**Marine Physical Environment (S-126)**

Subject: Marine Physical Environment (S-126) Scoping Meeting #3

Date: 21 September 2020

Forum: GoToMeeting sponsored by IHO

Attendees: Jens Schroeder-Furstenberg (BSH) (Chair)

 Yoshitsugu Atsumi (JHOD)

 Michihiro Nagao (JHOD)

 Shwu-Jing Chang (NTOU)

 Yves Guillam (IHO)

 Allan Idd Jensen (DGA)

 Simon Vammen (DGA)

 Michael Kushla (NGA)

 Raphael Malyankar (Portolan Services)

 Svein Skjaeveland (PRIMAR)

 Tom Loeper (NOAA)

 Tina Perry (NOAA)

 Eivind Mong (CHS)

 Charline Giffard (CHS)

 Elena Armanino (IHI)

 Yves Le Franc (SHOM)

**General**

Jens stated the general purpose of today’s virtual meeting:

1. Introduce results of our August discussion.
2. Determine the best way forward.

Charline (CHS) suggested to put Natural Conditions attributes in a more structured format.

Jens stated we will review the spread sheet and continue the discussion about it.

**Spreadsheet Discussion Continuation**

Jens led the group through a continued discussion of the updated spread sheet concerning proposed changes developed since the previous meeting:

1. Seabed Area = Adapted from S-101 as a Feature Type with the exception of adding Sand Waves.
2. Spring = Provide as nautical information. Limited to mentioning.
3. Seabed Area (SEAARE) = 56 attributes. Generic features where certain information is assigned. Yves reminded group on the Undersea Feature Name PT, as well as B-6 and S-32, regarding harmonization needs with SEAARE.
4. Magnetic Variation (MAGVAR) = S-101 feature. Considered N-Pub information.
5. Local Magnetic Anomaly (LOCMAG) = N-Pub information.
6. Tidal Streams (TS-FEB)/Tidal Streams (TS-PRHA) = Restated S-101 and the Tides, Water Level, and Currents Working Group (TWCWG) responsibility. S-126 should only consider generic information.
7. Ice Area (ICEARE) = Wiki discussions on S-101 data elements. See the wiki for possible data elements needed.
8. Category of Natural Conditions = Need for new Attributes? Wiki currently has 15 Attributes with the possibility of having 30+ including the new addition of “coastal topography.”
9. Weather = This is being handled by the meteorologists and is not part of our work plan.
10. Sand waves = From S-101 (see Seabed Area in No. 1).
11. Range/Bearing concept = See below in section titled **Range/Bearing Discussion**.
12. The ENC will always be the basic layer. Physical environment information needs an underlying ENC layer.
13. Deleted the following:
	1. Velocity.
	2. Water Movement Area (could be added to Natural Conditions, if necessary).

**Expanded Discussion**

Jens initiated an around-the-room format for any items not yet covered. Comments on:

1. Fuzzy Areas = An option if to determine current vague locations. Spatial designation in a digital world will need to be more precise.g.
2. Range/bearing discussion = See below in section titled **Range/Bearing Discussion.**
3. Charline (CHS) discussed many Feature/Attribute items can be combined. This could allow more precise coding with less text. Her examples were:
	1. Sea Conditions.
	2. Ice Conditions.
	3. Weather Conditions.
	4. Maritime Topography.
	5. Current Conditions.
	6. Tidal Streams.
4. Yves G (IHO) noted Coastal Topography could be a Feature with Attributes focused on different provisions of this information, such as (but not limited to):
	1. Virtual reality.
	2. Augmented reality.
	3. Drawings.
	4. Pictures.

**Range/Bearing Discussion**

How does this compare in a hard copy vs. electronic digital environment? Jens thinks this probably is not needed although Tom (NOAA) says we need to take into account requirements to be both machine readable and human readable (background material for mariners). Need for examples where it is difficult to say something and analyze its value:

1. Invite HOs to provide range/bearing examples for physical environment information whose location is described in a generic way. (Example = Strong eddies extend up to 3 miles north of the island.)
2. Provision of directions may not be feasible.
3. Eivind (CHS) remarked a better approach may be the use of fuzzy areas.

Yves L. (SHOM) discussed the handling of passage directions where turn points are based on ranges/bearings from landmarks. Good examples need to be provided for this and could provide by SHOM.

Sailing Directions information is located in different Product Specifications. Machines should be able to merge this information. Remember, we are modeling the information, not the publications.

Tom (NOAA) discussed recent NOAA project where US/Canada cooperation redid over 400 recommended routes across the Great Lakes using beginning points, ending points, and course direction, with additional information added from the U.S. Coast Pilots and the Canadian Sailing Directions.

**Closing Information**

Jens will provide the following S-126 information to HSSC:

1. Scoping work completed.
2. Can start data modelling.
3. Work would proceed of the next 1-2 meetings (1-2 years).
4. Bring to a level to allow contracting out Product Specification development.

Tom (NOAA) asked if there was enough information so far to develop a Product Specification. Raphael (Portolan) and Eivind (CHS) that there was enough to begin discussions on this effort.

Yves G (IHO) = Discussed a report from Julia Powell (Chair, S-100WG) announcing S-100 Version 5.0.0, with a corresponding requirement for all Product Specifications be upgraded to reflect the new version of S-100 by late 2022/early 2023. There are concerns about the costs to do this, in terms of time, money, and personnel resources. An assessment of NIPWG resources is needed to determine if the existing resources to continue the model development of NPUB information within the current Product Specification are sufficient.