

14th CHRIS Meeting, Shanghai, China, 15-17 August 2002**REPORT OF THE TRANSFER STANDARD MAINTENANCE AND APPLICATIONS
DEVELOPMENT WORKING GROUP (TSMAD)**

1. TSMAD held its eighth meeting at the South African Hydrographic Office in December 2001. The sub-working group tasked with expanding S-57 held two meetings, the first immediately before the TSMAD meeting, the second at the Canadian Hydrographic Office in June 2002.
2. S-57 Edition 3.1
 - 2.1. The contents of S-57 Edition 3.1 were frozen from its publication date, with the exception of Annex A, "The Use of the Object Catalogue for ENC" and Annex C "Recommended ENC Validation Checks.". As reported to the last CHRIS meeting, TSMAD has been reviewing the text of Annex A to ensure that the meaning of every clause is unambiguous, particularly as regards which instructions are mandatory and which are not. This exercise was completed at the last meeting. In view of this fact, and the fact that work was about to begin on developing S-57 Edition 4.0 (see Paragraph 3.1 below), it was agreed that Annex A should be frozen also. A further justification for this decision was that recent proposals for changes to Annex A had been relatively minor in content. The final version of Annex A, Edition 2.1, is now available on the IHO web site. However, Annex C could not be frozen because it may require some additional amendments as more ENC validation experience is gained. It was therefore decided that Annex C should be removed from S-57 Edition 3.1 and published as a new stand alone document.
 - 2.2. S-57 Editions 3.1 and 3.0. Because of the difficulty which hydrographic offices had in initially producing ENCs conforming to Edition 3.1, both Edition 3.0 ENCs and 3.1 ENCs are valid. This does not appear to cause problems, because the differences between Edition 3.1 and 3.0 are minimal. It would, however, be convenient if all ENC became 3.1 ENCs. This matter was discussed at the last meeting but TSMAD is unable to provide any advice to CHRIS as it has insufficient knowledge on the current availability of 3.0 and 3.1 ENCs; on hydrographic offices production capabilities; and on ECDISs' ENC reading capabilities. It is recommended that the IHB take steps to ascertain the situation globally. A date could then be proposed beyond which 3.0 ENCs are no longer produced or used.
3. Future Extensions to S-57.
 - 3.1. As explained at the last CHRIS meeting, a sub-working group of TSMAD has been established to develop future extensions to S-57. The result of this exercise will be S-57 Edition 4.0. The Edition 4.0 sub-working group Chairman is Don Vachon of the Canadian Hydrographic Service.
 - 3.2. The reason for this work is that S-57 is intended to support the transfer of all hydrographic data. To be able to satisfy this requirement, S-57 must be expanded to include a matrix data model, a raster data model, a true 3-D capability, time varying functions, etc. It has also been agreed that the sub-working group will base its results to the greatest extent possible on the geo-spatial data standards produced by, or under development by, ISO TC211. This will maximise the probability that data conforming to Edition 4.0 will be able to be created, read and manipulated by Commercial Off The Shelf (COTS) software, so dispensing with the need to write special software.
 - 3.3. In order to make the task of expanding S-57 more manageable, the work has been split into a number of work items. These are:

Work Item 2.1. Edition 4.0 Object Catalogue.
Work Item 2.2. Edition 4.0 ENC Product Specification.
Work Item 2.3. Raster and Matrix data models.

Work Item 2.4. Time varying and 3-D data.
Work Item 2.5. Expansion of meta data contents.
Work Item 2.6. Review of S-57 base documents.
Work Item 2.7. Bathymetric Data Product Specification.
Work Item 2.8. Portrayals (Data Depiction).

- 3.4. The sub-working group will develop its solutions on the Open ECDIS Forum (OEF). The intention is that there should be maximum liaison between the sub-working group and all other interested parties (OEMs, regulatory authorities, type approval organisations, mariners' representatives, product distributors, etc). The current target date for completing the work is 2004.
- 3.5. More details about the different work items and a description of the sub-working group's method of working will soon be available on the IHO web site.
- 3.6. TSMAD suspects that, for the foreseeable future, the majority of hydrographic offices, OEMs and mariners will wish to continue to use 3.1 ENC's. It therefore recommends most strongly that, even after Edition 4.0 is adopted, Edition 3.1 remains valid for as long as required for the benefit of those who wish to continue to use the Edition 3.1 ENC Product Specification.
- 3.7. It should be stressed that the purpose of the Edition 4.0 exercise is to provide a standard which has more capability than Edition 3.1. However, with the exception of Work Item 2.7, it is not currently the intention to produce new product specifications based on these new capabilities. Such activity must await the identification of proven requirements by the hydrographic community; an exercise which TSMAD hopes will also make maximum use of inter-community liaison using the OEF.