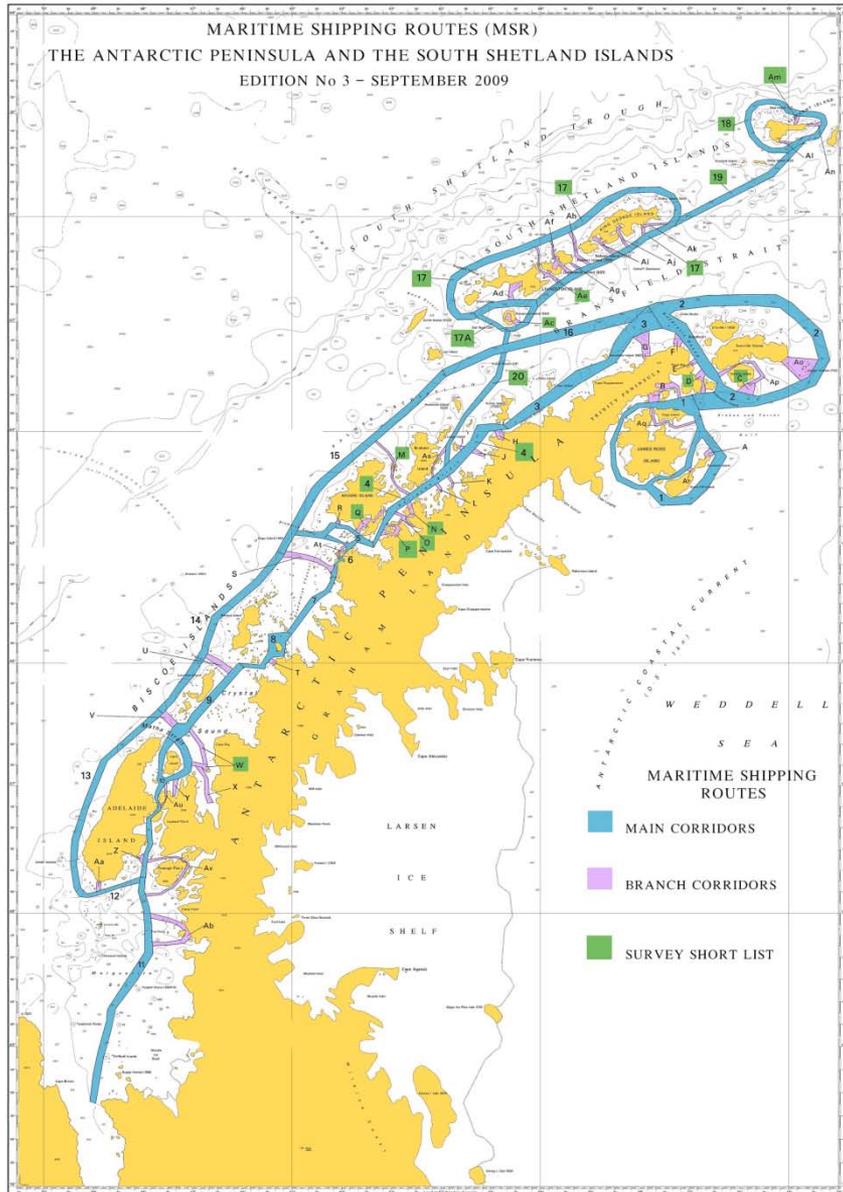
- Identify Shipping routes and assess their usage and survey coverage in conjunction with S55 criteria
- Comparing national prioritised lists of survey intentions, updating prioritised survey lists accordingly
- Consultation with scientific organisations, IAATO, SCAR and COMNAP
- To develop and continually update a scheme for fully surveyed marine corridors in Antarctic Peninsula and Ross Sea
- To develop a plan for the survey and charting of the marine corridors, noting SOLAS and environmental requirements
- Seek support of IMO, IOC, ATCM and ATS
- Develop guidelines for the gathering and submission of data from Cruise and research vessels
- Utilise Ships of Opportunity for detached survey parties
- Maintain prioritised statement of HCA survey requirements
- Produce in-depth graphical reports of survey areas contained within prioritised Short List
- To encourage cooperation between MS for the exchange of data and expertise



RESULTS

- Fully endorsed and updated scheme of marine and branch corridors
- Input received from member states, IAATO, COMNAP, scientific institutions and navies
- Structured survey plan for MSRs, identified through usage and existing survey coverage (S55), updated annually
- Understanding of what is required and why for SOLAS and environmental responsibilities
- Detailed shortlist of priority survey requirements for Peninsula and Continental Antarctica
- Opportunity to present HCA SPWG plans and proposals at ATCM & COMNAP conferences
- Fully endorsed Data Rendering Form, used by commercial sector to standardise the submission of navigational information
- Offer of ship time and passage for detached survey parties, from ships of opportunity
- First prototypes of detailed graphical analysis of Survey Shortlist requirements





1921

Latest MSR routes with updated priorities & Short List entries highlighted

IHBS MONACO BHI

Updated to September 2009

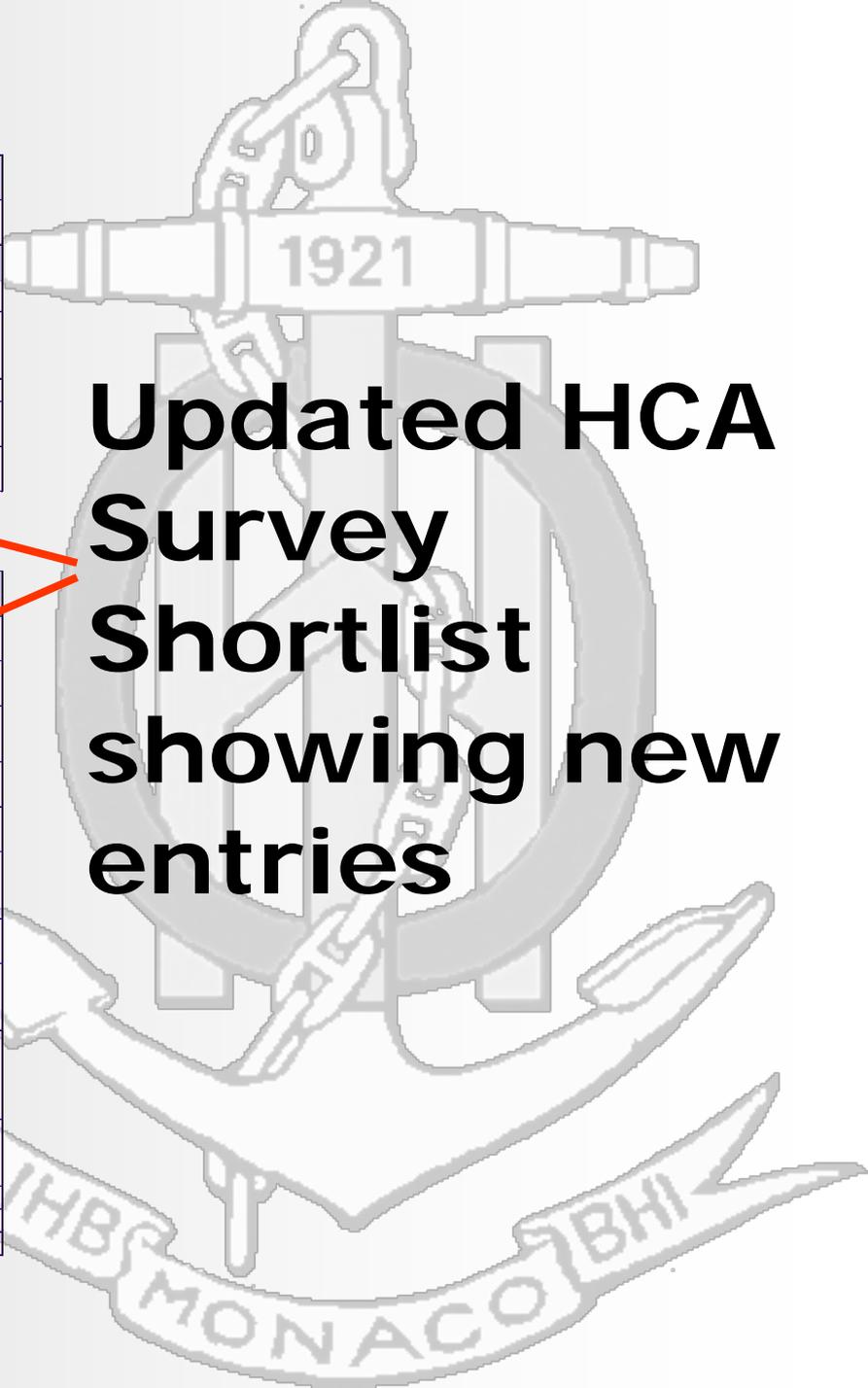
Main corridors

MSR*	Name	Usage category	Survey category	Notes and INT chart coverage. Published and proposed.
4	Gerlache strait	A	A + C	95% surveyed. INT 9156 & 9157 Blocks surveyed by UK in 2005-07(Flanders Bay also 35% surveyed)
17	South Shetlands MSR	A	A+C	INT 9151. SW corridor surveyed by UK, Livingstone Island to Penguin Island complete. Blocks surveyed by UK in 2005-08 and Brazil 2007-08
17A	Deception Island circular route	A	A	INT 9120 Deception Island circular route 100% complete. Blocks surveyed by UK in 2005-08
18	Elephant Island MSR	A+C	A+C	INT 9150 Block surveyed by Brazil in 2006
19	Elephant Island to KGI	A	C	INT 9150, INT 9151 Block surveyed by Brazil in 2005
20	Deception Is to Brabant Island	A	C	INT 9120, INT 9155, 9156, 9157 Block surveyed by UK in 2005-06

Branch corridors and approaches

MSR	Name	Usage category	Survey category	Notes and INT chart coverage. Published and proposed.
C	Paulet Island	A	A + C	50% surveyed, remaining area top of UKHO priority. INT 9112 Block surveyed by UK in 2005-06
D	Brown Bluff and Fridtjof Sound	A	A+C	INT 9154 Approaches to Brown Bluff complete up to 50m contour. Block surveyed by UK in 2006-07
M	Melchior Islands and approaches	A+C	A+C	INT 9157 Block surveyed by UK in 2005-06
N	Errera Channel	A	C	Includes Cuvierville Is, Danco Is and Ronge Is. INT 9103 70% complete. Block surveyed by UK in 2005-06
O	Andvord Bay	A	C	Includes Neko Harbour. INT 9103. 70% complete. Block surveyed by UK in 2005-06
P	Paradise Harbour	A	C	Almirante Station and Waterboat Point. INT 9104 Paradise Harbour 90%, Bryde Channel 90%, Furguson Channel 80%. Block surveyed by UK in 2007-08
Q	Neumayer Channel and Port Lockroy	A	A + C	100% complete. INT 9158 & 9104. Block surveyed by UK in 2005-06
W	Detaille Island and approaches	C	C	INT 9161 Detaille Island now has Historic Monument status, and following restoration will receive increased vessel traffic.
Ac	Port Foster and Neptunes Bellows	A	A+B	INT 9120 Port Foster and Whalers Bay 95% complete. Neptunes Bellows needs multibeam survey to position Ravn Rock, controlling danger in very narrow passage. Blocks surveyed by UK 2005-08
Ae	McFarlane Strait	A	A + C	Half Moon Is cat A, Yankee Harbour 100%, McFarlane Strait 100% up to NW point of Greenwich Island. INT 9121 & 9112. Block surveyed by UK in 2005-07
Am	Point Wild	A	C	INT 9150
	Mawson	C	A+C	AUS600
	Commonwealth Bay	C	C	AUS603

* MSR = Maritime Shipping Route. The figures / letters in this column are shown on the MSR diagram which is on the following page.



**Updated HCA
Survey
Shortlist
showing new
entries**

HCA LONG TERM SURVEY PLAN
Updated to September 2009

Table of MSRs, base/site calls, usage category, and current survey category

Note: In the tables below, high priority surveys have been emphasized in **yellow**. Indications of planned surveys appear in **red**. Indications of surveys completed appear in **blue**.

I. ANTARCTIC PENINSULA

Categories

Category	Usage
A	Frequent
B	Regular
C	Infrequent

Category	Current survey status
A	Adequately surveyed
B	Requires re-survey at larger scale or to S-44 standard
C	Has not been systematically surveyed/Unsurveyed

Main corridors (see diagram on last page for MSR references)

MSR	Name	Usage category	Survey category	Notes and INT chart coverage. Published and <i>proposed</i> .
1	James Ross Island circular route	B+C	A + C	Prince Gustav Channel & Eastern corridor 55% surveyed. 45% unsurveyed. <i>Blocks surveyed by UK 2005-07. Blocks planned by UK for future seasons.</i> INT 9153
2	Joinville Island circular route	A+B	A + C	45% surveyed (Antarctic Sound), 55% unsurveyed. <i>Blocks surveyed by UK 2005-07 and Uruguay 2008. Blocks planned by UK for future seasons</i> INT 9154
3	Orleans Strait to Antarctic Sound	B	B + C	INT 9155
4	Gerlache strait	A	A + C	95% surveyed. INT 9156 & 9157 Blocks surveyed by UK 2005-07 also Flandres Bay 35% surveyed
5	Bismarck Strait	A+B	A + B	Approaches to Palmer Station and Port Lockroy. INT 9158. <i>Block surveyed by UK 2005-06</i>
6	Lemaire Channel	A	A+B	Petermann Is, Pleneau Is, Argentine Is, Yalour Is. 65% surveyed. INT 9106. <i>Block surveyed by UK 2005-06</i>
7	Grandidier Channel	A+B	B	INT 9158 & 9159
8	Cape Garcia to Jagged Island	B	C	INT 9159
9	Crystal Sound	B	B	Numerous reports of uncharted rocks. INT 9160
10	Liard Island to Rothera	B	C	INT 9161, 9108 AND 9163
11	Marguerite Bay	C	B + C	INT 9163 & 9164
12	Woodfield Channel	C	B	INT 9163
13	Woodfield Channel to Matha Strait	B	C	INT 9162 & 9160
14	Matha Strait to Hugo Island	B	C	INT 9160, 9159 & 9158
15	Hugo Island to Low Island	B	B + C	INT 9156, 9157 & 9158
16	Low Island to Antarctic Sound	C	B + C	INT 9154, 9155 & 9156. <i>Blocks planned by UK for future seasons</i>
17	South Shetlands MSR	A	A+C	INT 9151. SW corridor surveyed by UK, Livingstone Island to Penguin Island complete. Blocks surveyed by UK 2005-08 and Brazil 2007-08

Updated HCA Long Term Survey Plan with Short List entries highlighted in yellow

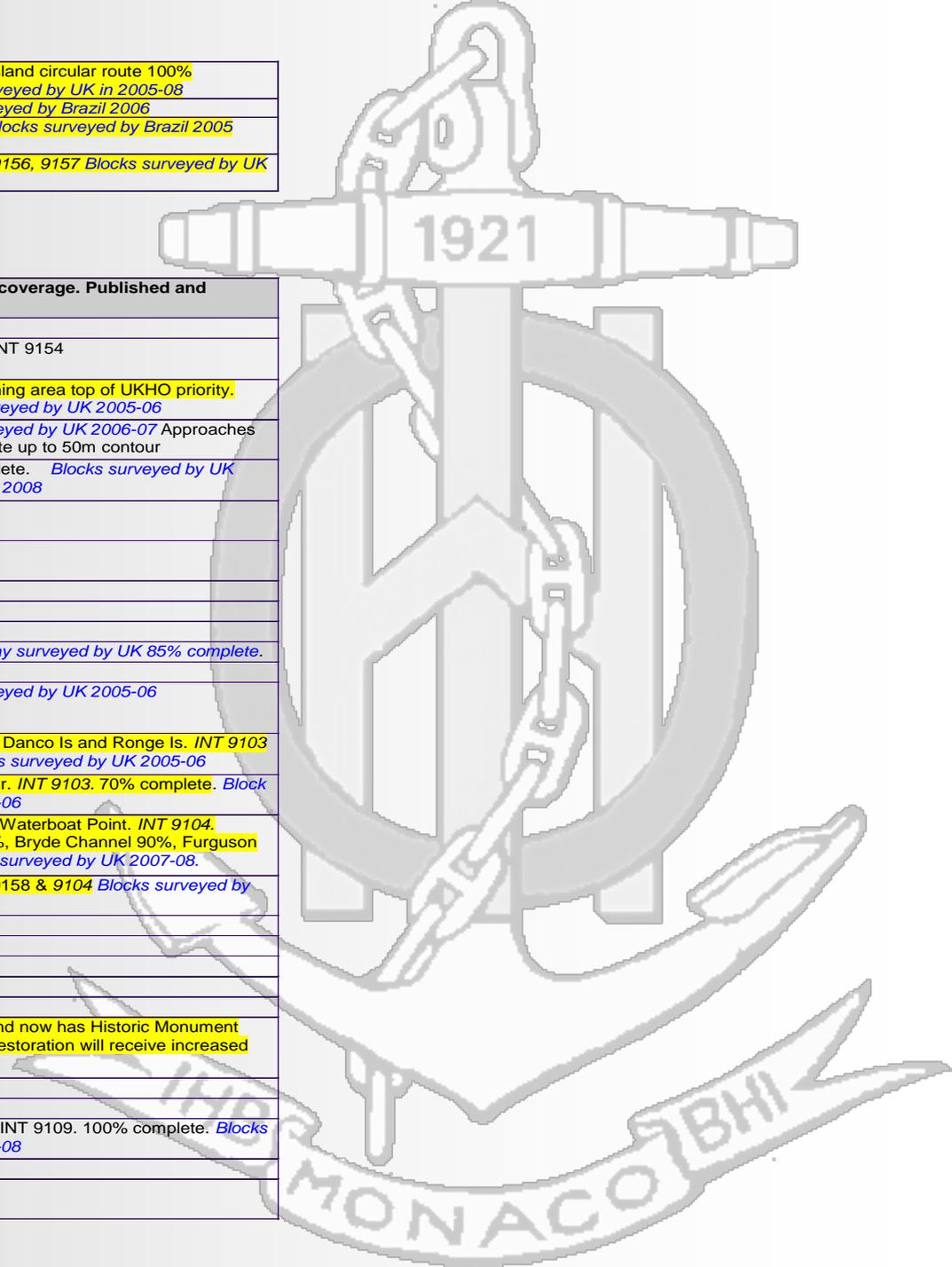


* MSR = Maritime Shipping Route. The figures / letters in this column are shown on the MSR diagram which is on the last page.

17A	Deception Island circular route	A	A	INT 9120 Deception Island circular route 100% complete. <i>Blocks surveyed by UK in 2005-08</i>
18	Elephant Island MSR	A+C	A+C	INT 9150 <i>Blocks surveyed by Brazil 2006</i>
19	Elephant Island to KGI	A	C	INT 9150, INT 9151 <i>Blocks surveyed by Brazil 2005</i>
20	Deception Is to Brabant Island	A	C	INT 9120, INT 9155, 9156, 9157 <i>Blocks surveyed by UK 2005-06</i>

Branch corridors and approaches

MSR	Name	Usage category	Survey category	Notes and INT chart coverage. Published and proposed
A	Marambio	B	C	INT 9100
B	Duse Bay and Eagle Island	B	C	Includes Crystal Hill. INT 9154
C	Paulet Island	A	A + C	50% surveyed, remaining area top of UKHO priority. INT 9112 <i>Blocks surveyed by UK 2005-06</i>
D	Brown Bluff and Fridtjof Sound	A	A+C	INT 9154 <i>Blocks surveyed by UK 2006-07</i> Approaches to Brown Bluff complete up to 50m contour
E	Hope Bay	A	A	INT 9101. 95% complete. <i>Blocks surveyed by UK 2006-07 and Uruguay 2008</i>
F	Gourdin Island and Siffrey Point	B	C	INT 9154
G	Bernado O' Higgins and approaches	C	C	INT 9102
H	Curtiss Bay	C	C	INT 9155 & 9156
I	Hydrurga Rocks	B	C	INT 9156 & 9157
J	Alcock Island	C	C	INT 9156 & 9157
K	Portal Point	C	A+C	INT 9112 <i>Charlotte Bay surveyed by UK 85% complete.</i>
L	Enterprise Island	B	C	INT 9157
M	Melchior Islands and approaches	A+C	A+C	INT 9157 <i>Blocks surveyed by UK 2005-06</i>
N	Errera Channel	A	A+C	Includes Cuverville Is, Danco Is and Ronge Is. INT 9103 70% complete. <i>Blocks surveyed by UK 2005-06</i>
O	Andvord Bay	A	A+C	Includes Neko Harbour. INT 9103. 70% complete. <i>Block surveyed by UK 2005-06</i>
P	Paradise Harbour	A	A+B	Almirante Station and Waterboat Point. INT 9104. Paradise Harbour 90%, Bryde Channel 90%, Furguson Channel 80%. <i>Blocks surveyed by UK 2007-08.</i>
Q	Neumayer Channel and Port Lockroy	A	A	100% complete. INT 9158 & 9104 <i>Blocks surveyed by UK 2005-06</i>
R	Arthur harbour	B	C	INT 9105
S	French Passage	B	B	INT 9106
T	Prospect Point	B	C	INT 9107
U	Pendleton Strait	B	B	INT 9159
V	Matha Strait	B	C	INT 9160
W	Detaille Island and approaches	C	C	INT 9161 Detaille Island now has Historic Monument status, and following restoration will receive increased vessel traffic.
X	Lallemand Fjord	C	C	INT 9161
Y	Shumskiy Cove	C	C	INT 9108
Z	Rothera	B	A	BAS and RN vessels. INT 9109. 100% complete. <i>Blocks surveyed by UK 2007-08</i>
Aa	Avian Island	C	B	INT 9110
Ab	Approaches to Millerand Island	C	B	INT 9111



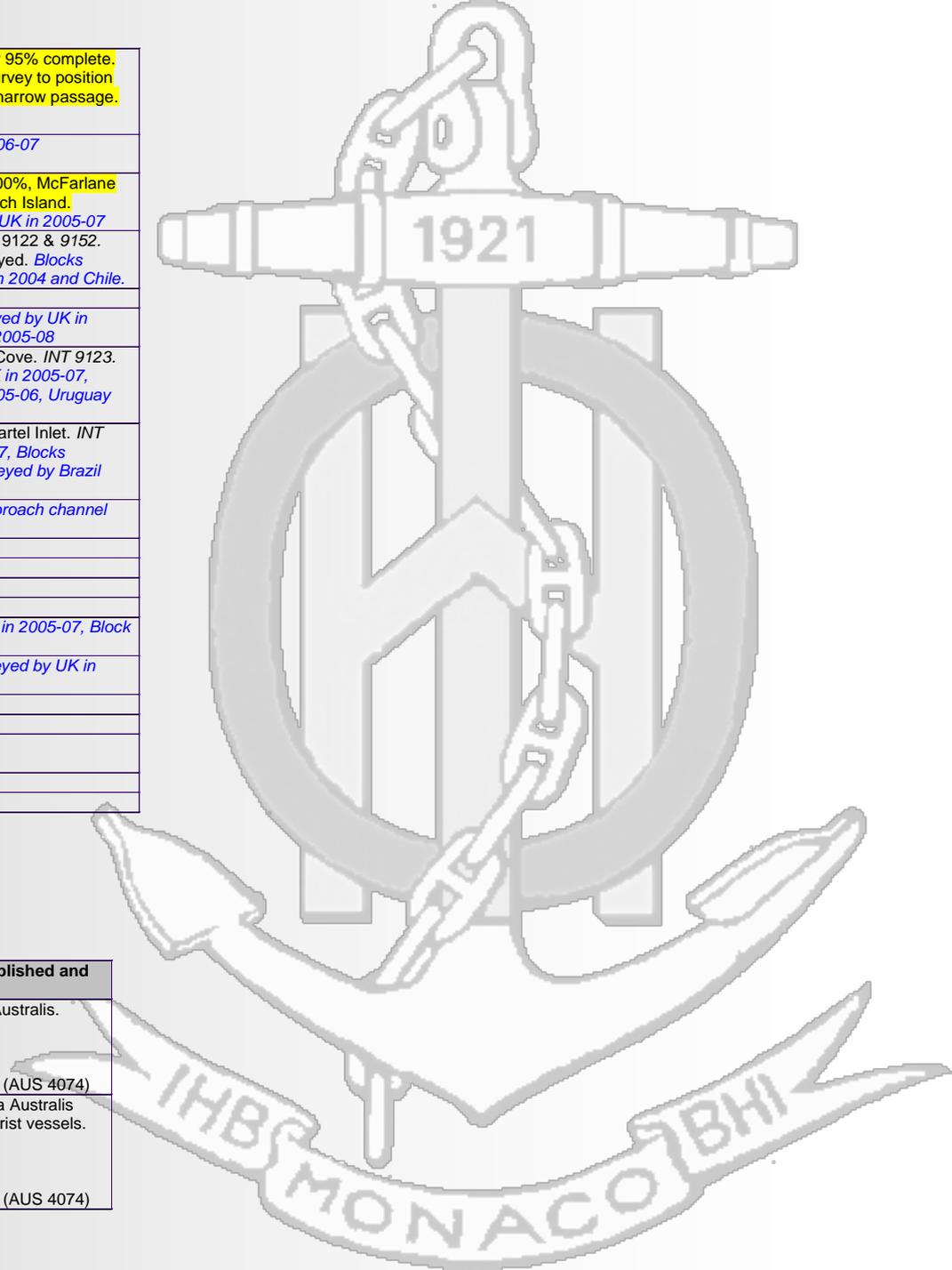
Ac	Port Foster and Neptunes Bellows	A	A+B	INT 9120 Port Foster and Whalers Bay 95% complete. Neptunes Bellows needs multibeam survey to position Ravn Rock, controlling danger in very narrow passage. <i>Blocks surveyed by UK 2005-08</i>
Ad	South bay and Hannah Point	A	A	INT 9121. <i>Block surveyed by UK in 2006-07</i>
Ae	McFarlane Strait	A	A + C	Half Moon Is cat A, Yankee Harbour 100%, McFarlane Strait 100% up to NW point of Greenwich Island. INT 9121 & 9112. <i>Blocks surveyed by UK in 2005-07</i>
Af	English Strait	A	A+B	Aitcho Islands and Discovery Bay. INT 9122 & 9152. 75% complete. NE section still unsurveyed. <i>Blocks surveyed by UK in 2005-07, Ecuador in 2004 and Chile.</i>
Ag	Robert Point	C	C	INT 9151
Ah	Nelson Strait	C	A+C	INT 9151. 80% complete. <i>Block surveyed by UK in 2005-07, Blocks surveyed by Chile in 2005-08</i>
Ai	Maxwell Bay and approaches	A	A+C	Ardley Cove, Marian Cove and Potter Cove. INT 9123. 80% complete. <i>Blocks surveyed by UK in 2005-07, Potter Cove surveyed by Argentina 2005-06, Uruguay 2008</i>
Aj	Admiralty Bay	A	A	Artowski Station, Ferraz Station and Martel Inlet. INT 9125. <i>Block surveyed by UK in 2006-07, Blocks surveyed by Peru 2002-06, Block surveyed by Brazil 2007-08. Block planned by Peru 2009</i>
Ak	Penguin Island and approaches	A	A+C	Endurance 2005 survey. INT 9151 <i>Approach channel surveyed by UK 2006, 50% complete.</i>
Al	Cape Lookout	B	C	INT 9112
Am	Point Wild	A	C	INT 9150
An	Cape Valentine	B	C	INT 9150
Ao	Danger Islands	C	C	INT 9154
Ap	Dundee Island	B	A+C	INT 9154 60% <i>Blocks surveyed by UK in 2005-07, Block surveyed by Argentina in 2005-07</i>
Aq	Herbert Sound	B	A+C	INT 9153. 90% complete. <i>Blocks surveyed by UK in 2005-07</i>
Ar	Historic Monument	B	C	INT 9153
As	Freud Passage	B	C	INT 9156 & 9157
At	Booth Is, Port Charcot	B	C	INT 9158
Au	Gunnel Channel	B	C	INT 9108 & 9161
Av	Pourqoi Pas Island	C	C	INT 9163 & 9161

II. MAINLAND ANTARCTICA**

Main corridors

MSR	Name	Usage category	Survey category	Notes and INT chart coverage. Published and proposed.
	Hobart to Macquarie Island	C	A + B	Annual re-supply station by Aurora Australis. Tourist vessels and fishing boats Charts - Hobart AUS173 and 174 Macquarie Island – AUS604 Cape Darnley to Tasmania - INT 74 (AUS 4074)
	Hobart to Casey station	C	A + B	Annual re-supply of station by Aurora Australis and other vessel plus occasional tourist vessels. Charts. Hobart AUS173 and 174 Casey - INT9021 (AUS601) Cape Darnley to Tasmania - INT 74 (AUS 4074)

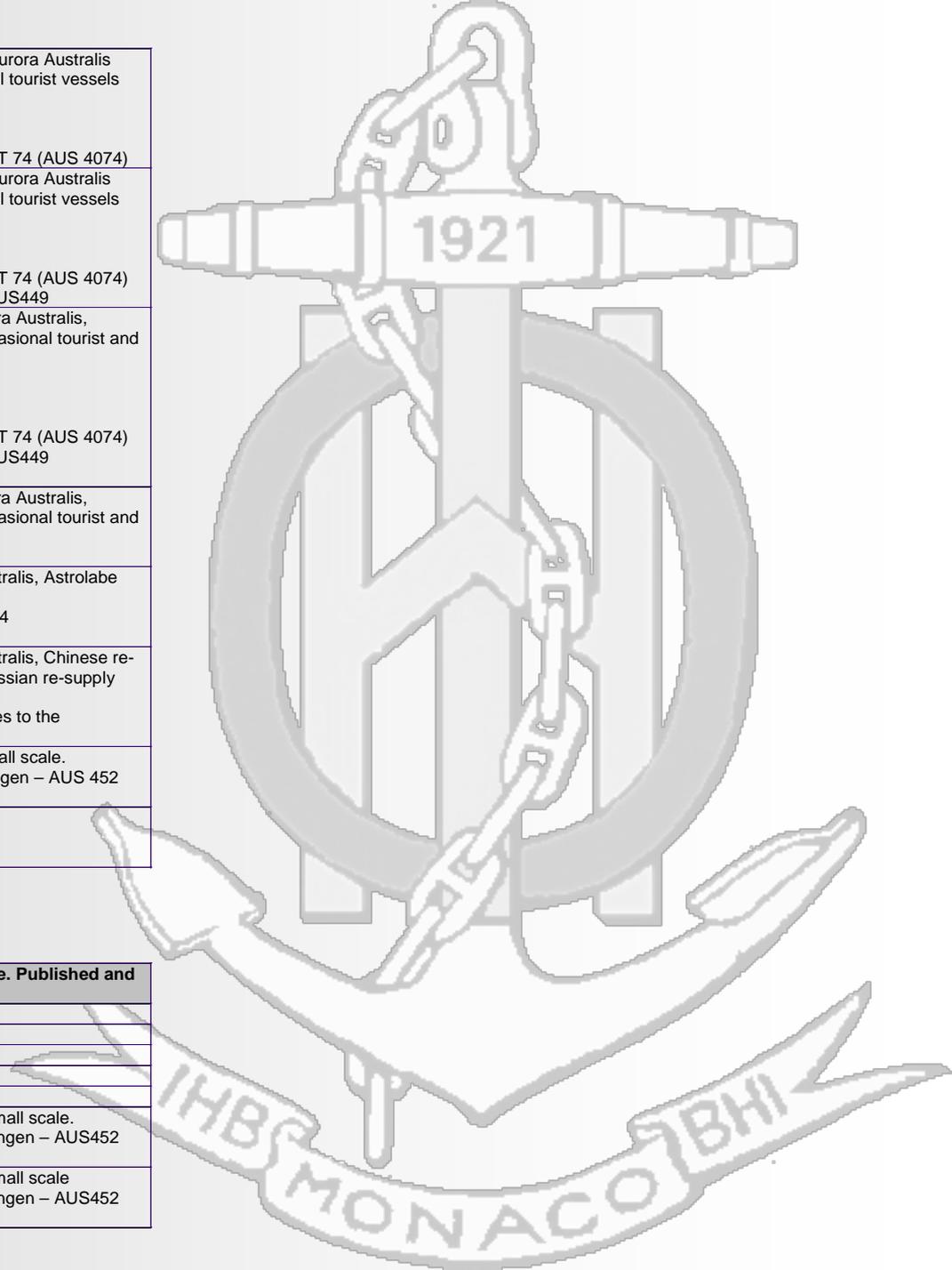
** Australian Antarctic Division Submission



	Hobart to Davis	C	A + B	Annual re-supply of station by Aurora Australis and other vessel plus occasional tourist vessels Charts - Hobart AUS173 and 174 Davis – INT9032(AUS602) Cape Darnley to Tasmania - INT 74 (AUS 4074)
	Hobart to Mawson	C	A+B	Annual re-supply of station by Aurora Australis and other vessel plus occasional tourist vessels Charts Hobart AUS173 and 174 Mawson – AUS600 Cape Darnley to Tasmania - INT 74 (AUS 4074) Magnet bay to Cape Rouse – AUS449
	Hobart to Heard Island	C	A+C	Marine science voyage by Aurora Australis, customs patrol vessels plus occasional tourist and fishing vessels. Charts Hobart AUS173 and 174 Heard Island – AUS605 Cape Darnley to Tasmania - INT 74 (AUS 4074) Magnet bay to Cape Rouse – AUS449
	Fremantle to Heard Island	C	A+C	Marine science voyage by Aurora Australis, customs patrol vessels plus occasional tourist and fishing vessels.
	Hobart to Commonwealth Bay	C	A+C	Occasional visits by Aurora Australis, Astrolabe and occasional tourist vessels Charts - Hobart AUS173 and 174 Commonwealth Bay – AUS603
	Davis to Larsemann Hills	C	A+C	Occasional visits by Aurora Australis, Chinese re-supply vessel Xue Long and Russian re-supply vessels. No charts exist of the approaches to the Larsemann Hills
	Davis to Sansom Island	C	C	No chart coverage except at small scale. Scandjeford bay to cape Rundingen – AUS 452 scale 1:500,000
	Hobart and Fremantle to Southern Ocean	C	A+C	Marine science voyages

Branch corridors and approaches

MSR	Name	Usage category	Survey category	Notes and INT chart coverage. Published and proposed
	Macquarie Island	C	A+C	AUS604
	Casey	C	A+C	INT9021 (AUS601)
	Davis	C	A+C	INT9032(AUS602)
	Mawson	C	A+C	AUS600
	Commonwealth Bay	C	C	AUS603
	Davis to Larsemann Hills	C	C	No chart coverage except at small scale. Sandjeford Bay to Cape Rundingen – AUS452 scale 1:500,000
	Davis to Sansom Island	C	C	No chart coverage except at small scale Sandjeford Bay to Cape Rundingen – AUS452 scale 1:500,000



Collection & Rendering of Data Form



IHO Collection and Rendering of Hydrographic Data Form

(To be used by Ships of Opportunity-SOO¹ 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

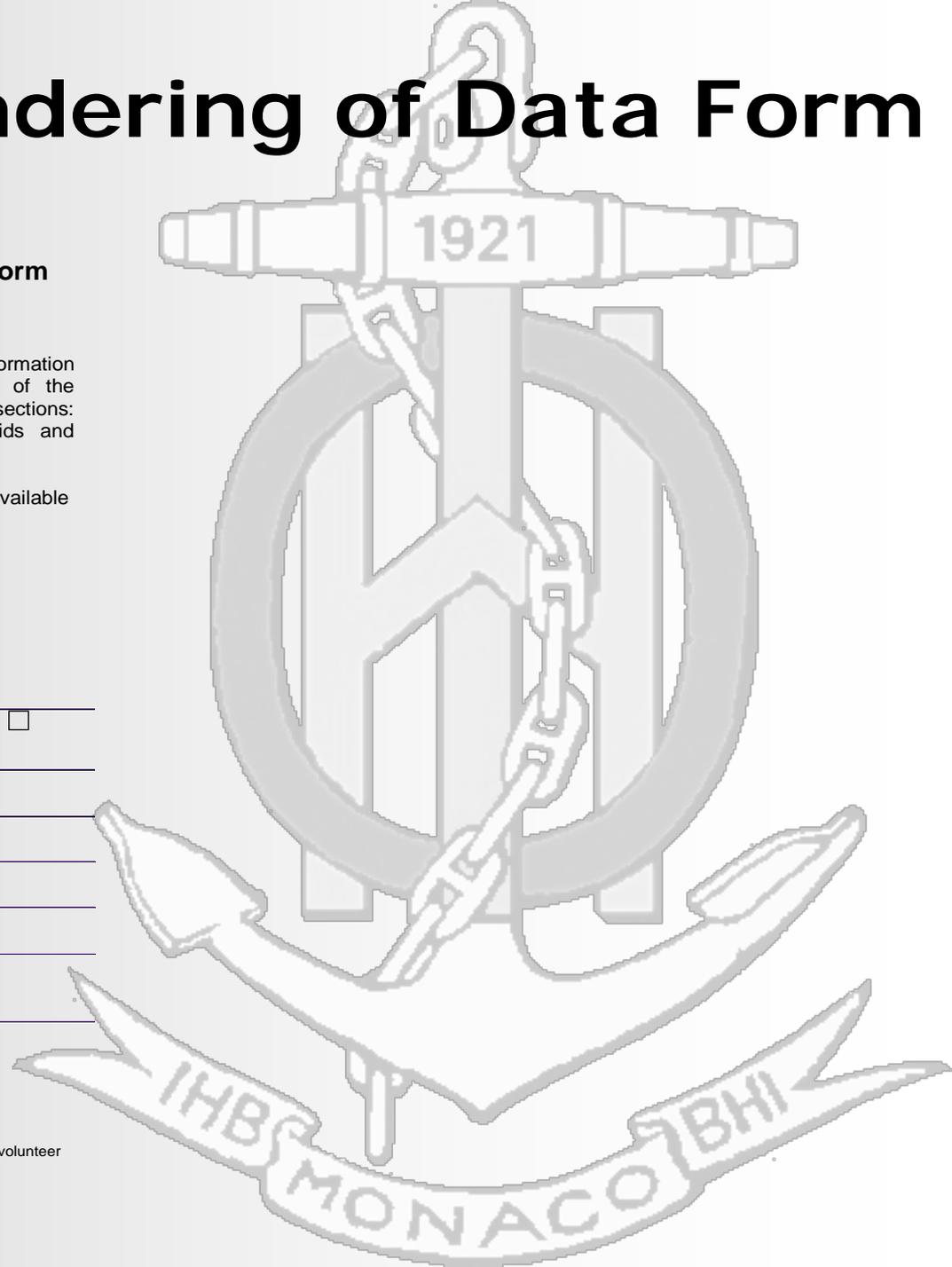
4 quai Antoine 1er B.P. 445 MC 98011 Monaco Cedex, MONACO
Phone +377 93108100 Fax + 377 93108140 e-mail info@ihb.mc

SECTION 1 « General Information »

General Area	Antarctic Peninsula	<input type="checkbox"/> ²	South Georgia	<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)						

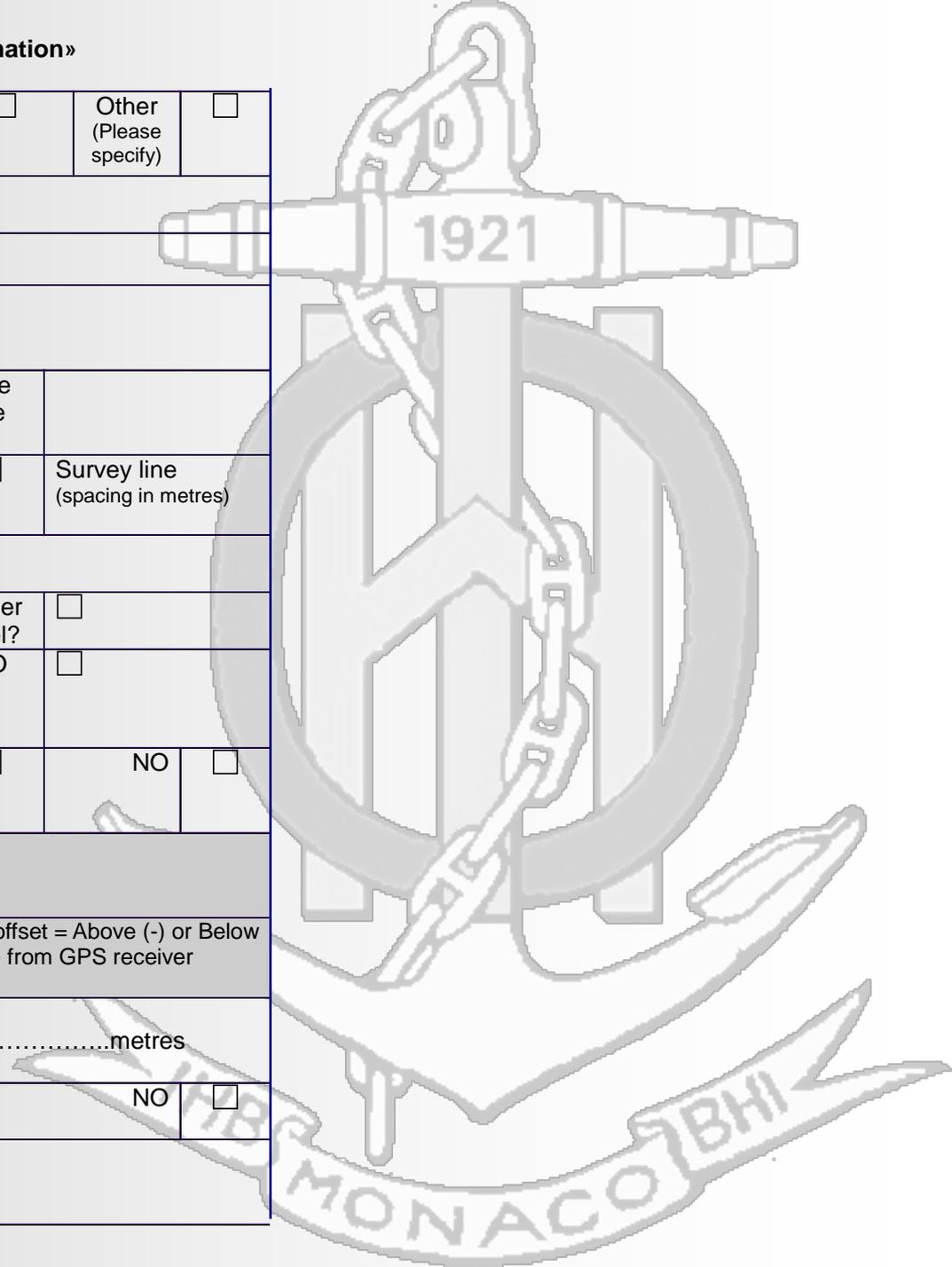
¹SOO for the purpose of this Form is any ship, with the exception of hydrographic and research platforms, volunteer to collect hydrographic data during routine transit utilizing her own equipment.

² To tick box, double click on box> default value > activate.



SECTION 2 « Hydrographic Surveying Information »

Position Fixing (Note 2)	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)					
Echo Sounder (Note 3)	Manufacturer			Name /Type		
	Multibeam/Swathe	<input type="checkbox"/>	Single Beam	<input type="checkbox"/>	Survey line (spacing in metres)	
Stylus:	Revolutions per minute					
Scale Setting	Zero depth recorded from:	Sea Surface?	<input type="checkbox"/>	Under Keel?	<input type="checkbox"/>	
Sound Velocity	Correction made?	YES (if YES) Metres per second	<input type="checkbox"/>	NO	<input type="checkbox"/>	
Transducer displacement applied:	N/A	<input type="checkbox"/>	YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Details of 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		
Echo trace rendered: Note (4)	YES		<input type="checkbox"/>	NO		<input type="checkbox"/>
Speed of vesselknots					



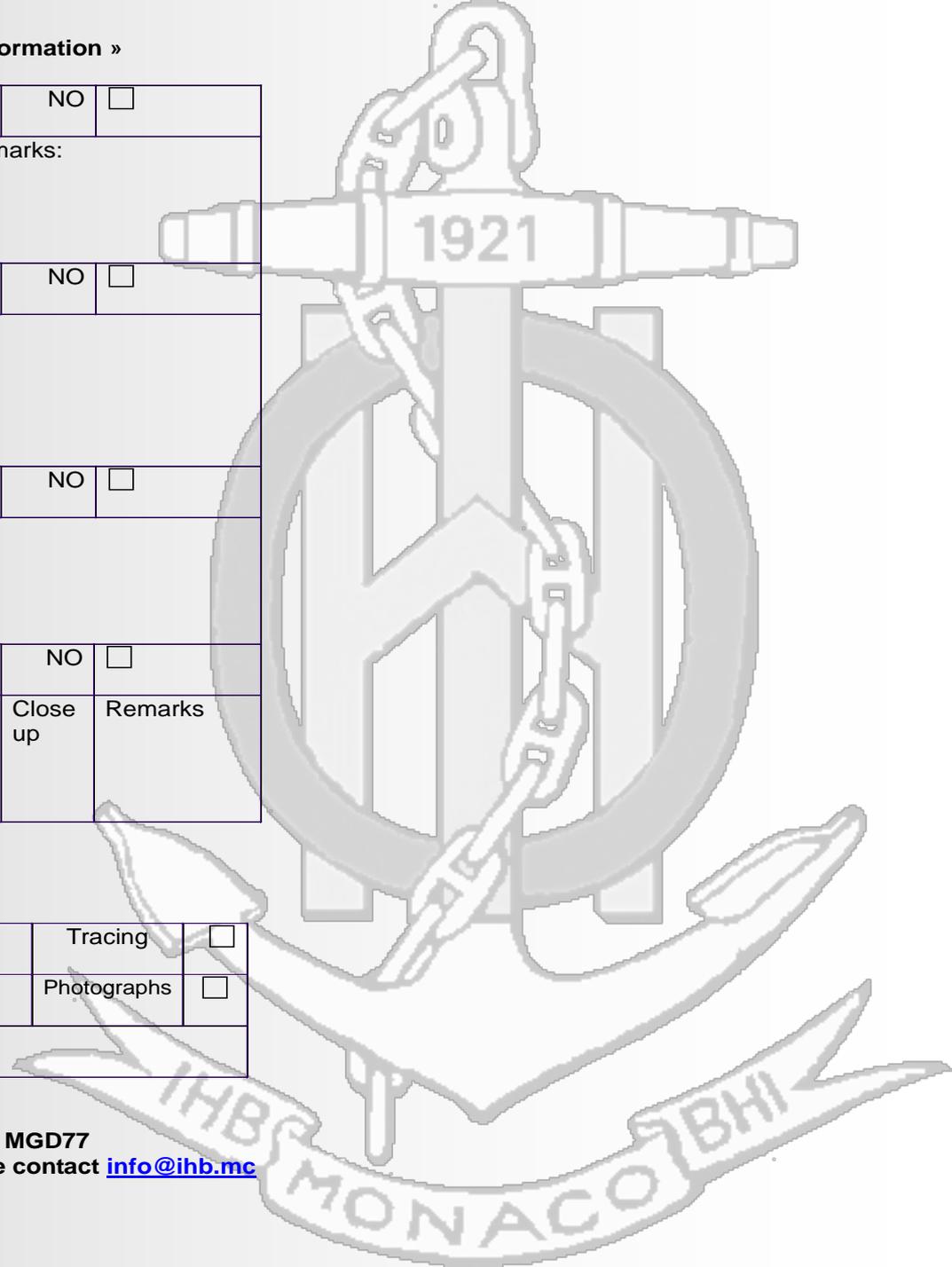
SECTION 3 « Navigational Aids and Ancillary Information »

Lights report rendered			YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Name/Location	Position	Working ? YES or NO	Characteristics Checked ? YES or NO	Remarks:		
Buoys/beacons report rendered			YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Name/Location	Position	Condition: Good, bad, missing	Remarks:			
Conspicuous Objects report rendered:			YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Name/Location	Position	Bearing from Seaward	Remarks:			
View report rendered: (Note 5)			YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
Location	Position/bear ing from seaward	Panoramic	Pilotage	Portrait	Close up	Remarks

SECTION 4 « Data Format »

Data format (Note 6)	Chart/Chart cutting	<input type="checkbox"/>	Corrected to NM (...../.....)	Tracing	<input type="checkbox"/>
	Plotting sheet	<input type="checkbox"/>	Floppy disc/CD rom	Photographs	<input type="checkbox"/>
	Other - please state	<input type="checkbox"/>			

Recommended references: IHO. S-44, UK. NP100 & NP9, US MGD77
 For further information on any of the above Sections, please contact info@ihb.mc



Note 1

Observations: Proposed amendments to the existing text of the Sailing Directions and/or Antarctic Pilot are always welcome. Comments or remarks that the mariner thinks would improve charting coverage or the Sailing Directions is always appreciated by the IHO. Examples of these include transit notes and tracings or chart cuttings delineating areas of kelp. Constructive comments on chart coverage or the lack of it are useful for the future planning of charts and surveying.

Note 2

1. **Visual fixes:** To ensure the greatest accuracy, a fix defined by compass bearings or ranges, should consist if possible of more than two observations. These observations should be taken as nearly as possible simultaneously, carefully recorded at the time and listed in the report with any corrections that have been applied to them.
2. **GPS positions:** The report should state which datum was set on the receiver outputting positions, (eg WGS84 Datum) and/or whether any shifts quoted on the chart have been applied.
3. **Observed differences:** Mariners are requested to report observed differences between positions referred to chart system and those from GPS, referenced to WGS84 Datum.

Note 3

1. The speed of sound in sea water in metres per second equivalent to the stylus speed.
2. Whether soundings have been corrected from *Echo-sounding correction tables*.
3. Zero Scale Setting. That is whether depths are recorded from the sea surface or from under the keel.
4. Where the displacement of the transducers from the position of the GPS receiver or other instrument used to fix is appreciable, the amount of this displacement and whether allowance has been made for it should be reported.

Note 4

If an echo trace is rendered it should be marked as follows:

1. A line drawn across it each time a fix is taken, and at regular intervals.
2. The times of each fix and alteration of course inserted, and times of interval marks at not more than 15 minute intervals.
3. The position of each fix and other recorded events inserted where possible, unless a GPS printout or separate list of times and corresponding positions is enclosed with the report.
4. The recorded depths of all peak soundings inserted.
5. The limits of the phase or scale change in which the set is running marked, noting particularly when a change is made.
6. Name of ship, date, zone time used and scale reading of the shoaling edge of the transmission line should be marked on the trace. (diagram 8.14 in NP100)

Note 5

Photographs should be obtained whenever possible and where such view would help the mariner. An imperfect photograph, correctly annotated, can often be used to produce a view of considerable help to the mariner.

The various types of views and examples are given the following names:

1. **Panoramic.** A composite view made up from a series of overlapping photographs. This type of view is intended to show the offshore aspect including hinterland.
2. **Pilotage.** A single or composite view from the approach course to a harbour or narrows showing any leading marks, transits or conspicuous fixing marks. It may be combined with a close-up of the mark if necessary for positive identification.
3. **Portrait.** The single view of a specific object set in its salient background.
4. **Close-up.** Single views of one object or feature with emphasis on clarity of the subject for its identification.

Note 6

The largest scale chart, a plotting sheet at a similar scale, a tracing or chart cutting should be used to plot the ships position during data collection.

If a chart cutting is used the additions and alterations should be marked in red. If a tracing is preferred, the additions should be marked in red, with adequate chart detail in black to enable fitting down. If a chart is rendered with data inserted, a replacement copy will be supplied free of charge.

Computer discs and CD Roms are also an easy way to render data and photographs, but must have easily readable formats.

THE FUTURE

- Encourage member states with surveying capabilities to use HCA prioritised list to plan and execute future work programmes
- Identify all INT charts in production and coordinate survey tasking accordingly, ensuring there is no duplication of survey effort
- During INT chart production producer nations need to be made aware of any unpublished survey data that can be made available to them from other HCA member states. This information should be available from the S55 database and will encourage surveying nations to share and exchange data. This highlights the need for MS to ensure that S55 is populated and updated

THE FUTURE (Cont'd)

- Constantly monitor MSR usage statistics via Government and IAATO reports, to keep prioritised list current and realistic
- Update MSR graphic using S55, to depict fully surveyed areas
- Most of the Antarctic has still not been surveyed and a compromise needs to be found. Should we be resurveying existing areas (SBES) with MBES (swathe survey systems) or concentrating on areas that have never been attempted?
- Multiple chart coverage; **one area, one chart!?**