



IHO Input to Part I of the Report of the UN Secretary General on Oceans and Law of the Sea

This contribution is provided in response to letter *LOS/SGR/2019/I/IGO* dated 19 December 2018 as the input from the International Hydrographic Organization to Part I of the report of the UN Secretary General on Oceans and Law of the Sea. It addresses the topic of the twentieth meeting of the Informal Consultative Process: “*Ocean Science and the United Nations Decade of Ocean Science for Sustainable Development*”.

1. The International Hydrographic Organization (IHO) is an inter-governmental consultative technical organization, whose principal objective is to ensure that all the world’s seas, oceans and navigable waters are properly surveyed and charted, through the coordinated endeavours of national Hydrographic Offices. The IHO has been hosted by the Government of Monaco since its creation in 1921 and its current membership stands at 89 Member States.

2. Hydrography, as an applied engineering science, generally comprises the measurements of all the physics of the seas but has a focus on measuring the depth of the water (bathymetry) and fixing the position of all the hazards and obstructions to navigation that lie on the seafloor, such as wrecks and rocks.

3. Although tides and currents, as well as the characteristics of the water column, such as temperature and salinity, are measured using passive methods, the depth measurements presently are performed mainly with specialized ships and boats operating echo sounders and sonars. However, new emerging technologies, such as airborne laser scanning and mathematical derivation of the sea bed topography from satellite imagery, have enhanced the range of technical options available to complete our image of the oceanic part of the earth. The IHO supports the enhanced application of such new technologies through definition of harmonized procedures, adaptation of quality standards, coordination of capacity building, training and education.

4. The conduct of hydrography for the identification and usage of navigable areas in waters of national jurisdiction is principally based on governmental activities of the affected coastal state. The IHO has set up a comprehensive programme for capacity building to establish new, as well as enabling existing, hydrographic offices in developing countries to undertake sea surveys and nautical cartography under their own capacity or in liaison with competent partners. The IHO encourages its member states, via their respective national hydrographic offices, to provide the acquired hydrographic information to the broadest range of national and international stakeholders, including, but not limited to, the ocean science domain. Special emphasis is put on the support of national and regional establishment of marine spatial data infrastructures to enable broad access by digital means.

5. The IHO conducts a broad approach to let hydrographic information driving marine knowledge. By means of modelled abstractions of the physical conditions of the seabed and the water column, suitable hydrographic data formats have been developed to facilitate interoperability with information generated by oceans sciences such as meteorology, geology, chemistry and biology.

6. The technical combination of hydrographic information with ocean science data sets will allow the creation of a broader image of the current state of the seas and oceans and a comprehensive understanding of the overarching mechanisms, such as climate change, biodiversity, distribution of micro plastic particles and the like. In this regard, such technical amalgamation of information delivered from different ocean science domains will assist in the evaluation of the effectiveness of measures to support the UN SDG goals with relation to the seas and oceans – in particular SGD 14.

7. The processed amount of detailed hydrographic information about the physical conditions of the seas and oceans is far from being complete. Recent calculations show that only 18% of depth information of all seas and oceans areas is available and a much lesser percentage is covered to an accuracy which complies with the current state of technology. The IHO has therefore initiated a campaign to crowdsource bathymetry data from the most diverse range of contributors possible. As a core element of the project “General Bathymetric Charts of the Oceans - GEBCO” active since 1903 without interruption, the IHO hosts a global database named “Data Centre for Digital Bathymetry – DCDB” to store and freely provide all depth data contributed through governmental, commercial, academic and private bodies. Data resultant from the crowdsource bathymetry campaign will be ingested into the DCDB and be made publicly available under an open data policy without restrictions for its use.

8. With the same intention, the IHO sponsors competence and coordination assistance to the international Project “Seabed2030” aiming to acquire existing bathymetric data sets from the broadest variety of commercial off shore activities of the high seas and to support the development of new unmanned and autonomous operating measurement platforms.
