Paper for Consideration by S-100 WG

S-102 Encoding instruction and inconsistencies

Submitted by:	Teledyne CARIS
Executive Summary:	Clarify and enhance HDF5 encoding instructions
Related Documents:	S-102 IHO Bathymetric Surface Product Specification.
Related Projects:	

Introduction / Background

Teledyne CARIS has undertaken the task to enable the creation and handling of S-102 datasets in its COTS application and has identified areas for improvement in the S-102 specification to provide more clarity for implementation.

Findings from work to support the creation of the S-102 dataset indicate that there are inconsistencies in the specification that should be corrected and that the encoding instruction found in Section 10 Data Product Format (Encoding) should be enhanced with additional information in order to avoid inconsistent implementations. CARIS approached the S-102 PT in March 2020 to proposal that new content should be added and this new content is now available to be submitted for review.

Analysis/Discussion

Teledyne CARIS implemented basic support of the S-102 v2.0.0 specification in its software application. Initial findings are that:

- The encoding guidance does not go into enough detail and is not consolidated into section 10 of the document. When implementing, the developers found the screenshots in the draft spec more useful than the file dumps in the latest published spec. What is recommended is to replicate a subset of the tables from S-100 part 10c that indicate which fields/attributes and values are applicable to S-102. This will help reduce the need for implementers to make assumptions about the content that would lead to inconsistencies and interoperability problems.

- There are several cases of duplication of content/attributes, inconsistent naming and incorrect data in the screenshots (wrong values) which are all problematic from an implementation point of view.

For our initial implementation, we avoided some duplication of content and made the other minor adjustments as described in the accompanied document. The layer hierarchy was implemented as described in the specification.

Conclusions

The specification should have proposed corrections applied and should be augmented with the detail necessary to ensure the correct encoding by vendors.

Recommendations

Incorporate the full encoding instructions into section 10 possibly removing the need for Annex A. Fully explain all elements (layers, attributes, tables) in detail. CARIS has submitted new content for this section and would like this considered by the Project Team at the October 2020 meeting.

The specific technical details can be found in the associated document supplement provided with this submission.

Justification and Impacts

A more detailed specification will decrease risk of inconsistent encodings by vendors.

Action Required of [HSSC] [Relevant HSSC WG]

The [HSSC] [Relevant HSSC WG] is invited to:

a. endorse ....
b. agree ....
c. note ....