

11th CHRIS MEETING
IHB, Monaco, 16-18 November 1999

GIS APPLICATIONS OF HYDROGRAPHIC DATA

Introduction

At its first meeting, the SPWG identified six strategic issues facing Member States. One of these was “**provision of services not for navigation**”. The priority allocated to this issue was the lowest of the six issues.

The purpose of this paper is to suggest that this issue be allocated a higher priority in the IHO Work Programme.

Discussion

There is an emerging body of opinion within the IHO community which believes that provision of spatial data for GIS applications and services will become a major strategic issue for hydrographic offices within the next five years.

The past five years have been characterised by a major transition towards provision of digital navigation services, exemplified by the development of ENC and RNC. This period has also produced Regulation 9 of SOLAS V, providing hydrographic offices with a statutory basis for their navigational work. All of this activity has perhaps tended to obscure the signposts to future requirements.

During these same five years, facilitated by the same fundamental technological changes which have affected navigation, the world has seen a great transition in the use of GIS applications and services. As the information age matures, governments and the community have come to place a much higher value on geographic information than was the case in the past. This is evidenced by the development of national, regional and international spatial data infrastructures.

Also, with the advent of the UN Convention on the Law of the Sea, nations are beginning to take a much greater interest in the administration and sustainable development of the coastal zone and the EEZ. Emerging demographic projections suggest a significant increase in economic activity within the coastal zone. About 60% of the world population lives in the coastal zone at present, and this is estimated to grow to 80% within 100 years. These developments will result in much higher demands for high resolution spatial data for the coastal zone and EEZ in digital form.

It is interesting to note that some major hydrographic initiatives, for example the GEF funded PERSGA project for the Red Sea, are seen by the sponsors to be not only initiatives in improving safety of navigation, but also as contributing significantly to the provision of spatial data to a number of other important coastal zone programmes.

In summary, it is forecast that spatial data management will in the future be one of the most important activities of national hydrographic organisations, and that GIS will become one of the most important enabling technologies.

Implications for HOs

The implication for hydrographic offices of these developments is that the importance of HO spatial data or GIS services will grow quickly during the next decades. The value of these services to government and the community may perhaps eclipse the value of the traditional services to navigation. It seems possible that the provision of navigation services will become a sub-set of a much greater task of providing national spatial data or GIS services, in an environment requiring a high degree of interoperability between national agencies. This will involve a re-orientation of the service priorities of hydrographic offices. Failure to participate could threaten the funding levels of hydrographic offices. It should be noted that GIS applications require vector data, which will also have cost implications.

The potential for GIS services to generate revenue to fund activities is significant, and will become more important as governments embrace the concept of "user pays".

Implications for the IHO

The implications for the IHO follow from the above. The IHO should develop programmes which will assist its Member States to provide GIS services, in the same way that it now assists them to provide navigation services. The mechanisms for doing this are already in place, as may be seen from Element 3.4 of the Work Programme [copy attached].

The work on aligning marine spatial data standards with other geographic information standards through the ISO is progressing slowly but steadily. The value of the digital data centre at Boulder, Colorado has been well demonstrated. Several Member States are already closely involved in the development of national SDI s. Regional SDIs are being developed in Europe and North America, and in other parts of the world.

Three matters need attention.

First, the IHO work plan needs to be expanded to cover all aspects of GIS operations, moving from data standards to include generic product specifications, and the exchange of know-how and expertise about the most effective practices and the most acceptable products, as has been done for many years for navigation services.

Second, it will be necessary to move as quickly as possible to align IHO standards for hydrographic data with the more general ISO standards for spatial data.

Third, the work should be given an appropriate priority within the IHO work plan. The immediacy of the need for navigation services must be balanced against an assessment of future service priorities. The IHO needs to become more involved in initiatives such as the GSDI.

In reality, the provision of data and services for GIS applications is all a part of the transition to the digital age. Making this transition is considered by SPWG members to be the highest priority issue facing Member States.

Action requested of the SPWG

The SPWG is requested to consider the future role of hydrographic offices in servicing the national spatial data infrastructure, and to determine the correct priority of the IHO programmes relating to development of standards and practice for the delivery of marine GIS data and services.

Attachments; Extract from IHO Work Plan.
 Supporting paper from USA [not yet available]

Extract from the IHO 5-year work programme

Element 3. 4. Data for Science and GIS Applications

The principal tasks under this heading are;

Ongoing Tasks

Task 3. 4. 1. To continue to contribute to the development of world-wide ocean and shallow water mapping by;

3.4.1.1 Encouraging member states to contribute data for ocean mapping **[MP]**,

3.4.1.2 Continuing development of the digital data centre at Boulder, Colorado **[MP]**,

3.4.1.3 Re-defining the role of Volunteering Hydrographic Offices [VHOs in collecting and managing digital bathymetric data for GEBCO and ocean mapping projects **[HP]**,

3.4.1.4 Participating in the definition and development of GEBCO and IOC products and projects **[HP]**.

3.4.1.5 Participation in the IOC sponsored regional international bathymetric chart **[LP]**

3.4.1.6 Monitoring the naming of undersea features in international waters **[LP]**

3.4.1.7 Providing an information service for Oceanographic matters **[LP]**

Task 3. 4. 2. To assist member states to optimise and extend the use of their hydrographic data sets for purposes other than navigation through;

3.4.2.1 Monitoring of developments around the world, especially those connected with coastal zone data management and the development of national, regional and global spatial data infrastructures **[HP]**,

3.4.2.2 Exchange of information about services offered, media for distribution, pricing, customer profiles, market research etc **[MP]**.

3.4.2.3 Encouraging the holding of workshops and conferences on the above subjects **[MP]**.

3.4.2.4 Engagement in the process of development of the interpretation of the law of the sea through the ABLOS group.

Task 3. 4. 3. Continuation of participation in the development of standards for cartography and geographic information, including the work of;

ISO TC 211 Working Group 5 **[HP]**

European Union TENT-T Project **[MP]**
Global Spatial Data Infrastructure **[MP]**
ICA Commission on Spatial Data Standards **[MP]**

Task 3. 4. 4 Revise, develop and maintain the following publications ; B-2, B-4, B-6, B-7, and B-8 **[MP]**