S-102 Maintenance - Change Proposal Form

Organization	Germany (BSH)	Date	2023-11-08
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Change Proposal Type

1.Clarification	2.Revision	3.New Edition
		x

Location

S-102 Version No.	Document.	Section No.	Proposal Summary
2.3.0		5.2.1.	Figure 4. add optional for S102_BathymetryValues > uncertainty -> [0..1]
2.3.0		5.2.1.1.2.2	Add "optional" for uncertainty
2.3.0		5.4.2.1	Add "optional" for uncertainty
2.3.0		11.2.3 Table 8	Add note for the optional uncertainty
2.3.0		11.2.7	Adding the condition for omitting the uncertainty.

Change Proposal

Remove the requirement to specify the uncertainty at each depth value of BathymetryCoverage in case the attributes:
/BathymetryCoverage/BathymetryCoverage.01/Group_001/maximumUncertainty
/BathymetryCoverage/BathymetryCoverage.01/Group_001/minimumUncertainty
contain the same value.
Example:
      maximumUncertainty=1,000,000 & maximumUncertainty=1,000,000
      maximumUncertainty=0.4 & maximumUncertainty=0.4
In that case, the uncertainty entry would be removed from the Bathymetry Coverages CompoundDataset. A CompoundDataset with only one compound member remains, the depth. In any other case, the standard remains unchanged.
To make the structural change recognizable to software products, it is also necessary to remove the uncertainty from the CompundDataset "BathymetryCoverage" in the group "Group_F". This allows the software to register and process the change through dynamic programming. When transferring to an ECDIS system file (similar to SENC), the change can then be compensated accordingly so that no changes are necessary there.

The exact changes can be found in the enclosed redline version of S-102 Ed. 2.3.0.

Change Proposal Justification

The uncertainty of the depths within the HDF5 data set is defined in several places and describes the respective manifestation of the uncertainty. The partially redundant assignment of the uncertainty leads to an inefficient use of the possibilities of the HDF5 format. This results in an increased use of limited storage space. According to the S-102, an HDF5 dataset must not exceed the size of 10MB. In order to use the limited storage space as efficiently as possible, the BSH compresses all coverages within the dataset. Currently, not all of the BSH's HDF5 products are filled across the board, and yet the 10MB limit cannot always be met.

The proposal presented here is to optimize the storage requirement for the special case where the uncertainty is identical for all depth values. It is irrelevant whether it is the default value or a concrete value for the uncertainty.

The specific issue is not to have to store the values of uncertainty at each depth value. This creates an overhead in the data structure area of the HDF5 format. By omitting the identical values of the uncertainty at the respective depth values, approximately 14.8% can be saved in the file size in the enclosed test file and this without the loss of information. The memory gained is thus available again for the area coverage of the data set. The omitted values of the uncertainty can nevertheless be determined implicitly for each depth value by specifying the uncertainty in the attributes:
/BathymetryCoverage/BathymetryCoverage.01/Group_001/maximumUncertainty
/BathymetryCoverage/BathymetryCoverage.01/Group_001/minimumUncertainty

Please send completed forms and supporting documentation to the IHO Secretariat (tsso@iho.int).