WORLD HYDROGRAPHY DAY - 21 JUNE 2013

On 21st June each year the International Hydrographic Organization celebrates World Hydrography Day. World Hydrography Day is an opportunity to increase public awareness of the vital role that hydrography plays in everyone's life.

Hydrography - underpinning the Blue Economy

The theme for this year's World Hydrography Day, which is also the 92nd anniversary of the establishment of the IHO, is: "*Hydrography - underpinning the blue economy*".

The term "*blue economy*" means… *the sum of all economic activity associated with the oceans, seas, harbours, ports, and coastal zones.*[1]

Every human activity conducted in, on or under the sea depends on knowing the depth and the nature of the seafloor, the identification of any hazards that might exist and an understanding of the tides and the currents. Obtaining and disseminating this hydrographic knowledge is the role of the world's hydrographic surveyors and nautical cartographers. Their work is the most fundamental of all the enablers required to develop and sustain the *Blue Economy*.

The Potential of the Blue Economy

The seas and oceans are major contributors to the world economy.

The seas and oceans occupy 71% of the world's surface area and over 90% of the world's trade travels by sea.

The seas and oceans, including the seabed and the sub-seabed, represent a vast resource for food, mineral resources, energy, water, bio-medicines, and infrastructure that in turn creates wealth for individuals and for nations.

The Blue Economy is more than the traditional core activities of fishing, maritime trade and passenger ships. It also includes, but is not limited to:

- Aquaculture
- Biomedicine
- Boats and Shipbuilding
- Cables and pipelines
- Coastal Zone management
- Defence and Security
- Desalination and water treatment
- Marine recreation
- Ocean energy and minerals
- Ocean science and observation
- Port operations
- Robotics and submarines
- Shoreline development
- Telecommunications
- Tourism
- Very large floating platforms
- Weather and climate science

[1] As defined by *The Maritime Alliance* www.themaritimealliance.org, based on *The National Report: State of the US, Ocean and Coastal Economies, 2009.*

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Each of these important and growing maritime sectors can provide jobs and create wealth.

Economic Facts

Here are some economic facts about benefits that are directly related to the safe, efficient and sustainable use of the sea.

- Cruise ship passengers spend at least $100 each for each day ashore. That's over a quarter of a million dollars from a typical cruise ship for every day in a port

  Cruise Line Industry Association

- The Oceans already provide at least 15% of animal protein for about 3 billion people, aquaculture (farming) of fish and aquatic plants is worth more than $106 billion, the fishing industry provides livelihood to more than 540 million people

  UN Food and Agriculture Organization

- Well over 95% of the world's intercontinental data and telephone traffic is passed by undersea cables. The proper and safe routing of the cables depends on hydrography

  Submarine Cables and the Oceans – Connecting the World. UNEP-WCMC, 2009

- High-resolution charts of scallop fishing areas in Nova Scotia, Canada, reduced trawling by 70%, increased productivity, avoided seafloor disturbance and supported sustainable fisheries management

  Clearwater Seafoods Ltd; 2002

- Offshore wind farms are increasingly cost competitive with fossil fuel and nuclear sources

  Green Economy in a Blue World-Synthesis Report; UNEP and others, 2012

- Port economic activity usually generates at least one other indirect job for each new job. For high tech industries this multiplier effect can reach up to 5 or 6

  Moretti E, "Local Multipliers", American Economic Review, May 2012

- Economic studies show that the cost:benefit ratio for national investment in hydrography and nautical charting is always positive and can be better than 1:10

  Benefit-Cost Assessment of the Canadian hydrographic Service, Brinkman & Calverley, 1992;
  Analysis of the Economic Benefits of the Provision of Hydrographic Services in the APEC Region, APP & Globalworks, 2002
  Ireland: Infomar Marine Mapping Study, Price Waterhouse Coopers, 2008
  Scoping the Value of NOAA's Coastal Mapping Program; Leveson Consulting,2012

- For most ships, 30cm extra depth of navigable water allows at least 2,000 tonnes more cargo to be carried.

  typical tonnes per centimetre tables

Lack of Survey Data to Support the Blue Economy

Better maps of the Moon and Mars …

Over the millennia the seas and oceans have fed us, provided energy and raw materials, moderated our temperature, and let us enjoy it in a multitude of ways. Yet there is still much to explore - less than10% of the world's seas and oceans have been systematically surveyed. At the beginning of the 21st century we have higher resolution maps of the Moon and Mars than we do for most of our seas and oceans.[2] While many of the world's trade routes are charted, new, larger vessels demand more accurate surveys. Any development outside the regular trade routes becomes increasingly problematic because there is little or no hydrographic data to rely on. Marine Spatial Planning which encompasses not only navigable waters but the whole maritime domain, including the shoreline, is even more demanding.

[2] Introduction to the centenary edition of the GEBCO digital atlas

Role of Hydrographic Surveyors and Nautical Cartographers

Hydrographic surveyors work in both the public and private sector. Government hydrographic surveyors are usually involved in surveying to improve nautical charts and provide qualified base data for maritime geospatial information systems. Commercial hydrographic surveyors are often involved in specialized tasks including surveys for undersea pipelines and cables, the installation of offshore structures including wind farms, oil and gas platforms and surveys for new ports and harbours. They also survey under contract to improve charts.

Equipment Hydrographic surveyors use echo sounders, high definition sonars in boats and ships, lasers from aircraft and sometimes satellite images to obtain precise and accurate measurements of depth. They also need to be experts in precise positioning and in the measurement of currents and tides.

Charts Nautical cartographers take information from hydrographic surveys and from other sources and turn it into nautical charts and other marine geospatial products and services. Traditionally, the charts are printed on paper but increasingly now they are made in the form of digital electronic charts, as well. The charts use international standards set by the IHO to ensure that they can be used and understood by all mariners - from anywhere in the world.

Role of the IHO

The principal role of the IHO, as the competent international authority for hydrography, nautical charting and associated matters, is to improve the provision of adequate and timely hydrographic data, products and services to all parts of the world. This directly supports the Blue Economy. The role includes the maintenance of international standards to help ensure that mariners and other users of hydrographic data can use and understand the data easily.

Standards IHO standards cover a wide range, from defining the training and experience required by hydrographic surveyors and nautical cartographers, through the minimum standards for the collection of data and its depiction on charts, to the rapid delivery of Maritime Safety Information to ships at sea. References related to non-navigational applications of hydrographic information, such as C-17 covering Maritime Spatial Data Infrastructures and C-51, the Manual on Technical Aspects of the UN Convention on the Law of the Sea are also published and maintained by the IHO. In addition, the IHO provides other references related to hydrography such as the hydrographic dictionary in three languages and a manual of hydrography. Establishing the standards and getting them recognised and used requires extensive international cooperation and the involvement of many other organisations.

Regional Cooperation Another role of the IHO is to help coordinate and enhance cooperation in hydrographic activities between countries on a regional basis, and between regions in order to provide consistent and reliable services to mariners and decision makers. This is done primarily through the IHO member countries creating 15 Regional Hydrographic Commissions that coordinate charting services across almost all of the world.

Capacity Building The IHO has an active capacity building programme that assists countries to develop and improve their hydrographic capabilities. Capacity building projects are often done in collaboration with other international organisations and with growing industry participation.

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