CHRIS16-5.3A

16th CHRIS MEETING
28-31 May, 2003, Ottawa, Canada

PRINTED ENCs

(May 2004)

submitted by United States (NOAA)

1. Summary

Executive summary:	Hydrographic offices that make ENCs would like to use one production system for all of their products. Unfortunately, it is difficult to make traditional paper charts from S-57 databases without substantial additional attribution. Instead, it is proposed that a new paper chart be defined that can be made directly from an ENC.
Actions to be taken:	The CHRIS committee is invited to direct TSMAD, CSPCWG, and C&SMWG to take note of USA (NOAA) work on "printed ENCs", and to liaise as appropriate.
Related documents:	None

2. Introduction / Scope

Hydrographic offices that make ENCs would like to use one production system and database for all their products: paper charts, raster charts, ENCs, etc. Such a consolidated production system is desirable to keep cost and manpower requirements lower, and to keep all products synchronized.

Reaching this goal is difficult because it is hard to exactly reproduce a traditional paper chart from an S-57 database. Examples of problems include the placement of text; features that coincide; and items that are on paper charts but not in the S-57 database. Solutions emerging from companies making ENC production systems involve complicated additional software, and/or substantial extra attribution and its maintenance by the hydrographic offices.

To improve this situation, it is proposed that the paper chart be redesigned, or a new paper chart be created and standards written. This "printed ENC" would be designed to be manufactured directly from an ENC while still providing a regulation-compliant printed product.

3. Analysis/Discussion.

Companies making ENC production systems are also trying to make paper charts from their systems. In general, they are following 2 approaches:

- Adding attributes to the database to deal with depicting the data on a paper product. This additional data would have to be collected and maintained by a hydrographic office.

- Developing additional software to make depiction decisions. This software would add expense and complexity, and would be unique to each manufacturer's system and each hydrographic office.

Both of these approaches substitute a new problem rather than solving the original one.

The problem would be simplified if we were willing to change the chart into something that could be more easily made by automated means. Such an approach could minimize additional data collection, and the need for expensive proprietary software. Further important gains could be made if paper and raster products were made directly from ENCs rather than the underlying database. This simple but powerful idea has many benefits.

4. Benefits.

The benefits of redesigning the paper charts so they could be made directly from ENCs are significant.

A. Mariners would receive an improved level of service.
    1. Mariners could make their own products from updated ENCs: paper or raster charts; ECDIS backup; paper chart updates or patches; and printed voyage planning documents. This would improve the timeliness and the breadth of distribution.
    2. All of a mariner's chart products would be synchronized.
    3. The increased value and (potentially) reduced cost for products mariners make themselves would provide incentive to increase the uptake of ENCs.
    4. Working from S-57-compliant ENCs would provide this same level of service worldwide.
    5. Clarity would be provided about what is an official product. It would be an official ENC or any product produced from one that met the new standards for that derived product.

B. The amount of work required of hydrographic offices would decrease.
    1. Hydrographic offices could focus on gathering data and updating their ENCs.
    2. Cartography, and the labor it uses, would be reduced. The redesigned paper chart would eliminate many cartographic decisions. The remaining depiction rules would be incorporated in the "printed ENC" software.

3. Maintenance for a hydrographic office's products would be reduced to ENC maintenance only.
4. The gathering and maintenance of additional data dealing with cartographic depiction would be reduced.
5. The goal of a single production system for all products would be achieved. This would be true regardless of which vendor's ENC production system a MS used.

C. ENC system manufacturers would also benefit.
1. System complexity would be reduced. By making ENCs the source of all other products, manufacturers would not need to customize their software for each nation's cartographic practices.
2. Since ENCs would be the only chart product from hydrographic offices, demand for ENC production systems should be stronger.

5. Working Groups.

USA (NOAA) volunteered at CHRIS 15 to initiate the study of "printed ENCs".

6. Other relevant information.

The start of the USA (NOAA) study of "printed ENCs" was delayed. However, NOAA now has a team of 4 working part-time on the project. The four team members are: 1 senior cartographer from NOAA's ENC data collection team, a senior cartographer who is also a member of CHRIS' CSPCWG, a second senior cartographer, and a GIS analyst.

Currently the team is analyzing paper charts to see what changes could be made to enable a suitable product to be made from ENCs. Additionally, they are analyzing the S52 depiction of an ENC to see how that might be changed to provide a more traditional-looking printed product.

7. Priority.

Medium.

Hydrographic offices are actively making ENCs. Some data collection decisions are being made that are incompatible with making a paper chart from an ENC. It is important to establish sufficient information about the "printed ENC" to minimize the amount of data recollection that might be needed.

8. Target completion date.

Not established.

9. Action Required

The CHRIS committee is invited to direct TSMAD, CSPCWG, and C&SMWG to take note of this work, and to liaise as appropriate. While it is a goal of this work to minimize its impact on existing standards, some amendments are likely.