

**COMBINED 22nd TSMAD AND 3rd DIPWG MEETING
11-15 April 2011. Seoul, Korea****Paper for Consideration by TSMAD/DIPWG****Report to TSMAD22/DIPWG3 on CSPCWG Activities**

Submitted by:	Australia
Executive Summary:	Report on CSPCWG Activities Since TSMAD20/DIPWG2
Related Documents:	IHO S-4, INT1
Related Projects:	S-57 Maintenance; S-52 Maintenance; S-100; S-101 Development

Introduction / Background

The IHO Chart Standardisation and Paper Chart Working Group (CSPCWG) is a Working Group of the IHO HSSC. Its primary objectives are to:

- Revise, develop and maintain IHO Publication S-4 – Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO;
- Revise, develop and maintain Part A of IHO Publication S-11 – Guidance for the Preparation and Maintenance of INT Chart Schemes;
- Maintain INT1, INT2 and INT3 (with national Hydrographic Offices' assistance);
- Develop new paper chart symbology.

Since the TSMAD20/DIPWG2 combined meeting, the annual meeting of CSPCWG (CSPCWG7) was held in Simon's Town, South Africa, from 23-26 November 2010, immediately preceding TSMAD21. The ongoing review of IHO Publication S-4 has continued through correspondence, and the INT1 Sub-Working Group has continued to address consistency issues between the three official language versions of INT1 by correspondence and face-to-face meeting. The full record of CSPCWG can be found on the CSPCWG page of the IHO web-site. CSPCWG Letters relating to activities being progressed via correspondence can also be found on the CSPCWG page of the IHO web-site. All substantive CSPCWG Letters are distributed to the Chairs of TSMAD and DIPWG for information.

A report on CSPCWG activities was provided at TSMAD21 in December 2010, and a verbal report of items of interest for TSMAD from CSPCWG7 also provided at that meeting, and information from these reports of interest to DIPWG is repeated in the following report.

Analysis / Discussion

New documents published since TSMAD20/DIPWG2:

- S-4 – Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO – Edition 4.000 (September 2010): Changes from Edition 3.007 include:
 - New abbreviations added to the table of International Abbreviations at B-122 for Degaussing (DG), Fish Aggregating Device (FAD) and Marine Rescue and Coordination Centre (MRCC);
 - Revised specifications at B-381.5 and B-381.6 for depiction of bridge supports and depiction of depth detail under bridges;
 - Revised specification at B-418.1 to include additional new symbol for unsurveyed area;
 - Revised specification at B-443.8 for cable tunnel entrances;
 - Revised specification at B-444.5, including addition of new symbol, for pipeline tunnel entrances;
 - New specification at B-445.2(f) for disused or abandoned production platforms;
 - Revised specification at B-445.12, including addition of new symbol, for the depiction of established wave energy devices and wave farms;

- Revised specification at B-447.4 to include a new symbol for the depiction of shellfish beds that do not contain physical obstructions;
- New Section B-600 on Chart Maintenance.

Regarding the impact of these changes on encoding and portrayal of ENC, the following comments were submitted for consideration at TSMAD21, and the accompanying decisions made; and are submitted to TSMAD22/DIPWG3 for consideration of DIPWG:

- New International Abbreviations: Degaussing (range) and Fish Aggregating Device have been in S-4 for a number of years and have no additional impact on ENC encoding. Marine Rescue and Coordination Centre is a new term in S-4. It is mentioned in B-492.3 in relation to coastguard stations. It was determined at TSMAD21 that if it was required to indicate the presence of a MRCC, this was to be done using INFORM on the object class **CGUSTA**. This information is to be promulgated as a FAQ, and additional text on which the FAQ may be based has been included in the draft New Edition of the UOC (clause 13.2).
 - Depiction of bridge supports and depiction of depth detail under bridges: No action required. The capability to depict such information under bridges for ENC already exists, and there are no display issues in the ECDIS.
 - Unsurveyed areas: No impact.
 - Cable and pipeline tunnel entrances: The intent of the new symbology is to identify that a cable or pipeline has entered a tunnel and therefore becomes irrelevant to the chart user or where the path of the tunnel is not known (and therefore cannot be charted), so as to avoid any possible confusion for the mariner. There is currently no corresponding method for encoding and depicting such tunnel entrances in ENC. There was no decision made on this at TSMAD21, and further proposals may be required for both TSMAD and DIPWG.
 - Disused or abandoned production platforms: No encoding action required, noting that CONDTN is a valid attribute for the Object Class **OFSPLF**. DIPWG should note that there is no symbol in the Presentation Library to distinguish a disused or abandoned production platform.
 - Wave energy devices and wave farms: There is currently no guidance on how to encode such features in ENC. TSMAD21 determined that wave farms should be encoded as **OSPARE** areas with INFORM = *Wave farm*, and individual wave or current turbines as **OBSTRN** points with CATOBS = 6 (foul area) and INFORM = *Underwater turbine* or *Wave energy device*, with the intension of publishing an ENC FAQ and Encoding Bulletin to this effect. Additional text on which the EB/FAQ may be based has been included in the draft New Edition of the UOC (clause 11.7.4).
 - Shellfish beds: No impact on encoding. DIPWG should note that there is no symbol in the Presentation Library to distinguish shellfish beds.
 - New maintenance Section B-600: No action required. Issues regarding the impact of this new Section of S-4 on ENC are being considered by the IHO ENC Updating Working Group (EUWG), and any TSMAD or DIPWG issues arising from B-600 will be raised via this Working Group.
- S-4 – Regulations of the IHO for International (INT) Charts and Chart Specifications of the IHO – Edition 4.1.0 (February 2011): Changes from Edition 4.000 include:
 - New specifications and/or revised symbols for yacht berths, yacht club, visitors berth, visitors mooring and caravan and camping sites.
 - Revised specifications for size and displacement of symbols.
 - Revised specification for Chart Accuracy note.
 - Revised specifications for maritime limit in general and restricted area to add tint band for emphasis if required.
 - Revised specification for named cables.
 - Clarification to specifications for charting direction of buoyage to account for two opposing diverging local directions of traffic flow.
 - Clarification throughout for spacing of symbols in complex line-type symbols.
 - New specification for floating waste bins.
 - Revised specification for depiction of ODAS buoys and new specification for depiction of sub-surface ODAS instruments.
 - New specification and symbol for floating wind turbines and wind farms comprising floating wind turbines.

- Revised specifications for depicting complex directional lights (e.g. lights with oscillating sectors).
- New specifications and symbols for depicting virtual AIS as aids to navigation.

Regarding the impact of these changes on relevant Specifications, and encoding and portrayal of ENC, the following comments are submitted for consideration of TSMAD and DIPWG:

- Amend INT1 reference for symbol SMCFAC02 from U1.1/1.2 to F11.1 (DIPWG). Amend INT1 reference for CATHAF = 5 (yacht harbour/marina) from U1.1 to F11.1 (TSMAD – S-57 and S-100 Register).
 - Amend INT1 reference for CATSCF = 2 (nautical club) from U4 to F11.3 (TSMAD – S-57 and S-100 Register).
 - Amend INT1 reference for CATSCF = 1 (visitor’s berth) from U2 to F19.2 (TSMAD – S-57 and S-100 Register).
 - Amend INT1 reference for CATSCF = 24 (caravan site) from U29 to E37.1 (TSMAD – S-57 and S-100 Register).
 - Amend INT1 reference for CATSCF = 25 (camping site) from U30 to E37.2 (TSMAD – S-57 and S-100 Register).
 - Amend INT1 reference for CATSCF = 29 (visitors mooring) from U3 to Q45 (TSMAD – S-57 and S-100 Register).
 - All other references to INT1 Section U to be removed from S-52, S-57 and S-100 documentation (TSMAD and DIPWG).
 - Consider a new value in CATSPM for floating waste bins (TSMAD).
 - Discuss method for encoding sub-surface ODAS instruments, possibly for inclusion in revised UOC (TSMAD).
 - During the investigation process for the new specification for sub-surface ODAS instruments, it was noticed that the population of the attribute CATSPM = 9 (ODAS (Ocean Data Acquisition System)) over-rides the populated value for BOYSHP in determining the depiction in ECDIS, resulting in all ODAS buoys, regardless of the shape of the buoy, being displayed as BOYSUP01 (super buoy). DIPWG should consider amending this Look-Up Table entry to display the symbol according to the populated value for BOYSHP in accordance with changes made to S-4 and INT1.
 - Discuss method of encoding floating wind turbines and wind farms, possibly for inclusion in revised UOC (TSMAD).
- INT1 – Symbols, Abbreviations and Terms Used on Charts (official IHO English version produced by BSH) – Edition 7 (January 2011): This Edition incorporates all CSPCWG decisions since Edition 6 was published in 2008, up to CSPCWG7. All such approved changes to the document have been previously reported to TSMAD and DIPWG, and therefore should have been addressed as required. It is important to note that in this Edition of the document, any INT1 reference which applies to a symbol that has been removed from INT1 has not been re-used.

Items of Interest to TSMAD/DIPWG from CSPCWG7:

- A paper was submitted on the updating of paper chart source or ZOC diagrams for new survey information that has not been incorporated in the chart, but which confirms the bathymetric information already depicted on the chart (i.e. upgrades the ZOC classification (CATZOC) for the area). New guidance on this will be included in S-4, and this may have an impact on ENC maintenance regarding the updating of **M_QUAL**. Actions from CSPCWG7 include new draft guidance in S-4, and once this guidance has been approved by CSPCWG, AU will produce a TSMAD Paper and notify the Chair of EUWG for possible inclusion of guidance for updating the ENC in the UOC and possibly S-65.
- South Korea presented a paper outlining issues in paper chart representation of wharf-side obstructions, particularly those adjacent to berthing facilities where siltation may have occurred adjacent to a dredged berth pocket or the dredger could not dredge to the edge of the berth, thus restricting the maximum draught of vessels at the berth. While this is not a problem for ENC, as guidance already exists for encoding the minimum depth at the berth and the maximum draught permitted at the berth, it was conceded that this may be an issue for the paper chart, and it was suggested that this could be resolved through use of a diagram on the chart. Such new guidance for S-4 would not be an issue for ENC, as the attribute PICREP is an allowable attribute for **BERTHS**. UK have taken a CSPCWG

Action to take this issue into account when drafting the revised S-4 – B-300, and further detail of any amended guidance will be passed on to TSMAD and DIPWG accordingly.

- A CSPCWG Action was approved to provide additional guidance in S-4 for the portrayal of disused lighthouses on paper charts. Additional guidance based on this Action has been included in the draft UOC (clause 12.3.2). There is no impact of this additional guidance on ECDIS portrayal.
- A new symbol was approved to portray a diving prohibited area on paper charts. There is no impact on ENC encoding as this can be done using CATREA = 11 (diving prohibited), or 12 (diving restricted). DIPWG should note that there is no symbol in the Presentation Library to distinguish diving prohibited areas.
- A CSPCWG Action was approved to provide new guidance in S-4 for the indication of imprecise shoal depth areas on paper charts. Such shoal depths may be derived from satellite imagery colour banded according to depth in shallow water of areas that are unsurveyed, or from a combination of satellite altimetry and gravity observations for discovery of deep water seamounts. AU will keep track of this Action in regard to possible impact on encoding or presentation of ENCs.
- The CSPCWG Chair presented a paper raising the philosophical question of “who are our charts intended for”, related particularly to content and citing sub-surface operations, which resulted in a fair amount of discussion at the meeting. It was determined that some basic guidance on this may be included in S-4. Draft wording in the introductory Section of S-4 (at B-100.4) has been produced, and a copy of this draft wording can be made available for anyone interested.
- Discussions took place as to the level of encoding of topographic information on paper charts, citing the possible requirement for the mariner to navigate by more traditional means if there is a failure in the vessels GPS. This will be further discussed during the upcoming revision of S-4 – B-300.
- As reported above, the INT1 Sub-Working Group held a break-away meeting and finalised New Editions of the official language versions of INT1 to be published early in 2011. The CSPCWG decision to not re-use INT1 references where the associated symbol is cancelled prompted some discussion on the management of these INT1 references. It was suggested that a Register of INT1 references could be established in the S-100 Geospatial Information Registry, and this was verbally communicated at TSMAD21. The TSMAD Chair took an Action to give this some further thought. If required, AU would be prepared to draft a Paper on this issue for TSMAD23.
- An interesting presentation was given by Jeppeson on the DKart suite of tools. It was interesting to note all the work being done by various organisations (HOs, Industry) to map S-57 to S-4/INT1. There appears to be no collaboration being done – all the work is being done independently which may result in some subtle interpretation differences. Would it be in the best interests of the IHO to have a common “conversion standard” to go from S-57/S-101 to paper chart? This observation could also be applied in the interpretation of the complex symbology procedures by OEMs in ECDIS and interpretation of IEC 61174 and 62288, and the differences that have been found in different ECDIS due to these interpretations. This was a personal observation resulting from the presentation but may be food for thought for TSMAD/DIPWG?
- The next CSPCWG meeting will be held during the week commencing 28 November 2011, at the kind invitation of FMA in Turku, Finland.

CSPCWG Activities Progressed by Correspondence since TSMAD20/DIPWG2:

- Foul Area and Foul Ground: Discussions have progressed significantly since TSMAD20/DIPWG2, with three CSPCWG Letters related to this subject addressed. It has been determined by CSPCWG that, although the terms foul area and foul ground are defined in S-32 and used in S-4, which is causing some problems in interpretation for compilers, there is no such confusion for the mariner; as INT1, which is the reference for mariners to interpret symbols, abbreviations and terms used on charts, does not use the term “foul area”. CSPCWG have decided not to include the term “foul area” in INT1 against any symbol. CSPCWG have also conceded that cartographer confusion over what constitutes a foul area and what constitutes foul ground has led to incorrect encoding of foul area where the area is actually foul ground (examples were provided at CSPCWG7). A final draft of revised S-4 specifications for foul area and foul ground have been approved by CSPCWG, at B-422.8, and have been included in an IHO CL for Member State consideration and approval (IHO CL 02/2011, responses by 06 April 2011). An Action

from TSMAD21 was to produce an ENC FAQ and EB emphasising the differences between foul area and foul ground and the impact on the user if such area are incorrectly encoded. Additional guidance based on this Action has been included in the draft UOC (clause 12.3.2) for TSMAD discussion.

- Virtual Aids to Navigation: New draft Specifications for the depiction of virtual aids to navigation were approved by CSPCWG and the draft submitted to IHO Member States for approval to be adopted in S-4 (IHO CL 67/2010 refers). The new Specifications were approved (IHO CL 11/2011 refers), and these Specifications appear in the Revision 4.1.0 of S-4 (B-489). They are as reported at TSMAD20/DIPWG2, except the central diamond and dot is replaced by the small magenta position circle. This is to allow for other methods (other than AIS) for establishment of virtual aids to navigation to be depicted using the same symbology (the diamond symbol is recognised as relating specifically to AIS). Encoding such features in ENC is the subject of ongoing TSMAD Action, and guidance for encoding AIS as aids to navigation in general has been included in the draft UOC (clause 12.14).
- Small craft leisure symbols: As reported at TSMAD20/DIPWG2, it has been determined that INT1 Section U (Small Craft (Leisure) Facilities) is no longer required in INT1, as chart users now have numerous other sources (e.g. internet) from which to obtain this information. Recommendations of CSPCWG were submitted to IHO member States for approval (IHO CL 39/2010), and these recommendations (with minor amendments) have been adopted in Revision 4.1.0 of S-4 (IHO CL 71/2010 refers). At TSMAD21 it was determined that the removal of INT1 Section U will only be an issue in regard to encoding guidance for S-100/S-101.
- Review of S-4 – B-300: CSPCWG has commenced the review of S-4 Section B-300 – Topography, with the first draft of B-300 to B-330 currently being reviewed by the Working Group (responses due 13 April 2011).

Next meeting: As stated above, the next meeting of CSPCWG will be held in Turku, Finland, during the week commencing 28 November 2011.

Recommendations

1. That TSMAD/DIPWG continue to generally monitor the activities of CSPCWG, particularly the ongoing revision of S-4, with regards to impacts on the IHO Hydrographic Register, S-100/S-101 and ECDIS display, and liaise with CSPCWG as required.
2. That TSMAD monitor the conclusion of CSPCWG discussions related to foul area and foul ground, for possible changes to the IHO Hydro Register and S-101.
3. TSMAD to monitor progress of development of new Editions of S-4 and INT1 for impact on cross references within the IHO Hydro Register and S-101.

Justification and Impacts

CSPCWG activities impact on the content of the S-100 Hydrographic Register; the rules and guidelines for ENCs compiled in both S-57 and S-101; and developments in portrayal of navigation information in ECDIS.

Action required of TSMAD/DIPWG

TSMAD/DIPWG is invited to:

- a. Endorse this report;
- b. Discuss and address items of note raised in this Report, including:
 - i. Ongoing activities to resolve confusion over the terms foul area/foul ground (TSMAD).
 - ii. Possible symbol requirement for disused or abandoned production platforms (DIPWG).
 - iii. New specification for wave energy devices and wave farms (TSMAD).
 - iv. New paper chart symbol for shellfish beds (DIPWG).
 - v. New paper chart symbol for diving prohibited (DIPWG).
 - vi. Possible establishment of a Register in the S-100 geospatial Information Registry for the management of INT1 references (TSMAD).

- vii. Possible encoding and portrayal requirements for Virtual Aids to Navigation (TSMAD/DIPWG) – Note this is the subject of on-going TSMAD Action.
- viii. Amendments to INT1 references for yacht berths, yacht club, visitors berth, visitors mooring and caravan and camping sites, and removal of all other references to INT1 Section U.
- ix. Possible new value for CATSPM for floating waste bins.
 - x. Encoding method for sub-surface ODAS instruments.
- xi. Amendment to Presentation Library Look-Up Tables for ODAS buoys to display according to the value populated for BOYSHP.
- xii. Encoding method for floating wind turbines and wind farms.