The Ocean InfoHub Project

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The IOC Ocean InfoHub Project (OIH) is a new initiative to help realise a global digital commons to empower ocean science for sustainable development across scales. Funded by the Government of Flanders (Kingdom of Belgium), the project started in April 2020 and will run for three years. The OIH is coordinated by the IOC Project Office for IODE (Oostende, Belgium), building on its 59-year history of supporting member states in the exchange and management of marine data and information. The OIH will establish and anchor a network of regional and thematic nodes that will improve online access to and synthesis of existing global, regional and national data, information and knowledge resources. The OIH will center on an openly accessible web platform designed to support interlinkages and interoperability between distributed resources including existing clearinghouse mechanisms.

The OIH will be initialised by consolidating IOC-associated online resources - including OceanExpert, OceanDocs, the Ocean Best Practices System, the Ocean Biodiversity Information System (OBIS), the World Ocean Database (WOD) and Ocean Data Portal (ODP) – extended by partnerships with EurOcean, Marinetraining.eu, EMODNET, and other sources in the IOC ODIS Catalogue of Sources (ODIScat). The initial focus of OIH will thus be on (i) experts, (ii) institutions/organizations, (iii) research data and information infrastructures and their capabilities and services offered, (iv) projects, (v) research vessels, (vi) education and training opportunities, (vii) funding programs and other opportunities, (viii) documents and publications, (ix) manuals, guidelines, standards and best practices, (xi) metadata catalogue for specific variables and (xii) access to data sets and/or data products relevant to particular program priorities (e.g. the SDGs).

Subsequently, the OIH will expand its capabilities to other global and regional partners, including international and regional organisations, private sector entities and NGOs. Through these actions, the OIH will help usher in a digital ecosystem where users, from any entry point, can discover and avail of the content and services that they require, while having opportunities to become content creators themselves. Further, the project will support collaboration between knowledge brokers at regional scales, across themes and across disciplines.

Other foci will align to the IOC's Capacity Development (CD) strategy and include the transfer of local knowledge and technologies, support of early-career scientists and remedying gender disparity. With these priorities in mind, the OIH will include automated and human-brokered capacities to match needs to capacities, allowing - for example - study and training or vessel survey opportunities to be identified by young ocean professionals from nations with nascent capacities. A peer-to-peer service will support scientific collaboration, and an automated/self-serve service will allow the search for specific human or institutional expertise.

To support regional representation in global systems, the OIH will also federate data and information held by stakeholder institutions within the three focus regions: Latin America, Africa and Pacific SIDS. Communities of practice for these pilot regions will be formed to co-develop the OIH (e.g. the ongoing CMA2 project run by INVEMAR in Colombia), alongside formal partnerships with other UN agencies

and key international partners. By responding to capacity development requests from these regions, the OIH will be tailored to regional needs while meeting global objectives.

As it is co-developed, the OIH will increasingly contribute towards meeting national and regional requirements for coordinating marine data and information, while supporting global reporting requirements for the UN Sustainable Development Goals (particularly goals 4, 9, 14 and 17). In doing so, it will contribute to key Orientations and Objectives of the UN Decade of Ocean Science for Sustainable Development, as well as aspects of the Paris Agreement, the Sendai Framework for disaster Risk Reduction and agreements on Marine Biological Diversity of Areas Beyond National Jurisdiction. The OIH will also assist IOC member states to report on ocean science capacities through the Global Ocean Science Report (GOSR).

A scalable interoperability framework is needed to support the OIH's objectives and is being developed in the form of a reference architecture for the IOC Ocean Data and Information System (ODIS) and the resources it federates. During the project's initial phases, the "ODIS-Arch" will allow the three regional nodes to project and receive digital products to and from the OIH infrastructure, while maintaining their native technical implementations that are meeting the needs of their unique user communities (e.g. themes and language). Capacity for thematic products (e.g. data on the GOOS Essential Ocean Variables; EOVs) will be included at a later stage, and they will be managed by their parent organisation, linked through the ODIS-Arch. Together, this system will nucleate a web-based, global knowledge base driven by linked open data technologies.

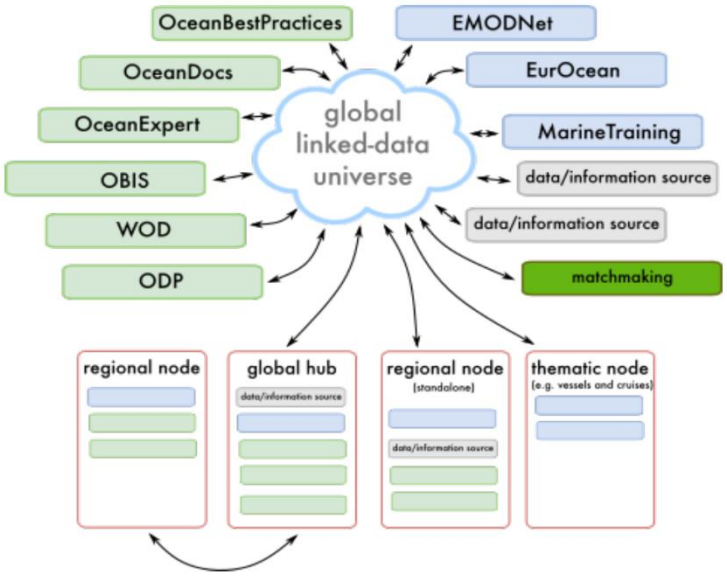

Figure 1: The e-environment underlying the Ocean InfoHub

The development of the OIH and ODIS will embrace an open approach, with the work being undertaken through co-design with the stakeholder community (contributors, users, developers), and will foster activity within the IOC and the community at large. The project will employ many conventions and standards already present in the open source community to facilitate the development, testing, and adoption of ODIS-Arch within established and developing systems.

In conclusion, the Ocean InfoHub represents a key enabling project, both in the context of advancing UN priorities related to capacity development, but also as an enabler to modernizing data sharing within the global marine data and services communities.