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Paper for Consideration by Hydrographic Services and Standards Committee

Optimizing HSSC Working Groups

Submitted by:	United States
Executive Summary:	A proposal to reorganize several HSSC working groups by aligning product specifications and tasks into functionally related working groups. This help make the HSSC more efficient and ensure that the appropriate subject matter experts are most effectively positioned to support ongoing efforts. A recommendation is made to establish an ad hoc committee to evaluate the proposed changes and to make recommendations to HSSC6 for implementing a reorganization of HSSC working groups.
Related Documents:	HSSC3-04A, The Restructure of HSSC WGs HSSC5-04.2B, Creation of an S-100 Working Group
Related Projects:	N/A

Introduction / Background

At HSSC3, the chairs of TSMAD, DPSWG, and DQWG submitted the paper, HSSC3-04A, The Restructure of HSSC WGs. The United States is submitting HSSC5-04.2B,"Creation of an S-100 Working Group" and this companion paper for "Optimizing HSSC Working Groups" as an alternative to the concept that was rejected in 2011 at HSSC3.

How this Proposal is Structured

An overview of the recommended changes is provided in Figure 1. Short sections describe the details of the changes to be made in each working group. Summaries of where each specification or standard are to be assigned are provided in tables within each section. Information in these tables is also collected into one table in appendix 2.

Recommendations related to an immediate restructuring of the TSMAD, DIPWG and a new S-100 Working Group are contained in the HSSC5-04.2B, "Creation of an S-100 Working Group," paper and are not repeated in this paper. However, there are a few additional recommendations related to TSMAD that build upon the recommendations in HSSC5-04.2B. It would be helpful to read HSSC5-04.2B paper before this paper.

Analysis/Discussion

A Problem Born out of HSSC's own Success

The need to reorganize HSSC working groups stems partially from the success of the S-100 Universal Hydrographic Data Model. The hydrographic community and others have embraced the concept of having many interoperable S-100 based products. This has led to an imbalance in the HSSC workload across the working groups and the potential for an unmanageable number of new working groups.

Organize to Maximize Institutional Knowledge: A Strategy for the Future

We recommend that the HSSC organize working groups in a manner that can easily accommodate the likely addition of many new S-100 based products in the future. Rather than creating additional product based groups (as was done for the Surface Currents Working Group) or by adding additional responsibility to TSMAD (as was done for the S-102 Bathymetric Surface Product), we recommend that existing and new products be allocated within working groups that are aligned by data format, as shown in Table 1 below.

Data Format	Working Group	
Vector	TSMAD DIPWG	Transfer Standard Maintenance and Applications Development Digital Information Portrayal Working Group
Raster	*CSPCWG	Chart Standardization and Paper Chart Working Group
Textual	SNPWG	Standardization of Nautical Publications Working Group
Gridded	SCWG	Surface Currents Working Group

*A hybrid role defining chart content for both raster and vector chart products is being proposed for this working group.

Table 1

The reallocation of the responsibly for various standards and specifications based on this categorization is shown in figure 1 on the following page. Table 2 shows the current working group names with proposed new names in red. Details of the proposed reorganization are provided on subsequent pages.

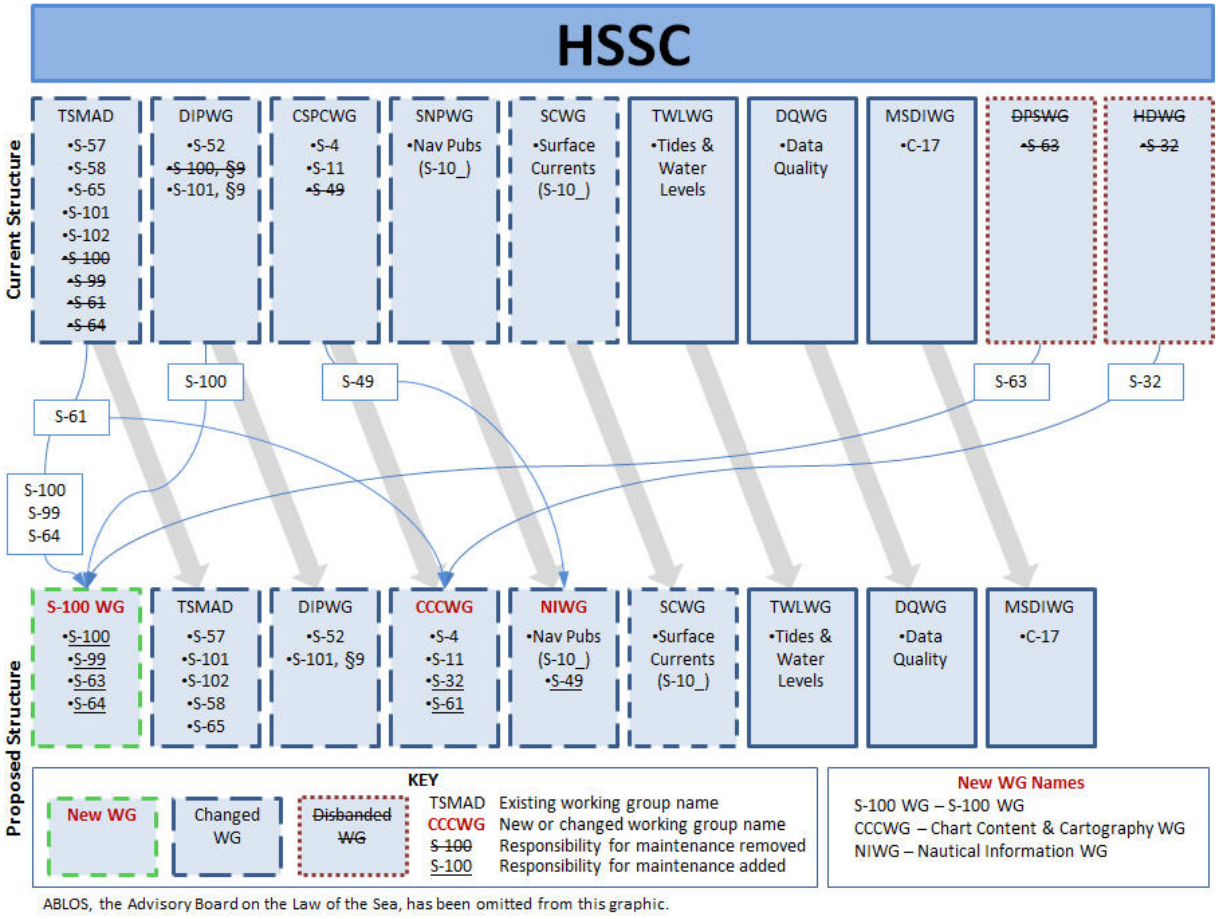


Figure 1

Names of HSSC Working Groups	
CSPCWG	Chart Standardization and Paper Chart Working Group
CCCWG	Chart Content & Cartography Working Group ("seas wig" or 3Cs Working Group)
DIPWG	Digital Information Portrayal Working Group
DPSWG	Data Protection Scheme Working Group
DQWG	Data Quality Working Group
HDWG	Hydrographic Dictionary Working Group
MSDIWG	Marine Spatial Data Infrastructure Working Group
SCWG	Surface Currents Working Grou
SNPWG	Standardization of Nautical Publications Working Group
NIWG	Nautical Information Working Group ("nigh wig")
TSMAD	Transfer Standard Maintenance and Applications Development
TWLWG	Tidal and Water Level Working Group

Table 2

Realignment of Working Groups

TSMAD

In addition to the immediate changes recommended in "Creation of an S-100 Working Group" paper, we suggest moving the S-61 Raster Nautical Chart Product Specification to CSCPWG, as this product is a raster version of the traditional paper chart . The cumulative effect of implementing the changes for TSMAD recommended in both papers is shown in Table 3 on the following page.

Working Group	Responsibility	Status	Rational
TSMAD	S-57	Keep	The core business of the reorganized TSMAD will be maintaining and extending the old and new ENC product specifications
	S-101	Keep	
	S-58	Keep	Provides ENC data validation checks
	S-65	Keep	Provides ENC production, maintenance and distribution guidance
	S-102	Keep for now	TSMAD can continue to support the development of the Bathymetric Surface Product Specification for now, but moving this to a more appropriate working group should be considered.
	S-61	Remove	The stable and unchanging Raster Nautical Chart (RNC) product specification will be assigned to the raster oriented CSPCWG (to be renamed CCCWG)
	S-99	Remove	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
	S-100	Remove	
	S-64	Remove	The IHO Test Dataset for ECDIS has grown beyond its original of testing the display of ENC data. S-64 now includes tests that were in IEC 61174. Since the OEMs who will constitute most of the membership of the S-100 WG are also the subject matter experts on IEC 61174, the most logical place to assign S-64 is into the S-100 WG.

Table 4

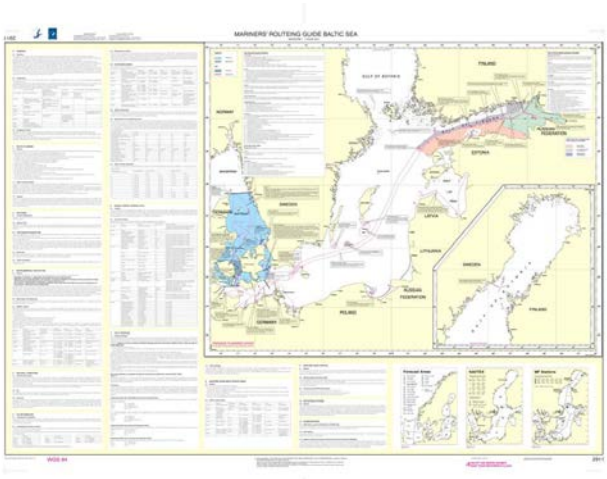
DIPWG

As stated in HSSC5-04.2B, we recommend moving the S-100 portrayal model and the mechanics of maintaining the associated portrayal registers to the S-100 WG where the expertise in data modeling would reside. No additional changes to DIPWG are recommended.

Working Group	Responsibility	Status	Rational
DIPWG	S-52	Keep	The core business of the reorganized DIPWG will remain maintaining and extending the implementation of portrayal for the old (S-57) and new (s-101) ENC data.
	S-101, §9	Keep	
	S-100, §9	Remove	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG

Table 5

SNPWG (to be renamed Nautical Information Working Group)



This working group now focuses more on the exchange of nautical information than on traditional paper publications and is currently engaged in bringing nautical information (from traditional nautical publications and other sources) into a digital S-100 based format. Thus, we recommend that the paper oriented term "publications" in the working group's name be replaced with the more media neutral term "information." Also, in an effort to gain efficiency and leverage the expertise within this working group in handling large amounts of textualand associated graphic (non-hydrographic) information, we recommend that the S-49 Standardization of Mariners' Routeing Guides be taken over by this group. As shown in the example above, routeing guides consist of large blocks of text and the map graphics purposefully lack most traditional nautical chart features, such as soundings. There may eventually be several interoperable product layers that are derived from textual nautical information, which could benefit from the expertise in this working group.

Working Group	Responsibility	Status	Rational
SNPWG NIWG	S-10_ (Nav Pubs)	Keep	SNPWG has investigated producing an S-100 based Marine Protected Areas product specification in the past and may soon explore developing a radio services product specification.
	S-49	Add	Mariners' Routeing Guides are more similar to the text heavy nautical information that the members of SNPWG have expertise in.

Table 6

CSPCWG (to be renamed Chart Content and Cartography Working Group)

The members of CSPCWG are currently considering a name change to move away from being strictly identified as a paper chart working group. We propose an enhanced role for this working group, which will retain and reinforce its relevance in an era where the use of paper charts is declining and the use of ENCs is quickly increasing.

The proposed name change to the "Chart Content and Cartography Working Group" is data format neutral. This group should continue to refine how real world features could best be represented on paper charts, but should also more carefully consider how the same feature might be displayed in other formats, most notably ENCs. Thus, while we recommend generally aligning working groups by data format type; we propose a hybrid role for the CCCWG.

In the past CSPCWG has made determinations on what should be on paper charts and how to symbolize those elements. Although TSMAD, DIPWG and CSPCWG do a respectable job of keeping each other apprised of ongoing activities, there is often a degree of waiting for CSPCWG to specify the cartographic approach for a feature (such as virtual aids to navigation) in S-4 and then TSMAD and DIPWG determine how to model the object and adapt the paper chart symbology for use in electronic displays. We propose that the CCCWG take on a larger role in considering the implementation of including a particular feature type on all chart types (raster and vector) and specifying the cartography (or representation) that could be implemented on both formats easily. Thus, symbology could be developed on harmony before a raster symbol is "locked in."

TSMAD and DIPWG may then focus on perfecting the mechanics of modeling the object within the ENC data structure and DIPWG on the mechanic of building appropriate symbolization rules, display priorities and other factors to implement the specified representation in ECDIS.

Finally, as part of the functional realignment, it is also proposed that S-32 the Hydrographic Dictionary be moved to this group. This will then bring together both the definition and specification of chart content to a single working group.

Working Group	Responsibility	Status	Rational
CSPCWG CCCWG	S-4	Keep	The core business of the CSPCWG (to be renamed CCCWG) will remain providing expertise on the fundamental concepts and elements of marine cartography. Although CSPCWG was primarily focused on the symbology and construction of paper charts, the reorganized CCCWG will also be asked to take the portrayal of data in other formats into consideration.
	S-11	Keep	
	S-49	Remove	Mariners' Routeing Guides are more similar to the text heavy nautical information that the members of SNPWG have expertise in.
	S-32	Add	There is a logical connection between the specification for representing features and concepts in S-4 and their definitions shown in S-32. The experts in the CSPCWG are often consulted to assist in defining terms and in the use of terms in other standards. Thus, it makes sense that maintaining this document be the responsibility of the CCCWG.
	S-61	Add	The stable and unchanging Raster Nautical Chart (RNC) product specification will be assigned to the raster oriented CSPCWG (to be renamed CCCWG)

Table 7

Eliminating DPSWG and HDWG

As a result of the above functional alignment of various IHO standards and specifications it is proposed that DPSWG and the HDWG be eliminated. The function of DPSWG would be taken over by the S-100 Working Group and the expert contributors supporting S-63 and S-100 are essentially the same.

Even though HDWG works primarily by correspondence, as part of the functional alignment of standards to different IHO working groups, it is proposed that this group be eliminated as its function will be taken over by the CSPCWG.

Working Group	Responsibility	Status	Rational
DPSWG	S-63	Remove	Much, if not all of the data protection functionality being specified in S-63 will eventually migrate into the S-100 standard, thus it should be assigned to the S-100 WG
HDWG	S-32	Remove	There is a logical connection between the specification for representing features and concepts in S-4 and their definitions shown in S-32. The experts in the CSPCWG are often consulted to assist in defining terms. Thus, it makes sense the responsibility of maintaining the hydrographic dictionary be moved to the renamed CCCWG.

Table 8

Other HSSC working groups

No changes are recommended for the functional alignment of DQWG, MSDIWG, SCWG or TLWG.

Working Group	Responsibility	Status	Rational
DQWG	Data Quality	Keep	
MSDIWG	C-17	Keep	No changes are recommended for the responsibilities of DQWG, MSDIWG, SCWG or TLWG.
SCWG	Surface Currents Product Specification	Keep	
TWLWG	Tides & Water Levels	Keep	

Table 9

Conclusions

- The HSSC should consider establishing an S-100 Working Group and the reorganizing of TSMAD and DIPWG as high priority as described in companion paper HSSC5-04.2B.
- Consideration should also be taken for organizing related product specifications and tasks by data format type into working groups.
- Moving ahead with adjusting working group responsibilities will position the HSSC to accomplish its work more efficiently and enable member states and industry partners to target available experts to the serve on appropriate working groups more effectively.

Recommendations

- Establish a small ad hoc team to undertake the following tasks:
  - Evaluate and refine the recommendations made in this paper.
  - Work with the affected working groups to draft edits to their Terms of References and realignment of work-plan items as appropriate
  - Make recommendations to the HSSC on a time table to adopt each of the recommended changes
  - Prepare an implementation plan for the reorganization for approval at HSSC-6

Justification and Impacts

Re-aligning HSSC working groups according to functional responsibility and product data format will serve to balance the workload of the HSSC working groups and improved the efficiency and effectiveness of the HSSC as a whole.

Action Required of HSSC

The HSSC is invited to:

A. agree to establish an S-100 Working Group,
B. agree to re-align responsibilities for IHO standards as depicted in Figure 1 and in Annex C,
C. agree to rename CSPCWG to the Chart Content and Cartography Working Group,
D. agree to rename SNPWG to the Nautical Information Working Group,
E. agree to disband DPSWG,
F. agree to disband HDWG, and
G. agree to establish a small ad hoc team to facilitate implementing the changes.

Items in **bold text** are assigned to an HSSC working group and are referenced in Figure 1 and the tables in Appendices 2 and 3.

IHO Standards and Specifications	
C-17	**Spatial Data Infrastructures: "The Marine Dimension" - Guidance for Hydrographic Offices**
S-4	**Regulations for International (INT) Charts and Chart Specifications of the IHO**
S-5	Standards of Competence for Hydrographic Surveyors
S-8	Standards of Competence for Nautical Cartographers
S-11	**Guidance for the Preparation and Maintenance of International Chart Schemes and Catalogue of International (INT) Charts**
S-12	Standardization of List of Lights and Fog Signals
S-23	Limits of Oceans and Seas
S-32	**Hydrographic Dictionary**
S-44	IHO Standards for Hydrographic Surveys
S-49	**Standardization of Mariners' Routeing Guides**
S-52	**Specifications for Chart Content and Display Aspects of ECDIS**
S-53	Joint IMO/IHO/WMO Manual on Maritime Safety Information
S-57	**IHO Transfer Standard for Digital Hydrographic Data**
S-58	**Recommended ENC Validation Checks**
S-60	User´s Handbook on Datum Transformations involving WGS 84
S-61	**Product Specification for Raster Navigational Charts (RNC)**
S-62	List of Data Producer Codes
S-63	**IHO Data Protection Scheme**
S-64	**IHO Test Data Sets for ECDIS**
S-65	**ENCs: Production, Maintenance and Distribution Guidance**
S-66	Facts about Electronic Charts and Carriage Requirements
S-99	**Operational Procedures for the Organization and Management of the S-100 Geospatial Information Registry**
S-100	**IHO Universal Hydrographic Data Model**
S-101	**IHO Electronic Navigational Chart Product Specification**
S-102	**Bathymetric Surface Product Specification**

Working Group	Responsibility	Status	Rational
TSMAD	S-57	Keep	The core business of the reorganized TSMAD will be maintaining and extending the old and new ENC product specifications
	S-101	Keep	
	S-58	Keep	Provides ENC data validation checks
	S-65	Keep	Provides ENC production, maintenance and distribution guidance
	S-102	Keep for now	TSMAD can continue to support the development of the Bathymetric Surface Product Specification for now, but moving this to a more appropriate working group should be considered.
	S-61	Remove	The stable and unchanging Raster Nautical Chart (RNC) product specification will be assigned to the raster oriented CSPCWG (to be renamed CCCWG)
	S-99	Remove	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
	S-100	Remove	
	S-64	Remove	The IHO Test Dataset for ECDIS has grown beyond its original of testing the display of ENC data. S-64 now includes tests that were in IEC 61174. Since the OEMs who will constitute most of the membership of the S-100 WG are also the subject matter experts on IEC 61174, the most logical place to assign S-64 is into the S-100 WG.
DIPWG	S-52	Keep	The core business of the reorganized DIPWG will remain maintaining and extending the implementation of portrayal for the old (S-57) and new (s-101) ENC data.
	S-101, §9	Keep	
	S-100, §9	Remove	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
S-100 WG	S-100	Add	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
	S-99	Add	
	S-63	Add	Much, if not all of the data protection functionality being specified in S-63 will eventually migrate into the S-100 standard, thus it should be assigned to the S-100 WG
	S-64	Add	The IHO Test Dataset for ECDIS has grown beyond its original of testing the display of ENC data. S-64 now includes tests that were in IEC 61174. Since the OEMs who will constitute most of the membership of the S-100 WG are also the subject matter experts on IEC 61174, the most logical place to assign S-64 is into the S-100 WG.
CSPCWG CCCWG	S-4	Keep	The core business of the CSPCWG (to be renamed CCCWG) will remain providing expertise on the fundamental concepts and elements of marine cartography. Although CSPCWG was primarily focused on the symbology and construction of paper charts, the reorganized CCCWG will also be asked to take the portrayal of data in other formats.
	S-11	Keep	
	S-49	Remove	Mariners' Routeing Guides are more similar to the text heavy nautical information that the members of SNPWG have expertise in.
	S-32	Add	There is a logical connection between the specification for representing features and concepts in S-4 and their definitions shown in S-32. The experts in the CSPCWG are often consulted to assist in defining terms and in the use of terms in other standards. Thus, it makes sense that maintaining this document be the responsibility of the CCCWG.
	S-61	Add	The stable and unchanging Raster Nautical Chart (RNC) product specification will be assigned to the raster oriented CSPCWG (to be renamed CCCWG)
SNPWG NIWG	S-10_ (Nav Pubs)	Keep	SNPWG has investigated producing an S-100 based Marine Protected Areas product specification in the past and may soon explore developing a radio services product specification. There may eventually be several interoperable product layers that are derived from textual nautical information.
	S-49	Add	Mariners' Routeing Guides are more similar to the text heavy nautical information that the members of SNPWG have expertise in.
			The working group was specifically established to create the Surface Currents product specification.
DPSWG	S-63	Remove	Much, if not all of the data protection functionality being specified in S-63 will eventually migrate into the S-100 standard, thus it should be assigned to the S-100 WG
HDWG	S-32	Remove	There is a logical connection between the specification for representing features and concepts in S-4 and their definitions shown in S-32. The experts in the CSPCWG are often consulted to assist in defining terms. Thus, it makes sense the responsibility of maintaining the hydrographic dictionary be moved to the renamed CCCWG.
DQWG	Data Quality	Keep	No changes are recommended for the responsibilities of DQWG, MSDIWG, SCWG or TLWG.
MSDIWG	C-17	Keep	
SCWG	S-10_ (Surface Currents)	Keep	
TWLWG	Tides & Water Levels	Keep	

Appendix 3
Summary of Proposed Working Group Changes (Sorted by Document)

Responsibility	Working Group	Status	Rational
C-17	MSDIWG	Keep	No changes are recommended for the responsibilities of MSDIWG
Data Quality	DQWG	Keep	No changes are recommended for the responsibilities of DQWG
Tides & Water Levels	TWLWG	Keep	No changes are recommended for the responsibilities of TLWG
S-4	CSPCWG CCCWG	Keep	The core business of the CSPCWG (to be renamed CCCWG) will remain providing expertise on the fundamental concepts and elements of marine cartography. Although CSPCWG was primarily focused on the symbology and construction of paper charts, the reorganized CCCWG will also be asked to take the portrayal of data in other formats.
S-11	CSPCWG CCCWG	Keep	Maintenance of guidance related to INT charts will remain in CCCWG.
S-32	HDWG GDWG	Remove	There is a logical connection between the specification for representing features and concepts in S-4 and their definitions shown in S-32. The experts in the CSPCWG are often consulted to assist in defining terms and in the use of terms in other standards. Thus, it makes sense that maintaining this document be the responsibility of the CCCWG.
	CSPCWG CCCW	Add	
S-49	CSPCWG CCCWG	Remove	Mariners' Routeing Guides are more similar to the text heavy nautical information that the members of SNPWG have expertise in.
	SNPWG NIWG	Add	
S-52	DIPWG	Keep	The core business of the reorganized DIPWG will remain maintaining and extending the implementation of portrayal for the old (S-57) and new (s-101) ENC data.
S-57	TSMAD	Keep	The core business of the reorganized TSMAD will be maintaining and extending the old and new ENC product specifications
S-58	TSMAD	Keep	Provides ENC data validation checks
S-61	TSMAD	Remove	The stable and unchanging Raster Nautical Chart (RNC) product specification will be assigned to the raster oriented CSPCWG (to be renamed CCCWG)
	CSPCWG CCCWG	Add	
S-63	DPSWG	Remove	Much, if not all of the data protection functionality being specified in S-63 will eventually migrate into the S-100 standard, thus it should be assigned to the S-100 WG
	S-100 WG	Add	
S-64	TSMAD	Remove	The IHO Test Dataset for ECDIS has grown beyond its original of testing the display of ENC data. S-64 now includes tests that were in IEC 61174. Since the OEMs who will constitute most of the membership of the S-100 WG are also the subject matter experts on IEC 61174, the most logical place to assign S-64 is into the S-100 WG.
	S-100 WG	Add	
S-65	TSMAD	Keep	Provides ENC production, maintenance and distribution guidance
S-99	TSMAD	Remove	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
	S-100 WG	Add	
S-100	TSMAD	Remove	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
	S-100 WG	Add	
S-100, §9	DIPWG	Remove	Development and maintenance of the S-100 Model and its associated GI Register will become the core business of the newly formed S-100 WG
S-101	TSMAD	Keep	The core business of the reorganized TSMAD will be maintaining and extending the old and new ENC product specifications
S-101, §9	DIPWG	Keep	The core business of the reorganized DIPWG will remain maintaining and extending the implementation of portrayal for the old (S-57) and new (s-101) ENC data.
S-102	TSMAD	Keep for now	TSMAD can continue to support the development of the Bathymetric Surface Product Specification for now, but moving this to a more appropriate working group should be considered.
S-10_ (Nav Pubs)	SNPWG NIWG	Keep	SNPWG has investigated producing an S-100 based Marine Protected Areas product specification in the past and may soon explore developing a radio services product specification. There may eventually be several interoperable product layers that are derived from textual nautical information.
S-10_ (Surface Currents)	SCWG	Keep	The SCWG was specifically established to create the Surface Currents product specification.