

MACHC-IOCARIBE Seabed 2030 Strategy 2021-2030

www.iho-machc.org/seabed2030.html



November 2020

VISION

A complete baseline seabed map of the MACHC Region by 2030 that informs the sustainable, multi-purpose use of our regional ocean.

MISSION

Acquire and share the data necessary to create a complete map of the MACHC Region through multi-sector partnerships and collaboration.

INTRODUCTION

For the MACHC Region, this map will provide a valuable product and common resource that all will benefit from using. A complete bathymetric map of the MACHC Region will be a significant contribution to the Nippon Foundation GEBCO Seabed 2030 Project and will inform and improve regional marine spatial planning, disaster response, environmental management and scientific investigation activities, as identified in the *Societal Goals of the UN Decade of Ocean Science for Sustainable Development 2020-2030*. Completion of this map was also identified as a priority during the UN Decade of Ocean Science Regional Workshop for the Western Tropical Atlantic hosted by the Autonomous National University of Mexico (UNAM) and co-organized by the Government of Mexico with the Intergovernmental Oceanographic Commission (IOC) in April 2020.

The first large effort to map the Wider Caribbean Region started in 1986 with establishment of the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico (IBCCA). IBCCA is a regional cartographic project sponsored by the IOC of UNESCO. The International Hydrographic Organization (IHO) benefited from contributions of IBCCA, through the IHO Data Centre for Digital Bathymetry, and the IHO-IOC joint General Bathymetric Chart of the Oceans (GEBCO) project maintained liaison and cooperated with IBCCA. The objective was to create a bathymetric chart for the Caribbean Sea, Gulf of Mexico and adjacent regions, and it is expected to be completed by the end of 2020.

The IOC of UNESCO Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE) and the MACHC are working together to galvanize regional contributions to this important initiative. This collaborative effort requires broad partnership and coordination across governments, industry, academia, regional scientific and non-governmental organizations and citizens.

Creating an accurate, observation-based bathymetric map of the MACHC Region is essential for the sustainable use of our ocean, and will greatly help to achieve the United Nations Sustainable Development Goal (SDG) 14 – Life Below Water.

With the anticipated launch of the United Nations Decade of Ocean Science for Sustainable Development in 2021, we invite all MACHC and IOCARIBE Members to collaborate with stakeholders in the MACHC Region to meet the aspirational goal of mapping our regional ocean by 2030. This will constitute a major regional contribution to the Nippon Foundation - GEBCO Seabed 2030 Project, which *“aspires to empower the world to make policy decisions, use the ocean sustainably, and undertake scientific research that is informed by a detailed understanding of the global ocean floor.”*

UN Decade of Ocean Science Goals

	A Clean Ocean		A Safe Ocean
	A Healthy and Resilient Ocean		An Accessible Ocean
	A Predicted Ocean		An Inspiring and Engaging Ocean
			A Productive Ocean

CURRENT MAPPING STATUS OF THE REGION

According to data integrated into the GEBCO 2020 Grid, and considering Seabed 2030's depth-dependent resolution goals, 20% of the Caribbean region (including the Pacific portion of the MACHC region) has been mapped with direct observation. Significant amounts of additional data that exist but are not publicly available, would raise this percentage significantly if shared and integrated. Our goal is to identify existing data, show where the gaps are and increase coverage to meet regional needs by the end of this next decade.

Based on currently available information, an interactive web application on the [Seabed 2030 section](#) on the MACHC Initiative website shows how much of the region has been surveyed and where the known gaps are. This interface presents several informational layers to promote collaboration and cooperation toward the goals of Seabed 2030. Layers are publicly available and managed by many partners. Authoritative layers are used whenever available and include:

- GEBCO 2020 Map & Coverage
- Known Data Coverage Layers
 - Public Data (such as singlebeam and multibeam data at IHO DCDB)
 - Non-public Existing Data
- Planned Surveys (Member State, Industry and others)

What needs to be mapped?

In the MACHC region, MACHC and IOCARIBE members are committed to contributing to the Seabed 2030 Project in order to reach the ambitious depth resolution goals of 100 meters in shallow waters, 200 and 400 meters in intermediate waters, and 800 meters in deep water.

The various data layers highlight data gaps and will help to prioritize future efforts to fill them. Instructions on how to submit data to the IHO Data Center for Digital Bathymetry IHO DCDB (in [English](#) and [Spanish](#)) are found on this site as well as information on crowdsourced bathymetry policy and tools.

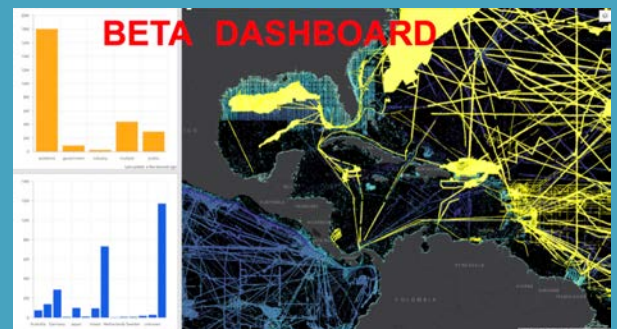
MACHC Seabed 2030 Web App

Presents several publicly available and informational layers to promote collaboration and cooperation toward the goals of Seabed 2030



HOW WILL WE TRACK/MEASURE OUR PROGRESS?

The implementation of this strategy will be assisted by online tools and metrics that show the growth of data contributions of different stakeholders and sectors on an annual basis. An annual work plan of implementation actions will be developed by the Seabed 2030 Coordinator and the [designated national points of contact](#) after consultation and approval by their respective governmental or institutional authorities.



GOAL 1 **Contribute existing non-public bathymetric data to the IHO DCDB and GEBCO grid**

While 20% of the region has been mapped by direct observation according to data already integrated into the GEBCO grid, this does not include all existing bathymetric data in the region. Known and unknown existing non-public data which could be shared with the Seabed 2030 project Regional Data Assembly and Coordination Center (RDACC) for the Atlantic Ocean or the IHO DCDB would improve the quality of bathymetric maps in the region for all stakeholders. Recognizing that the contribution of data at any resolution will improve the quality of our regional map, Members are encouraged to explore what may be possible within the framework of their own national policies. Sources of data include surveys sponsored by governments, scientific investigators, private industry in support of a wide range of clients (oil/gas exploration, submarine cables, coastal protection/coastal resilience, disaster recovery and nautical charting, etc.), public organizations and many more. Identifying existing bathymetric data that can be made available in the region will help better identify gaps in coverage and plan new surveys.

OBJECTIVE 1.1

Share existing bathymetric data in the MACHC region for inclusion in the GEBCO Grid and long-term preservation and public accessibility via the IHO DCDB.

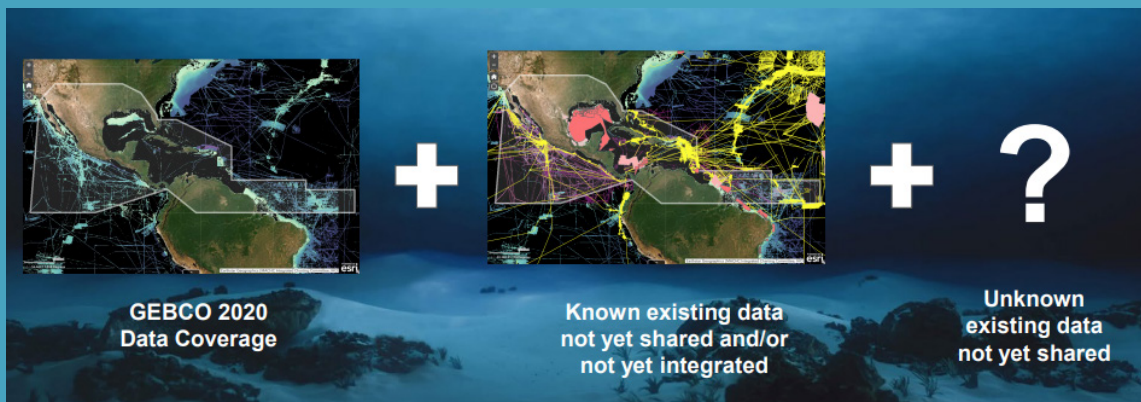
OBJECTIVE 1.2

Identify existing non-public bathymetric data and create/share polygons delineating the extent of data coverage for integration into the Seabed 2030 - MACHC Web App.

OBJECTIVE 1.3

Advise stakeholders and partners to seek access to existing non-public bathymetric data sets that have been acquired and managed by scientific investigators, private industry and public organizations.

Data layers highlight data gaps and help prioritize future efforts to fill them



GOAL 2 Increase data coverage

An increase in data acquisition will be needed to fill remaining gaps. The MACHC Seabed2030 Web Application tool will be used to show where new data will be acquired. By seeing when and where planned surveys will take place in the data layer, Members and other interested parties will be able to identify opportunities for collaborative survey campaigns to fill gaps and increase the potential for attracting resources to carry it out.

Traditional surveys alone will not be able to cover all gaps. There are numerous academic and industry survey activities occurring throughout the region that present opportunities for additional data collection during their transits. However, these transits through national jurisdictional waters can only benefit regional mapping goals if permissions for data acquisition and sharing are allowed by individual nations. Nations are encouraged to consider these opportunities.

Crowdsourced bathymetry (CSB) is defined by the IHO as the collection of depth measurements from vessels, using standard navigation instruments, while engaged in routine maritime operations. These data would be used to supplement the more rigorous and scientific bathymetric coverage done by hydrographic offices, industry, and researchers around the world.

All commercial vessels are required by international law to be equipped with certified echo-sounders and satellite-based navigation systems. As a result, the world's commercial fleet represents a significant, untapped source of potential depth measurements. Even most non-commercial ships and boats are equipped to measure and digitally record their depth in coastal waters and an ever-increasing number of vessels can also take measurements in deeper water. The crowdsourced bathymetry (CSB) vision is to tap into volunteer enthusiasm for mapping the ocean floor. Enabling trusted mariners to easily contribute data will augment current bathymetric coverage.

OBJECTIVE 2.1

Design, implement, and resource coordinated mapping campaigns based on identified data gaps.

OBJECTIVE 2.2

Encourage the acquisition of mapping data by academic and industry survey vessels during transits through the region to fill gaps in data coverage.

OBJECTIVE 2.3

Encourage the collection and contribution of crowdsourced bathymetry (CSB) data among volunteer commercial and non-commercial vessels.



Why work together?

- Learn from one another
- Leverage efforts to work toward common goals
- Share data, approaches, workflows, tools
- Develop new collaborations and opportunities
- Prioritization and mapping campaigns
- Capacity Development

GOAL 3 Build Capacity for mapping contributions

IHO DCDB is the recognized international repository for all ocean bathymetric data. The IHO DCDB works closely with GEBCO, the Seabed 2030 Project, and the RDACC for the Atlantic Ocean to provide long-term preservation, discovery and public access of source bathymetry data. Both the IHO DCDB and the RDACC have a wide suite of tools and expertise to assist and support data contributors through packaging and providing data at any resolution or access level. They also have tools to assist with data submission with simple user interfaces for data entry. As technical or other challenges are identified, that are obstacles to data collection and sharing, solutions will be sought to address them.

OBJECTIVE 3.1

Expand and enhance the suite of IHO DCDB and Seabed 2030 RDACC tools available to support and assist data contributors through the packaging and provision of data at any resolution or access level.

OBJECTIVE 3.2

Simplify data submission workflows and user interfaces for data entry.

Making it Possible

MACHC: www.iho-machc.org
IOCARIBE: iocaribe.ioc-unesco.org
Seabed 2030: seabed2030.org
IBCCA: www.ngdc.noaa.gov/mgg/ibcca/

Please contact the MACHC Seabed 2030 Coordinator with any questions, or to collaborate: Ms. Cecilia Cortina (cecilia.cortina@gmail.com)