TSMAD17- 5.1 MEP

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Report of the MEPTG

MARINE ENVIRONMENTAL PROTECTION PRODUCT SPECIFICATION TASK GROUP

Submitted by: Work Item Leader, MEPTG

Related Documents: CHRIS19-08.1B: Marine Environmental Protection Product Specification

Related Projects: NA

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Meetings Held During Reporting Period

MEPTG, 3 June-5 June, 2008, San Francisco, CA USA

Progress on TSMAD Action Items

The Marine Environmental Protection Product Specification Task Group (MEPTG) was established to develop an S-100 Product Specification (PS) for environmental data, specifically environmental data related to marine protected areas (MPA) and coral reef ecosystems. As directed by the CHRIS, the original expectation was that this PS would allow the integration of coral, MPAs and other marine environmental information for use with Electronic Navigational Charts (ENCs) in an Electronic Chart Display and Information System (ECDIS). This PS would also permit the exchange of MEP information among scientists and environmental mangers in a standardized format for non-navigation purposes. Discussions and decisions derived by consensus of the Task Group participants resulted in a different set of outcomes.

In order to accomplish the assigned task, participation of subject matter experts from the international environmental community was essential. This participation was consistent with the expanded vision and mission of the IHO to provide hydrographic data for the widest possible uses, including for protection of the marine environment. The workshop provided an opportunity to build necessary relationships with environmental content area specialists that were necessary for this specific task and will quite likely prove beneficial in any future IHO sanctioned MEP endeavors.

Local representatives of maritime industry also joined the first day of the meeting to provide the task group with a user's perspective. These representatives confirmed that positional and restriction information particularly for Marine Protected Areas was of great interest due to the associated penalties and that such information should be included in ENCs if possible. They were also clear that supplementary information about MPAs was unnecessary for safe navigation.

The MEPTG determined that MPA information should be structured for use by SOLAS class vessels. The first question addressed by the task group was, with the SOLAS class user in mind, where should information about MPAs reside within the S-100 structure? The consensus of the task group was that positional and restriction information related to MPAs should reside in the hydrographic feature data dictionary because many MPAs have entry and transit restrictions that should be available to the professional mariner as part of the (ENC). Therefore, the task group decided to propose a new feature, MPAARE to the hydrographic register.

The second question addressed by the task group was, how much information should the professional mariner have about the MPA management objectives, MPA classification, and specific penalties associated with a marine protected area? Access to this information may prove valuable in certain cases, such as reporting oil spills or hazardous material discharges, but most professional mariners may not need this level of detail. The task group decided that this information is supplementary and could be made non-mandatory. Detailed information about MPAs may be more appropriate for other product specifications; therefore the task group decided to propose that two new information type objects, MPADET and MPAPEN be forwarded to SNPWG for inclusion in the Nautical Publications register.

Problems Encountered

Several factors prevented the task group from completing the MEP product specification. First, due to the aggressive timeline established for this process only one meeting was held. This meeting provided an essential opportunity to bring together the necessary expertise from the international hydrographic and environmental communities. Since such interaction is rather new for IHO technical bodies, each group needed some familiarization with concepts outside of their respective areas of expertise; therefore the first day of the workshop consisted of background presentations about the IHO, S-100, MPAs, and coral reef ecosystems. This educational session was necessary so that all participants could begin discussions with a common frame of reference. The remainder of

the workshop was devoted to addressing how to include MPAs within S-100, including the development of the MPAARE feature object and attributes. Time constraints prevented a complete assessment of coral reef ecosystems.

Secondly, a resolution on how to handle marine environmental protection data that is not navigationally significant was not achieved, because of inconvenient timing with S-100 development. S-100 is currently being drafted; therefore many of the processes inherent to S-100 have not been tested. Environmental and scientific information that is both supplementary and complementary to the ENC needs a place to reside within the S-100 structure. A possible solution to this problem would be to register new environmental features and attributes that are not navigationally significant in a separate register. However, due to the draft status of S-100, the process for establishing such a register is not clearly defined. Continued work in this area is necessary to clarify the register creation process.

Lastly, the complexity of coral reef ecosystems, lack of an internationally accepted classification scheme, and their debatable importance to commercial navigation precluded the Task Group from making any decisions on how to incorporate this information into S-100, and ultimately deliver this information to scientists and mariners in a clear and useful manner at this time. The task group approached coral reef ecosystems from the standpoint of the professional mariner. Modeling these ecosystems for users other than navigational interests was not seriously undertaken. A continuation of the MEP task group may allow for a complete assessment of how to handle coral reef ecosystems.

Conclusions and Recommended Actions

Conclusions

- The MEP Task Group established to develop a marine environmental protection product specification centered on two concepts or features, one of these proving to be navigationally significant. A separate register should be created to house environmental and scientific information that is supplementary to the ENC. Once the register is populated with appropriate features, or other features that have been deemed not appropriate for navigationally centered registers, a product specification using these features can be developed.

- There is concern within the navigational community about the impact that a marine environmental protection product specification would have on navigational users. A clear cut distinction between navigational use, and support of other users should be made at the outset of any future MEP endeavors. This distinction will eliminate resistance to future product specifications aimed at users other than traditional navigational interests.

- The theoretical register structure seems clear. Implementation of this structure as it relates to new topics, such as environmental and scientific information, is

ambiguous. Mechanisms for creating a new register, designating a register owner, and utilizing features and attributes from other registers in a product specification do not seem to be clearly understood by individuals outside of primary working groups responsible for S-100 development. Clarification of these issues needs to be undertaken.

- The work of this task group helped to build partnerships between hydrographic offices and environmental organizations. These partnerships should be fostered through continued communication, so that environmental and scientific organizations gain an understanding of the IHO's goals and mission. Educating external users on how the IHO S-100 data transfer standard can be used for exchange and use of hydrographic data for non-navigation purposes will reinforce the role of IHO in supporting marine environmental protection. However, roles and responsibilities of how hydrographically related registers are sponsored, maintained and utilized are not clear.

Recommended Actions

- Adopt MPAARE feature into the hydrographic feature data dictionary. Refer to the included appendices for the specific modeling of this feature.

- Refer the information type objects, MPADET and MPAPEN to the SNPWG for adoption to the nautical publications feature data dictionary.

- Refer the feature object attributes, CATMPA and CATIUC to the SNPWG for adoption to the nautical publications feature data dictionary.

- Recommend that the CHRIS authorize continued work by this task group to develop a marine environmental protection product specification that could demonstrate how the S-100 standard can be used by scientists, environmental stewards, and natural resource managers to reliably exchange and use hydrographic data for non-navigation purposes.

Justifications and Impacts

Adopting these new features and associated attributes would have minimal negative impacts for the navigational community, and would benefit the environment, enhance safe navigation, and demonstrate the IHO's commitment to safe navigation and environmental stewardship.

MPAs are currently modeled within S-57 as restricted areas (RESARE) with an environmental enumeration in the category of restricted area (CATREA) attribute. Adopting the proposed features and attributes as recommended, modernizes the modeling of MPAs for future ENCs and other product specifications. This action demonstrates the

flexibility inherent in S-100 to adapt features and attributes to changing conditions within the environmental and scientific community.

Continued work on a Marine Environmental Protection Product Specification will offer several benefits to the IHO's development of S-100. These benefits include the following:

- provide an opportunity to test S-100 structure and processes, such as new register creation and management
- develop a mechanism within S-100 structure to handle and address information that is not strictly for navigation
- demonstrate the IHO's commitment to developing a flexible standard for hydrographic data, as well as data allied with navigation, such as emission control areas and information related to MARPOL.

Impacts of continued work on a MEP product specification would include the following:

- continued workload on the participants of the task group
- require a contribution of competent expertise in the areas of register creation, maintenance, and feature/attribute structure
- require continued cooperation with environmental and scientific partners
- one or two workshop meetings with technical and environmental experts within a year timeframe

The expected deliverables from continued work on a Marine Environmental Protection product specification would include a draft product specification for environmental features utilizing features from an environmental/scientific register that is separate from existing S-100 registers.

GEO OBJECT CLASS

Feature:	**Marine Protected Area**

Acronym: **mpaare**

Set Attribute_A: DATEND; DATSTA; JRSDTN; NATION; NOBJNM; OBJNAM; PEREND; PERSTA; RESTRN; STATUS;

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMAX; SCAMIN; TXTDSC

Set Attribute_C: SORDAT; SORIND

Definition:

Marine Protected Area**:** Any area of the intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which as been reserved by law or other effective means to protect part or all of the enclosed environment. (IUCN – The World Conservation Union. 1998. Resolution 17.38 of the 17th General Assembly of the IUCN. Gland, Switzerland and Cambridge, UK.)

INT 1: IN 22

M-4: 437.3;437.6

Remarks:

Distinction: caution area; marine farm/culture; military practice area; restricted area

Appendix 1

INFORMATION TYPE OBJECT

Feature:	**Marine Protected Area details**

Acronym: **mpadet**

Set Attribute_A: catmpa, DATEND; DATSTA; DRVAL1; DRVAL2; iuccat; mpapen; mpareg; NOBJNM; OBJNAM; PEREND; PERSTA; RESTRN; STATUS;

Set Attribute_B: INFORM; NINFOM; NTXTDS; PICREP; SCAMAX; SCAMIN; TXTDSC

Set Attribute_C: SORDAT; SORIND

Definition:

Information about Marine Protected Areas.

INT 1:

M-4:

Appendix 1

INFORMATION TYPE OBJECT

Feature:	**Marine Protected Area Penalty**

Acronym: **mpapen**

Set Attribute_A: DATEND; DATSTA; penlty; PEREND; PERSTA

Set Attribute_B: INFORM; NINFOM; NTXTDS; TXTDSC

Set Attribute_C: SORDAT; SORIND

Definition:

Information about penalties for violating Marine Protected Area regulations.

INT 1:

M-4:

Appendix 1

FEATURE OBJECT ATTRIBUTE

Feature:	**Category of MPA**

Acronym: **catmpa**

Attribute type: E

Expected input:

ID	Meaning	INT 1	M-4
1 :	ESSA	N 22;	B-437.1;
2 :	PSSA	N 22;	B-437.6;
3 :	coral reef		
4 :	fish sanctuary	N 22;	
5 :	seal sanctuary	N 22;	
6 :	bird sanctuary	N 22;	
7 :	nature reserve	N 22;	
9 :	research area		
10:	ecological reserve	N 22;	

Definitions:

Environmentally Sensitive Sea Area (ESSA):
a generic term which may be used to describe a wide range of areas, considered sensitive for a variety of environmental reasons. (IHO Chart Specifications, M-4)

Particularly Sensitive Sea Area (PSSA):
an area that needs special protection through action by IMO because of its significance for recognized ecological, socio-economic, or scientific attributes where such attributes may be vulnerable to damage by international shipping activities (International Maritime Organization).

coral reef — hard calcareous skeletons of many tribes of marine polyps. (IHO Hydrographic Dictionary, S-32, Volume 1)

fish sanctuary: a place where fish are protected

seal sanctuary:	a place where seals are protected.
bird sanctuary:	a place where birds are bred and protected.
nature reserve:	a tract of land managed so as to preserve its flora, fauna, physical features, etc.
research area	an area where marine research takes place.
ecological reserve	a tract of land managed so as to preserve the relation of plants and living creatures to each other and to their surroundings.

Appendix 1

FEATURE OBJECT ATTRIBUTE

Feature:	**IUCN Category**

Acronym: **catiuc**

Attribute type: E

Expected input:

ID	Meaning	INT 1	M-4
1 :	strict nature reserve		
2 :	wilderness area		
3 :	national park		
4 :	natural monument		
5 :	habitat/species management area		
6 :	protected landscape/seascape		
7 :	managed resource protected area		

Definitions:

Ia Strict Nature Reserve - Area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.

Ib Wilderness Area - Large area of unmodified or slightly modified land, and/or sea retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.

II National Park - Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible. .

III Natural Monument - Area containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.

IV Habitat/Species Management Area - Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

V Protected Landscape/Seascape - Area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.

VI Managed Resource Protected Area - Area containing predominantly unmodified natural systems, managed to ensure long-term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

(International Union for Conservation of Nature and Natural Resources publication “Guidelines forProtected Area Management Categories”, IUCN, 1994)

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