

Report of the Standardization of Nautical Publications WG (SNPWG)

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Related Documents:	Minutes of the 17 th SNPWG meeting (7–10 Nov 2012), BSH Rostock, Germany
Related Projects:	S-100; HSSC5-03B

Chair:	Jens SCHRÖDER-FÜRSTENBERG, BSH, GE
Vice-Chair:	Tom LOEPER, NOAA, U.S.
Secretary (acting):	Vacant
Member States:	Brazil, Denmark, Estonia, Finland, France, Germany, Japan, Republic of Korea, Norway, Spain, Sweden, UK, USA, (and IHB),
Expert Contributor Organisations:	CARIS, Interschalt, Jeppesen, NOVACO,

Meetings Held During Reporting Period

SNPWG17, 7–10 April 2014, Rostock (Federal Maritime and Hydrographic Agency), Germany

Next Planned Meeting

SNPWG18, 1–4 December 2014, IHM Cadiz, Spain

SNPWG19, September 2015, to be determined

Work Program

Data Modeling

The classification of the whole range of text based nautical publication content as semantic entities is the crucial prerequisite for any form of modern management of this information. SNPWG undertook this task in a year long campaign to create a comprehensive catalogue of attributable features. This catalogue has the ambition to cover the information elements of the following publications exhaustively and unambiguously:

- Sailing Directions;
- List of Radio Signals;
- List of Lights;
- List of Buoys and Beacon;
- Mariners' Handbook;
- Routeing Guides;
- Notices to Mariners (Publications correction).

The resulting collection of features and attributes is ready to be listed within the Geospatial Information (GI) Registry. Extensions and modifications of the data model will be considered by the WG if the Product Specification development requires this.

The group is heavily engaged in data model harmonisation with the TSMAD S-101 Data Capturing and Encoding Guide (DCEG) sub working group.

The IHO Geospatial Information (GI) Registry, GI Registers

The IHO maintains an on-line GI Registry with associated GI Registers. The registers are the repositories for all features, information object classes, attributes and complex attributes which are under the responsibility of the relevant register owner. The SNPWG is the owner of the NPUB register.

Although various suggestions have been made by the SNPWG at HSSC5 to improve the GI Registry performance, the GI Registry has remained in the previous status during the last reporting period. It is still not possible to incorporate elements to the relevant register in a sufficient way. Neither the "sandbox" nor the bulk loading functions are available (see HSSC5-05.4A).

SNPWG progress in populating elements to the NPUP register is limited because of this lack of progress with the GI registry.

Development of the Marine Protected Area (MPA) Product Specification (S-122)

Significant progress has been made drafting the different components of the the S-100 conformant MPA ProdSpec.

The following parts of the S-122 are nearing completion:

- Application schema as part of the S-122 core text,
- Feature Catalogue,
- Data Capture and Encoding Guide (DCEG).

When the new S-100 Edition is endorsed, the main text section of the ProdSpec S-122 **could** be completed.

Completion of the portrayal catalogue section and the data quality section of the main text is pending the contributions by DIPWG and DQWG respectively.

The compilation of the DCEG for S-122 depends on the progress of the harmonisation discussion of the context features between the S-101 and the S-122. The widest possible harmonisation of certain parts of the data model of S-101 and S-122 is intended. The corresponding discussion between the TSMAD S-101 DCEG sub working group and the SNPWG is ongoing.

The S-122 test data samples may require revision and extension to reflect the necessity of the development of both a stand alone S-122 and an overlay S-122 product. The extensions will be mainly focussed on the context features which should be added.

Although knowing that the context features and some MPA attributes may require revision, **the SNPWG is working on** an MPA Feature Catalogue (FC) with a special Feature Catalogue Builder (FCB) outside the IHO GI Registry.

Development of the Radio Services Product Specification (S-123)

The test data sample has been reviewed several times by the SNPWG and it is considered stable. The application scheme is drafted and under review of the group. It is expected to extend the test data sample by adding relevant context features.

Development of the Navigational Services Product Specification (S-125).

The development of this ProdSpec has been postponed indefinitely.

Development of the Physical Environment Product Specification (S-126) and the Traffic Management Product Specification (S-127)

The first test data samples were delivered in time for the SNPWG17 meeting and have been experienced the first working group review during the meeting and the following months. As a major outcome

of this reviews, it was considered that the test data samples need more work to reach a stable status. Additional topics and simplifications of the data sets have been discussed and assigned to the WG-members who are involved in developing the test data samples. Revised test data samples will be submitted to the SNPWG18 meeting, December 2014.

It is expected to extend the test data samples by adding relevant context features when the test data samples are stable.

Development of the remaining NPUB Product Specifications

The production schedules for the data samples for Marine Service, Harbour Infrastructure and Social/Political are undetermined for the time being.

Maintenance of IHO Standards and Miscellaneous Publications

The SNPWG contributes or plans to contribute to the following IHO standards and miscellaneous publications:

- M-3 (Resolutions of the IHO) IHO Programme2 Section 2.4,
- S-12 (Standardization of List of Lights and Fog Signals),
- S-32 (Hydrographic Dictionary),
- S-64 (IHO Test Data Sets for ECDIS) Similar to chart content as part of the ENC test data, the SNPWG plans to integrate NP3-type nautical publication content into the test data sets,
- S-100 (IHO Universal Hydrographic Data Model).

Progress on HSSC Action Items

Follow up HSSC1/8. Develop Marine Environment Protection Programme (MEPP) based on S-100.

The Marine Protected Area Product Specification (S-122) comprising all mandated components defined by S-100 is nearing completion. The completion of the portrayal section and the data quality section depends on contributions by other HSSC WGs. In addition to the said incomplete sections, the completion date of the MPA ProdSpec depends also on the S-100 Edition 2.0 implementation.

Since it was confirmed by the TSMAD that an interaction between different products, namely the multiple use of identical geometry features, is not being supported by the current S-100 edition 1.0 and will not be supported by the scheduled S-100 edition 2.0, the SNPWG considers the provision of the S-122 as a stand-alone product.

To provide a chart S-101 styled background for the stand-alone product, a set of context features was defined. Thus, the stand-alone product will provide the relevant geometries of all features needed and contains all necessary attributes to be entirely independent from an ENC.

Due to the fact that the Marine Protected Area Product Specification is aiming to regulate the traffic in those specific areas, the product specification will be integrated into the Traffic Management Product Specification (S-127) in the future as well.

Some MPA sample test data is being used by other HSSC WGs. TSMAD in particular, is testing the use of GML standards in an S-100 environment using the MPA sample test data. Results of the tests have already influenced the next S-100 Edition.

Follow up HSSC4/26. Prepare a master plan for developing electronic nautical publications, with priority assigned to defining data models and product contents in order to coordinate the scheduling of deliverables with the implementation of S-101.

SNPWG reviewed all NPUB features which are currently stored in the SNPWG wiki and assigned the features to the NPUB Product Specifications. The sequence and the road map details of the development of the NPUB Product Specifications depend on specific contributions by other HSSC working groups.

The following road map gives a rough orientation for the different Product Specification components for Radio Services (S-123):

	Start	End	Duration in days	
(S-123) Radio Services	01.01.2013	31.12.2015	1080	
NP1 Data sample	01.01.2013	06.06.2013	155	
ProdSpec	01.07.2013	31.12.2014	540	
Application Schema	01.07.2013	14.02.2014	43	
Feature Catalogue	01.10.2013	Open		Dependent on FCB software availability
Portrayal spec		Open		DIPWG dependent
Portrayal catalogue		Open		DIPWG dependent
DCEG	01.05.2014	Open		Pending on S-101 DCEG progress
Test Bed				not yet defined

The first drafts of the respective test sample data sets were provided to SNPWG16 in April 2014 for: (S-126) Physical Environment, and (S-127) Traffic Management.

Due to the unfortunate withdrawal of WG members, the provision of the first data sample draft of the (S-125) Navigational Services is postponed indefinitely.

The road map for further steps of the development after the completion of test data sets for the S-126 and S-127 Product Specifications cannot be estimated at this stage. Future progress will be largely influenced by the experiences to be gained drafting the MPA and Radio Services Product Specifications.

Any Other Items of Note

Proposed modifications of the Terms of Reference

The SNPWG proposes modifications of their Terms of Reference (see bold additions below). These modifications reflect the IHO Work Programme and Budget and relevant items under 2.6.3 of the IHO Tasks where the SNPWG responsibility of maintaining particular IHO Publications is implied.

The modifications clarify the responsibility of the S-12 and M-3 (parts related to Nautical Publications) maintenance and in addition, it resolves the discrepancy between the tasks related to those publications which were assigned to SNPWG and the current respective Terms of References.

Consequently, it is proposed to modify the Objective and the Procedures (Paragraph 1) as follows:

“Objective

- a) To develop guidelines for the preparation of nautical publications, in a format compatible with digital information systems including but not limited to ECDIS.
- b) To develop and maintain the IHO publications for which it is responsible.**

Procedures

- a) The WG should:
 - (i) Investigate the data format specifications, content and display requirements of digital nautical publications intended for use in ECDIS and other information display devices.
 - (ii) Draft guidance document(s) and/or revised technical resolutions, as appropriate.
 - (iii) Liaise with relevant IHO Technical WG's to ensure, technical feasibility and compatibility of any developed proposals.”
- b) Keep under continuous review the following IHO publications or the parts related to Nautical Publications in order to advise the IHO on their updating:**
 - (i) **M-3 ‘Resolutions of the IHO’ (parts relating to Nautical Publications)**
 - (ii) **S-12 ‘Standardization of List of Lights and Fog Signals’**
- c) The WG should liaise with other HSSC WG's and other IHO and international bodies as appropriate and as instructed by HSSC.

The WG should work primarily by correspondence. The WG should attempt to meet at least once every two years, normally in connection with another convenient IHO forum. When meetings are scheduled, and in order to allow any WG submissions and reports to be submitted to HSSC on time, WG meetings should not normally occur later than nine weeks before a meeting of the HSSC.
- d) The WG should identify a work programme for each year, including expected time frame.”

Transfer of the web based SNPWG data dictionary into the IHO environment

Having considered the need for an effective working tool to develop and maintain the SNPWG data dictionary and having considered the lack of functionality of the IHO registry, the SNPWG used the SNPWG Wiki [<http://www.fuerstenberg-dhg.de/mediawiki/index.php/SNPWG>] for the data model development. The Wiki explains the meaning and application of each feature and attribute necessary for the definition of digital S-100 conformant NPUB Product Specifications of NP3-type nautical information (attributed features compatible with ECDIS).

Seeing the necessity to make the work available for a wider audience, the Wiki is now officially hosted by the IHB and accessible through the IHO Website

[http://wp12183585.server-he.de/npubwiki/wiki/index.php/Main_Page].

Dependent on the development of the Product Specifications, the relevant items of the dictionary will be moved to the NPUB GI register as soon as its functionality support this.

Strategy of implementing NPUB information into future ECDIS systems

Knowing that the SNPWG has got no mandate to initiate a discussion on the following items, and considering that this is outside the SNPWG responsibility, from the technical point of view, the group may draw the HSSC's attention to some details which possibly require a mid term solution.

Presuming that the production tools are able to manage S-100 based NPUB Product Specifications and thus, the production of NPUB products soon, the current development level of NPUB Product Specifications has been considered as a good starting point to initiate discussions on how to implement those products.

The replacement of printed nautical publications by a database which would be able to reproduce the content and thus, the fulfilment of the carriage requirement, is fully supported by SOLAS Chapter V. Thus, under the SOLAS Chapter V umbrella, the use of S-100 conformant NPUB Product Specifications on board is fully supported.

Considering that the producing agencies/offices do not provide all NPUB information in a harmonised way, it should be discussed with the member states which NPUB products or set of products are intended to replace which printed nautical publications.

Upon the endorsement of the NPUB product specifications in the future, the level of participation in the SNPWG and the efforts made imply that the NPUB producing agencies/offices intend to produce such products in mid terms in parallel to printed publications or that they intend to produce such S-100 conformant products solely according to the WEND principles.

Similar to ENCs, a set of further standards which support the NPUB product data check, the data portrayal, the data protection and the data delivery may need to be established. In addition, the IEC should be contacted to discuss how the future ECDIS systems should manage the digital NPUB products.

MPA ProdSpec for MONALISA project

Because of the current level of the development, the MONALISA project is using the MPA Product Specification as the basis for the development of their Maritime Spatial Planning (MSP) product specification.

NPUB and IMO e-Nav solutions

It is recognised that the SNPWG could support the following e-navigation solutions by providing the appropriate data model (ref to NCSR 1st session 2014):

S2: means for **standardized** and automated **reporting**;

S3: improved **reliability, resilience and integrity** of bridge equipment and **navigation information**;

S4: **integration and presentation of available information** in graphical displays received via communication equipment; and

S5: **improved communication** of VTS Service Portfolio (not limited to VTS stations).

In addition, the **following** Maritime Service Portfolios could be supported as well:

- (MSP 1) VTS Information Service (IS);
- (MSP 2) VTS Navigation Assistance Service (NAS);
- (MSP 3) VTS Traffic Organization Service (TOS);
- **(MSP 4) Local Port Service (LPS);**
- (MSP 5) Maritime Safety Information (MSI) service;
- **(MSP 6) pilotage service;**
- **(MSP 7) tugs service;**

- **(MSP 8) vessel shore reporting;**
- (MSP 9) Telemedical Maritime Assistance Service (TMAS);
- **(MSP 10) Maritime Assistance Service (MAS);**
- **(MSP 11) nautical chart service;**
- **(MSP 12) nautical publications service;**
- (MSP 13) ice navigation service;
- (MSP 14) Meteorological information service;
- (MSP 15) real-time hydrographic and environmental information services; and
- (MSP 16) Search and Rescue (SAR) Service.

Traceability Matrixes for NPUB Product Specifications

In addition to the respective master plans of each NPUB Product Specification, the SNPWG developed and maintains traceability matrixes for each Product Specification which is under development. Each matrix contains completion status (Status of completion) of information relating to relevant test data set and the product specifications components.

e-Nav testbed is using NPUB features and attributes

The e-Nav testbed initiated by the Republic of Korea is using the MPA data model for their purposes.

Development of test data sets

Test data sets are crucial components of the product specification development. They are different from charts which have the INT1 as a common reference. A reference describing the style, layout, information density of nautical publications does not exist. The relevant part of the IHO M-3 resolution is recommending only the basics of the information provision.

The SNPWG started the development of test data sets which are providing a uniform structure for each of the S-12x product specifications. This is the first time that work is being done for publications and can be compared with the development process of the INT1 chart.

A uniform structure of the test data sets is also important for the future development of S-64 parts which could be applicable for nautical publications components.

Conclusions and Recommended Actions

- The SNPWG activities were focussed on making progress with the NP3-type NPUB Product Specifications development.
- All SNPWG Product Specifications would be based on the new S-100 Edition 2.0 which is currently under development. The given schedules depend on the S-100 Edition 2.0 development progress and on the progress of other HSSC WGs including, but not limited to, DIPWG and DQWG.
- ~~— The SNPWG has been in close contact with the IALA Committee—Aids to Navigation Requirements & Management (ARM) and is requesting the HSSC endorsement to develop a common data model on light numbering which would support the e-Nav strategy.~~

Action Required of HSSC

HSSC6 is invited to endorse:

1. the continued activity of SNPWG.

HSSC6 is further invited to confirm:

1. the proposed development schedule for
 - a. the Marine Protected Area Product Specification (S-122).
 - b. the Radio Service Product Specification (S-123).

HSSC6 is further invited to note this report and to endorse:

1. the continuance of the Work Plan, and
2. the new Terms of Reference.

ANNEX A to SNPWG Report

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SNPWG WORK PLAN 2014-15

SNPWG Tasks

A	Decide on the Data Structure of NPs-Data intended for use in ECDIS (NP3) (IHO Task 2.6.2 refers)
B	Define the content requirements of NP data intended for use in ECDIS (NP3) (IHO Task 2.6.2 refers)
C	Develop test data (IHO Task 2.6.2 refers)
D	Develop basic display rules for NP data intended for use in ECDIS (NP3) (IHO Task 2.6.2 refers)
E	Draft guidance documents (IHO Task 2.6.2 refers)
F	Maintain and extend IHO resolutions in M-3 relating to Nautical Publications as required (IHO Task 2.6.3 refers)
G	Liaise with other HSSC WG's and other IHO and international bodies (IHO Task 2.6.2 refers)
H	Develop, maintain and extend S-10n - Nautical Information Product Specification (IHO Task 2.6.2 refers)
I	Conduct the 2014 and 2015 meetings of SNPWG (IHO Task 2.6.1 refers)

Work Item	Title	Priority H-high M-medium L-low	Next milestone	Start Date	End Date	Status P-Planned O-Ongoing C-Completed S-Superseded	Contact Person	Related Pubs / Standard	Remarks
A.1	Investigate the interaction between MPA and ENC in ECDIS	M		2015	Permanent	P	Chair/Sec SNPWG	S-100	In close liaison with the S-100 WG (if founded) or TSMAD

B.2	Model the data where required.	H		2004	Permanent	O	Chair/Sec SNPWG	S-100	To be included in NPUBS domain of the FCD Register
B.3	Review of objects and attributes	H	12/2014	2004	Permanent	O	Chair/Sec SNPWG	S-100	According to the tasks assigned by HSSC4
B.4	Propose amendments to HYDRO domain of the FCD Register	H		2005	Permanent	O	Chair/Sec SNPWG	S-100	To be included in the FCD register
B.5	Propose amendments to AtoN domain of the FCD Register	H	08/2014	2014	2014	O	Chair/Sec SNPWG	S-125	To improve the current definitions and attribute values at the FCD register
B.6	Populate the NPUBS domain of the FCD Register	H		2006	Permanent	O	Chair/Sec SNPWG	S-100	Awaiting Registry improvements
C.1	Produce NP1 sample data sets								According to the tasks assigned by HSSC4. Collection of information to be modelled
C.1.1	For Radio Services	H	12/2014	2012	2014	O	Chair/Sec SNPWG	S-123	
C.1.2	For Navigational services	H	12/2014	2012	2015	O	Chair/Sec SNPWG	S-125	
C.1.3	For Traffic management	H	12/2014	2012	2015	O	Chair/Sec SNPWG	S-127	Marine Protected Area Part was completed in 2012
C.1.4	For Physical environment	H	12/2014	2013	2015	O	Chair/Sec SNPWG	S-126	
C.2	Set up a test bed ECDIS	M		-	-	P	Chair/Sec SNPWG		
D.1	Develop basic display rules for NP data intended for use in ECDIS (NP3)	M		2008	2015*	O	Chair/Sec SNPWG	S-52	Close co-operation with DIPWG required *end date depends on DIPWG schedule

E.1	Draft Data Capture and Encoding Guides								Document for NPs similar to Use of the Object Catalogue
E.1.1	For Marine Protected Areas	H	12/2014	2011	2015	O	Chair/Sec SNPWG	S-122	To be harmonized with S-101 DCEG; Awaiting next S-100 version
E.1.2	For Radio Services	M		2015	2015	P	Chair/Sec SNPWG	S-123	Depends on modelling progress
E.3	Draft Product Specification								
E.3.1	For Radio Services	H	12/2014	2014	2015	O	Chair/Sec SNPWG	S-123	
E.3.2	For Navigational services	H	12/2014	-	-	P	Chair/Sec SNPWG	S-125	
E.3.3	For Traffic management	H	12/2014	2011	2016	O	Chair/Sec SNPWG	S-127	The start date is in-line with the MPA ProdSpec development
E.3.3.1	For Marine Protected Areas	H	12/2014	2011	2015	O	Chair/Sec SNPWG	S-122	Depends on progress of next S-100 version allowing GML data use
E.3.4	For Physical environment	H	12/2014	-	-	P	Chair/Sec SNPWG	S-126	
F.1	Maintain and extend resolutions in M-3 relating to Nautical Publications	M	12/2014	2012	Permanent	O	Chair/Sec SNPWG	M-3	A review is scheduled due to harmonization of M3 information and potential ProdSpecs content
F.2	Maintain and extent S-12	M	12/2014	2014	Permanent	O	Chair/Sec SNPWG	S-12	Depends on the outcome of discussions with other concerned organisations
G.1	Liaise with the DIPWG for the development of the display rules	H		2005	Permanent	O	Chair/Sec SNPWG		

G.2	Liaise with the TSMAD	H		2004	Permanent	O	Chair/Sec SNPWG		
G.3	Liaise with other groups	H		2004	Permanent	O	Chair/Sec SNPWG		Including DPSWG, DQWG, TWLWG, MIO's, AML, ICE, Inland ECDIS
G.4	Liaise with IALA e-Nav Committee	H		2013	Permanent	O	Chair/Sec SNPWG		As advised by HSSC4
H.1	Develop S-12n - Nautical Information Product Specification								Liaise with WWNWS-Sub committee
H.1.1	For Radio Services	H	12/2014	2012	2016	O	Chair/Sec SNPWG	S-123	
H.1.2	For Navigational services	H	12/2014	2013	2016	O	Chair/Sec SNPWG	S-125	
H.1.3	For Traffic management	H	12/2014	2013	2016	O	Chair/Sec SNPWG	S-127	
H.1.3.1	For Marine Protected Areas	H	12/2014	2011	2015	O	Chair/Sec SNPWG	S-122	Awaiting completion of S-100 Edition 2 and Feature Catalogue Builder
H1.4	For Physical environment	H	12/2014	2013	2016	O	Chair/Sec SNPWG	S-126	

