18th CHRIS MEETING
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ELECTRONIC NAVIGATIONAL CHART STATUS
(August 2006)
United States (NOAA)

1. Summary

Executive summary:	The USA (NOAA) is continuing to produce ENCs using a mix of government and contractor personnel. The resulting ENCs are distributed for free over the Internet. A network of certified redistributors has been established.
Actions to be taken:	None
Related documents:	None

2. Introduction / Scope

NOAA charts coastal areas and the Great Lakes of the USA. The Army Corps of Engineers charts the navigable rivers in the USA. Both are engaged in producing ENCs for electronic navigation.

3. Analysis/Discussion.

ENCs

The following table shows the status of ENC production for the United States (NOAA) as of August 28, 2006. The completed ENCs provide 100% coverage of the major commercial ports of the USA. ENC production is now focused on ENCs that will connect those ports, and on the collection of ENCs for lesser ports.

Paper Charts Available	Raster Charts Available	ENCs	Equivalent Paper charts	ENCs Being Updated
1002	1002	550	550	550

All 550 ENCs are in maintenance for Notices to Mariners. Incremental updates are being issued, and 85% of the incremental updates are current to within 2 weeks of the Notice to Mariners. If 20 updates are issued before a new edition of an ENC is produced, a reissue of the base cell is produced that includes the updates. This reduces work on mariners.

Presently, NOAA produces ENCs using the LaserScan Automated Map Production System 2 (LAMPS2). Some critical data on NOAA ENCs does not come from the chart, but is recollected from original source documents and then is provided to contractors for inclusion

in the ENCs. Final quality control is done using dKart Inspector5, Service Pack 1. NOAA also has 4 contractors doing data collection from nautical charts for ENCs.

Up-to-date information about the U.S. ENC program and the U.S. raster chart program can be found at the Web site http://NauticalCharts.NOAA.gov/.

A contract for a new production system was awarded to Software Performance Systems, Inc. – a systems integrator, in September 2004. It will combine paper/raster and ENC production in a single system. Copies of the solicitation are available from Julia.Powell@noaa.gov.

IENCs

The following table shows status of InlandENCs (IENC) produced by the U.S. Army Corps of Engineers (USACE) for U.S. inland waterways. These waterways are shallow-draft (maintained for 2.7m minimum depth) and used by domestic, non-SOLAS class vessels. The current IENCs cover 62% of the inland waterway system, which support over 80% of cargo tonnage. Complete coverage of the 13,000 km system is anticipated by 2009.

Nav Chart Books Available	River Coverage	IENCs Available	River Coverage	Equivalent Chart Books
22	13,035 km	73	8,047 km	12

Forty-two IENCs are maintained with incremental updates from Notices to Mariners and survey data. The remaining IENCs, currently maintained with annual file replacement, will also be maintained with incremental updates within the next two years. The U.S. Coast Guard is developing procedures and outfitting river tenders with chart systems to begin collecting buoy data for transfer to USACE, and publication in the IENCs.

Most initial and revised IENCs are produced by contractors using CARIS or SevenCs software, with revisions done by USACE offices and contractors. Quality assurance for all published IENCs is conducted using DKart Inspector software.

4. Benefits.

   Not Applicable

5. Working Groups.

   Not Applicable

6. Other relevant information.

   NOAA ENCs are "official" and suitable for navigation. Mariners may now use those ENCs in lieu of paper charts aboard SOLAS vessels when using a type-approved ECDIS.

   NOAA ENCs are available for free over the Internet. They may be downloaded from http://NauticalCharts.NOAA.gov/MCD/enc/index.htm. This free download service has been available since July 2001, and the number of ENCs downloaded has increased steadily. The

table below shows NOAA ENCs downloaded over the past 12 months. USACE IENCs are available free over the Internet at www.tec.army.mil/echarts.

NOAA ENC Downloads			
Dates	**Base Cells**	**Reissues**	**Updates**
August 2005	962,244	168,251	941,592
September 2005	1,192,718	147,757	1,303,555
October 2005	1,548,454	175,755	1,772,098
November 2005	1,577,498	170,638	2,131,512
December 2005	827,455	79,301	1,173,116
January 2006	4,051,098	335,429	6,175,844
February 2006	887,721	59,444	1,395,040
March 2006	3,009,875	183,776	4,843,865
April 2006	981,930	44,821	1,594,313
May 2006	923,233	32,970	1,222,949
June 2006	1,000,448	33,457	859,085
July 2006	2,221,907	75,853	1,623,515
TOTALS	19,184,581	1,507,452	25,036,484

NOAA established a redistributor program under which private companies may download, reformat, encrypt, and/or repackage NOAA ENCs with other data or with services, and sell the resulting product for whatever price the market will bear. By adhering to a simple set of NOAA-specified practices, these redistributed ENCs retain their "official" status, and may be used to meet chart carriage regulations. Four distributors have been certified and 2 are pending.

Details of the NOAA ENC Distributorship program are available at http://nauticalcharts.noaa.gov/mcd/enc/fedreg_encrule.htm. Contact Elizabeth Cousins (Elisabeth.Cousins@noaa.gov) if you have questions on the program.

IENCs are currently used as a supplement to, not in lieu of, paper chart books for the rivers, although official approval as for use as a chart replacement is being discussed with the U.S. Coast Guard. The Inland ENC Harmonization Group, consisting of European and U.S. inland ENC producers, is collaborating on a harmonized product specification, or Encoding Guide. This Guide will include extensions to S-57, V3.2 and encoding rules based on experience gained in the U.S. and Europe. The final document is offered as a register for inland waterways in S-57, V4.0.

"NOAA's ENC Direct to GIS" (ENC Direct) web portal provides access to large scale NOAA ENC data in a variety of GIS/CAD formats for non-navigational purposes. ENC Direct uses ESRI ArcIMS Internet mapping service technology. Data is available for download in multiple formats (e.g., ESRI shape file, dxf, MapInfo, etc.) through Safe Software's Spatial Direct online data transformation tool. Downloads can be customized (i.e., user specified feature types or geographic areas can be selected) to fit user requirements. The data are updated monthly to include new coverage and ENC updates. ENC features that span cells are merged together to create seamless GIS layers. Over 200 GIS layers corresponding to the various S-57 features are available. Layers have been symbolized to

give a chart like display online for visualization. S-57 object classes have been organized into groups using the ESRI S-57 data model. The URL for ENC Direct is http://www.nauticalcharts.noaa.gov/csdl/ctp/encdirect_new.htm.

7. <u>Priority</u>.

Not Applicable

8. <u>Target completion date</u>.

Not Applicable

9. <u>Action Required</u>.

None.