

**D CO-OPERATIVE NSHC/IHO PROJECTS****Update on the work of the Marine Spatial Data Working Group of IHO - CHRIS****Marine SDI Developments**

Hydrographic data historically have been used to build nautical charts; however, the significance of hydrographic data has broadened to include applications in coastal resource management, natural hazard assessment, and the science of coastal waters.

By using technological advances that have occurred during the last decade and through the establishment of a strong Spatial Data Infrastructure, the opportunity now exists to offer marine data to a multitude of users to assist them in decision making on a local, regional, and global basis.

The 17<sup>th</sup> IHC directed that the CHRIS establish a Marine Spatial Data Infrastructure Working Group (MSDIWG) to analyze and recommend the level and nature of the IHO role in assisting Member States in support of their National Spatial Data Infrastructure. The MSDIWG is tasked with submitting a report, guidelines, and recommendations to CHRIS/20 in November 2008 for subsequent consideration at the 4<sup>th</sup> Extraordinary International Hydrographic Conference in 2009.

Under the Chairmanship of the UKHO, its objectives for 2008 are:

1. To prepare, undertake and complete an audit of IHO Member States to establish their level of knowledge and understanding of the benefit of supporting National SDI initiatives and their capability in supporting the development of Marine SDI. The self completion sheet and short questionnaire is complete and despatched to IHB on 2<sup>nd</sup> April. Responses requested from all Member States by 23<sup>rd</sup> May 2008.
2. To analyse the results of the Research and establish the benchmark for future IHO support and/or capacity building required and to assist in the development of the SDI IHO Guide by August 2008.
3. To provide the preliminary IHO SDI Guide for Member States incorporating necessary step by step approach to SDI by end of September 2008.
4. To provide, to CHRIS/20 in November 2008, a report of WG activities to date and to recommend (if necessary) an extension to the life of the WG in the light of results and/or progress achieved in the 2008 work programme .

There is impetus within the working group to align this programme of work with the requirements coming from the new EU INSPIRE [Infrastructure for Spatial Information in Europe] Directive which will affect all HOs in the EU. This legislation will become law in Member States on 15<sup>th</sup> May 2009. In the UK, the Marine Environmental Data Information Network is considered a beacon of good practise in developing better access to, and dissemination of, marine data to satisfy a myriad of non navigational uses.

It is worth noting that SDI is capturing the imagination of Nations and/or Regions. Whilst some HOs are already engaged in SDI, to many it remains a theoretical model. However attention is turning to how SDI might be developed at both the National and/or Regional level and what resources are required to start the process. An example of this is the Caribbean Regional SDI initiative.

IHO is through the work of the Group placing itself in a good position to assist the development of this work across the World.

## Land-Sea Harmonised Datasets

Much progress has been made in the UKHO's subsidiary company SeaZone Solutions, supported by UKHO Technical Design Authority (TDA), in the development of an interoperable land-sea vector dataset combining the Ordnance Survey (OSGB) coastline, elevation and topography layers from OS MasterMap and S57 data from the UKHO. This has involved extensive areas of work called the "Coastal Mapping Improvement Programme" [CMIP]

Prerequisite to CMIP is access to suitable digital marine mapping. Although based on the hydrographic data standard S-57, numerous problems associated with data captured to this standard by hydrographic offices to produce electronic navigational charts (ENCs) make it, and the ENC data, unsuitable for digital marine mapping and hence for harmonisation with land mapping. SeaZone has taken considerable effort in enhancing the S-57 standard and manipulating ENC data to create marine mapping that is comparable to land mapping and allows land and sea data to be harmonised.

Using SeaZone Hydrospatial and OS MasterMap Topography Layer for the land mapping component, SeaZone has developed a multistage process to address the various discrepancies and inefficiencies along the boundary of the two datasets i.e. the coastal zone. A summary is presented below:

1. Create 'Base Reference' shoreline (MHW) from OS MasterMap Topography layer.
2. Address natural topographic inconsistencies and fill in 'data holes'.
3. Modify shoreline constructions to OS MasterMap Topo geometries (where available).
4. Address associated features (e.g. beacons) that appear in both OSGB and UKHO data holdings.
5. Address administrative boundaries.

The resulting dataset provides a marine digital mapping product that meshes seamlessly with OS Mastermap Topography Layer and hence provides a reference base to support extending the UK's national SDI (i.e. the Digital National Framework [DNF] offshore). See [www.dnf.org](http://www.dnf.org)

Associated data, such as administrative areas may straddle land and sea, and where appropriate will reflect one or other or both of the underlying topographies.

Using an early (Dec 2006) version of the above process a harmonised dataset along the southeast coast of Scotland was produced as a prototype. Various other issues related to the harmonisation process have been identified. These include a need for a de-conflicted feature catalogue. Presently, the content of OS MasterMap takes precedence over SeaZone Hydrospatial but certain feature types (e.g. a jetty) exist in both datasets. Associated with this is the need for a single organisation to be responsible for maintaining the de-conflicted features in its database, and exposing these to the harmonisation process.

SeaZone is currently working with OSGB, BGS and other data owners to align feature catalogues and improve data content (especially reverting to source data such as digital bathymetry) to make it suitable for the development of SDIs within the marine environment and coastal zone. It is also working on sister projects in Northern Ireland and the Republic of Ireland.