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IHO REPORT ON THE PROVISION OF MSI RELATED TO SEA ICE

(Submitted by Mr Steve Shipman, Professional Assistant (Hydrography) from the International Hydrographic Bureau)

Summary and Purpose of Document

This document contains the IHO report on the provision of Maritime Safety Information (MSI) related to sea ice. It also covers IHO overall activities relevant for the work of the Expert Team on Maritime Safety Services (ETMSS).

ACTION PROPOSED

The Expert Team on Maritime Safety Services (ETMSS) is invited to note and comment on the information provided, as appropriate, and generally to take it into account when discussing relevant agenda items.

Appendices: A. Excerpt of the IHO S-53 Appendix 1, with references to 'Sea Ice';

B. The IHO Report on overall activities relevant for the work of the ETMSS.

DISCUSSION

1. An excerpt of the IHO S-53 Appendix 1, also published as the IMO/IHO/WMO Manual on MSI, with references to 'Sea Ice' (in bold) is given in Appendix A.

2. Appendix B provides an IHO report on overall activities relevant for the work of the Expert Team on Maritime Safety Services.

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Appendices: 2

Excerpt of the IHO S-53 Appendix 1 with references to 'Sea Ice'

3 - RADIO NAVIGATIONAL WARNINGS FOR THE WORLD-WIDE NAVIGATIONAL WARNING SERVICE

3.1 GENERAL CONSIDERATIONS

3.1.1 Radio Navigational Warnings are essentially HAZARD WARNINGS. In accordance with the WWNWS Guidance Document, section 4.2.1.3 (IHO/IMO Special Publication S-53), the following subject areas are considered suitable for transmission as NAVAREA warnings. This list is not exhaustive and should be regarded only as a guideline. Furthermore, it presupposes that sufficiently precise information about the item has not previously been disseminated in Notices to Mariners:

1. casualties to lights, fog signals and buoys affecting main shipping lanes;

2. the presence of dangerous wrecks in or near main shipping lanes and, if relevant, their marking;

3. establishment of major new aids to navigation or significant changes to existing ones when such establishment or change might be misleading to shipping;

4. the presence of large unwieldy tows in congested waters;

5. drifting mines;

6. areas where search and rescue (SAR) and anti-pollution operations are being carried out (for avoidance of such areas);

7. the presence of newly discovered rocks, shoals, reefs and wrecks likely to constitute a danger to shipping and, if relevant, their marking;

8. unexpected alteration or suspension of established routes;

9. cable or pipe-laying activities, the towing of large submerged objects for research or exploration purposes, the employment of manned or unmanned submersibles, or other underwater operations constituting potential dangers in or near shipping lanes;

10. establishment of offshore structures in or near shipping lanes;

11. significant malfunctioning of radionavigational service and shore-based maritime safety information radio or satellite services.

12. information concerning special operations which might affect the safety of shipping, sometimes over wide areas, e.g. naval exercises, missile firings, space missions, nuclear tests, etc. It is important that where the degree of hazard is known, this information is included in the relevant warning. Whenever possible, such warnings should be originated not less than five days in advance of the

scheduled event. The warning should remain in force until the event is completed[1]; and

13. acts of piracy and armed robbery against ships.

Navigational warnings are issued in response to SOLAS V/2.b and carry information which may have a direct bearing on the safety of life at sea. It is the fundamental nature of navigational warnings that they will often be based on incomplete or unconfirmed information and mariners will need to take this into account when deciding what reliance to place on the information contained therein.

3.1.2 IMO Resolution A.706(17) requires the use of the English language for NAVAREA and Coastal Warnings of the WWNWS. It must always be remembered that the majority of mariners receiving radio navigational warnings are only professional users of English who do not speak or read it naturally. Warnings therefore must be written so as to be easily understood by all mariners.

3.1.3 In order to achieve maximum impact on the mariner it is necessary to present information so that it is CLEAR, UNAMBIGUOUS and BRIEF. This can be ensured by using structured messages which present the text in a standard format with key words to emphasize the most important features of the message.

3.1.4 The resources employed by administrations and the mariner are extremely limited. Thus only information which is vital to the safe conduct of vessels should be transmitted. Notices to Mariners and other means exist for passing less urgent information to ships after they have reached port. Information of a purely administrative nature should never be broadcasted on the regular international navigational warning schedules.

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4 - METEOROLOGICAL WARNINGS AND FORECASTS FOR THE HIGH SEAS

4.1 PROVISION OF WARNINGS AND WEATHER AND SEA BULLETINS (GMDSS APPLICATION)

Global Maritime Distress and Safety System (GMDSS) application which is compatible with and required by the radiocommunication provisions of the 1988 SOLAS amendments via the NAVTEX, International SafetyNET and HF MSI Services.

Principles

The principles for the preparation and issue of warnings and weather and sea bulletins are as follows:

Principle 1

For a purpose of the preparation and issue of meteorological warnings and the regular preparation and issue of weather and sea bulletins, the oceans and seas are divided into areas for which national Meteorological Services assume responsibility.

[1] The IMO Maritime Safety Committee is authorized to review the provisions of this paragraph and, if appropriate, to provide for exemptions from this requirement, under special circumstances (NAVTEX Manual, paragraph 4.2.1.3.13).

Principle 2

The areas of responsibility together provide complete coverage of oceans and seas by meteorological information contained in warnings and weather and sea bulletins for the high seas.

Principle 3

The issue of meteorological warnings and routine weather and sea bulletins for areas not covered by NAVTEX shall be by the International SafetyNET Service for the reception of maritime safety information (MSI) in compliance with SOLAS, Chapter IV, "RADIOCOMMUNICATIONS".

Note: In addition, national Meteorological Services may have to prepare and/or issue warnings and routine forecasts for transmission by an HF-direct-printing telegraphy maritime safety information service for areas where such a service is provided for ships engaged exclusively on voyages in such areas.

Principle 4

The preparation and issue of warnings and weather and sea bulletins for areas of responsibility are co-ordinated in accordance with the procedures mentioned in the following section.

Principle 5

The efficiency and effectiveness of the provision of warnings and of weather and sea bulletins are monitored by obtaining opinions and reports from marine users.

Principle 6

Maritime Safety Information broadcasts are monitored by the originating Issuing Service to ensure the accuracy and integrity of the broadcast.

4.2 PROCEDURES

Definitions

A "Preparation Service" is a national Meteorological Service which has accepted responsibility for the preparation of forecasts and warnings for parts of, or an entire, designated Maritime Safety Information (MSI) area in the WMO system for the dissemination of meteorological forecasts and warnings to shipping under GMDSS and for their transfer to the relevant Issuing Service for broadcast.

An "Issuing Service" is a national Meteorological Service which has accepted responsibility for ensuring that meteorological forecasts and warnings for shipping are disseminated through the Inmarsat and SafetyNET service to the designated area for which the Service has accepted responsibility under the broadcast requirements of the GMDSS. The Issuing Service is responsible for composing a complete broadcast bulletin on the basis of information input from the relevant Preparation Services, and for inserting the appropriate EGC header, as specified in Annex 4(b) of the International SafetyNET Manual. The Issuing Service is also responsible for monitoring the broadcasts of information to its designated area of responsibility.

Preparation and issue of weather and sea bulletins for the high seas.

Weather and sea bulletins for the high seas shall include, in the order given hereafter:

Part I : Storm warnings;

Part II : Synopsis of major features of the surface weather chart and, to the possible extent, significant characteristics of corresponding sea-surface conditions;

Part III : Forecasts.

Weather and sea bulletins for the high seas may, in addition, include the following parts:

Part IV : Analysis and/or prognosis in IAC FLEET code form;

Part V : Selection of reports from sea stations;

Part VI : Selection of reports from land stations.

NOTES: (1) The reports included in Part VI should be for a fixed selection of stations in a fixed order.
(2) Parts IV, V and VI may be issued at a separate, scheduled time.

For area(s) for which an Issuing Service has assumed responsibility, the Service shall select the appropriate CES to service that area.

NOTES: (1) As there are several CESs which can serve an Ocean Region and hence an area of broadcast responsibility, Issuing Services may negotiate directly with the various CES operators to obtain the most favourable tariff (and service) consideration.
(2) In order to ensure reception of unscheduled broadcasts by shipping in an area which is served by more than one satellite and recognizing that the national Meteorological Services will not know to which of these satellites the ship's equipment is tuned, the following procedures shall be adopted by Issuing Services:

For scheduled broadcasts: These shall be issued for broadcast over at least a single nominated satellite, in accordance with a pre-arranged schedule, co-ordinated by WMO.

For unscheduled broadcasts: These shall be issued for broadcast under the SafetyNET Service through all Inmarsat ocean region satellites covering the Issuing Service's area of responsibility.

Weather and sea bulletins shall be prepared and issued at least twice daily.

The issue of the weather and sea bulletins shall be at a scheduled time and be in the following sequence: Part I to be followed immediately by Part II and then Part III. A schedule of transmission start times for these bulletins has been compiled for all MSI areas and the CESs which serve the areas and takes into consideration, *inter alia*, the existing WMO synoptic times for observations, data analysis and forecast production. Additionally, as these broadcast schedules for the International SafetyNET Service have to be co-ordinated, under the aegis of WMO, with other organizations such as IHO, Issuing Services should not independently change or request WMO to arrange frequent alterations to these co-ordinated and published schedules.

Issuing Services must ensure that the correct EGC message addressing formats are adhered to for all warning and forecast messages intended for broadcast by a CES.

Warnings, synopsis and forecasts shall be given in plain language.

Warnings, synopsis and forecasts intended for the International SafetyNET Service shall be broadcast in English.

NOTE: Additionally, if a national Meteorological Service wishes to issue warnings and forecasts to meet national obligations under SOLAS, broadcasts may be made in other languages. These broadcasts will be a part of a national SafetyNET Service.

In order to ensure the integrity of the warnings and forecasts being received by mariners, it is essential that Issuing Services monitor the broadcasts which they originate. Monitoring is especially important in a highly automated system which is dependent on careful adherence to procedure and format. This may be accomplished by the installation of an EGC receive-capability at the Issuing Service's facility.

NOTE: Each Issuing Service may use the EGC receiver to check the following:
(1) That the message has been broadcast;
(2) That the message is received correctly;
(3) That cancellation messages are properly executed;
(4) Any unexplained delay in the message being broadcast.

The language of the synopsis should be as free as possible from technical phraseology.

The terminology in weather and sea bulletins should be in accordance with the "Multilingual list of terms used in weather and sea bulletins".

NOTE: The multilingual list of terms used in weather and sea bulletins is given in Annex 1-2.A of the Guide to Marine Meteorological Services (WMO-N 471) and in Appendix II-6 hereto.

4.3 WARNINGS

Warnings shall be given for gales (Beaufort force 8 or 9) and storms (Beaufort force 10 or over), and for tropical cyclones (hurricanes in the North Atlantic and eastern North Pacific, typhoons in the Western Pacific, cyclones in the Indian Ocean and cyclones of similar nature in other regions).

The issue of warnings for near gales (Beaufort force 7) is optional.

Warnings for gales, storms and tropical cyclones should have the following content and order of items:

(a) Type of warning;
(b) Date and time of reference in UTC;
(c) Type of disturbance (e.g. low, hurricane, etc.) with a statement of central pressure in hectopascals;
(d) Location of disturbance in terms of latitude and longitude or with reference to well-known landmarks.
(e) Direction and speed of movement of disturbance;
(f) Extent of affected area;
(g) Wind speed or force and direction in the affected areas;
(h) Sea and swell conditions in the affected area;
(i) Other appropriate information such as future positions of disturbance.

Items (a), (b), (d), (f), and (g) listed above shall always be included in the warnings.

When warnings are included for more than one pressure disturbance or system, the system should be described in a descending order of threat.

Warnings shall be as brief as possible and, at the same time, clear and complete.

The time of the last location of each tropical cyclone or extra-tropical storm shall be indicated in the warning.

A warning shall be issued immediately the need becomes apparent, and broadcasted immediately on receipt, followed by a repeat after six minutes, when issued as an unscheduled broadcast.

When no warnings for gales, storms or tropical cyclones are to be issued, that fact shall be positively stated in Part I of each weather and sea bulletin.

Warnings shall be updated whenever necessary and then issued immediately.

Warnings shall remain in force until amended or cancelled.

Warnings issued as Part I of a scheduled bulletin do not need to be repeated after 6 minutes.

4.4 SYNOPSES

The synopses given in Part II of weather and sea bulletins shall have the following content and order of items:

(a) Date and time of reference in UTC;
(b) Synopsis of major features of the surface weather chart;
(c) Direction and speed of movement of significant pressure systems and tropical disturbances.

Significant characteristics of corresponding wave conditions (sea and swell) should be included in the synopsis whenever this information is available, as well as characteristics of other sea-surface conditions (drifting ice, currents, etc.) if feasible and significant.

Significant low-pressure systems and tropical disturbances which affect or are expected to affect the area within or near to the valid period of the forecast should be described; the central pressure and/or intensity, location movement and changes of intensity should be given for each system; significant fronts, high-pressure centres, troughs and ridges should be included whenever this helps to clarify the weather situation.

Direction and speed of movement of significant pressure systems and tropical disturbances should be indicated in compass points and metres per second or knots respectively.

Units used for speed of movement of systems shall be indicated.

4.5 FORECASTS

The forecasts given in Part III of weather and sea bulletins shall have the following content and order of items:

(a) The valid period of forecast;

(b) Name or designation of forecast area(s) within the main MSI area:
(c) A description of:
(i) Wind speed of force and direction;
(ii) Visibility when forecast is less than six nautical miles (ten kilometres);
(iii) Ice accretion, where applicable.

The forecasts should include expected significant changes during the forecast period, significant meteors such as freezing precipitation, snowfall or rainfall, and an outlook for a period beyond that normally covered by the forecast.

The valid period shall be indicated either in terms of number of hours from the time of issue of the forecast or in terms of dates and time in UTC of the beginning and the end of the period.

Visibility should be indicated in nautical miles or kilometres or given in descriptive terms.

Units used for visibility shall be indicated.

IHO Report on overall activities relevant for the work of the ETMSS

1. Introduction

1.1 The eighth meeting of the Commission on the Promulgation of Radio Navigational Warnings (CPRNW) was held at the Regente Palace Hotel, Buenos Aires, Argentina, from 12 to 15 September 2006. Twenty-one representatives from fifteen Coastal States (Argentina, Australia, Brazil, Canada, Chile, Ecuador, France, India, Japan, Norway, Pakistan, Spain, Sweden, United Kingdom and United States of America) attended the meeting. These included the Chairperson of the IMO NAVTEX Coordinating Panel, the Chairperson of the IMO SafetyNET Panel, 11 NAVAREA Coordinators, 1 Sub-area Coordinator and 2 of the 3 potential new NAVAREA coordinators in the Arctic. Additionally, three observers from IMSO, Inmarsat and WMO were in attendance.

1.2 This was the first of the new annual meetings of CPRNW, which is intended to allow it to cooperate and work more systematically with International Maritime Organization (IMO) Sub-Committee on Radiocommunications and Search and Rescue (COMSAR). Previously CPRNW had met biennially. The ninth meeting of CPRNW will be held at the International Hydrographic Bureau (IHB) in Monaco from 11 to 14 September 2007.

2. World-Wide Navigation Warning Service (WWNWS) documentation

2.1 The CPRNW Correspondence Group (CG) established, at the seventh meeting, to review all World-Wide Navigational Warning Service (WWNWS) documentation reported on its progress. The CG had decided to take a top-down approach and focused initially on IMO Assembly Resolutions A.705 (17) and A.706 (17). The CPRNW-8 further completed some work on reviewing these resolutions. The CG will continue its work with the intention of completing it in time for approval by CPRNW, the IHO and WMO and submission to COMSAR-12. Subsequently the information in these revised resolutions will be cascaded down into the IMO Publication on Maritime Safety Information, the NAVTEX Manual and International SafetyNET Manual and IHO Publications S-53 and S-53, Appendix 1.

2.2 The NAVAREA X Coordinator (Australia) reported that there were occurrences of C codes being used incorrectly (i.e., not in accordance with the IMO SafetyNET Manual), and requested that this matter be brought to the attention of COMSAR. In particular, C2 = 14 (Ship to shore distress alert relay) has been used with “Urgency” priority rather than the obligatory “Distress” priority; Search and Rescue (SAR) messages have been transmitted using C2 = 24 (Meteorological warnings to a circular area), C2 = 34 and 44 are allocated for Search and Rescue Coordination Traffic, and C4 repetition code being used incorrectly resulting in messages, especially some long weather messages, being received unnecessarily on more than one occasion.

3. Expansion of the WWNWS into Arctic Waters

3.1 The Chairperson of the CPRNW, as Chairperson of the Joint IMO/IHO/WMO CG on the expansion of the WWNWS into Arctic waters, reported on the progress made thus far. The CPRNW was fortunate to have representatives from Canada and Norway, two of the potential future NAVAREA Coordinators in the Arctic, at the meeting enabling further discussions to take place.

4. NAVTEX service areas

4.1 The NAVAREA III Coordinator reported that a meeting of NAVAREA III national coordinators held at the IHB (Monaco on 18 and 19 January 2006) had been very successful in reaching agreement on the relocation of one NAVTEX transmitter, the establishment of new

transmitters and the delimitation of service areas in the western Mediterranean, such that the mariner would be provided with a comprehensive and coordinated service.

5. IMO Resolution A. 888(21) - Criteria for the provision of mobile-satellite communication systems in the GMDSS

5.1 International Mobile Satellite Organization (IMSO) reported on the progress made within IMO on the revision of Resolution A. 888 (21) and expressed a hope that this would be concluded at Maritime Safety Committee (MSC) 82. The two main issues of concern to the CPRNW are: (a) that the conditions imposed on Inmarsat for the provision of GMDSS services in the current resolution should be applied to any new service provider because the requirements have not changed, and (b) the possible cost implications for NAVAREAs if they are required to route messages to and monitor the transmission from multiple service providers. The CPRNW urged its members to brief their maritime administrations on this matter prior to the discussion at IMO MSC 82.

6. GMDSS / MSI briefing

6.1 The Chairperson introduced the “WWNWS CD“, which had been updated from that first issued at CPRNW-7. The CD includes all information relative to the WWNWS in a single place, as well as presentations on the WWNWS, which can be used to promote the WWNWS and the provision of MSI. It was agreed that future editions should include the reports of CPRNW meetings where these are available digitally. All members of the CPRNW were invited to review the contents and pass comments to the Chairperson. The CD will continue to be given a wide and free distribution.

7. MSI Capacity Building Training Course

7.1 The Chairperson of CPRNW, together with the Chairperson and Secretary of the NAVTEX Coordinating Panel, reported on the work that had taken place in developing a training course on MSI, which would be delivered in the NAVAREA IV in early 2007. This course is part of the IHO Capacity Building Programme. A further course is planned for NAVAREA VII later in 2007.

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