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ENC AND IENC PRODUCTION AND DISTRIBUTION STATUS IN THE U.S.A.
(July 2005)

United States (NOAA)

1. Summary

<i>Executive summary:</i>	The USA (NOAA) is continuing to produce ENC's using a mix of government and contractor personnel. A new production system has been contracted for. It will combine paper/raster and ENC production in a single system. The U.S. Army Corps of Engineers is producing Inland ENC's in the USA's navigable rivers.
<i>Actions to be taken:</i>	None
<i>Related documents:</i>	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 ENC's for electronic navigation.

3. Analysis/Discussion.

ENCs

The following table shows the status of ENC production for the United States (NOAA) as of July 7, 2005. The completed ENC's provide 100% coverage of the major commercial ports of the USA. ENC production is now focused on ENC's that will connect those ports, and on the collection of ENC's for lesser ports.

Paper Charts Available	Raster Charts Available	ENCs	Equivalent Paper charts	Version One	Version Two	ENCs Being Updated
1002	1002	492	492	0	492	492

All 492 ENC's 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 ENC's using the LaserScan Automated Map Production System 2 (LAMPS2). Some critical data on NOAA ENC's does not come from the chart, but is recollected from original source documents and then is provided to contractors for inclusion in the ENC's. Final quality control is done using dKart Inspector5. NOAA also has 5 contractors doing data collection from nautical charts for ENC's.

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 IENC availability, produced by the U.S. Army Corps of Engineers (USACE), on 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 48% 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	56	6,200 km	9

Published IENCs are currently maintained with annual file replacement. Incremental updates for Notices to Mariners and survey data collected from waterway maintenance are planned. 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 IENCs are produced by contractors using CARIS or SevenCs software, with revisions done by USACE offices and contractors. Quality assurance for all published IENCs are conducted using dKart Inspector software

4. Benefits.

Not Applicable

5. Working Groups.

Not Applicable

6. Other relevant information.

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

NOAA ENC's are available for free over the Internet. They may be downloaded from <http://nauticalcharts.noaa.gov/MCD/enc/index.htm>.

NOAA is establishing a redistributor program under which private companies may download, reformat, encrypt, and/or repackage NOAA ENC's 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 ENC's will also retain their "official" status, and may be used to meet chart carriage regulations. Contact Elizabeth Cousins (Elisabeth.Cousins@noaa.gov) for detailed information 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, has been 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.

USACE IENCs are available free over the Internet at www.tec.army.mil/echarts.

Most GIS's cannot read an ENC's native S-57 format. To address this problem, "NOAA's ENC Direct to GIS" (ENC Direct) web portal has been developed to provide 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. Priority.

Not Applicable

8. Target completion date.

Not Applicable

9. Action Required.

None.