

**15th CHRIS MEETING
IHB, Monaco, 10-13 June 2003**

**PRINT ON DEMAND NAUTICAL CHARTS
(June 2003)**

United States (NOAA)

1. Summary

Executive summary:	Print-on-Demand is successfully being used for nautical charts. The technology could also permit one hydrographic office to print charts on behalf of any other hydrographic office. It is proposed that a standard for the exchange of digital printing files be established to support such shared printing, and to support the exchange of digital repromats.
Actions to be taken:	Task the appropriate working group of CHRIS to develop a standard for the exchange of digital files from which paper charts can be printed.
Related documents:	None

2. Introduction / Scope

NOAA has released over 998 of its 1,014 nautical charts using Print-on-Demand. These charts are up-to-date with all Notice to Mariners corrections at the time they are printed. They have extra information outside the neat line of the chart targeted towards professional mariners or recreational boaters. They are available on water-resistant paper for 21.35 USD or in a laminated version for 23.85 USD.

NOAA's Print-on-Demand technology has 2 parts: a printing part, and an electronic commerce part. For printing, Hewlett Packard inkjet plotters are used. A wide variety of papers and inks are available that are suitable for nautical charts. The electronic commerce part provides an Internet-based ordering system for chart agents. It translates the ordered items into assembly instructions for the printing system. Charts are then dynamically assembled from up-to-date digital files at print time. Both the printing technology and the e-commerce technology have been relatively problem free.

The Print-on-Demand charts have been well received by mariners. Professional mariners understand the value of charts that are up-to-date at the time of purchase. Recreational boaters appreciate the waterproof materials.

3. Analysis/Discussion.

NOAA's experience indicates that Print-on-Demand is ready for widespread use. It can be used as a replacement printing process, or as a means of making an improved product. Printing can be performed at a central site, or at remote sites such as the point-of-purchase.

Print-on-Demand would permit a hydrographic office to print up-to-date charts on behalf of any other hydrographic office. It would also permit one hydrographic office to use the chart agents of another hydrographic office nearer to the point of sale. Both opportunities would require standards for the exchange of digital chart files and of the administrative information associated with an order.

The development of standards for the exchange of digital chart files suitable for Print-on-Demand is within the scope of IHO objectives. There is a related work item on the TSMAD work program that deals with the exchange of digital reprostat for lithographic printing. However, standards for digital reprostat would not necessarily be identical to those for Print-on-Demand digital files. It is proposed that the TSMAD work program be amended to include standards for both types of digital printing files.

4. Benefits.

Standards for the exchange of Print-on-Demand digital files would benefit hydrographic offices and mariners. Hydrographic offices could gain a network of trusted manufacturers, either other hydrographic offices or their authorized agents, to print charts close to the point-of-purchase. Distribution delays would be eliminated. Customs issues would disappear. Broader distribution of a hydrographic office's products would be possible.

Mariners would gain by having better access to a broader selection of national charts. As more hydrographic offices begin to keep their chart files up-to-date, mariners would begin getting more current information.

5. Working Groups.

The TSMAD is the appropriate working group to develop the needed standards.

6. Other relevant information.

None provided.

7. Priority.

Low

8. Target completion date.

September, 2004

9. Action Required.

The CHRIS is invited amend the work program of TSMAD to include the development of standards for the exchange of digital, Print-on-Demand chart files and the administrative information associated with an order.