

**2<sup>ND</sup> PREPARATORY MEETING OF THE PROPOSED UNITED NATIONS COMMITTEE ON GLOBAL GEOGRAPHIC  
INFORMATION MANAGEMENT**

**INFORMATION PAPER BY THE INTERNATIONAL HYDROGRAPHIC ORGANIZATION**

**INTRODUCTION**

Awareness of the benefits of geographic information management continues to increase at national, regional and global levels. This is obvious in the continuing priority given to the development of national and regional spatial data infrastructures. However, in most cases, the development and awareness of these infrastructures has been concentrated on and dominated by land-based requirements and championed by land-based practitioners. Any global geographic information management must encompass both the land and the sea. To do this effectively, all the relevant organisations and experts from the respective domains must be represented. In the case of hydrographic information this is the International Hydrographic Organization at the global level, and the national hydrographic authority, normally represented by the national Hydrographer, at the State level.

The following notes are intended to provide further background information on the hydrographic aspects of any consideration of global geographic information management.

**WHAT IS HYDROGRAPHY?**

Hydrography is the science of measuring and depicting the information necessary to describe the nature and configuration of the seabed, its geographical relationship to the adjacent land masses, and the characteristics and dynamics of the sea. This includes bathymetry (vertical measurement of depth), geodesy and geophysics, and also the measurement of the horizontal and vertical movement of the water column (tidal streams, currents and tidal heights), studies of waves and swell, and certain other physical parameters of sea water and the composition of the sea floor. A principal outcome of hydrography is the publication of nautical charts as well as thematic maps of the sea floor.

**THE INTERNATIONAL HYDROGRAPHIC ORGANIZATION**

The International Hydrographic Organization (IHO) is the intergovernmental consultative and technical organization that was established in 1921 to support safety of navigation and the protection of the marine environment. The IHO enjoys observer status at the UN and is recognised as the competent international authority regarding hydrography and nautical charting. The IHO plays a prominent and active role in the UN's International Maritime Organization (IMO). All IMO instruments refer exclusively to IHO standards and specifications in relation to nautical charting and hydrography.

The object of the International Hydrographic Organization is to:

- Promote the use of hydrography for the safety of navigation and all other marine purposes and to raise global awareness of the importance of hydrography
- Improve global coverage, availability and quality of hydrographic data, information, products and services and to facilitate access to such data, information, products and services
- Improve global hydrographic capability, capacity, training, science and techniques
- Establish and enhance the development of international standards for hydrographic data, information, products, services and techniques and to achieve the greatest possible uniformity in the use of these standards
- Provide authoritative and timely guidance on all hydrographic matters to States and international organizations
- Facilitate coordination of hydrographic activities among its Member States; and Enhance cooperation on hydrographic activities among States on a regional basis.

## **IHO MEMBER STATES**

The IHO is made up of States that have acceded to the Convention on the IHO. Each Member State is usually represented by its national Hydrographer or equivalent national authority. There are currently 80 IHO Member States, with six more States in the process of joining. More States are represented in the 14 Regional Hydrographic commissions that operate under the guidance of the IHO.

## **REGIONAL HYDROGRAPHIC COMMISSIONS**

The IHO has encouraged the establishment of Regional Hydrographic Commissions (RHCs) to coordinate hydrographic activity and cooperation at the regional level. The RHCs are made up predominantly of IHO Member States with interests in a particular region; together with non Member States from the same region. RHCs work in close harmony with the Organization to help further its ideals and program. RHCs meet at regular intervals to discuss such things as bi-lateral assistance in chart production and training, planning joint survey operations, and harmonizing schemes for medium and large scale International Chart coverage in their regions.

## **INTERNATIONAL STANDARDS FOR HYDROGRAPHY**

For nearly 90 years the IHO has worked towards achieving maximum standardization in the specifications, symbols, style and formats used for nautical charts and related publications, and hydrographic data. The IHO puts out a series of publications and the recognised international standards for hydrography and marine cartography.

Modern day mariners of the world are able to use, with confidence, charts and hydrographic data compiled in both paper and digital form and published by national hydrographic authorities. This hydrographic information is also available in a standardized form for use by other interested parties, through the adoption of the S-57 hydrographic data transfer standard. A next-generation data framework standard aligned with the suite of ISO19100 geographic standards was adopted by the IHO in January 2010 to eventually take over from S-57. As well as serving hydrographic requirements, the S-100 framework and its registry has been set up to accommodate the data capture requirements of other related maritime data domains ranging from sea ice reporting (under WMO) and extended continental shelf metadata (under UN DOALOS). Another IHO standard is S-44 that sets out the international standard for hydrographic surveys.

The IHO contributes jointly with the Intergovernmental Oceanographic Commission (IOC), to the ocean bathymetric mapping project - the *General Bathymetric Chart of the Oceans* (GEBCO). This cooperation results in the production of Regional International Bathymetric Charts. To better accomplish this task, an IHO Data Centre for Digital Bathymetry (DCDB) operating at the US National Geophysical Data Centre (NGDC) in Boulder, Colorado, USA, was created in 1990.

## **LIAISON**

The IHO cooperates closely with a number of international organizations, particularly the specialized agencies of the United Nations, in various maritime affairs concerning charting, hydrography and other related activities by providing, data, information, coordination or support as required. Officers from the International Hydrographic Bureau represent the Organization at the meetings of bodies such as the International Maritime Organization (IMO), the Intergovernmental Oceanographic Commission of UNESCO (IOC), the UN Group of Experts on Geographical names (UNGEGN), the UN Legal Office of UNCLOS particularly in relation to the UN Commission for the delimitation of the Continental Shelf, and the world Meteorological Organization (WMO). Other world bodies include the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), the Fédération Internationale des Géomètres (FIG), the International Association of Ports and Harbours (IAPH), , the International Cartographic Association (ICA), the International Organization for Standardization (ISO), and the Pan American Institute of Geography and History (PAIGH).