

2nd IHO-HSSC Meeting
Rostock, Germany, 26-29 October 2010

Final Minutes

- Notes:
- 1) Paragraph numbering is the same as in the agenda (Annex D)
 - 2) A list of acronyms used in this report is provided at Annex A
 - 3) A list of actions agreed at HSSC-2 is provided at Annex E
 - 4) All documents referred to in these minutes are available from the HSSC page of the IHO website (www.iho-ohi.net/mtg_docs/com_wg/HSSC/HSSC2/HSSC2Docs.htm)

1. OPENING AND ADMINISTRATIVE ARRANGEMENTS

Docs. HSSC2-01A rev10	List of Documents
HSSC2-01B rev4	List of Participants
HSSC2-01C	HSSC – List of Contacts
HSSC2-01D	Terms of Reference for HSSC and related Working Groups

The second meeting of the IHO Hydrographic Services and Standards Committee (HSSC-2) took place at the City Hall of Rostock, Germany, from 26-29 October 2010. The Chair of HSSC (Capt Vaughan NAIL, UK) opened the meeting and welcomed all 62 participants, representing 26 Member States, seven Non-Governmental International Organizations (NGIOs) and the IHB. He introduced the Mayor of Rostock (Mr Roland METHLING) who expressed his pleasure that this was the second IHO technical committee meeting to be held in Rostock. The Chair then introduced Ms Monika BREUCH-MORITZ, President of the Bundesamt für Seeschifffahrt und Hydrographie (BSH) and host organisation for HSSC-2, who also welcomed participants. In her remarks, she pointed out the significance of ECDIS becoming mandatory for certain classes of vessels from 2012 and the implications for the new IHO S-100 standard which will be a key framework for chart-related data. Similar to past meetings, the Chair emphasized that success would be dependent upon the participation of all those attending the meeting. Dr. Mathias JONAS, BSH Director of Nautical Hydrography, further welcomed attendees and provided logistic details related to the meeting. Ing. en chef Michel HUET (IHB) served as Secretary and introduced the above documents. Dr. Lee ALEXANDER (IALA/IEHG) volunteered to serve as rapporteur and this was agreed by the Committee. Capt Robert WARD, IHB Director, represented the Bureau.

Outcome:

- The Committee noted the documents introduced.

2. APPROVAL OF AGENDA

Doc. HSSC2-02A rev10 Agenda and Timetable

The agenda was accepted with no changes.

Outcome:

- The Committee agreed the agenda.

3. MATTERS ARISING FROM MINUTES OF 1ST HSSC MEETING

Docs. HSSC2-03A	Minutes of HSSC-1
HSSC2-03B	Status of Actions List from HSSC1
HSSC2-03C	Status Report of RTCA Data Supply Chain Certification Correspondence Group (DSCC-CG)
HSSC2-03D	Status Report of the Correspondence Group on Definition and Length of Coastline (France)

There were no comments on the minutes of HSSC-1. The Secretary (HUET) reviewed the status of Actions from HSSC-1, noting that most actions were completed. Some pending actions were addressed later in the meeting. The following points were noted:

- Action HSSC1/6 (*Letter to IOC-WMO JCOMM inviting closer working relations with HSSC*) - IHB (WARD) reported that a Letter dated 24 October 2009 had been sent but no answer had been received by the IHB.
- Action HSSC1/2 (*Data Supply Chain Certification*) - RTCA (Mr Michael BERGMANN) reported on the work of the Data Supply Chain Certification Correspondence Group by referring to paper HSSC2-03C and through a visual [presentation](#). He said that the S-100 framework does not specifically address synchronization across data streams and the supply chain, and recommended that an HSSC working group be formed to develop a suitable standard, which would span the full supply chain, ensuring the timely and quality assured delivery of all data required for safe navigation.

Concerns were expressed by several MS about this proposal. Singapore (Dr Parry OEI) wondered what impact a data supply chain would have on data quality and whether all HOs should be ISO-certified. UK (Mr Peter JONES) questioned what would be the relationship between the proposed WG and the existing DQWG. Australia (Mr Michael PRINCE) felt effort should be more on a 'product' – rather than 'data' -supply chain, and that this may be best handled on a local basis. USA (Mr David ENABNIT) believed that supply chain certification was not an issue that users have expressed concern about and that a new working group on this matter might become an additional drain on IHO/HSSC limited resources. Further, he did not believe that synchronicity, e.g. between paper charts and ENC's, was an urgent issue to address, and that this may be better handled in due course as part of the e-Navigation concept. SNPWG Chair (Mr David ACLAND, UK) supported these views. He suggested there were other issues related to the distribution of other types of nautical publications.

Germany (JONAS) supported the establishment of such a working group, but with different Terms of Reference, noting that IHO has already established a data quality model; that there will be combined datasets under the concept of e-Nav; and that metadata may not be well reflected under this type of process. Australia (PRINCE) pointed out that current IMO carriage requirements require the use of specific products (charts) rather than data services, which might need some form of data chain certification in the future.

The Chair suggested that this proposal might be ahead of its time. It may be more important to get the basics in place first. Synchronization may not really be an issue. However, he noted that HOs have less direct control on the presentation of data in ENC's than in paper charts and this matter must be addressed. On balance, the current arrangements are sufficient and a new working group within HSSC on data supply chain certification is not needed at this time. This was agreed.

- Action HSSC2/3 (*Length of Coastline*) – France (Ing en chef Jean-Luc DÉNIEL) provided a brief report on the progress made so far by the Correspondence Group on Definition and Length of Coastline, led by France (see HSSC2-03D). He mentioned that there were significant challenges in dealing with this issue, both from a technical and practical point-of-view. The Chair expressed the hope, although there were no simple answers, that this work could be completed before the next HSSC meeting.

Outcome:

- The Committee agreed the Minutes of HSSC-1 as a true record.
- The Committee noted the list of actions reviewed.
- The Committee noted the contents of the papers HSSC2-03C and HSSC2-03D.
- The Committee considered that current arrangements for products were sufficient at this stage and that resources should continue to focus on improving quality assurance for certified products rather than on certified data streams as proposed in paper HSSC2-03C.
- The Committee decided not to establish a Data Supply Chain Certification Working Group (DSCCWG).

- The Committee thanked the Chair of the DSCC-CG and its members for their thought-provoking efforts and to consider bringing their ideas forward again in the future.
- The Committee invited the Correspondence Group on the Definition and Length of Coastline to complete its work by HSSC-3.
- **Action HSSC2/1 - Correspondence Group on the Definition and Length of Coastline**, led by France, to complete its work by HSSC-3.

4. HSSC ADMINISTRATION

A. HSSC Input to IHO Strategic Planning Process

Doc. HSSC2-04A HSSC Input to IHO Strategic Planning Process (IHB)

IHB (WARD) explained the overall basis for the IHO Strategic Planning Process. The main aspects of that process are Risk Management, Performance Indicators (PIs) and input to the IHO Strategic Plan. One important task is the performance monitoring process of the IHO Work Plan and it would be useful if HSSC could provide specific recommendations on how this could be achieved in practical terms.

Several MS expressed the view that the strategic planning process should be simplified. USA (RAdm Christian ANDREASEN) noted that the Strategic Plan provides 'What' needs to be done, while the Work Plan is more related to 'How' it should be done. Singapore (OEI) suggested that there are useful indicators which need to be identified and followed. He believed that IHO standards should be reviewed on an annual basis to ascertain that they are furthering IHO objectives. Saudi Arabia (RAdm SRINIVASAN) expressed concerns about the cost, in terms of time and effort, for MS with limited resources to implement complex reporting processes. Germany (JONAS) suggested that consideration of this process, in connection with the IHO's work on standards, could be a standing agenda item for HSSC. Canada (Dr Savithri NARAYANAN) believed that performance indicators are essential but it is necessary to find the right number and mix of indicators. Additionally, clear and relevant high-level indicators may be useful to Member States in their home context to demonstrate an effective IHO. USA (ENABNIT) expressed concern that the process may be reversed in terms of who actually decides what the IHO strategic plan becomes in that it should originate with the MS, the conference, and the Strategic Planning Working Group (as reconstituted) and then flow to the HSSC – not the reverse.

The Chair summarized that performance indicators are important and need to be considered. He suggested that a small drafting group be formed during the meeting to review the IHB Directing Committee submission (HSSC2-04A) and propose a list of PIs from HSSC. This was supported. Canada, Australia, Latvia, Singapore and the chairs of the HSSC working groups volunteered for this task. At a side meeting, they developed a table with five suggested HSSC PIs (see Annex G), which was then agreed in plenary.

Additionally, the Chair asked all MS and NGOs represented at HSSC-2 to provide the Secretariat with what they considered to be the three most important strategic technical issues that IHO will face between 2012 and 2017. This resulted in a list of strategic issues identified at HSSC-2 (see Annex H) and a summary table emphasizing those most important strategic issues (see Annex I).

Outcome:

- The Committee noted the matters raised in this paper.
- The Committee agreed that the proposed IHO strategic planning and performance monitoring mechanism requires simplification.
- The Committee agreed a list of 5 PI's that the Directing Committee may wish to propose to MS as appropriate to monitor the performance of the HSSC and its associated programmes (see Annex G).
- The Committee compiled a list of strategic and work programme issues that the Directing Committee may wish to consider in the formulation of the draft 2012-2017 strategic plan and associated work programme (see Annexes H and I).

B. Revision of IHO Resolution 2/2007

Doc: HSSC2-04B Revision of IHO Resolution 2/2007 (formerly, A1.21) - Standardised Development, Consultation and Approval Procedures for IHO Technical Standards (IHB)

IHB (WARD) explained that the overall aim of the proposed changes to Resolution 2/2007 is to achieve a standardized process for the development and approval of new and changed IHO technical standards.

CIRM (Mr Michael RAMBAUT) believed that this is an important process that needs to be fully understood and followed, including the impact on external stakeholders. He sought clarification on who can make a proposal and IHB (WARD) responded that the mechanism for who can propose a work item and how is already part of the HSSC business rules. Following a request from RTCA (BERGMAN) about 'feedback loops' for work items that may not be approved, USA (ANDREASEN) pointed out that para. 3.2.2 of the proposed revised Res. 2/2007 addresses this matter. Germany (JONAS) remarked that the term 'urgent amendments' in para. 4 of the paper is not consistent with other parts of the paper. The Chair clarified that it should be changed to 'urgent revisions'.

All actions required of HSSC, as in paper HSSC2-04B, were supported by the Committee.

Outcomes:

- The Committee noted the paper.
- The Committee agreed the overall framework for the development, consultation and approval procedures described in this proposal.
- The Committee approved the list at Annex D of paper HSSC2-04B of existing and anticipated IHO publications that will be considered as Standards.
- The Committee agreed that the approval process for the extensive and ongoing revision of S-4 remains unchanged until the current revision task is completed (estimated to complete in 2012).
- The Committee recommended to MS the proposed amendments to IHO Resolution 2/2007 as set out in Annexes B and C of HSSC2-04B.
- **Action HSSC2/2 - IHB** to seek MS adoption of amendments to IHO Resolution 2/2007 *Principles and Procedures for making changes to IHO Technical Standards and Specifications.*

Presentation: 'The Port ENC' by Mr Dieter SEEFELDT, Hamburg Port Authority, Germany.

Doc: HSSC-INF4 The Port ENC - a proposal for a new port related ENC standard

Mr SEEFELDT gave his [presentation](#) at the beginning of the 2nd day.

The Chair commented that this type of initiative was good and supplemented the approach and harbour ENCs produced by HO's. On request from Turkey (LCdr Bülent GÜRSES), Mr SEEFELDT indicated that the budget for the Port ECDIS project was about 400,000 Euros.

USA (ANDREASEN) explained that NGA was also making port charts that conform to WGS-84, by using high-definition imagery. He believed that 'flash Lidar' was something that could be used for that purpose. Singapore (OEI) commented that changes in shore-side development are an important issue and could become part of a Port ENC.

Germany (JONAS) expressed concerns about the status of the Port ENC Product Specification, and the possible perception that official ENCs are of lower quality. He had also concerns about harbour administration in effect becoming mini-HO's producing an alternative type of ENC. He pointed out that the Pilot is an advisor to the Master, and if they are using customized port ENCs with different bathymetry from that in the ENC, this may cause a problem. In his view, if a national HO was provided with the accurate topographic and hydrographic data being included in port ENCs, then that HO could produce a similar type of large scale ENC. He also expressed concern about having two types of ENCs, i.e. official ENCs and port ENCs.

The Chair noted that this presentation pointed out the need for further extension of S-44 and S-57 (CATZOC) to

cater for the higher accuracy and precision of data contained in Port ENC's.

Outcome:

- The Committee noted the paper and the contents of the presentation.

5. REPORTS BY HSSC WORKING GROUPS

5.1 Transfer Standard Maintenance and Application Development (TSMAD)

A. TSMAD Report

Doc. HSSC2-05.1A Report and Recommendations of TSMAD

TSMAD Chair (GREENSLADE) introduced the report and [gave a presentation](#) on TSMAD activities over the past year.

TSMAD Chair indicated that, in the future, it is expected that type-approval should focus more on processes rather than data. USA (ENABNIT) mentioned that a contract with ESRI to develop an S-57 → S-101 converter should be awarded during the week of the meeting. He asked how OEMs will be encouraged to implement S-101 test-beds. TSMAD Chair answered that an S-101 viewer may be the easiest route. He also felt that modifying existing software systems was a better and more effective approach than starting from new.

The Chair stated that testing of the new standards is very important. Practical solutions are needed and should be brought to the attention of TSMAD. Further, such solutions will require funding to establish test-beds.

Denmark (Mr Jens Peter HARTMANN) expressed concern about how existing production software can deal with new objects, e.g. EXP-SOU and caution areas. Upgrading or buying new software is one thing, but mariners may also encounter alarms that they are unfamiliar with. There is a need to investigate the impact of alarms in ECDIS caused by new objects.

The Chair commented that the cost of production software upgrades arising from changes to standards is a concern, as well as the downstream impact of any changes on ECDIS performance. He proposed that all TSMAD recommendations, including publication of S-58 version 4.2, be supported. This was agreed.

Outcomes:

- The Committee noted the report and the presentation.
- The Committee recommended to MS the adoption of S-58 v4.2
- The Committee agreed that the TSMAD WG continue its work under its existing Terms of Reference.
- The Committee approved the TSMAD work plan as submitted in HSSC2-05.1A.
- **Action HSSC2/3 - IHB** to seek MS adoption of S-58 v4.2 *Recommended ENC Validation Checks*.

B. Draft IHO Publication S-99

Doc. HSSC2-05.1B Draft IHO Publication S-99: IHO Geospatial Information Registry - Structure, Organization and Management (IHB and TSMAD Chair)

IHB (WARD) [gave a two-part presentation](#) on both S-100 and S-99.

Chair commented that S-99 is an important new publication and felt this is a suitable mechanism for the implementation of S-100.

USA (ENABNIT) commented that the proposal for Domain Control Bodies has no chair or coordinator. Also, the Executive Control Body is too large, and should be perhaps only 3 persons. IEHG (Mr Bernd BIRKLHUBER) felt that three persons in the Executive Control Body would not enable each Domain Owner to participate. Saudi

Arabia (SRINIVASAN), although in favour of the proposal, felt there may be a need to extend the 30-day time period (answer: this is possible if there is an objection). Also, he wondered whether there could be any legal liabilities if IHO was to refuse to include a submission (answer: it will be the users of the Registry, not IHO, that determine what is necessary).

TSMAD Chair (GREENSLADE) commented that the concept of the GI Registry enabled it be open and freely extensible. The main role for a Control Body is to prevent duplication of entries and to decide when a submission becomes active, rather than to act as the gatekeeper to decide on the acceptability of proposals.

The Chair summarized that the above issues are related to practical usage of the Registry, any necessary fine tuning could be addressed in future revised editions of S-99. He recommended that the draft standard S-99, as proposed, be endorsed. This was agreed.

Outcomes:

- The Committee noted the paper and the presentation.
- The Committee endorsed the draft IHO publication S-99: *IHO Geospatial Information Registry - Structure, Organization and Management*.
- The Committee recommended to MS the adoption of S-99 as a new IHO Publication.
- **Action HSSC2/4 - IHB** to seek MS adoption of S-99 *IHO Geospatial Information Registry - Structure, Organization and Management*.

C. Procedure to deal with encoding issues

Doc: HSSC2-05.1C Recommendations for the procedure used to deal with encoding issues (TSMAD)

TSMAD Vice Chair (Ing en chef Jean-Luc DÉNIEL, France) [gave a presentation](#) on recommendations for the procedure used to deal with encoding issues.

Australia (PRINCE) suggested that some further refinements to the flow diagram might be needed. USA (ENABNIT) asked for clarification regarding where any new issue would first be considered, e.g. a safety issue? (Answer: first to IHB, then to TSMAD). He also asked about the role of IHB in recommending any possible technical solutions? (Answer: any IHB recommendations would be referred to TSMAD). RTCA (BERGMANN) suggested that any Encoding Bulletin should not be cancelled before it is entered in the 'Use of the Object Catalogue'.

The Chair suggested that the proposed procedure be endorsed, with minor changes. This was agreed.

Outcomes:

- The Committee noted the paper and the presentation.
- The Committee endorsed the proposal in HSSC2-05.1C for the procedures used to deal with encoding issues, taking into account minor changes to flow diagram agreed at the meeting.
- **Action HSSC2/5 - TSMAD** to incorporate process diagram for dealing with encoding issues in its business rules.

D. Reopening of Use of the Object Catalogue for ENC

Doc. HSSC2-05.1E Reopening of Use of the Object Catalogue for ENC (TSMAD Chair)

TSMAD Chair (GREENSLADE) [gave a presentation](#) on a TSMAD recommendation that IHO S-57 Appendix B.1, Annex A *Use of the Object Catalogue for ENC* be un-frozen and all elements of other documents pertaining to the consistent encoding of ENCs be incorporated herein.

The Chair felt that this proposal was basic house-keeping to make existing guidance material more easily accessible to users. However, while this should be a helpful change for HOs, the IHO should also consider the

views of OEMs regarding implementation. There could also be implications for retro-active changes on both producers and users sides.

Australia (PRINCE), supported by Canada (Mr Sean HINDS), expressed support for the proposal. It is important that there is one single location for the best available advice and information, and there is benefit in consolidating the various Encoding Bulletins. RTCA (BERGMANN) pointed out that ISO 9001 requires that all changes to standards are maintained and published in a consolidated form, such as was being proposed by the TSMAD Chair.

The Chair summarized that there was general support to endorse this proposal.

Outcomes:

- The Committee noted the paper and the presentation.
- The Committee recommended to Member States that S-57 Appendix B.1, Annex A *Use of the Object Catalogue for ENC* be un-frozen and maintained under the rules documented in IHO Resolution 2/2007.
- The Committee agreed that TSMAD prepare a revised version of S-57 Appendix B.1, Annex A *Use of the Object Catalogue for ENC* by incorporating all outstanding encoding bulletins and other relevant extant material.
- **Action HSSC2/6 - TSMAD** to prepare a revised version of S-57 Appendix B.1, Annex A *Use of the Object Catalogue for ENC* by incorporating all outstanding encoding bulletins and other relevant extant material.
- **Action HSSC2/7 - IHB** to seek MS approval to unfreeze S-57 Appendix B.1, Annex A *Use of the Object Catalogue for ENC* and to adopt the revised version prepared by TSMAD.

5.2 Data Protection Scheme (DPSWG)

A. DPSWG Report

Doc. HSSC2-05.2A Report and Recommendations of DPSWG

DPSWG Chair (Mr Jonathan PRITCHARD, UK) introduced the report describing the activities of DPSWG during the past year.

There were no comments or questions. All proposed new items in the DPSWG work plan were approved.

Outcomes:

- The Committee noted the report.
- The Committee agreed that the DPSWG continue its work under its existing Terms of Reference.
- The Committee approved the DPSWG work plan as submitted in HSSC2-05.2A, including:
 - to monitor adoption of S-63 edition 1.1.1 by OEMs and Data Servers and to respond to industry queries;
 - to continue the work of supporting S-63 users; and
 - to commence definition of S-63 edition 2.0.

B. Proposed amendments to S-63

Docs. HSSC2-05.2B Proposed Amendment to S-63 (Greece)
HSSC2-05.2C Comments on paper HSSC2-05.2B (IC-ENC)

IHB (WARD) introduced paper HSSC2-05.2B, from Greece, that proposed an amendment to the IHO S-63 Data Protection Scheme in order to include Academic Research Users as a special class of users of the S-63 scheme. In particular, the proposal sought a waiver to the requirement for annual renewable licences for data. DPSWG Chair (PRITCHARD) introduced HSSC2-05.2C, from IC-ENC, highlighting a number of issues related to the Greek proposal.

The Chair felt that a technical solution was possible to accommodate academic users' needs, but it was really a policy matter which may be outside the HSSC remit. Canada (NARAYANAN) agreed that it is not up to HSSC to decide on policy-related issues. Each State needs to make its own decision as to how its data and license can be distributed. Germany (JONAS) and Singapore (Mr Ying-Huang THAI LOW) supported these views. Such requests should come directly to the national HO.

The Chair summarized that interested academic users should contact HOs to agree on licensing terms for ENC use. This is not a matter for HSSC to decide.

Outcomes:

- The Committee noted the two papers.
- The Committee considered that licensing terms for ENC data should not be part of S-63 and should be addressed directly to supplying ENC producer authorities.
- **Action HSSC2/8 - IHB** to inform Greece of the decision that licensing terms for ENC data should not be part of S-63 and should be addressed directly to supplying ENC producer authorities.

5.3 Digital Information Portrayal (DIPWG)

Doc. HSSC2-05.3A Report and Recommendations of DIPWG

DIPWG Chair (Mr Colby HARMON, USA) [gave a presentation](#) on DIPWG activities during the past year.

RTCA (Bergmann) commented that the work done on Chart 1 was a good example of improved communications with NGOs. Australia (PRINCE) drew attention to the need for DIPWG and TSMAD to identify which S-52 items should / should not be included in S-100 and/or S-101.

Referring to the issue of Land Area Point Object detection, Germany (JONAS) pointed out that land should be encoded as an area – not a point. TSMAD Chair (GREENSLADE) commented that it would be a difficult task for HOs to retrieve LNDARE point objects from ENCs and re-encode them as areas. DIPWG Chair (HARMON) felt this was more an ECDIS matter, rather than an S-52 issue.

The Chair summarized that the solution exists within S-52. When further communications are required, this should occur between HOs, the WGs and Industry. All proposed changes to the DIPWG work plan were approved.

Outcomes:

- The Committee noted the report and the presentation.
- in relation to the operation of ECDIS and concerns related to the detection of the object LNDARE, the Committee noted that the S-52 standard already contains appropriate guidance for ECDIS OEMs.
- The Committee agreed that the DIPWG continue its work under its existing Terms of Reference.
- The Committee approved the DIPWG work plan as submitted in HSSC2-05.3A, with the exception that work item F.3 be modified to read, "Assist TSMAD in identifying which aspects of S-52 should be incorporated into S-100 and S-101".
- The Committee recommended that Presentation Library funds be used to continue progress on the development of the S-100 Geospatial Information Portrayal Register.
- **Action HSSC2/9 - IHB** to finance continuing development of the S-100 Geospatial Information Portrayal Register using Presentation Library funds.

Presentation 'A 3-D Nautical GIS' by Dr Thomas PORATHE, Mälardalen Univ., Sweden.

Doc: HSSC2-INF5 A 3-D Nautical GIS

Dr PORATHE gave a [presentation](#) at the beginning of the 3rd day. This was preceded by a [presentation on the EU project BLAST](#) (Bringing Land and Sea Together) by Mr Jens SCHRÖDER-FÜRSTENBERG, BSH.

RTCA (BERGMANN) pointed out some limitations of 3-D displays that should be considered. USA (ANDREASEN) mentioned that the USA Department of Defense (DOD) has produced 3-D displays for situational awareness, maritime domain awareness, and training of reservists (called “Global Port Infrastructure”), which may become available for academic use. To Saudi Arabia (SRINIVASAN)’s question on how difficult is it to produce 3-D data, Dr PORATHE answered that this is a major limitation.

Outcome:

- The Committee noted the paper and the contents of the presentations.

5.4 Standardization of Nautical Publications (SNPWG)

Doc. HSSC2-05.4A Report and Recommendations of SNPWG

SNPWG Chair (ACLAND) introduced the report describing the activities of SNPWG during the past year.

The Chair commented that the work of the WG is an important effort in terms of how ancillary information is provided to ECDIS. To Denmark (HARTMANN)’s question on what format(s) should be used to provide information that is not in an ENC, SNPWG Chair mentioned XML and gridded format as possible options. TSMAD Chair (GREENSLADE) questioned whether SNPWG should develop the data model, as shown in the BLAST presentation. SNPWG Chair answered that there are ports and terminal level information that needed to be looked at. Also, data modelling is included in the SNPWG work plan. On request from Singapore (OEI), SNPWG Chair clarified that marine notices may fall under SNPWG work, depending on the type and source of the data.

RTCA (BERGMANN) mentioned that the display of non ENC information is being looked at by the Information Portrayal WG of the IALA eNAV Committee. Also, both a secondary display and multi-function display (composite task-oriented display) are already mentioned in the relevant IMO & IEC standards, i.e. MSC 191(79) and IEC 68822.

Outcomes:

- The Committee noted the report.
- The Committee agreed that the SNPWG continue its work under its existing Terms of Reference.
- The Committee approved the SNPWG work plan as submitted in HSSC2-05.4A.

5.5 Chart Specifications and Paper Charts (CSPCWG)

Doc. HSSC2-05.5A Report and Recommendations of CSPCWG

CSPCWG Chair (JONES) introduced the report describing the activities of CSPCWG during the past year.

Canada (HINDS) asked whether something had been done to chart “virtual AtoN”. Referring to IHB circular letter 67/2010, CSPCWG Chair explained that CSPCWG had developed suitable specifications and symbols for including Virtual AtoN on paper charts, currently under consideration by MS, further noting that the use of Virtual AtoN has yet to be considered by IMO. On request from RTCA (BERGMANN), he confirmed that the IEC 62288 standard was taken into consideration in defining the Virtual AtoN chart symbols.

CIRM (RAMBAUT), recalling that IMO has not yet accepted the concept of Virtual AtoN, felt there could be confusion as to what actually exists. On the other hand, AIS Application Specific Messages (ASM) could be an effective means to indicate the location of wrecks that are not at a fixed location.

Outcomes:

- The Committee noted the report.
- The Committee agreed that the CSPCWG continue its work under its existing Terms of Reference.

- The Committee approved the CSPCWG work plan as submitted in HSSC2-05.5A.

5.6 Data Quality (DQWG)

A. DQWG Report

Doc. HSSC2-05.6A *Report and Recommendations of DQWG*

UK (JONES) introduced the report on behalf of the DQWG Chair (Mr Chris HOWLETT, UK) describing the activities of DQWG during the past year. He mentioned that this WG has struggled to make progress. This is partially due to the difficulty of the topics addressed.

Finland (Mr Juha KORHONEN) agreed that the progress of this WG has been slow. No meeting was held this past year. The issues are complex and difficult to address by correspondence. Many participants are so-called *expert contributors* rather than IHO delegates. The DQWG work plan is important and he felt that more guidance should be provided to ensure progress.

TSMAD Chair (GREENSLADE) mentioned that DQWG was activated to help progress S-100. It is important that it make progress in achieving its work. There were some good ideas provided by mariners at the S-101 Stakeholders Workshop (Taunton, UK, March 2010) that need to be addressed. Canada (HINDS) pointed out that the recent groundings in Norway and Canada mean that HOs may be liable for the information shown on a nautical chart. As such, there is a need for a consistent, standardized data quality indicator on a chart.

The Chair asked if there were any persons who planned to participate in the DQWG meeting to be held on 5 November in Rostock, i.e. immediately following Hydro 2010. (Answer: Finland). France (DÉNIEL) commented that they did not plan to attend a short one-day meeting. The Chair believed this work is important for S-101. He suggested that a more formal approach may be needed.

IALA (ALEXANDER) mentioned the following three issues that relate to the DQWG work:

- Uncertainty Workshops are held each year at US and Canadian Hydrographic Conferences.
- Research studies indicate that there are no effective means to display “what is not known”.
- Uncertainty is being looked at by the Information Portrayal WG of the IALA eNAV Committee.

The Chair summarized that this work needs to continue, under the proposed work plan. DQWG was asked to develop a more formal meeting schedule.

Outcomes:

- The Committee noted the report.
- The Committee noted the slow progress made so far by the WG and encouraged its members to take active steps to advance its work including holding a formal meeting in early 2011.
- The Committee agreed that the DQWG continue its work under its existing Terms of Reference.
- The Committee approved the DQWG work plan as submitted in HSSC2-05.6A.
- **Action HSSC2/10 - DQWG** to hold a formal meeting (probably in UK) in early 2011 to determine a way ahead and to accelerate the rate of progress on its work programme.

B. Minimum standard necessary for safe navigation

Doc. HSSC2-05.6B *Minimum standard necessary for safe navigation (Sweden)*

Sweden (Mr Ralf LINDGREN) [gave a presentation](#) on “Minimum Standard Necessary for Safe Navigation”, as a result of Action HSSC2/26.

UK (JONES) said he was not certain how these issues can be addressed by DQWG, or any other WGs. Australia (PRINCE) believed that this is a significant problem. A simple yes-no answer is not acceptable. A data qualifier is needed and is dependent on the situation, e.g. draft of vessel, sea floor classification, depth, etc. UK (JONES) commented that there needs to be the realization that uncertainty, confidence, reliability, quality, etc. are all

subjective assessments. Denmark (HARTMANN) believed that we are going into a “grey zone”. There is no way to guarantee that the data is what is needed. This is something that the mariner must decide. There is already a lot of information available, e.g. source diagrams or CATZOC.

The Chair summarized that this is an important issue. Mariners rely on what information is on the chart. A simple yes-no is not sufficient. The concept of this paper should be considered by the DQWG. This was agreed.

Outcomes:

- The Committee noted the content of the paper on a minimum standard necessary for safe navigation (MSNFSN) and the presentation.
- The Committee agreed that the DQWG should consider the MSNFSN concept during its deliberations.
- **Action HSSC2/11 - DQWG** to consider paper HSSC2-05.6B *Minimum standard necessary for safe navigation (MSNFSN)* during its deliberations.

5.7 Marine Spatial Data Infrastructure (MSDIWG)

A. MSDIWG Report

Docs.	HSSC2-05.7A	<i>Report and Recommendations of MSDIWG</i>
	HSSC2-05.7C	<i>Associating 4 supporting Marine SDI Documents with C-17 (MSDIWG Chair)</i>
	HSSC2-INF3	<i>MSDI Activities in various Member States – MSDI Capacity Building (MSDIWG Chair)</i>

USA (ENABNIT) introduced the report describing the activities of MSDIWG during the past year, on behalf of the MSDIWG Chair (Ms Maureen KENNY, USA) not attending. He also presented the associated two papers.

IHB (WARD) proposed that the four documents referred to in HSSC2-05.7C could become Annexes to C-17. This was agreed.

Netherlands (Mrs Ellen VOS) remarked that the INSPIRE work will likely lead to new Product Specifications. France (DÉNIEL) and Germany (JONAS) mentioned that SHOM and BSH, respectively, are working in this area. Singapore (OEI) inquired about the possibility of conducting MSDI workshops using CBC funds. Latvia (Mr Janis KRASTINS) commented that this is already being done. Singapore (OEI) pointed out that the lead time to obtain approval for CB funding is slow.

Outcomes:

- The Committee noted the report and the associated two papers.
- The Committee agreed that the MSDIWG continue its work under its existing Terms of Reference.
- The Committee approved the MSDIWG work plan as submitted in HSSC2-05.7A.
- The Committee recommended to MS that the relevant supporting MSDI documents on the IHO website be incorporated as appendices of C-17 *Spatial Data Infrastructures: “The Marine Dimension” - Guidance for Hydrographic Offices*.
- The Committee encouraged all MS to ensure that existing IHO standards are brought to the attention of relevant SDI organisations to prevent duplication or development of competing geospatial standards.
- **Action HSSC2/12 - IHB** to post supporting MSDI documents more prominently on the IHO website.
- **Action HSSC2/13 - IHB** to seek MS adoption of a revised C-17 *Spatial Data Infrastructures: “The Marine Dimension” - Guidance for Hydrographic Offices*, incorporating supporting MSDI documents as appendices.

B. UN Committee on Global Geographic Information Management

Doc.	HSSC2-05.7B	<i>Report on the 2nd Preparatory Meeting for the Proposed UN Committee on Global Geographic Information Management - UNCGGIM (IHB)</i>
------	-------------	--

IHB (WARD) introduced this report.

Saudi Arabia (SRINIVASAN) asked if it is the aim of UNCGGIM to also address coastal land issues. IHB (WARD) responded that the IHB will continue to emphasize the maritime and littoral domains in global SDI initiatives being coordinated under the UN. Thailand (Capt Nattavut PRATEEPAPHALIN) mentioned that Thailand was currently working on 12 geographic information layers, including hydrography.

Chair summarized that IHO should continue its engagement in the UN process to ensure that IHO interests are taken into consideration.

Outcomes:

- The Committee noted the report.
- The Committee encouraged the IHB to continue to promote the IHO and its role in MSDI at the UNCGGIM preparatory meetings.

5.8 Tidal and Water Level (TWLWG)

Doc. HSSC2-05.8A Report and Recommendations of TWLWG

TWLWG Chair (Mr Stephen GILL, USA) introduced the report describing the activities of TWLWG during the past year.

On request from Singapore (OEI), TWLWG Chair indicated that the T&WL Training Course is still being developed.

Outcomes:

- The Committee noted the report.
- The Committee approved that the TWLWG continue its work under its existing Terms of Reference.
- The Committee approved the TWLWG work plan as submitted in HSSC2-05.8A.

5.9 Hydrographic Dictionary (HDWG)

Doc. HSSC2-05.9A Report and Recommendations of HDWG

USA (ENABNIT) introduced the report describing the activities of HDWG during the past year, on behalf of the HDWG Chair (Mr. Jerry MILLS, USA) not attending.

The Chair made specific reference to the "Items of Other Note" on page 2 of the report (old 'index' numbers of definitions). He also proposed that all definitions at Annex C to the report be endorsed by the meeting. This was agreed.

Outcomes:

- The Committee noted the report.
- The Committee agreed that the HDWG continue its work under its existing Terms of Reference.
- The Committee approved the HDWG work plan as submitted in HSSC2-05.9A.
- The Committee endorsed the draft definitions as set out in HSSC2-05.9A Annex C and invited the IHB to circulate these to Member States for adoption.
- The Committee instructed all HSSC subsidiary bodies and recommended to the IRCC that references to definitions in the Hydrographic Dictionary (S-32) should only refer to S-32 and the definition itself and should not make cross-reference to the old "index" numbers that appeared in the printed versions of S-32.
- **Action HSSC2/14 - IHB** to seek MS adoption of revisions to the Hydrographic Dictionary (S-32)

- **Action HSSC2/15 - All HSSC working groups** should review relevant documents, as opportunity arises, to ensure that they only refer to S-32 and the relevant definition itself and should not make any cross-reference to the old “index” numbers that appeared in the printed versions of S-32

- **Action HSSC2/16 - IHB** to inform IRCC that HSSC recommends that all IRCC bodies should only refer to S-32 and the relevant definition itself and should not make any cross-reference to the old “index” numbers that appeared in the printed versions of S-32

5.10 ENC Updating (EUWG)

Doc. HSSC2-05.10A Report and Recommendations of EUWG

EUWG Vice Chair (Mr Richard COOMBES, UK) [gave a presentation](#), via telephone, on the EUWG activities during the past year, on behalf of the EUWG Chair (Mr Yves LE FRANC, France) not attending..

At the request of the Chair, EUWG Vice Chair clarified that ‘S-52 Appendix 1’ was the most important work item being addressed by EUWG.

TSMAD (GREENSLADE) mentioned that, should the “Use of the Object Catalogue for ENC” be re-opened, as agreed by HSSC, then S-65 may no longer need to deal with ENC updating to a great extent. On behalf of CNITA (Mr Willem AMELS) – who had to leave the meeting earlier - Netherlands (VOS) reported that there is still some confusion on the use of T&Ps. The Chair commented that it is important that HOs understand the new guidelines and suggested that the IHB emphasize their usage to MS. This was agreed.

On request from USA (HARMON), it was clarified that S-52 Appendix 1 will remain in force for the time being, as this document is referenced in IMO MSC.232(82) and IEC 61164. However, it is intended that S-52 Appendix 1 be eventually retired.

Outcomes:

- The Committee noted the report and the presentation.
- The Committee agreed that the EUWG continue its work under its existing Terms of Reference.
- The committee approved the EUWG work plan as submitted in HSSC2-05.10A.
- The Committee requested IHB to survey Member States regarding application of the recently approved (October 2009) *Guidelines for Encoding T&P ENC Updates* to establish the status of production of T&P ENC updates for each nation.
- **Action HSSC2/17 - IHB** to survey Member States regarding application of the recently approved *Guidelines for Encoding T&P ENC Updates* (Annex B to S-65 Edition 1.2, October 2009) to establish the status of production of T&P ENC updates for each nation.

6. INTER-ORGANIZATIONAL BODIES

6.1 Inland ENC Harmonization Group (IEHG)

Doc. HSSC2-06.1A Status Report on Inland ENC Development and Standardization (IEHG)

IEHG Co-Chair (BIRKLHUBER) [gave a presentation](#) on IEHG activities during the past year.

On request from USA (ENABNIT), IEHG Co-Chair clarified that Inland ENC coverage is almost complete in Europe and the USA; it is substantial in Russia and under development in other regions. He further indicated that an S-58-like document for checking Inland ENCs, intended for IENC producers – not IENC users, had been finalized and was waiting for implementation into software tools. USA (ANDREASEN) inquired about availability of Inland ENCs and implementation of water levels into Inland ENCs. IEHG Co-Chair indicated that some countries distribute their Inland ENCs for free, others charge for them. In Europe, there is a central point for download. This service is also provided by Inland ECDIS/ECS application providers. Regarding water levels, this is being tested and should be available in 2011. On request from Singapore (OEI) he clarified that water level data streams followed a linear model; an example is available on the IEHG website (<http://ienc.openecdis.org>).

Saudi Arabia (SRINIVASAN) inquired about vertical datum. IEHG Co-Chair answered that local river datums are used, depending on the region.

Outcomes:

- The Committee noted the report and the presentation.
- The Committee noted the activities related to Inland ENC standards development and implementation.

6.2 IHO-IAG Advisory Board on the Law Of the Sea (ABLOS)

Doc. HSSC2-06.2A Status Report on ABLOS activities

IHB (HUET) [gave a presentation](#) on the ABLOS activities during the past year, on behalf of the ABLOS Chair (Dr Chris RIZOS, Australia) not attending.

USA (ANDREASEN) asked that the membership list be corrected to include USA as an observer. Saudi Arabia (SRINIVASAN) commented that using a larger venue outside Monaco would allow more IHO delegates to attend future ABLOS Conferences than would occur in 2010. IHB (WARD) responded that a larger venue will be sought in Monaco for the 2012 ABLOS Conference.

Outcomes:

- The Committee noted the report and the presentation.
- The Committee endorsed the work program as submitted in HSSC2-06.2A

6.3 Marine Information Overlays (MIO) developments

There was no paper submitted on this matter and, therefore, no discussion.

7. DECISIONS OF OTHER BODIES AFFECTING HSSC

7.1 International Maritime Organization (IMO)

A. Report on IMO activities

Doc. HSSC2-07.1A Report on IMO activities affecting HSSC (IHB)

IHB (WARD) introduced this report.

USA (ANDREASEN) felt there was increased progress made on safety issues and noted that there will be a reception held at IMO on the anniversary of COMSAR. Denmark (HARTMANN) drew attention to Doc. NAV 55/INF.6 *Precautions in using navigational charts in Greenland waters* which was submitted by Denmark concerning limitations in the use of ENC and paper chart in Greenland.

Outcome:

- The Committee noted the report.

B. Operating Anomalies Identified In Some ECDIS

Doc. HSSC2-INF8 Operating Anomalies Identified In Some ECDIS (UK)

UK (PRITCHARD) [gave a presentation](#) reporting on operating anomalies identified within some ECDIS systems.

The Chair commented that this is a complex issue that will take years to address. He wondered how severe this situation was. Australia (PRINCE) pointed out that the presentation was a far better example of what is occurring than the information paper.

CIRM (RAMBAUT) mentioned that there is a problem at IMO in terms of recognition of the need to maintain software. There is no IMO instruction on the need to upgrade SOLAS equipment. Also, he was unsure whether

IEC standards can be revised / improved to address urgent safety issues. Under the current regime, by the time a standard is changed, e.g. after 2-3 years, there is a need to revise it again. He mentioned that, for AIS, IALA issues so-called “clarification documents” that provide further guidance on what is needed. He felt there was also an issue about who is responsible for fixing certain anomalies, e.g. data, software, equipment, etc.

RTCA (BERGMANN) brought up the possibility of dynamic software updates. There is a need to identify in the process how type-approval should be conducted in those areas that relate to IHO standards. Germany (JONAS) felt this was a matter of iterative cartographic refinement in the digital world, which would be a paradigm shift. It is not possible for type-approval agencies to identify the complex inter-relationships that exist between digital data and software, nor is it possible to develop test scenarios for all situations. He saw two possible approaches that IHO can follow, i.e. to deal with either the devices – hardware and/or software – or the data, e.g. S-57 → S-101 conversion. Ideally, both options will be progressed in a systematic way. However, he was unsure whether this should be a work item for HSSC.

There followed a discussion on how to improve / make more comprehensive the IHO test data sets for ECDIS, as contained in S-64, which are used by type-approval authorities. CIRM (RAMBAUT), referring to the *Test Procedures for ECDIS* section of IEC 61174, suggested that an updated test data set be produced. RTCA (BERGMANN) agreed that an improved test dataset was needed, but it should be combined with appropriate procedural guidance on how to use it. TSMAD Chair (GREENSLADE) pointed out that S-64 purposely contains “errors” that have to be tested against. Future intention is to include more opportunities to test for route warnings. Canada (HINDS) commented that the development by the IHO of a suitable test dataset that can be used for type-approval testing is a matter of due diligence. IHB (WARD) believed that some mechanism was also needed to improve what is contained in IEC 61174.

The Chair commented that IHO needs to be proactive in helping to “enhance” the S-64 ENC Test dataset. This matter is important, but needs to be reviewed by WG Chairs as to how it should be addressed. UK (PRITCHCARD) offered to host and chair a meeting to deal with this matter, with participation of all stakeholders. The Chair welcomed this offer and asked for a mid-year report on progress.

Outcomes:

- The Committee noted the paper and the presentation.
- The Committee agreed that TSMAD enhance the S-64 ECDIS test data to help ECDIS testing authorities to identify some of the recently exposed potential implementation issues.
- The Committee recommended that a meeting between relevant stakeholders take place as soon as possible to determine ways of better coordinating and monitoring any required actions when ECDIS implementation issues arise and to report to HSSC-3. The Committee agreed that UK chair the meeting and provide an interim report by April 2011 (in time for NAV57).
- **Action HSSC2/18 - TSMAD** to enhance the S-64 ECDIS test data set to help ECDIS testing authorities to identify some of the recently exposed potential implementation issues.
- **Action HSSC2/19 - UK** to chair a meeting of relevant stakeholders to determine ways of better coordinating and monitoring any required actions when ECDIS implementation issues arise.

7.2 IEC and RTCM

Doc. HSSC2-INF6

Note on IEC TC80 activities in relation to HSSC (Secretary IEC TC80)

IHB (HUET) introduced this paper on behalf of IEC TC80 Secretariat. He noted that IEC has decided that IEC 61174, initially planned for revision in 2012, would see its 3rd edition (2008) reconfirmed in 2012, i.e. no changes.

TSMAD Chair (GREENSLADE) believed that an IHO representative should attend TC80 meetings in order to reconcile the contents and effective dates of IHO and IEC publications.

On request from SNPWG Chair (ACLAND), USA (ENABNIT) explained that the three categories of ECS are fully explained in the Introduction to IEC 62376. He also suggested that the IMO PS for Display of Information on Shipborne Navigation Systems, MSC.191(79), and the associated IEC 62288 standard, are important for IHO to consider.

There was no report on RTCM developments.

Outcomes:

- The Committee noted the paper.

- **Action HSSC2/20 - IHB** to inform IEC TC80 of potential requirement to revise IEC 61174 to account for recently identified implementation anomalies and invite IEC to inform HSSC of the relevant maintenance standard for IEC 62288.

7.3 IALA

Doc. HSSC2-INF7 IALA activities in support of e-Navigation

IALA (Dr Michael HADLEY) [gave a presentation](#) on IALA & e-Navigation.

Italy (Capt Rosario LA PIRA) expressed concerned about the use of positioning in relation to charted information; specifically, about integrity warning for positioning. Canada (NARAYANAN) was pleased to see e-Navigation at the top of the strategic list (see Annex G). She also mentioned that the Canadian Coast Guard is leading e-Navigation implementation in Canada. However, it is not yet clear how this will affect CHS' work plan.

The Chair suggested that this may be a topic where HSSC needs to provide guidance. IHB (WARD) pointed out that he had been attending all relevant IMO and IALA e-Navigation discussions. IMO will not be presented with the e-Navigation concept until 2012 and its long-term impact is therefore not clear. He stressed that IHO is already well placed in terms of implementing e-Navigation, both through the almost complete ENC coverage and its visionary work on S-100 which will provide a flexible and attractive standard for other e-Navigation data providers as well as HOs. Regarding the ongoing Gap Analysis, those areas without ENC coverage are being addressed. RTCM (BERGMANN) supported IHB's view, adding that the Maritime Data Meeting to be held in Monaco on the following week would indicate further how well the IHO S-100 Geospatial Information Registry can contribute to e-Navigation.

Outcome:

- The Committee noted the paper and the presentation.

8. LIAISON WITH EXTERNAL STAKEHOLDERS

8.1 Open ECDIS Forum

There was no paper submitted on this matter and, therefore, no discussion. It was noted that the Final Report of the OEF was submitted to HSSC-1.

8.2 ECDIS Stakeholders' Forum

Doc. HSSC2-08.2A ECDIS Stakeholders' Forum (IRCC)

IHB (WARD) introduced this paper from IRCC inviting HSSC to consider the way forward for an ECDIS Stakeholders' Forum. He mentioned that the IHB was planning to organize an IHO Stakeholders' Forum on the occasion of NAV57 in 2011. This was generally supported.

Outcomes:

- The committee HSSC noted the paper and the intention to hold an IHO Stakeholders' Forum in June 2011 at the IMO in London.

- **Action HSSC2/21 - IHB** to inform IRCC that an IHO stakeholders' Forum will be held at the IMO in London in June 2011.

9. REVIEW AND ENDORSEMENT OF HSSC WORK PLAN

IHB (HUET) introduced the paper. He mentioned that all work plans submitted as part of the ten WG reports had been incorporated in this revised HSSC work plan. Some minor corrections agreed during this meeting would be included in the final HSSC work plan.

Outcome:

- The Committee approved the HSSC consolidated work plan incorporating all proposals submitted during the meeting.

10. REVIEW OF OTHER INFORMATION PAPERS

A. Standards, Specifications and Guidelines

Doc. HSSC2-INF1 Status Report on IHO Publications on Standards, Specifications and Guidelines (IHB)

IHB (HUET) introduced this paper. He mentioned that there are other publications that are not under the work of HSSC, e.g., S-23. He asked if the list presented to the Committee should only be HSSC-related, or include all IHO publications.

The Chair mentioned that there needs to be consistency for what are Standards vs. Framework Models and Guides, as described in Annex D to HSSC2-04B. This was agreed and also that the list in paper HSSC2-INF1 should be limited to those publications under HSSC responsibility.

Outcomes:

- The Committee noted the paper.
- The Committee agreed that S-66 be added to the list of framework models and guides contained in Annex D to HSSC2-04B.

B. Digital Nautical Charts

Doc. HSSC2-INF2 Digital Nautical Chart Report (USA-NGA)

USA (ANDREASEN) introduced this paper. There were no comments.

Outcome:

- The Committee noted the paper.

11. DATE AND LOCATION OF NEXT MEETING

The following dates were agreed:

- HSSC-3: 31 Oct - 4 Nov 2011
- HSSC-4: 5-9 Nov 2012

It was agreed that HSSC-3 (2011) will be held at the IHB, Monaco, unless a proposal to host the meeting is received from a MS within 4 months. The venue for HSSC-4 (2012) will be decided at HSSC-3.

Outcomes:

- The Committee agreed that HSSC-3 be held between 31 October and 4 November 2011; meeting to take place in Monaco – unless, before end February 2011, a MS offers to host the meeting elsewhere.
- The Committee agreed that HSSC-4 be held between 5 November and 9 November 2012 at a venue to be decided at HSSC-3.

12. CLOSURE OF THE MEETING

On behalf of the meeting, the Chair warmly thanked the BSH hosts for the excellent arrangements for HSSC-2. He also thanked all participants and observers for their valuable contribution to the meeting. He remarked on the good progress made at this meeting. A brief statement by IMPA (Capt. Albrecht KRAMER) – who had to leave the meeting earlier - was read that included the statement that: *“Pilots as stakeholders in navigation are both willing and interested to put their influence and weight behind any work that helps to influence and to steer things in the right direction”*.

The meeting closed at 12:00 on 29 October 2010.

GLOSSARY OF ACRONYMS, TERMS and ABBREVIATIONS

ABLOS	Advisory Board on Law of the Sea
AIS	Automatic Identification System
ASM	Application Specific Message
AtoN	Aid to Navigation
BLAST	Bring Land And Sea Together (EU)
BSH	Bundesamt für Seeschifffahrt und Hydrographie (Germany)
C-17	Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices
C-51	Manual on Technical Aspects of the UN Convention on the Law of the Sea
CATZOC	Category of Zones of Confidence attribute (IHO/S-57)
CHRIS	Committee on Hydrographic Requirements for Information Systems
CHS	Canadian Hydrographic Service
CIRM	Comité International Radio-Maritime
CG	Correspondence Group
CL	Circular Letter
COMSAR	Sub-Committee on Search and Rescue (IMO)
CNITA	Chart and Nautical Instrument Trade Association
CSPCWG	Chart Standardization and Paper Chart Working Group
CTNARE	Caution Area attribute (IHO/S-57)
DIPWG	Digital Information Portrayal Working Group
DNC	Digital Nautical Chart (USA)
DOALOS	UN Division for Ocean Affairs and the Law of the Sea
DOD	Department Of Defense (USA)
DPSWG	Data Protection Scheme Working Group
DQWG	Data Quality Working Group
DSCC	Data Supply Chain Certification
ECDIS	Electronic Chart Display and Information System
ECS	Electronic Chart System
e-NAV	e-Navigation
ENC	Electronic Navigational Chart
EU	European Union
EUWG	ENC Updating Working Group
EXPSOU	Exposition of Soundings attribute (IHO/S-57)
GII	Geospatial Information Infrastructure
HDWG	Hydrographic Dictionary Working Group
HNHS	Hellenic Navy Hydrographic Service (Greece)
HO	Hydrographic Office
HSSC	Hydrographic Services and Standards Committee
IAG	International Association of Geodesy
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
ICCWG	International Charting Coordination Working Group
IC-ENC	International Centre for ENCs
IEC	International Electrotechnical Commission
IEHG	Inland ENC Harmonization Group
IENC	Inland Electronic Navigational Chart
IHB	International Hydrographic Bureau
IHO	International Hydrographic Organization
IMO	International Maritime Organization
IMPA	International Maritime Pilots' Association

INSPIRE	INfrastructure for SPatial InfoRmation in Europe (EU)
INT Chart	International Chart
IOC	Intergovernmental Oceanographic Commission of UNESCO
IRCC	Inter-Regional Coordination Committee
ISO	International Organization for Standards
JCOMM	Joint Committee on Oceanography and Marine Meteorology (IOC-WMO)
JIWG	Joint Information Working Group (IC-ENC & PRIMAR))
LNDARE	Land Area attribute (IHO/S-57)
M-3	Resolutions of the IHO
MIO	Marine Information Overlay
MSNFSN	Minimum Standard Necessary For Safe Navigation
MS	Member State
MSC	Maritime Safety Committee (IMO)
MSDIWG	Marine Spatial Data Infrastructure Working Group
NAV	Sub-Committee on Safety of Navigation (IMO)
NGA	National Geospatial-Intelligence Agency (USA)
NGIO	Non-Governmental International Organization
NOAA	National Oceanic and Atmospheric Administration (USA)
OEF	Open ECDIS Forum
OEM	Original Equipment Manufacturer
PI	Performance Indicator
PPU	Portable Piloting Unit
PresLib	IHO Presentation Library for ECDIS
PRIMAR	North-European RENC
RENC	Regional ENC Coordinating Centre
RHC	Regional Hydrographic Commission
RNW	Radio Navigational Warning
RoP	Rules of Procedure
RTCA	Radio Technical Commission for Aeronautics
RTCM	Radio Technical Commission for Maritime Services
S-4	Chart Specifications of the IHO and Regulations for International (INT) Charts
S-11	Guidance for the Preparation and Maintenance of INT Chart Schemes and Catalogue of International (INT) Charts
S-32	Hydrographic Dictionary
S-44	IHO Standards for Hydrographic Surveys
S-49	Recommendations concerning Mariners' Routeing Guides
S-52	Specifications for Chart Content and Display Aspects of ECDIS
S-57	IHO Transfer Standard for Digital Hydrographic Data
S-58	Recommended ENC Validation Checks
S-63	IHO Data Protection Scheme
S-64	IHO Test Data Sets for ECDIS
S-65	ENC Production Guidance
S-66	Facts about Electronic Charts and Carriage Requirements
S-99	IHO Geospatial Information Registry - Structure, Organization and Management
S-100	Universal Hydrographic Data Model
S-101	Future ENC Product Specification, based on S-100
SDI	Spatial Data Infrastructure
SNPWG	Standardization of Nautical Publications Working Group
SOLAS	Safety Of Life At Sea
TC	Technical Committee
T&P	Temporary and Preliminary
ToR	Terms of Reference
TSMAD	Transfer Standard Maintenance and Applications Development Working Group

TWLWG	Tidal and Water Level Working Group
UK	United Kingdom
UN	United Nations
UNCLOS	United Nations Commission on the Law Of the Sea
UNCGGIM	United Nations Committee on Global Geographic Information Management
USA	United States of America
USOC	Use of the Object Catalogue for ENC (IHO/S-57)
WG	Working Group
WGS	World Geodetic System
WMO	World Meteorological Organization
WP	Work Plan
XML	eXtensible Markup Language

LIST OF DOCUMENTS

Document No	Document Title
HSSC2-01A rev10	List of Documents (IHB)
HSSC2-01B rev4	List of Participants (IHB)
HSSC2-01C	HSSC – List of Contacts (IHB)
HSSC2-01D	Terms of Reference for HSSC and related Working Groups (IHB)
HSSC2-02A rev10	Agenda and Timetable (IHB)
HSSC2-03A	Minutes of the 1 st HSSC Meeting (IHB)
HSSC2-03B rev1	List of Actions from the 20 th CHRIS Meeting and Status (IHB)
HSSC2-03C rev1	Status Report of RTCA Data Supply Chain Certification Correspondence Group (DSCC-CG) (DSCC-CG Chair)
HSSC2-03D	Status Report of the Correspondence Group on Definition and Length of Coastline (France)
HSSC2-04A	HSSC Input to IHO Strategic Planning Process (IHB)
HSSC2-04B	Revision of IHO Resolution 2/2007 (formerly, A1.21) - Standardised Development, Consultation and Approval Procedures for IHO Technical Standards
HSSC2-05.1A	Report and Recommendations of TSMAD (TSMAD Chair)
	IHO Publication S-58 : Recommended ENC Validation Checks, Draft Edition 4.2 - December 2010
HSSC2-05.1B rev1	Draft IHO Publication S-99 : IHO Geospatial Information Registry - Structure, Organization and Management (TSMAD)
	IHO Publication S-99 : Operational Procedures for the Organization and Management of the IHO Geospatial Information Registry, Draft Version 1.0.0 – January 2011
HSSC2-05.1C	Recommendations for the procedures used to deal with encoding issues (TSMAD)
HSSC2-05.1E	Reopening of Use of the Object Catalogue for ENC (TSMAD Chair)
HSSC2-05.2A	Report and Recommendations of DPSWG (DPSWG Chair)
HSSC2-05.2B	Proposed Amendment to S-63 (HNHS, Greece)

HSSC2-05.2C	Comments on paper HSSC2-05.2B (IC-ENC)
HSSC2-05.3A	Report and Recommendations of DIPWG (DIPWG Chair)
HSSC2-05.4A	Report and Recommendations of SNPWG (SNPWG Chair)
HSSC2-05.5A	Report and Recommendations of CSPCWG (CSPCWG Chair)
HSSC2-05.6A	Report and Recommendations of DQWG (DQWG Chair)
HSSC2-05.6B	HSSC2/26 - Minimum standard necessary for safe navigation (Sweden)
HSSC2-05.7A	Report and Recommendations of MSDIWG (MSDIWG Chair)
HSSC2-05.7B	Report on the 2nd Preparatory Meeting for the Proposed UN Committee on Global Geographic Information Management (IHB)
HSSC2-05.7C	Associating 4 supporting Marine SDI Documents with C-17 (MSDIWG Chair)
HSSC2-05.8A rev1	Report and Recommendations of TWLWG (TWLWG Chair)
HSSC2-05.9A	Report and Recommendations of HDWG (HDWG Chair)
HSSC2-05.10A	Report and Recommendations of EUWG (EUWG Chair)
HSSC2-06.1A	Status Report on Inland ENC Development and Standardization (IEHG)
HSSC2-06.2A	Status Report on ABLOS activities (ABLOS Chair)
HSSC2-07.1A	Report on IMO activities affecting HSSC (IHB)
HSSC2-08.2A	ECDIS Stakeholders' Forum (IRCC)
HSSC2-09A	Consolidated CHRIS Work Plan (IHB)
	Information Papers
HSSC2-INF1	Status Report on IHO Publications on Standards and Specifications (IHB)
HSSC2-INF2	Digital Nautical Chart (DNC®) INF Report (USA (NGA))
HSSC2-INF3	MSDI Activities in Various Member States – MSDI Capacity Building (MSDIWG Chair)
HSSC2-INF4	The Port ENC - a proposal for a new port related ENC standard (summary of presentation)
HSSC2-INF5	A 3-D Nautical GIS (summary of presentation)
HSSC2-INF6	Note on IEC-TC80 activities in relation to HSSC (Secretary IEC TC80)

HSSC2-INF7	IALA activities in support of e-Navigation (IALA)
HSSC2-INF8	Operating Anomalies Identified In Some ECDIS (UK)

LIST OF PARTICIPANTS

Member States	Name	Email
Argentina	Cdr Fabian Alejandro VETERE	fveter@hidro.gov.ar
Australia	Mr Mike PRINCE	international.relations@hydro.gov.au
Brazil	Capt Marcos Lourenço de ALMEIDA Capt Carlos A. PÉGAS FERREIRA	marcos.almeida@chm.mar.mil.br pegas@chm.mar.mil.br
Canada	Dr Savithri NARAYANAN Mr Sean HINDS	Savithri.Narayanan@dfo-mpo.gc.ca Sean.Hinds@dfo-mpo.gc.ca
Chile	Capt Patricio CARRASCO	pcarrasco@shoa.cl
Denmark	Mr Jens Peter HARTMANN Mr Peter Ladegaard SØRENSEN	jepha@kms.dk pls@kms.dk
Estonia	Mr Tõnis SIILANARUSK	tonis.siilanmarusk@vta.ee
Finland	Mr Juha KORHONEN	Juha.Korhonen@liikennevirasto.fi
France	Ing en chef Jean-Luc DENIEL	deniel@shom.fr
Germany	Dr Mathias JONAS (HSSC Vice Chair) Mr Jens SCHRÖDER-FÜRSTENBERG	mathias.jonas@bsh.de jens.schroeder-fuerstenberg@bsh.de
Italy	Capt Rosario LA PIRA Cdr Alessandro NOBILI	rosario.lapira@marina.difesa.it alessandro.nobili@marina.difesa.it
Japan	Mr Satoshi SATO Mr Kunikazu NISHIZAWA	ico@jodc.go.jp nishizawa-iok@jha.jp
Korea, Rep. of	Mr Dong Hyun SIM Mr Woong Kyo SONG Dr Moon Bo SHIM Mr Jin Sub KIM Mr Jong Min PARK Dr Hee Yong LEE	simdh@korea.kr woongkyo@korea.kr shimmb@korea.kr kim8232@korea.kr pjm@moeri.re.kr jimcarry@gmtc.kr
Latvia	Mr Janis KRASTINS Mr Mikus RANKA	janis.krastins@lhd.lv mikus.ranka@lhd.lv
Netherlands	Mrs Ellen VOS	em.vos@mindef.nl
Norway	Capt Evert FLIER	evert.flier@statkart.no
Oman	LCdr Yahya Al Balushi	Rav1900@hotmail.com
Poland	Capt Henryk NITNER	nitner@mw.mil.pl
Saudi Arabia	LCdr Saud ALOTAIBI RAdm K.R. SRINIVASAN	sssauddd@hotmail.com admiralvasan.sa@gmail.com
Singapore	Dr Parry OEI Mr Ying-Huang THAI LOW	Parry_S_L_OEI@mpa.gov.sg Ying_Huang_THAI_LOW@mpa.gov.sg
Spain	Cdr José Manuel MILLÁN GAMBOA	ihmesp@fn.mde.es
Sweden	Mr Ralf LINDGREN Mr Hans ENGBERG	Ralf.Lindgren@sjofartsverket.se Hans.Engberg@Sjofartsverket.se
Thailand	RAdm Witoon TANTIGUN Capt Nattavut PRATEEPAPHALIN	witoon.t@navy.mi.th nattavut85@yahoo.com
Turkey	LCdr Bülent GÜRSES	bgurses@shoddb.gov.tr
UK	Capt Vaughan NAIL (HSSC Chair) Mr Peter JONES (CSPCWG Chair) Mr Barrie GREENSLADE (TSMAD Chair) Mr David ACLAND (SNPWG Chair) Mr Jonathan PRITCHARD (DPSWG)	vaughan.nail842@mod.uk peter.jones@ukho.gov.uk barrie.greenslade@ukho.gov.uk david.acland@ukho.gov.uk jonathan.pritchard@ukho.gov.uk

USA	RAdm Christian ANDREASEN Mr Jim MCGAUGHRAN Mr David B. ENABNIT Mr Stephen GILL (TWLWG Chair) Mr Colby HARMON (DIPWG Chair)	christian.andreasen@nga.mil james.mcgaughran@nga.mil dave.enabnit@noaa.gov stephen.gill@noaa.gov Colby.Harmon@noaa.gov
IHB	Name	Email
	Capt Robert WARD Ing en Chef Michel HUET (Secretary) Mr Anthony PHARAOH	robert.ward@ihb.mc mhuet@ihb.mc apharaoh@ihb.mc
Observers	Name	Email
CNITA	Mr Willem AMELS	willem@datema.nl
CIRM	Mr Michael RAMBAUT Mr Konstantin IVANOV	secgen@cirm.org Konstantin.ivanov@transas.com
IALA	Dr Michael HADLEY Dr Lee ALEXANDER	m.hadley@orange.fr lee.alexander@unh.edu
IEHG	Mr Bernd BIRKLHUBER Dr Lee ALEXANDER	Bernd.Birkhuber@bmvit.gv.at lee.alexander@unh.edu
IMPA	Capt Albrecht KRAMER	auf.kramer@online.de
RTCA	Mr Michael BERGMANN	michael.bergmann@jeppesen.com

AGENDA AND TIMETABLE

Note: Presenters of papers in parentheses ().

Tuesday 26 Oct	HSSC CHAIR GROUP
0930	Chair Group meet at BSH
0930 - ~1230	HSSC Chair Group Meeting (HSSC WG Chairs, Vice-chairs, WG speakers only)
Tuesday 26 Oct	DAY 1 of HSSC2
1400	HSSC2 meet at Rostock Town Hall
1400	1. Opening and Administrative Arrangements <i>Docs: HSSC2-01A List of Documents (IHB)</i> <i>HSSC2-01B List of Participants (IHB)</i> <i>HSSC2-01C HSSC – List of Contacts (IHB)</i> <i>HSSC2-01D Terms of Reference for HSSC and related Working Groups (IHB)</i>
1415	2. Approval of Agenda <i>Docs: HSSC2-02A Agenda and Timetable</i>
1430	3. Matters arising from Minutes of 1st HSSC Meeting <i>Docs: HSSC2-03A Minutes of HSSC1 (IHB)</i> <i>HSSC2-03B Status of Actions List from HSSC1 (IHB)</i> <i>HSSC2-03C Status Report of RTCA Data Supply Chain Certification Correspondence Group (DSCC-CG) (DSCC-CG Chair)</i> <i>HSSC2-03D Status Report of the Correspondence Group on Definition and Length of Coastline (France)</i>
1530	Coffee Break
1600	4. HSSC Administration <i>Docs: HSSC2-04A HSSC Input to IHO Strategic Planning Process (IHB)</i> <i>HSSC2-04B Revision of IHO Resolution 2/2007 (formerly, A1.21) - Standardised Development, Consultation and Approval Procedures for IHO Technical Standards</i>
1700	END OF DAY 1
if required	Drafting group(s) meet
Wednesday 27 Oct	DAY 2 of HSSC2
0900	Presentation 'The Port ENC' by Mr Dieter Seefeldt, Hamburg Port Authority, Germany. See HSSC-INF4
	5. Reports by HSSC Working Groups
0930	5.1 Transfer Standard Maintenance and Application Development (TSMAD) <i>Docs: HSSC2-05.1A Report and Recommendations of TSMAD (TSMAD Chair)</i> <i>HSSC2-05.1B Draft IHO Publication S-99 : IHO Geospatial Information Registry - Structure, Organization and Management</i>

1030	Coffee Break
1100	5.1 Transfer Standard Maintenance and Application Development (TSMAD) (continued) <i>Docs: HSSC2-05.1C Recommendations for the procedures used to deal with encoding issues (TSMAD)</i> <i>HSSC2-05.1D Proposal for the development of a specification to standardize the collation and distribution to the user of information about the latest updated state of ENC's in their folio (TSMAD/DSCC-CG) [withdrawn]</i> <i>HSSC2-05.1E Reopening of Use of the Object Catalogue for ENC (TSMAD Chair)</i>
1200	5.2 Data Protection Scheme (DPSWG) <i>Docs: HSSC2-05.2A Report and Recommendations of DPSWG (DPSWG Chair)</i> <i>HSSC2-05.2B Proposed Amendment to S-63 (HNHS, Greece)</i> <i>HSSC2-05.2C Comments on paper HSSC2-05.2B (IC-ENC)</i>
1230	Lunch
1330	5.3 Digital Information Portrayal (DIPWG) <i>Docs: HSSC2-05.3A Report and Recommendations of DIPWG (DIPWG Chair)</i>
1500	Coffee Break + Group Photo
1530	break into drafting groups
1700	END OF DAY 2
Thursday 28 Oct	DAY 3 of HSSC2
0900	Presentation 'A 3-D Nautical GIS' by Mr Thomas Porathe, Mälardalen Univ. Sweden. See HSSC2-INF5
0930	consider work of drafting group(s)
1000	5.4 Standardization of Nautical Publications (SNPWG) <i>Docs: HSSC2-05.4A Report and Recommendations of SNPWG (SNPWG Chair)</i>
1030	Coffee Break
1100	5.5 Chart Specifications and Paper Charts (CSPCWG) <i>Docs: HSSC2-05.5A Report and Recommendations of CSPCWG (CSPCWG Chair)</i>
1130	5.6 Data Quality (DQWG) <i>Docs: HSSC2-05.6A Report and Recommendations of DQWG (DQWG Chair)</i> <i>HSSC2-05.6B HSSC2/26 - Minimum standard necessary for safe navigation (Sweden)</i>
1200	5.7 Marine Spatial Data Infrastructure (MSDIWG) <i>Docs: HSSC2-05.7A Report and Recommendations of MSDIWG (MSDIWG Chair)</i> <i>HSSC2-05.7B Report on the 2nd Preparatory Meeting for the Proposed UN Committee on Global Geographic Information Management (IHB)</i> <i>HSSC2-05.7C Associating 4 supporting Marine SDI Documents with C-17 (MSDIWG Chair)</i> <i>HSSC2-INF3 MSDI Activities in Various Member States – MSDI Capacity Building (MSDIWG Chair)</i>
1230	Lunch
1330	5.8 Tidal and Water Level (TWLWG) <i>Docs: HSSC2-05.8A Report and Recommendations of TWLWG (TWLWG Chair)</i>

1400	5.9 Hydrographic Dictionary (HDWG) <i>Docs: HSSC2-05.9A Report and Recommendations of HDWG (HDWG Chair)</i>
1430	5.10 ENC Updating (EUWG) <i>Docs: HSSC2-05.10A Report and Recommendations of EUWG (EUWG Chair)</i>
1500	Coffee Break
1530	6. Inter-Organizational Bodies 6.1 Inland ENC Harmonization Group (IEHG) <i>Docs: HSSC2-06.1A Status Report on Inland ENC Development and Standardization (IEHG Co-Chair)</i>
1600	6.2 IHO-IAG Advisory Board on the Law Of the Sea (ABLOS) <i>Docs: HSSC2-06.3A Status Report on ABLOS activities (IHB)</i>
1630	6.3 Marine Information Overlays (MIO) developments
1700	END OF DAY 3
Friday 29 Oct	DAY 4 of HSSC2
0900	7. Decisions of other bodies affecting HSSC 7.1 IMO <i>Docs: HSSC2-07.1A Report on IMO activities affecting HSSC (IHB)</i> <i>HSSC2-INF8 Operating Anomalies Identified In Some ECDIS (UK)</i>
0915	7.2 IEC and RTCM <i>Docs: HSSC2-INF6 Note on IEC-TC80 activities in relation to HSSC (Secretary IEC TC80)</i>
0930	7.3 IALA <i>Docs: HSSC2-INF7 IALA activities in support of e-Navigation (IALA)</i>
	8. Liaison with External Stakeholders
0945	8.1 Open ECDIS Forum 8.2 ECDIS Stakeholders' Forum <i>Docs: HSSC2-08.2A ECDIS Stakeholders' Forum (IRCC)</i>
1000	9. Review and Endorsement of HSSC Work Plan <i>Docs: HSSC2-09A Consolidated HSSC Work Plan (IHB)</i>
1030	Coffee Break
1100	10. Review of other Information Papers <i>Docs: HSSC2-INF1 Status Report on IHO Publications on Standards and Specifications (IHB)</i> <i>HSSC2-INF2 Digital Nautical Chart (DNC®) INF Report (USA (NGA))</i>
1130	11. Date and Location of Next Meeting
1200	12. Closure of the Meeting
1230	Lunch
1330	END OF DAY 4

Annex E to HSSC-2 Minutes

LIST OF ACTIONS FROM HSSC-2

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)
3	Length of coastline	HSSC2/1	Correspondence Group on the Definition and Length of Coastline , led by France, to complete its work by HSSC-3.
4.B	Changes to IHO standards	HSSC2/2	IHB to seek MS adoption of amendments to IHO Resolution 2/2007 <i>Principles and Procedures for making changes to IHO Technical Standards and Specifications</i> .
5.1.A	S-58	HSSC2/3	IHB to seek MS adoption of S-58 v4.2 <i>Recommended ENC Validation Checks</i> .
5.1.B	S-99	HSSC2/4	IHB to seek MS adoption of S-99 <i>IHO Geospatial Information Registry - Structure, Organization and Management</i> .
5.1.C	Encoding issues	HSSC2/5	TSMAD to incorporate process diagram for dealing with encoding issues in its business rules.
5.1.D	USOC	HSSC2/6	TSMAD to prepare a revised version of S-57 Appendix B.1, Annex A <i>Use of the Object Catalogue for ENC</i> by incorporating all outstanding encoding bulletins and other relevant extant material.
5.1.D	USOC	HSSC2/7	IHB to seek MS approval to unfreeze S-57 Appendix B.1, Annex A <i>Use of the Object Catalogue for ENC</i> and to adopt the revised version prepared by TSMAD.
5.2.B	S-63	HSSC2/8	IHB to inform Greece of the decision that licensing terms for ENC data should not be part of S-63 and should be addressed directly to supplying ENC producer authorities.
5.3	S-100 portrayal register	HSSC2/9	IHB to finance continuing development of the S-100 Geospatial Information Portrayal Register using Presentation Library funds.
5.6.A	DQWG meeting	HSSC2/10	DQWG to hold a formal meeting (probably in UK) in early 2011 to determine a way ahead and to accelerate the rate of progress on its work programme.
5.6.B	MSNFSN	HSSC2/11	DQWG to consider paper HSSC2-05.6B <i>Minimum standard necessary for safe navigation (MSNFSN)</i> during its deliberations.
5.7.A	MSDI documents	HSSC2/12	IHB to post supporting MSDI documents more prominently on the IHO website.
5.7.A	C-17	HSSC2/13	IHB to seek MS adoption of a revised C-17 <i>Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices</i> , incorporating supporting MSDI documents as appendices.
5.9	S-32	HSSC2/14	IHB to seek MS adoption of revisions to the Hydrographic Dictionary (S-32)
5.9	S-32	HSSC2/15	All HSSC working groups should review relevant documents, as opportunity arises, to ensure that they only refer to S-32 and the relevant definition itself and should not make any cross-reference to the old "index" numbers that appeared in the printed versions of S-32.
5.9	S-32	HSSC2/16	IHB to inform IRCC that HSSC recommends that all IRCC bodies should only refer to S-32 and the relevant definition itself and should not make any cross-reference to the old "index" numbers that appeared in the printed versions of S-32.
5.10	T&P ENC Updates	HSSC2/17	IHB to survey Member States regarding application of the recently approved <i>Guidelines for Encoding T&P ENC Updates</i> (Annex B to S-65 Edition 1.2, October 2009) to establish the status of production of T&P ENC updates for each nation.
7.1.B	S-64	HSSC2/18	TSMAD to enhance the S-64 ECDIS test data set to help ECDIS testing authorities to identify some of the recently exposed potential implementation issues.

AGENDA ITEM	SUBJECT	ACTION No.	ACTIONS (in bold, action by)
7.1.B	ECDIS implementation issues	HSSC2/19	UK to chair a meeting of relevant stakeholders to determine ways of better coordinating and monitoring any required actions when ECDIS implementation issues arise.
7.2	ECDIS-related IEC standards	HSSC2/20	IHB to inform IEC TC80 of potential requirement to revise IEC 61174 to account for recently identified implementation anomalies and invite IEC to inform HSSC of the relevant maintenance standard for IEC 62288.
8.2	IHO stakeholders' Forum	HSSC2/21	IHB to inform IRCC that an IHO stakeholders' Forum will be held at the IMO in London in June 2011.

SUGGESTED PERFORMANCE INDICATORS (PIs) FROM HSSC

Data Collection Point	Metric	Rationale
S-100 Registry Manager (IHB idc)	Number of proposal submissions (by domain) to S-100 GI Registry	Relative indicator of uptake of IHO standards including for purposes other than SOLAS navigation
HSSC WGs (all)	% of annual work programme achieved	Progress against objectives in the strategic plan
HSSC WGs (all)	Total number of participants at meetings (MS and Expert Contributors)	Indicates participation of MS and wider community in execution of the plan
IHB	Number of technical revisions and clarifications approved by MS	Indicative of ability to provide comprehensive, safe and effective standards
IC-ENC	Number of ENCs distributed annually under license	Relative indicator of ENC usage throughout SOLAS market

IHO PROSPECTIVE STRATEGIC ISSUES (2012-17)

1. Australia

- a. Decision-making arrangements within the IHO. At the next conference, put a time frame on voting to move to a new arrangement. If nations have not voted by a nominated date, then default position is to agree with the proposal.
- b. Membership and participation within the IHO's technical WG. As this is often limited by travel budgets, establish an IHO videocam hub for virtual meeting, including dual channels to cover both people and reference material (such as a camera and at a white board).
- c. Address on a global basis the confusion that results from commercial entities being involved in manufacturing both "official ENCs" and "unofficial ENCs" and the lack of recognition that the name "Electronic Navigational Chart" has regarding its status as official (it sounds generic).
- d. Provision and use of data quality indicators. This must only address perceived shortfalls in current CATZOC, but must extend to infrastructure affecting the conduct of a ship (such as AtoN, wharfs, islands, coastlines, reef edges, etc.).

2. Canada

- a. Theme 1 - How to respond to increasing and changing demands for the quality, content, coverage and presentation of hydrographic data and products.
Issues for HSSC:
 - How to develop a systematic approach to gathering of hydrographic data and information combining both internal and external sources, in addition to traditional surveys (crowd sourcing from private sector and other institutional bodies who collect such data and have knowledge, interest and value to HO).
 - Given the rapid expansion of technology in the presentation and display of geospatial information beyond the ECDIS, how does HSSC strategically position itself to benefit from and guide the application development of such technologies to deliver on HO's mandate (3D displays and standards associated with them, port views, etc.).
- b. Theme 2 - Decline in the availability of the traditional mariner and seagoing hydrographers in HOs (classroom GIS is a common pool for Hydrographic offices).
Issue for HSSC: The success of the various committees and IHO in general depends on the right blend of expertise in them.
- c. Theme 3 - IHO to maintain its relevance to the broader maritime nations (in addition to its own MS), to global marine industry and to the protection of the marine environment.

3. Denmark

- a. Establishment of a world-wide ENC database covering all ENCs.
- b. Development and implementation of S-100 and S-101.
- c. Development of e-Navigation from IHO perspective.

4. Estonia and Finland

- a. GI-infrastructure well established and in operation.
- b. Transition from S-57 to S-101 well planned and guided.

- c. Worldwide ENC consistency coverage, quality and consistency in place and meeting the users' requirements.
5. **Germany**
 - a. Set up and maintain S-100 framework.
 - b. Create product specifications for next generation ENC and DNP (NP3) which interrelate.
 - c. Become the focal point for the hydrographic part of global SDI in terms of standardization.
 6. **Italy**
 - a. Participate in the development of IMO e-navigation concept for IHO-related issues.
 - b. In liaison with IMO and other related international bodies and in the view of the ECDIS mandatory carriage requirements to promote and support ECDIS seafarer training related activities.
 7. **Japan**
 - a. Overlays of integrated maritime information on ECDIS for safe navigation, e.g. ENC, Nautical Publications, navigational warnings, weather information, tide, tidal currents, sea ice, etc.
 - b. Harmonizing datum levels of land and sea, for coastal management.
 - c. Expanding of global ENC coverage.
 8. **Korea (Rep of)**
 - a. Cooperation with IALA e-Nav WG by introducing the concept of 3D dynamic ENC to the existing ENC.
 - b. Special support for those MS who do not have their own ENC for their jurisdiction waters, such as North Korea.
 - c. Prioritize regional capacity building on hydrography, e.g. regional training centre, joint programme between RHCs.
 9. **Netherlands**
 - a. e-Navigation
 - b. MSDI
 - c. Increasing influence of www standards (W3C) on global (geo) standards, especially symbolism.
 10. **Oman**
 - a. Database creation and management – “different data sources”
 - b. Services and product quality control / assurance.
 - c. Skills and training – “different software”.
 11. **Saudi Arabia**
 - a. Make e-Navigation a reality both for commercial and leisure shipping.
 - b. Integrate both on horizontal and vertical datums the land-sea interface for the common depiction in both land maps and sea maps, preferably on common global datum.
 - c. Improve the ECDIS standards for different presentation and display arrangement with consistent data quality with inputs from ENCs, land imagery/aerial photos, etc. in 3-D form.
 12. **Singapore**
 - a. Contribution to the Marine environment in ways other than ensuring navigation safety.
 - b. Training of mariners, including review of existing guidelines on the use of ECDIS.

- c. Engagement with Ports/harbours/users on the needs with respect to hydrographic services.

13. Spain

- a. Ellipsoidally-Referenced Hydrographic Surveys (ERS), ITRS transformation parameters, modelling of the hydrographic vertical datum.
- b. Implementation of tidal dynamics in ECDIS, using both predictions and actual data in real time.
- c. SDI web server centralized at the IHO.
- d. Foster the cooperation between hydrographic offices to exchange personnel in positions related to data acquisition and digital production.

14. Sweden

- a. To establish the IHO role in the e-Navigation concept.
- b. To contribute to and make use of the upcoming (or ongoing) SDI initiatives.
- c. To maintain and enforce the WEND principles, and secure successful implementation of S-100 suite of standards.

15. Turkey

- a. Finalize the standards of the products for e-Nav and encourage MS to produce the e-Nav products and deliver those to the user community.
- b. Increase the number of IHO members so that it is equal to IMO MS.

16. UK

- a. Developing and embedding S-101 ENC's Product Specification and transitioning (by HOs) from S-57 ENC's.
- b. Assimilating diverse information types into a coherent whole usable by the mariner (e.g. publications, charts) (continuing to turn data into relevant information).
- c. The impact of mandated take-up of digital nautical products and their safe use (e.g. being ready for the challenge when ECDIS/ENC are impugned by being cited as contributory in marine accidents).

17. USA

- a. Theme 1
 - i. Demand for hydrographic data for non-navigation uses (e.g., spatial data infrastructures).
 - ii. Integration of data (e-Nav).
- b. Theme 2
 - i. Accommodation of time-varying data and real-time data.
 - ii. Use and usability of uncontrolled data (e.g., open-source or user-supplied).
 - iii. Integration of time-variable data.
- c. Theme 3
 - i. Modeling and integration of land/water data, include ref. to ellipsoid.
 - ii. Transition from product data bases to a central database of features from which customers might generate products.
 - iii. Transfer of technology to the user; outreach, education, and feedback; including how to inform uncertainty and accuracy in digital information.
 - iv. Technology to gather, process and use large quantities of high-resolution hydrographic survey data.

- v. Characterization of “quality” of data other than depths.
- vi. Investigation of higher levels of topology in ENCs, 3-D, and perspective displays.
- vii. Differentiation of voyage planning and underway navigation display of data (integration vs de-cluttering of Nav Pub and dynamic data).
- viii. Collection and maintenance of higher resolution (greater detail) data.

18. CNITA

- a. Coordinate and guide transition of the implementation of the new standards.
- b. Create a decision making structure which is able to cope with new technologies like crowd sourcing, e-navigation, user generated content, etc.
- c. Keep up with the increasing pace of technological developments.

19. IALA

- a. Reconciliation of data models within e-Navigation.
- b. Improved charting in polar waters.
- c. Display of supplementary types of information in conjunction with chart information (e.g. AIS application specific messages, Virtual AtoN, MIOs, data quality, CATZOC, Uncertainty, etc.)

20. RTCA

- a. Transform from a chart (product) centric view and process to a data centric view and process.
- b. Integration of data between different data maintenance streams and keep product integrated but consistent.
- c. Ensure hydrographic data is not jeopardized by growing integration with supplementary data streams.

THREE MOST IMPORTANT STRATEGIC TECHNICAL ISSUES (2012-2017)

	#	Listed			Score
		1st	2nd	3rd	
e-Navigation & IHO's role	7	5	1	1	18
S-100 & S-101	6	4	1	1	15
Supplementary Data	6	1	3	2	11
Global ENC Coverage	4	2	-	3	9
MSDI	5	1	2	2	9
Datums – Land/sea, vert. & horizontal	4	1	2	1	8
Data Quality Indicators	2	1	-	3	6
IHO decision-making	1	1			
Chart centric → data centric	1	1			
S-57 → S-101	1		2		
More IHO MS (similar to IMO)	1		2		
More MS participation in HSSC & WGs	1		2		
Data maintenance streams	1		2		
Charting in polar waters	1		2		
HO staff (too few mariners/seafarers)	1		2		
3-D presentation	1			3	
Mandatory ECDIS carriage	1			3	
Technology developments	1			3	
Official vs. non-official ENCs	1			3	
IHO's relevance	1			3	
New international geospatial standards	1			3	
Dynamic tides	1		1		