
	<p><b>MACHC-IOCARIBE</b>  <b>Seabed 2030</b>  <b>Work Plan for 2021</b>  <b>STATUS UPDATES</b></p>	
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**Goal 1: Contribute Existing Non-Public Bathymetric Data to the IHO DCDB and GEBCO Grid**

**Objective 1.1. 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**

#	Action Item	Contribution so far	Observations
001	Assemble information (polygons) about existing non-public bathymetric data falling under its remit not yet identified on the MACHC Web App to identify gaps.	USA, CRI, NLD, SUR	<p>CRI: It does not have an official entity therefore it was not collected.</p> <p>USA: Nothing new to add from U.S. NOAA for this region.</p> <p>NLD: The historic non-digital fair sheets of the Caribbean Islands of the Kingdom of the Netherlands and Suriname have been registered. It concerns 937 records. The sheets between 1775 and 1950 are at our National Archives, and the sheets between 1950 and 2000 at the Geological Survey of the Netherlands. We are looking for options to fund scanning and/or digitization.</p> <p>SUR: The regulator of the Oil and Gas companies has been contacted for this information or polygons</p>
002	Broadly communicate the steps to submit polygons showing data coverage of existing data to both the RDACC and the IHO DCDB.	HND, GTM, DOM, CRI	Virtual meetings with some POCs for technical advice: Honduras, Guatemala, Dominican Republic and Costa Rica

**Objective 1.2. 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.**

#	Action Item	Contribution so far	Observations
003	Look at existing regulatory requirements, legislation, bilateral, contractual or other arrangements for surveying within national waters of jurisdiction to reassess what bathymetric data can be made publicly available and at what resolution is acceptable to the government and to the data owner.	USA, NLD, BRA, CRI, MEX, SUR	<p>CRI: It does not have agreements with entities (universities) that collect bathymetric data.</p> <p>USA: Will use a data-sharing agreement with an East Coast wind energy developer as an example to encourage similar contributions from private sector entities in the Gulf (see attached template). U.S. NOAA has also created data licenses to facilitate use of existing bathymetric data; currently seeking approval to release.</p> <p>NLD: National survey requirements available at <a href="https://iho.int/en/csbwg">https://iho.int/en/csbwg</a>. Data owners are encouraged to share their data actively, either directly to us, through the EMODnet Ingestion portal (<a href="https://www.emodnet-ingestion.eu/">https://www.emodnet-ingestion.eu/</a>), or through the IHO DCDB CSB page (<a href="https://www.ngdc.noaa.gov/iho/">https://www.ngdc.noaa.gov/iho/</a>).</p> <p>BRA: The Open Data Policy of the Brazilian Hydrographic Office is being updated to include bathymetric data. Brazil allows CSB in the Brazilian EEZ.</p> <p>MEX: The national offices are holding meetings to agree on the organization of the available data.</p> <p>SUR: This is action is planned for 2022.</p>
004	Broadly communicate the steps to submit data to the IHO DCDB and the RDACC.	Webinar 2020, 2021	<p>DOM: Virtual meeting</p> <p>SUR: This is action is planned for 2022.</p>
005	Contribute multibeam, single-beam and ENC data to the IHO DCDB, wherever possible, for long-term archive and data access.	USA, NLD, BRA, FUGRO, SUR	<p>CRI: The entities have not provided the data.</p> <p>USA: Ongoing. U.S. NOAA does this routinely for all its surveys</p>

			<p>NLD: Our digital Caribbean multibeam and singlebeam data will become available through the EMODnetBathymetry CDI Data Discovery and Access Service at <a href="https://www.emodnet-bathymetry.eu/">https://www.emodnet-bathymetry.eu/</a>. Our Caribbean ENC data is available for viewing only in the MACHC ENC Online service at <a href="https://www.iho-machc.org/MACHC-ENOnline/">https://www.iho-machc.org/MACHC-ENOnline/</a>.</p> <p>BRA: Bathymetric data from five surveys conducted at NAVAREA V (offshore Brazilian coast) were submitted to IHO DCDB in March 2021.</p> <p>SUR: Our digital multibeam and singlebeam data will become available through IHO DCDB. Our Caribbean ENC data is available for viewing only in the MACHC ENC Online service at <a href="https://www.iho-machc.org/MACHC-ENOnline/">https://www.iho-machc.org/MACHC-ENOnline/</a>.</p>
006	<p>Contribute national bathymetric data products to the RDACC at the appropriate resolution approved by the national authorities for integration into the GEBCO grid.</p>	<p>DOM, USA, NLD, BRA, CRI, MEX, SUR</p>	<p>CRI: The entities have not provided the data.</p> <p>USA: has automatic processes to transfer data to the GEBCO grid, such as incorporating bathymetric data from academic research vessels and directly from the DCDB.</p> <p>NLD: Our digital Caribbean bathymetric data products will become available through the EMODnet Bathymetry CDI Data Discovery and Access Service at <a href="https://www.emodnet-bathymetry.eu/">https://www.emodnet-bathymetry.eu/</a>. Our digital Caribbean bathymetric data products are available through our Caribbean bathymetry web services, updated twice year. More details at <a href="https://english.defensie.nl/topics/hydrography/documents/publications/2021/09/30/online-availability-of-data-from-the-hydrographic-service">https://english.defensie.nl/topics/hydrography/documents/publications/2021/09/30/online-availability-of-data-from-the-hydrographic-service</a>.</p> <p>BRA: Bathymetric grid with 1 km resolution covering NAVAREA V was submitted in March 2021.</p> <p>MEX: Working in the grid resolution</p>

			SUR: Planned for 2022.
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**Objective 1.3. Advise stakeholders and partners to seek access to existing and future non-public bathymetric data sets acquired and managed by scientific investigators, private industry, and public organizations.**

#	Action Item	Contribution so far	Observations
007	Identify ways to promote or to support bathymetric data sharing.	CRI, USA, NLD, BRA, SUR	<p>CRI: They do not have a maritime authority therefore their efforts remain isolated.</p> <p>USA: Has created a data provider outreach form to promote data-sharing (<a href="https://iocm.noaa.gov/data-sharing/provider-engagement-form.html">https://iocm.noaa.gov/data-sharing/provider-engagement-form.html</a>). U.S. through its Interagency Working Group on Ocean and Coastal Mapping and other initiatives also works with the Gulf states to coordinate/collaborate on mapping and data sharing, eg. Florida Coastal Mapping Program (<a href="https://fcmap-myfwc.hub.arcgis.com/">https://fcmap-myfwc.hub.arcgis.com/</a>).</p> <p>NLD: Active communication with all relevant scientific institutes and public bodies.</p> <p>BRA: Technical and Informative Notes on the GEBCO program and Seabed 2030 project were issued to Brazilian Marine Geology and Geophysics Program, Brazilian Oceanography Association and Brazilian Hydrographic Society.</p> <p>SUR: Active communication with all relevant scientific institutes and public bodies.</p>

**Goal 2: Increase Data Coverage**

**Objective 2.1. Design, implement, and resource coordinated mapping campaigns based on identified data gaps.**

#	Action Item	Contribution so far	Observations
008	Assemble information and polygons about upcoming surveys and data acquisition opportunities in national waters of jurisdiction to integrate into the WebApp to define data gaps and plan coordinated mapping campaigns.	USA, NLD, BRA, CRI, GTM, MEX	<p>USA: Already done for U.S. NOAA FY22-23 survey plans, including Spring 2022 Caribbean mapping. U.S. also runs GIS-based mapping priority exercises with federal agencies, states and stakeholders in the regions, including the Gulf. More information can be found at: <a href="https://iocm.noaa.gov/planning/priorities.html">https://iocm.noaa.gov/planning/priorities.html</a>.</p> <p>NLD: The Sint Maarten LIDAR survey is being processed and will be offered though our Caribbean bathymetric web services.</p> <p>The deep water echo sounder o/b HNLMS Pelikaan has been installed and she has returned to the Caribbean Sea. Still dealing with some technical issues.</p> <p>BRA: Is working on the gap areas provided by the Seabed 2030 Coordinator in order to plan upcoming surveys in the Brazilian waters of jurisdictional.</p>
009	Identify gap areas in the MACHC region without any kind of bathymetric data (distances greater than 1,000 m) providing the polygons to the respective Coastal States.	april/2021 sep/2021	<p>According to the information available for that month on the GEBCO webpage, a .shp file with data for the year 2020 was sent in April 2021.</p> <p>An updated .shp file was sent with data from 2021 provided by the head of the RDACC (Dr. Vicki Ferrini).</p> <p>Please indicated if any actions is being taken or planned on to fill the gaps.</p>

**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.**

#	Action Item	Contribution so far	Observations
010	Explore with national authorities expanded permissions for opportunistic data acquisition via research and survey vessels during transits, consistent with national policy.	HND, USA, NLD, BRA	<p>HND: requested and also sent a letter regarding the importance of participation in the CSB project for this Coastal State. This letter was sent in July from Seabed 2030 Coordinator.</p> <p>USA: is developing an open source CSB module (code) that could facilitate transmission of transit-quality data to NOAA; there are also a number of other tools and methods under development using small additions of equipment at low cost to collect/marry depth and location data, eg. University of New Hampshire, Great Lakes Observing System. These may be available in the future to interested countries in the region.</p> <p>NLD: The deep water echo sounder o/b HNLMS Pelikaan has been installed and she has returned to the Caribbean Sea. Still dealing with some technical issues.</p> <p>BRA: Under request from research institutions and private hydrographic surveyors, the Brazilian Hydrographic Office will support data acquisition in the Brazilian waters of jurisdiction.</p> <p>CRI: It does not have research vessels equipped for deep bathymetric surveys. The academy has only worked in areas close to the coast.</p>

**Objective 2.3. Encourage the collection and contribution of crowdsourced bathymetry (CSB) data among volunteer commercial and non-commercial vessels.**

#	Action Item	Contribution so far	Observations
011	Respond to IRCC CL 1/2020 or IHO CL 21/2020 to allow for the provision of CSB data from ships within waters subject to their national jurisdiction into the public domain, according to national policy, or update it.	CRI, COL, BRA, NLD, USA, GBR, SUR	MEX: Is waiting the response from internal offices  SUR: Responded to IHO CL 1/2020 in 2020.
012	Consider carrying CSB field trials with designated “trusted nodes” (data liaisons) and data collectors (mariners) in the region to provide data to the IHO DCDB.	USA, HND, SUR	USA: Will test its crowdsource bathymetry module this winter in Gulf waters, with NOAA serving as a trusted node to send data to the DCDB.  HND: Requested and also sent a letter regarding the importance of participation in the CSB project for this Coastal State. This letter was sent in April from Seabed 2030 Coordinator.  Suriname: Is interesting.

### Goal 3: Build Capacity for mapping contributions

**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.**

#	Action Item	Contribution so far	Observations
013	Identify technical and other challenges to data collection, assembly and sharing and look for solutions.	BRA, CRI, GTM, HND, COL, MEX, SUR	<p>BRA: The Brazilian Hydrographic Office has no authority to obtain the sharing of data acquired under the remit of the Brazilian Oil and Gas Agency.</p> <p>CRI: It does not have an official Hydrographic entity to collect bathymetry. CRI, request high level visit from IHO through MACHC CBC.</p> <p>GTM, HND: Equipment and training</p> <p>COL, MEX: Legal aspects about share data.</p> <p>SUR: No platform and equipment for survey beyond the EEZ</p>

**Objective 3.2. Simplify data submission workflows and user interfaces for data entry.**

#	Action Item	Contribution so far	Observations
014	Conduct an annual review process to resolve challenges to data collection and sharing.		This action will be informed by the responses from action 13.
015	Provide technical support and data submission guidelines for data and accompanying metadata and Type Identifier (TID) information.	Webinar held Nov 12	Director RDACC and Manager data from NIWA, share some tools and procedures