

**6<sup>TH</sup> MEETING OF THE HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE  
Viña del Mar, Chile, 11-14 November 2014**

**Paper for Consideration by HSSC  
IMO activities affecting HSSC (including e-navigation)**

<b>Submitted by:</b>	IHB
<b>Executive Summary:</b>	This paper summarizes discussions and decisions taken by the IMO since HSSC-5 that may be relevant to the work of HSSC.
<b>Related Documents:</b>	<p>HSSC5-07.1A - <i>E-navigation development affecting HSSC</i>  HSSC5-07.2A - <i>IMO activities affecting HSSC</i>  IHO CL 41/2014 dated 27 May - <i>Preparation of the 1<sup>st</sup> session of the IMO Sub-Committee on Navigation, Communications and Search and Rescue.</i>  IHO CL 42/2014 dated 11 June - <i>Report of the 92<sup>nd</sup> session of the IMO Maritime Safety Committee.</i>  IHO CL 50/2014 dated 9 July - <i>Report on the 1<sup>st</sup> session of the IMO Sub-Committee on Navigation, Communications and Search and Rescue (NCSR 1).</i>  IHO CL 52/2014 dated 21 July - <i>Proposed submission on e-navigation to the 94<sup>th</sup> session of the IMO Maritime Safety Committee (MSC 94).</i>  NCSR 1/4 dated 25 April 2014 - <i>Preparation and implementation of revised ECDIS standards</i>  NCSR 1/4/1 dated 25 April 2014 - <i>Report on monitoring of ECDIS issues by the IHO</i>  NCSR 1/9 dated 28 March 2014 - <i>Report of the Correspondence Group on e-navigation</i>  NCSR 1/INF.6 dated 28 March 2014 - <i>List of Standards that could be evaluated for e-navigation</i>  NCSR 1/WP.8 dated 2 July 2014 - <i>Report of the drafting group on the finalization of draft circulars and resolution</i>  NCSR 1/28 dated 16 July 2014 - <i>Report to the Maritime Safety Committee</i>  MSC 94/3/1 dated 30 July 2014 - <i>Adoption of the International Code for Ships Operating in Polar Waters (Polar Code)</i>  MSC 94/18/2 dated 26 July 2014 - <i>Work Programme - Proposal for an unplanned output dedicated to modernization of ECDIS for VHF communication</i>  MSC 94/18/8 dated 15 August 2014 - <i>Work Programme - Development and implementation of e-navigation.</i></p>
<b>Related Projects:</b>	<p>HSSC Work Programme  Maintenance of IHO Publications and Services related to ENC and ECDIS.</p>

### Introduction

1. The principal IMO activities since HSSC-5 that may affect the work of HSSC arose from the 93<sup>rd</sup> session of the Maritime Safety Committee (MSC 93 - May 2014) and the 1<sup>st</sup> session of the IMO

Sub Committee on Navigation, Communications and Search and Rescue (NCSR 1) that met from 30 June to 4 July 2014. The IHO, as an accredited observer to the IMO, was formally represented by the IHB at these meetings. A number of representatives drawn from hydrographic offices also formed part of various national delegations.

2. As reported to IHO Member States in the relevant IHO Circular Letters (see related documents) IMO current activities relevant to HSSC cover four main subjects:

- E-navigation;
- ECDIS matters;
- AIS Aids to Navigation;
- Polar Code.

### **E-navigation**

3. As reported to HSSC-5, the IMO Correspondence Group (CG) on e-navigation continued its work under the coordination of Norway with the objective to finalize a draft strategy implementation plan (SIP) and to provide a consolidated final report to NCSR 1. The IHB continued contributing to the CG work on behalf of the IHO, as agreed at HSSC-5. The CG report submitted to NCSR 1 did include a draft SIP.

4. The NCSR endorsed the draft SIP (NCSR 1/28, annex 7) and agreed to forward it to the MSC for approval. The Sub-Committee endorsed also the draft Guidelines on Harmonization of [e navigation] test beds reporting (NCSR 1/28, annex 8) and agreed to invite the MSC to approve it. Furthermore, the NCSR agreed to establish a CG, coordinated by Australia, to combine and harmonize the draft Guidelines on: Human Centred Design (HCD) for e-navigation systems, Usability Testing, Evaluation and Assessment (UTEA) for e-navigation systems and Software Quality Assurance (SQA) into one single circular to avoid duplication and the need for cross-references. The report of this CG should be submitted to the second session of the Sub-Committee (NCSR 2).

5. In its consideration of the CG report, the NCSR focused mainly on the ways and means to implement the tasks identified in the draft SIP and did not discuss any detail of the SIP itself.

6. The draft SIP identifies a list of 18 tasks (T1 to T18) which would need to be performed during the 2015-2019 period in order to achieve the following five prioritized e-navigation solutions:

- S1: improved, harmonized and user-friendly bridge design;
- S2: means for standardized and automated reporting;
- S3: improved reliability, resilience and integrity of bridge equipment and navigation information;
- S4: integration and presentation of available information in graphical displays received via communication equipment; and
- S9: improved Communication of VTS Service Portfolio (not limited to VTS stations).

7. Four tasks of the draft SIP are of direct relevance to HSSC:

- T13: harmonization of the display of navigation information;
- T14: development of the Common Maritime Data Structure (CMDS) based on S-100;
- T16: harmonization of conventions and regulations for navigation and communication equipment;
- T17: development of the Maritime Service Portfolios (MSP).

The relevant deliverables, transition arrangements and implementation schedules are shown in Annex 1.

8. In accordance with action HSSC5/27, the IHB identified in its contribution to the CG on e-navigation that a revision of the ECDIS Performance Standards will be required to handle and display S-100 based products. This is not reflected in the information paper NCSR 1/INF.6 submitted by the CG coordinator which provides a list of Performance Standards developed by the IMO that could be evaluated in the development of the e-navigation strategy, to ensure that the Standards are suitable for a full e-navigation implementation. The ECDIS Performance Standards are listed as:

- E = may be used without modification to the existing standards
- F = future upgrade may be needed for interfacing
- P = presentation rules may apply

This issue should be revisited under tasks T14 and T16.

9. There were inconclusive discussions at NCSR 1 on the role of the IMO in coordinating the future development of e-navigation and how to proceed with the implementation of the SIP tasks.

10. This issue will be further discussed at MSC 94 with a specific submission, co-sponsored by the IHO, aimed at ensuring that the tasks identified in the SIP, if approved, are allocated, progressed and monitored in accordance with sound project management practices, and reflected in the IMO work programme in accordance with the relevant IMO procedures (see MSC 94/18/8).

11. The IMO/IHO Harmonization Group on Data Modelling (HGDM) established by MSC 90 to ensure the ongoing management and maintenance of the CMD5 is expected to be activated at some stage to progress with task T14 of the SIP.

12. Meanwhile, the HSSC is invited to ensure that the tasks listed in paragraph 6 are addressed through appropriate work items in the work plans of the relevant working groups.

13. Noting that the tasks listed in paragraph 6, notably tasks 14 and 17, would benefit from coordination with the on-going modernization of the Global Maritime Distress and Safety System (GMDSS), it is recommended that the HSSC liaise with the World-Wide Navigational Warning Service Sub-Committee (WWNWS-SC) when appropriate, taking into account any coordination mechanisms that may be established by the IMO between the implementation of e-navigation and the GMDSS modernization.

### **ECDIS Matters**

14. Two papers were submitted for the consideration of NCSR 1 in relation with the IMO unplanned output “Consideration of ECDIS matters related to the implementation of the carriage requirements in SOLAS regulations V/19.2.10 and V/19.2.11”:

- NCSR 1/4, submitted by the IHO, the CIRM and the IEC: Preparation and implementation of revised ECDIS standards;
- NSCSR 1/4/1, submitted by the IHO: Report on monitoring of ECDIS issues by the IHO.

15. The NCSR considered that no additional work was required beyond that which was underway and reported in the submissions, and decided that the unplanned output was therefore completed. The Sub-Committee agreed that any further developments could be reported in the future under “Any Other Business”. No adverse comments were raised by the Sub-Committee on the arrangements for the transition to the next editions of the ECDIS standards agreed at HSSC-5 and proposed in NCSR 1/4.

16. It is the intention of the IHB to continue reporting to NCSR, until the final milestone of the implementation schedule of the ECDIS carriage requirements (2018), on the following items:

- feedback from mariners and other stakeholders,
- status of ENC coverage, and
- status of ECDIS-related standards.

17. The NCSR considered and endorsed the draft MSC Circular on ECDIS - Guidance for good practice prepared by a number of Member States, in consultation with the IHB (NCSR 1/WP.8, Annex 1). The draft circular will be forwarded to the Sub-Committee on Human Element, Training and Watchkeeping (HTW) for review, in particular the provisions related to ECDIS training and the use of simulators, and subsequent approval by the MSC.

18. The Guidance refers to the relevant IHO Publications (including S-66 - *Facts about Electronic Charts and Carriage Requirements*) and to the IHO online ENC catalogue. The reference to the IHO catalogue inserted in the Guidance includes a specific reference to the provision of coastal State guidance on any requirements for back-up arrangements using paper charts. The HSSC is invited to consider ways and means of assisting Member States and the IHB in ensuring that the relevant information provided in the dedicated ENCs & ECDIS section of the IHO website and in S-66 is kept easy to use and current.

19. The NCSR revisited the unplanned output related to the development of an explanatory footnote to SOLAS regulation V/27, which requires that nautical charts and nautical publications be “adequate” and “up to date”. The footnote is intended to clarify those terms when ECDIS is used to meet the chart carriage requirements.

20. In the absence of new proposals which could attract sufficient support, the NCSR decided not to take any further action on this item and agreed that the appropriate mechanism to address the issue of ECDIS software updates would be to amend the relevant SOLAS Regulations. The NCSR agreed to invite the MSC to delete this unplanned output from its biennial agenda and invited Member Governments to submit proposals to the MSC for a new unplanned output on the development of appropriate amendments to SOLAS.

21. The NCSR endorsed the following “unified interpretation” of the ECDIS carriage requirement (see NCSR 1/28, Annex 22):

*Paper charts or ECDIS provided as the “back-up arrangement” may be used alternatively with the primary ECDIS, and not be limited to use only when the primary ECDIS is inoperable.*

22. This interpretation confirms views expressed at NAV 59 that SOLAS mandated the carriage of ECDIS but not its use ...

23. Following its submission to NAV 59 (see HSSC5-07.2A, paragraph 11), Ukraine invites MSC 94 to consider a proposal for an unplanned output related to the modernization of ECDIS for operation with VHF DSC (Digital Selective Calling) (see MSC 94/18/2).

### **AIS Aids to Navigation**

24. MSC 93 approved the circular MSC.1/Circ.1473 dated 23 May 2014 on the Policy on the use of AIS Aids to Navigation which had been endorsed by the former IMO Sub-committee on Safety of Navigation as reported to HSSC-5.

25. The WWNWS-SC has instructed NAVAREA Coordinators to monitor the use of AIS Aids to Navigation to ensure that there is no compromise of the WWNWS or any misuse of either system.

26. The consideration of the impact on the specification B-489 - *Automatic Identification System (AIS) and Virtual Aids to Navigation* of IHO Publication S-4 - *Regulations of the IHO for International Charts and Chart Specifications of the IHO* is included in the CSPCWG work plan with a target completion year of 2015.

### **Polar Code**

27. MSC 93 approved in principle the text of a mandatory Code for Ships Operating in Polar Waters (the Polar Code) and instructed the NCSR to complete its review of the parts of the draft Polar Code covering Safety of Navigation and Communications. The text submitted to MSC 94 for final endorsement and approval reflects the input of the IHB in making reference to the poor state of charting in the Polar Regions and the additional precautions necessary to mitigate some of the risks (see MSC 94/3/1, Annex, Part I-B, Additional Guidance to Chapter 9 (Safety of Navigation)).

28. The following precautions are recommended:

*10 ADDITIONAL GUIDANCE TO CHAPTER 9 (SAFETY OF NAVIGATION)*

...

*10.2 As the chart coverage of polar waters in many areas may not currently be adequate for coastal navigation, navigational officers should:*

- .1 exercise care to plan and monitor their voyage accordingly, taking due account of the information and guidance in the appropriate nautical publications;*
- .2 be familiar with the status of hydrographic surveys and the availability and quality of chart information for the areas in which they intend to operate;*
- .3 be aware of potential chart datum discrepancies with GNSS positioning; and*
- .4 aim to plan their route through charted areas and well clear of known shoal depths, following established routes whenever possible.*

29. It is suggested that the HSSC invites the relevant working groups to consider improvements to current IHO specifications or other actions which could facilitate the implementation of these recommendations.

**Action required of HSSC**

30. The HSSC is invited to:

- a. **Note** this report,
- b. **Consider** the following recommendations:
  - Paragraph 12: ensure that the tasks listed in the e-navigation strategy implementation plan (SIP) which are relevant to HSSC (see paragraph 6) are addressed through appropriate work items in the work plan of the relevant HSSC working groups;
  - Paragraph 13: liaise with the WWNWS-SC when addressing the tasks of the SIP which relate to the GMDSS modernization;
  - Paragraph 18: consider ways and means of assisting Member States and the IHB in ensuring that the information under the control of the IHO referred to in the ECDIS Guidance is kept easy to use and current;
  - Paragraph 29: invite the relevant working groups to consider improvements to current IHO specifications or other actions which could facilitate the implementation of the recommendations of the Polar Code related to charting issues.
- c. **Take any other actions** considered necessary.

**Annex 1**  
**Draft E-Navigation Strategy Implementation Plan**  
**Tasks relevant to HSSC**  
**Tasks, expected deliverables, transition arrangements and implementation schedule**  
**(Extract from NSCR 1/28, Annex 7, Table 7)**

<b>Task No</b>	<b>Task</b>	<b>Expected Deliverable</b>	<b>Transition Arrangements</b>	<b>Prioritised Implementation Schedule</b>
<b>T13</b>	Develop guidelines showing how navigation information received by communications equipment can be displayed in a harmonised way and what equipment functionality is necessary.	Guidelines on the harmonized display of navigation information received from communications equipment.	None	2019
<b>T14</b>	Develop a Common Maritime Data Structure and include parameters for priority, source, and ownership of information based on the IHO S-100 data model. Harmonization will be required for both use on shore and use on the ship and the two must be coordinated (Two Domains). Develop further the standardized interfaces for data exchange used on board (IEC 61162 series) to support transfer of information from communication equipment to navigational systems (INS) including appropriate firewalls (IEC 61162- 450 and 460).	(a) Guidelines on a Common Maritime Data Structure.  (b) Further develop the IEC standards for data exchange used onboard including firewalls.	None  Use latest IEC standards	2017  2019
<b>T16</b>	Investigate how the Harmonization of conventions and regulations for navigation and communication equipment would be best carried out. Consideration should be given to an all-encompassing e-navigation performance standard containing all the changes necessary rather than revising over 30 existing performance standards.	Report on the Harmonization of conventions and regulations for navigation and communication equipment would be best carried out.	None	2017
<b>T17</b>	Further develop the MSPs to refine services and responsibilities ahead of implementing transition arrangements.	Resolution on Maritime Service Portfolios.	National / Regional Arrangements	2019