

Making MSDI a Reality!



This is a report on the first IHO sponsored Database Design and Management Training Course delivered to the East Asian Hydrographic Commission. The hydrographic community is tackling some of the difficult issues associated with data management and publishing through a modular capacity building workshop approach, combining theoretical knowledge with practical group exercises, problem solving and applications development. This article describes one such workshop and reports on the outcomes.

The workshops address why data management, database design and Spatial Data Infrastructure (SDI) development is important and the differences these make in developing a best practise and sustainable approach to

hydrographic and oceanographic data management. We live in a fast changing world where the power of geospatial information (GI) is growing fast. For Hydrographic Offices (HOs) to meet the increasing need for access to its information to support wider uses, there is an urgent need to increase the effectiveness and efficiency in the way they work.

Making the Case for SDI

With a deep and long-term interest in supporting the uses of hydrographic data beyond those required for safe navigation, the IHB was approached by John Pepper (website 1) and Mike Osborne (website 2) in late 2006 regarding the potential for the IHO to assist

Member States (MSs) engage in SDI development. A paper was prepared for consideration at the 4th EIHC, held in Monaco in June 2007, at which delegates from MSs debated the paper and voted overwhelmingly that the IHO set up a Marine Spatial Data Infrastructure Working Group (MSDIWG) to take the matter forward. The MSDIWG advocated in its report in 2009 that the need to facilitate the wider use of hydrographic data outside of navigation and charting was both necessary and desirable. Practical assistance was needed in SDI content (data), enablers (data specifications and standards), publishing (web enabled) and organisational guidance. The need for improved Database Design and Data Management knowledge and skills in HOs has been discussed for many years but due to the need to concentrate on developing Marine Safety Information and Charting skills, has not happened. The HO community risked being left behind!

The Role of the Regional Hydrographic Commissions (RHCs)

The question that remained to be answered was how the IHO might provide such practical understanding? The role of the RHCs is seen as critical to enabling engagement in SDI initiatives. The IHO Capacity Building Sub-Committee (CBSC) in 2010 received requests from RHCs for training designed to bring MSs up to date in the way spatial information is handled and managed as part of an SDI. This resulted in funds being made available to support a training programme as part of its Capacity Building Work Programme in 2011 and 2012. The East Asian Hydrographic Commission (EAHC) Chairman's Office invited John (as an expert contributor to the IHOMSDIWG) to consider developing and delivering Workshop on Database Design and Management to be held in June 2011 in Bangkok for students and observers from South Korea, Singapore, China, Japan, Indonesia, Vietnam, Malaysia, Philippines and Thailand. This presented John with a huge challenge given the scope of the workshop proposition so he enlisted the help of Dr Mike Osborne of OceanWise (also an expert contributor to the IHOMSDIWG) to assist in the delivery of the data management elements and Mr Julien Barbeau of Caris, Canada to deliver the practical elements.

The Programme of Learning - "Working from the whole to the part"

Vice Admiral Prayuth Netprapa, director general of HDRTN and chairman of EAHC formally opened the course by welcoming everyone to Bangkok on 20 June 2011. John is a surveyor by training and uses the 'Working from the whole to the part' guiding principle for SDI; which is like building a house; foundations first, then the walls and finally the roof. Only then do you provide the 'fittings and plumbing'. SDI is the foundation - a simple concept - comprising four main parts; policy and governance (people), technical standards, information systems (ICT) and geographic content (data). Students shared their understanding and knowledge of SDI and identified initiatives underway or planned in their own countries, discussed the challenges and obstacles in achieving the implementation of SDI and the role of the HO in

making it a success. Practical group exercises followed in simple design techniques (conceptual and logical), database development including structure, sources of data, physical implementation, versioning and outputs.

"In order for SDI to be considered effective, data management is critical"

The proliferation of web portals is testament to the importance that the GI industry places on 'discovery' metadata. Practical exercises in metadata creation using an ISO 19115 compliant profile as a framework increased the understanding with students able to develop content for bathymetry, maritime limits and temporal met-ocean service metadata. Further group exercises to build simple data models and specifications followed with each group providing feedback to fellow students on what they had devised.

"The development of S-100 standard for marine geospatial information is key to IHO MS's ability to manage data in the most efficient, effective and product independent manner"

Further interactive group practical sessions covered Data Publishing and the provision of Open Geospatial Consortium (OGC) web based View Services (e.g. WMS, WFS); Discovery (through Catalogue Services and Metadata); Download Services and Delivered information (via Physical Media, FTP); Product and Service Schemas, Cartography and Portrayal.

"The EC INSPIRE model provides a useful basic framework around which to develop thinking"

Copyright, Intellectual Property (IP) and Digital Rights Management (DRM) is changing as the GI community embraces e-commerce and web-based delivery for digital media with the current IP model fast becoming unwieldy and unworkable.

"The biggest challenge facing organisations wishing to change the way it works is people!"

Without the buy-in of the people who are committed to the process, change management will be very difficult to deliver. Time was spent looking at cultural and organisational elements of change with practical sessions to identify people and processes happening in their own offices which acted in a counter-productive way to progress and innovation.

Caris Supports MSDI

Julien Barbeau, Caris HPD product manager presented live demonstrations in parallel with presentations via live online links to the Caris website. Caris are world leaders in the provision of software services and products to the hydrographic community. Demonstrations of its data model for both bathymetric and terrestrial elevation data (in BathyDB) ensured students gained a fundamental understanding of the models used for both high-resolution source data as well as cartographic vector data. Further sessions on data organisation and design followed with practical configuration of a marine spatial database (HPD). Transaction Management meant that a greater understanding of data use was passed to students. The final session featured OGC compliant services and web mapping using Spatial Fusion Enterprise (SFE, *website 3*).

"The use of Caris HPD as a base for exercises provided a real life situation for the students"

Conclusions

Students were presented with certificates to commemorate their successful completion of a particularly demanding five days of study. A vote of thanks was made to HDRTN staff for their hospitality and their support in logistical and diplomatic matters. But it was not all about work; HDRTN arranged a visit to the Grand Palace in Bangkok and organised a splendid evening reception at the Navy Club to celebrate World Hydrography Day on 21 June. Feedback was extremely positive with all students leaving with a file and CD full of learning material and with a hunger to develop their understanding still further!