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Marine Information: new challenges in a changing environment

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Where are we now?

Hydrographic information not only underpins safe marine navigation - it is also part of a maritime infrastructure that supports safety at sea, military operations, aids environmental protection and maritime trade and is increasingly used in the effective management of marine resources in areas such as offshore exploration, fishing, and scientific research. This information is now being integrated into GI solutions.

How is raw data collected? How is it disseminated? How is it converted into usable information? The United Kingdom Hydrographic Office (UKHO) is the primary source of expertise in collecting and assessing data from around the world, and making it accessible to others. For the UK Government, UKHO manages and delivers the National Hydrographic Programme and the Hydrographic Defence Programme. For the commercial shipping sector, it is the leading one-stop shop for a world-wide series of products and services, serving the wider international maritime community from supertankers right through to the dinghy users and divers.

Collecting survey and other relevant hydrographic for over 200 years means that the UKHO has built up an enormous archive of potentially important information which is proving invaluable to users who operate outside of the shipping industry in the wider marine environment.

The Future Operating Framework

The UKHO is ahead of the Government targets for online services. Electronic ordering and payment facilities for distributors are already established. Giving improved access to data holdings is more challenging and is the driver towards cataloguing the “working” and historic” archives. The Modernising Government White Paper sets out reform of the UK government in policy formulation, delivering services, use of technology and valuing public services. The Freedom of Information Act and Code of Access to Government Information obliges UKHO to improve accessibility to its data. The requirements of the Public Records Act and the obligations when acting as a recognised Public Records Office (PRO) Place of Deposit has led to UKHO re evaluating its archive facilities, the outcome of which is the planned £5.2 million capital investment in a new repository building in Taunton.

Recent discussions with DTI and Treasury on The Cross Cutting Review of the Knowledge Economy confirms that UKHO is developing fair and freely available access to its information. In support of this UKHO has developed a pricing policy that reflects fairness and consistency in the value of the information required by users.

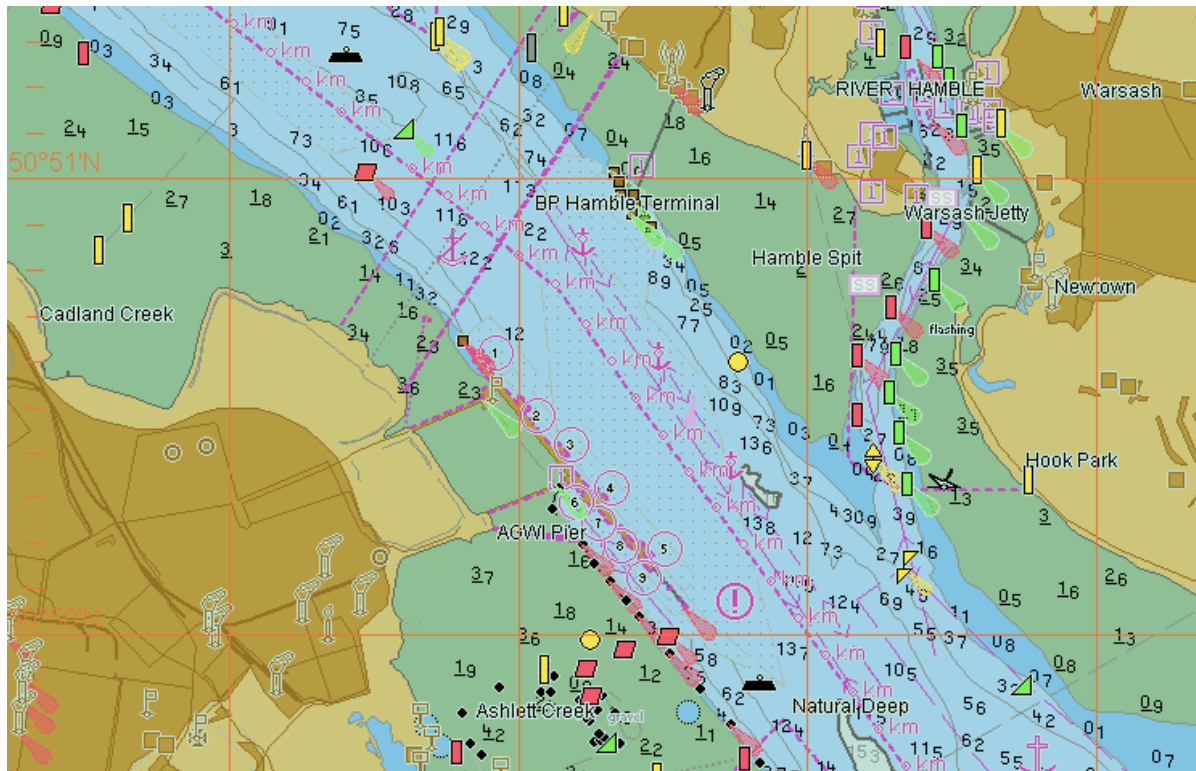
New Technology and Hydrography

Technological advances are leading to increased volume, complexity and availability of our source data. As a consequence, the idea of a conventional map of the sea is changing fundamentally. A map or chart can no longer be viewed as a selected representation of much larger quantities of data; software can now produce a customised data set with access to extensive amounts of additional data. In addition, electronic delivery of data improves levels of service and enables a wider audience to be reached. The precision of satellite

positioning is currently not matched by the accuracy of hydrographic information. However, new methods of collection (such as side scan sonar and LIDAR technologies) are increasing the volume and integrity of hydrographic data. Improved availability is leading to improvements in the knowledge set of data handlers. The trend is towards better, more dynamic digital data.

UKHO's role is changing from being a traditional manufacturing organisation to that of custodianship and management of marine databases. UKHO is set to increase its network of data suppliers and gatherers and develop an extended set of relationships with industry to ensure wider availability and innovative use of the information. UKHO will remain as expert analysts of the raw material, transforming it into usable reliable information.

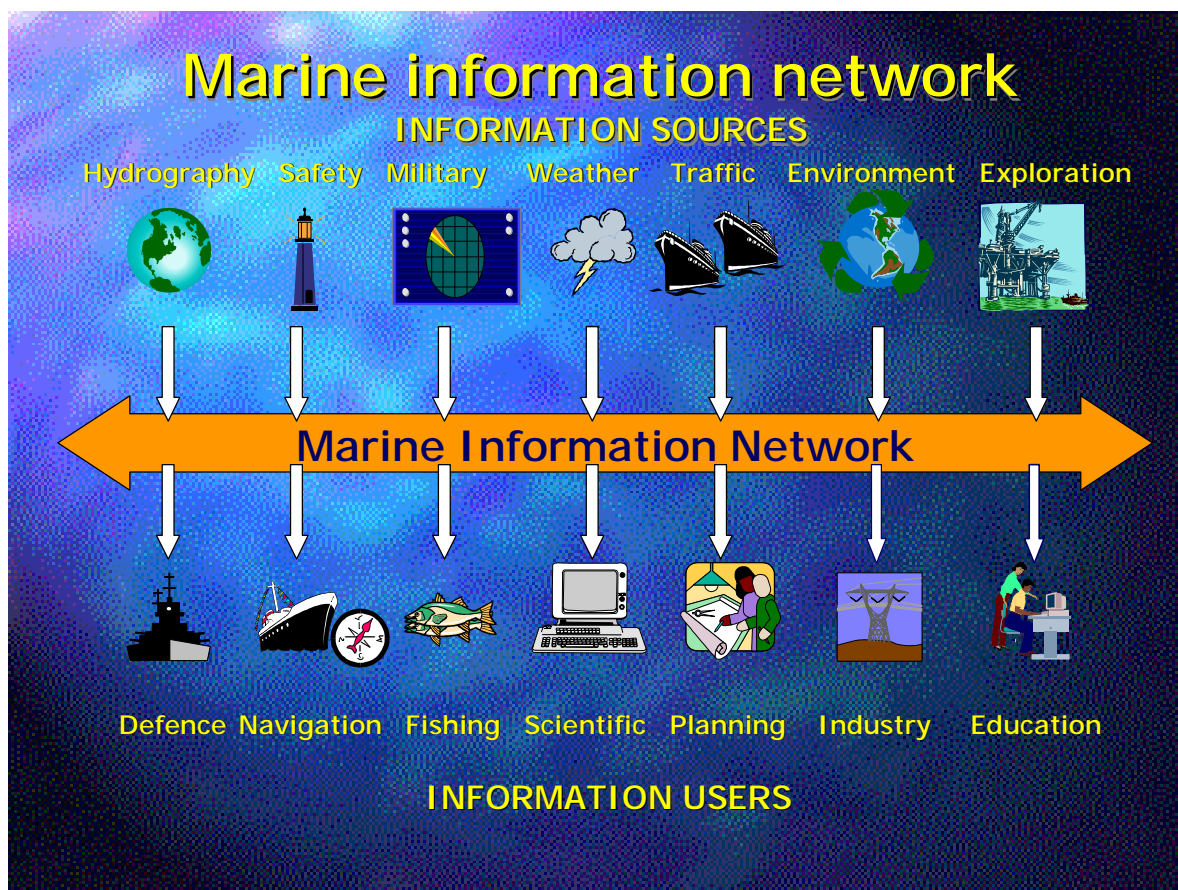
ENC S57 Ed 3 data of Southampton Water



Encyclopaedic Marine Information

The first generation digital products such as ARCS (Admiralty Raster Chart Service) and ENC (Electronic Navigational Chart) are still fundamentally a digitised version of the paper products. The next generation will however see a fundamental change from a static to a dynamic offering with the provision of more comprehensive datasets drawn directly from validated digital source material. In other words, an encyclopaedia of marine information held as part of the National Hydrographic Database (NHDB).

As the prime driver to delivering the Marine Information Network enabled via the National Hydrographic Database (NHDB), UKHO has embarked on an ambitious programme of data re engineering, codenamed V2F. This multi million pound investment will allow UKHO to gather, validate and hold data from a variety of sources in such a way that both generic and bespoke product and service outputs can be “built” and delivered more quickly and responsively than before. It will also allow linkages to be created with other data providers enabling the easy multi-way flow of information (e.g. DNF).



“Fifteen into One will go” - the AML Case Study

Historically, hydrographic information beyond that needed for navigation has been supplied to users as various series of special products - overprints and overlays to charts, special tactical products for use with a single type of display, publications and the like. The same information may be published twenty times by the same organisation for the same overall customer. Continuing this approach with the advent of digital products would require individual bespoke solutions with the consequential excessively high costs.

The key to the Additional Military Layers (AML) concept is a move from publishing many products each designed for a single customer to the provision of a unified product range. From this, the needs of all users can be provided - from publishing the same information many times to publishing it once.

AML is a NATO initiative, co-ordinated by the UKHO, to develop a family of comprehensive, integrated digital data products for the defence customer to satisfy emerging requirements for this non-navigational hydrographic information. It is envisaged that these will replace the current diverse range of specialist operational paper charts and first generation digital products.

An aim of the AML project has been to ensure that all its specifications are based on widely accepted international standards. Their structure is based on a format published by NATO in STANAG 4564. These specifications are structured so as to separate the definition of the content from its carrier (exchange standard). Multiple carrier definitions can be included within each specification: current plans expect that all the specifications will include carrier definitions for both S-57 and DIGEST-C.

AML is not a stand alone concept but forms the key building block of the maritime component of MOD's foundation data concept for the provision of all forms geospatial information and its fusion with current observations and the outputs from modelling.

Working Together

The UKHO is conducting its business in an increasingly competitive market. As a government Trading Fund, UKHO cannot give this data away free. It is not only required to fund its activities from revenue but is also driven by market forces to meet the needs of our customers, who increasingly demand new products and faster delivery. These needs will often be satisfied only through partnering with industry and with the wider marine community. A key asset in these activities is Admiralty brand as a mark of authoritative hydrographic information.

UKHO is re-positioning its marketing operation to support the future provision of digital information. A big step change in technology is in the delivery of information. Electronic access gives UKHO, as information providers, the opportunity to improve service delivery and reach wider audiences. This means more business-to-business relationships can be developed. UKHO will be more transparent in what we are doing, for whom and at what cost. In that way our public sector customers, such as government departments, have the confidence in our ability to give value for money, and our industry partners the confidence in our ability to manage the framework efficiently and profitably.

UKHO can supply the framework. With partners, we can supply not just data but solutions.

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