**G E B C O**

GENERAL BATHYMETRIC CHART OF THE OCEANS

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**40th meeting of the GEBCO Guiding Committee (GGC40)**

**IHO Secretariat, Monaco**

9-10 November 2023

**Meeting Report**

1. **OPENING REMARKS AND ADMINISTRATIVE ARRANGEMENTS**
2. Opening Remarks and Introductions

Chair welcomed participants both in person and virtually and noted that the GGC was quorate. Introductions were conducted in the room and online.

1. Opening remarks by parent bodies

IHO Director Luigi Sinapi (**LS**) provided opening remarks on behalf of the IHO, welcomed participants and acknowledged the increasing relevance of GEBCO to the broader oceans Policy agenda. He drew links to the work of GEBCO and the IHO strategy and reemphasised the importance of the strategy and governance review work.

Julian Barbière (**JB**) provided some opening remarks on behalf of IOC. He recapped emerging activity within the Ocean Decade, specifically the upcoming Ocean Decade Conference scheduled for April 2024. It was noted that the IHO and OECD are planning a side event for the Ocean Decade Conference and that there would be an opportunity for GEBCO to be represented.

1. Working Arrangements

IHO Secretary went through the working arrangements and general administration for the meeting. He noted that all documents received had been uploaded and requested that outstanding material be supplied as soon as possible.

1. Administrative Arrangements

Covered in previous agenda item.

1. Adoption of the Agenda and approval of report from GGC39

The agenda and GGC38 report were approved.

**Decision 1. GGC39 meeting agenda adopted**

**Decision 2. GGC38 meeting report approved**

1. Review of Action Items from GGC39

Action Items form previous GGC meeting were reviewed with actions identified that would be covered in the following agenda items.

1. Report from IRCC15 ([report](https://iho.int/uploads/user/Inter-Regional%20Coordination/IRCC/IRCC14/C6_2022_04.2_EN_IRCC_Report_v2.pdf)) and IOC A-32

The Chair provided an update on what was reported back to IRCC. Key issues included:

- Set to work of SCET

- Endorsement of the GEBCO Charter

- Update on the Governance review

- Update on the Strategy development

He noted that the GGC report to IRCC15 was available on the IHO website.

**JB** gave a verbal update on the outcome of IOC A-32. Key issues included:

* GGC Chair report to A-32
* Secretary update on initial findings of Governance Review
* Proposal by Australia for adjustment to naming process of undersea feature names to go to SCUFN

He reported that the Governance review would go to IOC EC57 for final endorsement.

1. **REPORTS FROM PARENTAL AND SUBORDINATE BODIES**
2. IHO update - [Report](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_2.1_EN_IHO%20update.pptx)

Director Sinapi provided an update on relevant outcomes from the IHO Council and Assembly (see presentation). Key items included:

* Assembly had agreed on the continuation of conduct of the annual Work Programmes on the basis of the Strategic Plan in place for 2021 – 2026 and directed the Council accordingly.
* Assembly tasked the Council with the development of the revised Strategic Plan to be put in place for 2027 – 2032 in compliance with the Planning Cycle and to submit the result for adoption by A-4 in 2026.
* Assembly had **approved** the proposed IHO Resolution on the recognition of the Southern Ocean, **took note** of the consequences on the limits of some global sea areas as a result of recognition of the Southern Ocean**, endorsed** the fact that this new Resolution is without prejudice to or limitation of the views of the IHO, any other international body or any IHO Member State regarding the subject matter addressed.
* The latest Membership status of the IHO
* Recap of IHO strategic priorities as relate to GEBCO
* Requirement for GEBCO contribution to metrics for IHO SPI 3.2.3 and SPI 2.2.1.

The presentation was noted.

1. IOC update - Report

**JB** provided an update on IOC activities. Key items included:

* IOC Strategic Plan for ocean data and information management
* UN Ocean Decade Tsunami Programme
* New IOC Capacity Development Strategy was approved by IOC Assembly (2023-2030)
* The development of an IOC wide strategy on sustainable ocean planning and management
* Working Group on Ocean Observation in areas under national jurisdiction. This is relevant to the work of IHO in looking at Depth becoming and Essential Ocean Variable.

He provided a specific update on the developments within the Ocean Decade in which he noted that the Decade continues to grow - 47 programmes, 277 projects, 575 activities and 85 contributions – and that to date, 37 national committees have been formed. He drew the attention of the group to the fact that the Ocean Decade data and information strategy has been launched and described the role of the corporate data group and their work to develop a framework for sharing commercial data. He informed the group of the ocean finance conference that will happen in Monaco the weekend before the UNOC. Finally, he advised that due to an uplift in the budget of IOC, an increase to GEBCO funds was likely and more information would be provided in due course.

The presentation was noted with thanks.

1. Financial update, including funds status report

This agenda item was deferred until agenda item 10.

1. Digital Atlas Manager - [Report](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_2.4_EN_BODC_report.pdf)

Helen Snaith (**HS)** gave an update on the work of BODC to support the creation of the GEBCO digital grid and other work carried out at BODC in support of GEBCO since the previous GEBCO meetings in October 2022. Key activities included the calculation and delivery of the GEBCO\_2023 global and delivery of the GEBCO website. The report included two annexes:

* + Annex I includes statistics on the distribution of GEBCO’s data sets.
  + Annex II includes information on access to GEBCO web site.

Particular note was made of the fact that amongst other promising metrics, the number of image downloads had doubled in 2023 to 81,639.

1. DCDB update, including relevant CSBWG and ASMIWG issues - [Report](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_2.5_EN_IHODCDB_Report.docx.pdf)

Jenn Jencks (**JJ),** Director DCDB, gave an update on activity relating to the DCDB. In terms of new data contributions, she reported that multibeam bathymetry data from ~80 surveys had been archived in 2023 from the following data providers:

* U.S. Academic Research Fleet (ARF): 54 surveys
* NOAA Fleet: 23 surveys
* Canadian Hydrographic Service: 2 surveys
* GEOMAR: 1 survey
* Northwestern Michigan College: 1 survey
* Peru Navy: 1 survey

Further, she reported that the DCDB continued to bring in crowdsourced bathymetry data from Rosepoint Navigation System, FarSounder Inc, PGS and MacGregor Germany. New data transfer pipelines were established with M2Ocean, Great Lakes Observing System (GLOS), Orange Force Marine and GEC Aqua Map. Onboarding is underway with The Interdisciplinary Center for Development in Ocean Mapping (CIDCO), DockTech, Seabed 2030, International SeaKeepers, UNH/CCOM, SeaID, COMIT and NOAA.

She summarised the various improvements and updates made to the DCDB viewer over the last year:

* Added DEPARTURE/ARRIVAL PORT for multibeam popup
* CSB legend was updated to demonstrate age of file, rather than provider, within color scale.
* New CSB vector tile layer created (hosted in ArcGIS Online) which provides a fast-drawing view of the CSB lines.
* Web Services - Updates:
  + Switched to Canada NONNA WMTS
  + Updated to new GEBCO\_2023 Basemap & Type Identifier (TID) grid (Bathymetric Coverage Maps).
* Web Services - New:
  + Norway added: MAREANO was moved from under EmodNet to be a standalone.
  + Added IHO Regional Hydrographic Commissions (RHC) boundaries to DCDB viewer (Options)

In terms of the CSBWG, it was reported that the number of positive IHO Member State respondents to CL21/2020 has risen to 34 with the addition of France, Australia and Palau. While momentum seems to be growing, there is still the need to consider how to work within the MSR constraints of UNLCLOS within waters under national jurisdiction.

JJ briefly summarised the collaboration between the DCDB and SB2030, explaining the regime for regular meetings and highlighting a range of data collection activities that are currently underway.

1. NF related activities and programmes - [Report](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_2.6_EN_Nippon_Foundation_Projects.pdf)

Rochelle Wigley provided an overview and update of Nippon Foundation related activities and programmes (detail contained in the report).

She noted that GEBCO had a relationship with the Nippon Foundation since 2014 which represented more that 35 million dollars’ worth of investment. She noted that if wider support to the IHO was considered such as the GEOMAP course, then this figure would be significantly higher. During this time they have supported 120 students from 50 different countries.

She reported that this year they received 150+ valid applications for 7 spaces which went to show how popular and in demand the course is. It was noted that that this would be something that SCET should consider in terms of what the appetite may be for a range of learning offerings.

She finished by noting the range of activities and dispersion of the NF-GEBCO Alumni, and the significant contribution they are making to the ocean mapping community.

1. **DOCUMENTS AND PUBLICATIONS**
2. Document Review Status

The Chair asked for updates relating to the Bathymetric publications that GEBCO is responsible for. He noted that the intention was to report by exception.

**B-9 – GEBCO Digital Atlas**. With the cancellation of B-9 digital Atlas, an issue has been identified with regard to the formal designation of the GEBCO digital Grid. It should be possible to add B-9 to the Digital Object Identifier (DOI). IHO Sec noted that in principle the B-9 can be attributed to the grid but a management regime needs to be proposed to IRCC. After a discussion it was agreed that that action GGC39 Action 12 should remain ongoing under the leadership of the IHO, GGC Chair and the Digital Atlas Manager.

**B-10 – History of GEBCO.** With regards to B-10, it was noted that some progress had been made but some of the new chapters were still outstanding. It was noted that the original intent was for this publication to be ready for the 120th anniversary of GEBCO in 2023, but this would now not be possible. The options therefore were to complete the new edition of B-10 as soon as possible and publish when it is ready, or to wait until another suitable milestone. The feeling amongst the group was that waiting for another anniversary would only result in more updating being required, increasing the risk that it would be in a constant state of revision without ever being published. It was decided that the new edition should be published asap. And that SCOPE should clarify how this would be led.

**Action 1. SCOPE to take back role of managing B-10 update.**

**Cookbook Editorial Board.** Jess Nation **(JN)** provided an update on behalf of Christie Reiser, Chief of the Editorial Board. She provided an update on the background to the Cookbook and work undertaken to date. A full break down is included in the [report](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_3.1.1_EN_Cookbook%20Editorial%20Board%20Report.docx.pdf). In February 2022, the GEBCO Cookbook Editorial Board (EB) was established, operating under the guidance of the Technical Subcommittee on Ocean Mapping (TSCOM). The Cookbook comprises 56 chapter sections, of which seven have been recently updated. The EB initially attempted to migrate the Cookbook to Adobe InDesign but encountered complications in review and publication processes. After consulting with TSCOM, it was decided to transition the Cookbook to a dynamic wiki reference page hosted by the IHO. Looking ahead to 2024, the focus will be on gathering requirements and determining a timeline for the creation of the Cookbook wiki reference page through the IHO and the migration of only the updated chapter sections.

After a discussion, it was agreed that care must be taken to follow due process with regard to B-11 as a formal IHO publication being transitioned into an informal dynamic wiki type guide. It was agreed that this should be further explored and brought back to the first Intersessional Meeting in 2024 for a proposed way ahead.

**Action 2. Present proposal for future of B-11 to next IS or via correspondence meeting with a clear direction of travel and associated maintenance/QA process.**

**Review of relevant IHO Resolutions.** It was concluded that none of the relevant IHO resolutions need to be adjusted at this stage. It was noted that this may change once the Strategy and Governance review have been concluded.

1. ToRs and RoPs review, to include annual check of GGC ToRs and approval of any proposed amendments to subordinate body ToRs

No comments received however likely that ToRs will need to be reviewed following the completion of the strategy. Plan is to incorporate changes identified in strategy and governance work.

**Decision 3. GGC/SCs ToRs and RoPs confirmed**

1. **GEBCO GOVERNANCE REVIEW**
2. Presentation of Governance Review report and discussion of implementation – [Presentation](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_GEBCO_Gov_Review.pptx)

IHO Sec provided a brief on the work undertaken to date on the GEBCO Governance Review. He recapped the status of the work in the Project team work plan to date and identified some of the challenges encountered.

He explained to the group that the initial phase of research and analysis had been completed and the final reporting was in progress. The intent would be to circulate the final report with the report from GGC40 for the GGC to review and provide feedback. IHO Sec was clear that nothing was being presented at this stage for approval, rather to encourage discussion that could be fed back into the final reporting ahead of full consideration by the GGC.

He presented a summary of the work undertaken and the high level findings. He explained the reference material that had been used to consider the structure and governance practices of the GEBCO Programme, as well as the methodology that had be used to analyse the governance instruments and work plans for each of the subcommittees.

Of the findings presented, the issues surrounding the size, structure and membership of the Guiding Committee, the standardisation of work plans and the standard membership of the SCs generated significant conversation.

In terms of the GGC, the following findings were discussed:

|  |  |  |  |
| --- | --- | --- | --- |
| GGC 6 | Membership | Unlike IHO/IOC appointed members of the GGC, it is not a condition of SC Chair's membership of GGC to be able to attend annual meetings, with associated T&S covered by their employer or individually. | Adjust ToRs to reflect that on taking up office, the expectation is that they will have the support of their organisation or the personal means to attend GGC meetings |
| GGC 7 | Membership | The number of GGC members (15) is quite large for a body such as GEBCO | Consider the shape and size of the GGC |
| GGC 8 | Membership | The roles and responsibilities of GGC members are not clear, and further confused by the three categories of appointment | Clarify roles and responsibilities of GGC member and whether the categories of appointment support or hinder effective delivery of GGC business |

It was noted by a number of GGC members that it was not exactly clear what the roles and responsibilities of the GGC were and that there could be merit in exploring whether a different structure could be adopted. For example, it was suggested that there appeared to be a gap between the work of the SCs and the Executive function of the GGC.

In terms of the SCs work plans and how these adhere to programmatic structural reporting norms, various options were discussed. It was agreed that once the strategy was in place that would give clear high level objectives, the Work Plans could be reviewed and updated to make reporting and performance monitoring easier.

**Action 3. SC Chairs to consider and develop a standardised mean of structuring work plans and associate work items, taking into account project delivery structural norms and interlinkages between SC work plans**

It was noted that the membership of some of the SCs had become quite large, and that it wasn’t always clear what the various roles and responsibilities were, or how and when a group would be quorate. It was agreed that these elements of the respective ToRs should be critically reviewed, noting that the core membership of the SCs should be kept as small as possible and the use of observers and expert contributors used where specific skillsets were required.

**Action 4. SC Chairs to consider and develop standard wording re. membership for ToRs**

Finally, the IHO Sec indicated that the next steps were:

* Final summary report and continuous improvement process development submitted to GGC for review – End Dec 23
* Final report reviewed and endorsed by GGC at inter session meeting – April 24

1. **GEBCO STRATEGIC PLAN**
2. Presentation of strategic plan and discussion of implementation – [Paper](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_5.1_EN_GEBCO_Strategy.pdf)

Chair of the Project team gave an overview of work completed to date and presented the draft Strategy. He explained that the Draft Strategy that was available on the website should be considered pretty much final from a content perspective, but that some editorial work would remain.

In order to gauge the level of consensus, the Chair of the GGC asked whether there were any issues with the content of the Strategy, other than those relating the use of the term Seabed in place of Bathymetry? No substantive issues were raised but it was noted that due to a mix up with email addresses, the IHO had not sight of the latest version of the strategy and would need time to review this internally.

The merits of using Seabed vs bathymetry were discussed at length but it was agreed that so long as the use of the term Seabed was qualified in terms of its use in the context of GEBCO and this strategy, that it could be used comfortably in this case.

Various consistency and editorial notes were made and a task team was created to review the document overnight before being put back to the group the following day.

On final consideration, the group decided to pass the strategy to the IHO Comms. team for an editorial review before being circulated out of committee for final review. The intention would be to secure final sign off at the Intersessional meeting April 2024 before submission to IHO IRCC and IOC Executive Council.

**Action 5. SC Final editorial review to be conducted and then circulated to GGC for endorsement via correspondence**

In terms of next steps, it was agreed that a final draft would be circulated to the GGC by the end of Jan 2023, ahead of a virtual intersession meeting in March to endorse the strategy.

1. **SEABED 2030**

Progress brief on activities of Seabed 2030 Project against agreed Business Plan, including funding state, Centre activities, outcomes from interaction with IOC and IHO Secretariats and endorsement of Work Plan 2022-2023:

1. Present Year 6 report and budget for GGC approval, highlighting main deliverables and communications – Report - Presentation

Director Seabed 2030 provided an update of Year 6 activities by each of the 5 work packages and the interim report:

**WP1 – Data**. Key activities:

**Task 1.1. Secure data contributions from different communities**

*D1.1.1 – Increased data contributions from different organizations.*

The Global Center has continued to monitor input to the potential data contributions Google Form that allows us to be notified of new or unknown datasets. The Global Center contacts contributors spanning more than one Regional Center whilst the Regional Centers contact others directly. Several multibeam datasets from recent, and legacy, cruises have been identified in the BODC archives and delivered to the Atlantic-Indian Ocean Regional Center. Single beam datasets have been provided to Scripps for use in constraint of SRTM15+. As the trusted node for Seabed2030 crowd sourced data, we have worked with SeaKeepers and other yacht owners to provide CSB data to IHO DCDB.

**Task 1.2 Data Product – Update IBCAO and publish v5.0**

*D1.2.1 – To be published by Spring 2024.*

An IBCAO release is now scheduled for Spring 2024 following revisions to be made after the fifth Arctic, Antarctic and North Pacific meeting in November 2023.

**Task 1.3 Data Product – IBCSO v2.0 with additions**

*D1.3.1 – To be published by Summer 2024.*

The annual 2023 release was postponed for the migration of the SEAHORSE workflow to the new AWI system. It is envisaged that there will be a release at the end of September 2024 in time for preparation for the following Antarctic season.

**Task 1.4 Publish Data Product – GEBCO 2023**

*D1.4.1 – GEBCO grid is published by 21 June 2023*.

GEBCO\_2023 was released on 3 May 2023, complete with the TID grid and polar stereographic versions. DOI was generated and data can be accessed as single download, or subset through the download.gebco.net application.

**Task 1.5 BedMachine Collaboration**

*D1.5.1 – Ingestion of under-iceshelf topography into IBCAO and IBSCO.*

Communication is ongoing within the BedMachine team. Next steps will be planned at the fifth Arctic, Antarctic and North Pacific meeting in November 2023.

**Task 1.6 Produce inventory of data held at Centers**

*D1.6.1 – Each Center to complete inventory of data held and provide to DCDB.*

The Global Center has provided DCDB with an inventory that listed all datasets included in the 2022 grid and which Regional Center provided them. Further work is required during Year 7 to make the data exchanges happen and to develop a process/workflow for cross-referencing and inventorying what goes to the DCDB and can be used across all Centers.

**WP2 – Process improvements**. Key activities:

**Task 2.1 Further development of mapping statistics system**

*D2.1.1 – System that can deliver statistics regularly based on input data from RDACCs.*

A system that can deliver statistics regularly based on input data from the RDACCs is in place. The cloud-based system will be optimized during the Spring of 2024 to reduce calculation times.

**Task 2.2. Development of the GEBCO grid download tool**

*D2.2.1 – Add the handling of the Polar regions; download of Polar stereographic grids.*

Polar stereographic versions of the GEBCO\_2023 grid are available for direct download, and can also be accessed through the subsetting tool at download.gebco.net.

**Task 2.3 Further development of UNH GapFiller tool**

*D2.3.1 – Extend capabilities of GapFiller tool for planning expeditions whilst optimizing filling of mapping gaps.*

The Application for planning transits and surveys while optimizing coverage on unmapped areas was expanded to include real or theoretical extinction curves from common multibeam sonar systems to provide more realistic estimates of swath coverage during the fall of 2022. Minor bug fixes were corrected. The static map version using the static 2022 GEBCO grid is downloadable at the CCOM Vislab website. It is now being used more widely for survey planning. A paper describing GapFiller capabilities has recently been accepted by International Hydro Review.

**Task 2.4 Publish map based on an initial list of Seabed 2030 Priority Area**s

*D2.4.1 – Based on further WITS activity. Tools to support dynamic planning by external data contributors for ship transits and science missions.*

Several tools have been generated, and are listed on the website, to support dynamic mapping and planning, including the CCOM gap filler tool. The WITS prioritization tool is scheduled for delivery during Year 7. In the meantime, regional prioritization area reports are available on the Seabed 2030 website.

**Task 2.5 Deliver the next generation GEBCO product**

*D2.5.1 – Publish a multi-resolution GEBCO product.*

We now have a methodology and test datasets for the creation of a multi resolution product. Development versions of applications to deliver these have been produced. Two solutions have been proposed and the in house development of the download application will be taken forward and used for release of a beta-multi resolution product in 2024.

**WP3 – Innovation**. Key activities:

**Task 3.1. Publish Seabed 2030 Technology White Paper**

*D3.1.1 – Complete professional input and publish Technology Innovation White Paper.*

The Technology Innovation White Paper, ‘Unveiling Planet Ocean,’ was delivered in August 2022, and the Project Team is awaiting a suitable opportunity to put forward for trade publication(s).

**Task 3.2. Data Uploader**

*D3.2.1 – Collaborate on refining KM Data Uploader Tool.*

Work is ongoing at the Arctic Regional Center in collaboration with Kongsberg to refine the KM Data Uploader Tool.

**Task 3.3. Data Uploader**

*D3.3.1 – Refine Seabed 2030 Data Uploader Tool.*

The Stockholm team manages metadata provided from the public uploader of bathymetry data for use in the GEBCO coverage statistics calculation. Work is ongoing to automate the assignment of identification numbers and the control of dataset version numbers.

**Task 3.4. Cloud-Based Processing (SeaKoMap)**

*D3.4.1 – Refine, test and operationalize SeaKoMap capability*.

SeaKoMap solution is managed by the Seabed 2030 Head of Engagement and Development and is currently on hold pending future funding opportunities from The Nippon Foundation.

Task 3.5. Support Innovative Mapping Technology.

*D3.5.1 – Continue efforts to develop and support Project NEMO floats.*

This sits outside of Seabed 2030. Nonetheless, the Project NEMO Team remain hugely supportive of the Seabed 2030 initiative. Prototype floats are now completed and will be tested in December 2023 with an initial deployment in the Pacific scheduled for January/February 2024.

**Task 3.6. Support Innovative Mapping Technology**

*D3.6.1 – Collaboration and development activity on autonomous data collection.*

TO BE INSERTED

**Task 3.7. Support CSB Technology**

*D3.7.1 – Basic technical support for volunteers and support for new generation loggers*.

Seabed 2030 continues to provide a remote technical advice service that provides an on-call support to vessel operators for the installation of loggers. The Head of Engagement and Development is looking for opportunities to expand the pool of people that can provide this service on a global basis. The Project Administrator is currently working with SEA-ID to produce a guidance sheet for the installation and operation of the new NEMO-30 loggers and is maintaining a list of interested parties to circulate it to once available early in Year 7.

**WP4 – Mapping activities**. Key Activities:

**Task 4.1 Progress Mapping the Ocean Frontiers**

*D4.1.1 – Identify expeditions to be supported and acquire new data.*

The Nippon Foundation provided $456K of XPrize winnings to fund a separate Ocean Frontier Mapping (OFM) mini-project as requested in a bid for period 1 December 2021 to 31 December 2022. Of this, $296,000 was allocated to NF-GEBCO Alumni support for the Caladan Oceanic Expedition. Transit data collection was achieved from Auckland to Valparaiso, Cairns to Auckland and Valparaiso to Chile expeditions. The allocated funds covered alumni costs for travel and payment for their services as onboard mappers and remote data processing. Costs for ship operations, mapping equipment, and board & lodging were generously covered by Caladan Oceanic. The datasets have been made available to the relevant Seabed 2030 Data Centers.

GO-MARIE South Greenland project requested a sum of $125,000 for 25 dedicated mapping days. Two alumni were costed to provide support for mobilization, survey operations, post mission data processing and reporting. The total cost for alumni involved in the project was accounted at $60,861.24. The processed data was made available to Seabed 2030 once finalized.

At the end of the grant period, 31 December 2022, surplus funds were returned to The Nippon Foundation as per grant requirements.

Whilst not part of the main OFM project, it is worth noting that transit data collection from Horta (Azores) to Point-a-Pitre onboard Pourquoi Pas was conducted by Ifremer. Dr Vicki Ferrini, Head of the Atlantic and Indian Regional Center, served as the primary point of contact for Seabed 2030.

**Task 4.2 Greenland Crowd Source Project**

*D4.2.1 – Continue to oversee Greenland Crowd Source Initiative.*

The ‘Collaborative Mapping Greenland’ Project is ongoing, and vessels continue to be fitted with data loggers as part of the pilot. Data collected as part of the pilot will continue to be delivered to Seabed 2030 and DCDB.

A Project Progress Report was provided in March 2023. Subsequently, a further update was provided at the end of Year 6 to inform that the Project Team have made further in-person visits to Southern Greenland and to the town of Tasiilaq to generate interest in the initiative and have also successfully installed loggers on vessels based in Ilulissat and Nuuk. In May 2023, Karl Zinglersen delivered a keynote speech on seabed mapping at the ‘Mapping the Arctic’ conference in Nuuk. This presentation featured a strong Seabed 2030 and CSB presence, along with an overview of the sharing and collaborative approach of Seabed 2030 and IBCAO.

**Task 4.3 Continue to accelerate Crowd Sourcing activity**

*D4.3.1 – In liaison with IHO CSBWG, significantly increase crowd sourced data submissions.*

Crowd Sourced Bathymetry (CSB) activity in Palau, South Africa, New Zealand and Greenland continues to grow following slow progress resulting from COVID-19 restrictions between Year 3-early Year 5. A major program with the University of Southern Florida is currently underway via UNH. Regular liaison on CSB activities with the IHO's CSBWG and DCDB Director is ongoing. The roll out of the new UNH-SEA-ID low-cost data loggers was expected in mid-Year 6 but was delayed slightly due to supply chain issues, however the first devices were ready for dispatch towards the end of Year 6 and a list of interested recipients is being maintained. A greater interest in CSB activity is being observed from super-yacht owners and recreational boaters; members of the Project Team have visited events such as the Monaco Yacht Show and the Cannes Yachting Festival to promote the CSB initiative and build upon this enthusiasm. The International Seakeepers Society continues to provide excellent support for CSB activities and has been rolling out data loggers to its global membership and promoting Seabed 2030 at events and conferences. The Global Center and DCDB are providing administrative support to Seakeepers in their plans to become a Trusted Node.

The Director and Project Administrator continue to represent Seabed 2030 on the IHO CSB Working Group, and both planned to attend the 14th meeting in Norway in August 2023 (Year 7). Contributions to the Working Group’s smaller Task Groups on specific initiatives is ongoing. Regular meetings with the CSBWG Chair/Director DCDB are scheduled monthly.

The CSB Representative for Jamaica (Alumni member) is currently drafting a project plan and estimated costings for expanding CSB activities in the MACHC region, with an update expected in early 2024.

Seabed 2030 continues to provide a remote technical advice service that provides an on-call support to global vessel operators for the installation of loggers.

**Task 4.4 Satellite Derived Bathymetry**

*D4.4.1 – Encouragement of 3rd party involvement whilst also deriving meaningful data products for use in the GEBCO Grid.*

SDB products were included in the annual data submission to NIWA.

A SDB data contribution totalling 7,871 km2 was donated by Argans during Year 6. and have been integrated by the Atlantic-Indian Oceans Regional Center. A Data Contribution Summary is attached (Appendix 9a).

In Spring 2023, Seabed 2030 collaborated with MOU partner TCarta on an initiative for summer internship students to learn, from remote sensing experts, how to produce and evaluate SDB. The programme was offered in conjunction with Marine Institute of Memorial University of Newfoundland, also a MOU partner, and the Atlantic-Indian Ocean Regional Center. As well as offering an opportunity to support an important outreach activity, the agreement resulted in a data contribution to Seabed 2030 and promotion of the Project.

**WP5 – Management**. Key activities:

**WP5 – Management Q4 activity** – Key activities:

1. Presentation of draft Year 7 Work plan and proposed funding bid - Report

Director SB2030 presented a summary of the draft Year 7 work plan and noted that once finalised, it will be posted on the GEBCO website for GGC members to review. He also noted that the quarterly reports were now being shared via the GEBCO secretary and it was requested that these be posted on the IHO website.

1. **FUTURE OF THE GEBCO SYMPOSIUM**
2. Proposal and discussion for the future approach to the annual GEBCO Symposium - [Paper](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_7_EN_Discussion_paper_for_the_future_of_the_GEBCO_Symposium.pdf)

The Chair of the GGC introduced the paper and the rationale. He proposed 5 items that could be considered when discussing what the future of the GEBCO Symposium should be:

* 1. The available budget for organizing a symposium is modest and we need a sustainable solution to the continual budget shortfall.
  2. The symposium has grown from a one-day symposium (of GEBCO people talking to GEBCO people), to a two-day symposium with a far broader outreach, including both science, government and industry representatives and external sponsorship(s).
  3. Integration / harmonization with Seabed 2030 activities is essential while maintaining a clear global GEBCO profile / branding.
  4. The widest possible attendance is facilitated. For example, next year’s GEBCO week will be in Fiji with the purpose of bringing GEBCO to the Pacific. To secure maximum attendance of Pacific Island States, travel budgets need to be sponsored.
  5. The symposium has developed very positively but also organically. Future GEBCO symposia need to consider the yet unfinished GEBCO strategy and governance.

Before opening the discussion, he noted that the intent was to have the 2024 GEBCO week in Fiji, and that in order to justify this and to meet the primary objective of broadening participation and exposure to the work of GEBCO, consideration would have to be made as to how to support the participation of representatives from the PICs. To this end, initial conversations has been had with regard to the possibility of aligning the GEBCO annual meetings with the SB2030 SWP regional Centre annual meeting and workshops. The rationale being that the latter had funding that could be used to support the participation of PIC representatives.

Tim Kearns gave a presentation on the history of the GEBCO Symposium and how Map the Gaps the legal entity and the symposium came into being. It was noted that the use of the tagline ‘map the gaps’ predated the creation of the not for profit company that now bears its name, and that this was not discussed or endorsed by the GGC.

Significant support for the Map the Gaps Symposium was expressed by a number of GGC members and observers. It was noted by all that the MtGs Symposium was a real success story and had certainly elevated what was originally the GEBCO Science day into an annual feature in the calendar of the seabed mapping community. Further, it was strongly felt that it would be a mistake to discontinue this collaboration.

Given the various permutations and considerations, it was agreed that a small team should be convened to consider the options for 2024 and beyond and report back to the GGC asap. Further, the paper on the future of the GEBCO Symposium could be reworked as required and submitted to the Intersession meeting in April 2024.

**Action 6. Task team to discuss what the approach for 2024 symposium will be and report back to GGC**

**Action 7. Reconsider the future of symposium paper at next IS meeting.**

1. **FUNDING OF TRAVEL FOR SUBCOMMITTEE OFFICE HOLDERS**

Item to be deferred to GGC41 due to time

1. **GEBCO FUNDING PROCEDURES**

Item to be deferred to dedicated funding meeting

1. **GEBCO WORK PLANS AND FUNDING**
2. **GGC Subordinate bodies’ Work Plans 2024** 
   1. Approve funding requests and Work Plans of Subordinate bodies, including outputs/deliverables for next period

The IHO Secretary introduced process and available budget. He noted that the annual income is currently 26k from IHO with 20k from IOC on a biennial basis. He noted that he was still awaiting a number budget returns so the GGC would not be in a position to agree final budget allocations at this meeting. Instead, it was suggested that this would take place at a final dedicated budget meeting in late 2023 or early 2024.

IHO Secretary further explained the proposed budgeting process for 2024, namely that there would be quarterly reporting requirements that would allow for the better management of the limited budget.

With this in mind he suggested the key questions to ask when looking at budget requests are:

- Does the activity represent a commitment to onward routine spend?

- What are the onward costs associated with the activity?

- Can the activity be paused?

- Is the activity still relevant to the work plan and aims of GEBCO?

The consolidated work plans and budget requests can be found [here](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_Consolidated_WPs_and_Allocations_Subject%20to%20final%20reconciliation%20V1.xlsx).

**Action 8. Convene a dedicated funding meeting**

**Action 9. All SCs to review membership lists and pass updated lists to IHO Sec**

* + 1. SCUFN – Report -

The SCUFN Chair was unable to present the SCUFN report as the meeting was being held simultaneously with GGC40. However the annual budget request for supporting the work on the Gazetteer was noted and ring fenced.

**Decision 4. The GGC approved the SCUFN Work Plan and budget allocations pending final reconciliation.**

* + 1. TSCOM – [Report](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_EN_TSCOM_Report.pdf)

The TSCOM Chair presented the annual report of activity and associated work plan and associated budget lines. Whilst it was noted that the work plan and budget would be subject to final reconciliation of the 2023 accounts, it was requested that 7500 Euros be ring fenced for the purposes of the proposed workshop. This was agreed.

**Decision 5. The GGC approved the TSCOM Work Plan and budget allocations pending final reconciliation.**

**Decision 6. 7500 EUR to be ring fenced for second workshop**

* + 1. SCRUM – [Report](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_EN_SCRUM_Report.pdf)

The SCRUM Chair presented the annual report of activity and associated work plan and associated budget lines. The Chair of SCRUM drew attention to the dedicated Youtube channel and requested guidance on how to proceed. It was agreed that advice should be sought from SCOPE.

**Action 10. Request assistance of SCOPE to develop a plan for SCRUM Youtube Channel**

A question was posed by the SCRUM Chair as to whether the work on the prioritisation App should be continued. After a discussion it was decided that this work was still valued and should continue in close coordination with TSCOM.

**Decision 7. The work on the prioritisation App should continue.**

**Decision 8. The GGC approved the SCRUM Work Plan and budget allocations pending final reconciliation.**

* + 1. SCOPE – [Report](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_EN_SCOPE_Report.pdf)

The SCOPE Vice Chair presented the annual report of activity and associated work plan and associated budget lines.

The SCOPE Chair had indicated via correspondence that he intended to stand down as Chair, but that he would seek to remain a member of SCOPE. This would be handled through the SC in early 2024 once the work plan and budget for 2023 had been fully reconciled.

A lengthy discussion had surrounding what constituted an official GEBCO product versus a derived product from the GEBCO dataset, as well as the associated level of approval that was required. It was made very clear that any product that carried the GEBCO and Parent organisation Logos constituted an official GEBCO product, and therefore need to go through a robust approval process in order to mitigate the risk of any errors, mistakes or inconsistencies that could offend international partners. It was noted that no such process exists and that one should be created.

**Action 11. Create a High-level SOP for the production of official GEBCO grid derived products/imagery**

**Action 12. All GGC members read UNGGIM White Paper**

**Action 13. Clarify whether the GEBCO logo is a trademark and whether there is a usage guide**

**Decision 7. GGC approved the SCOPE Work Plan**

* + 1. SCET – Report

The SCET Chair presented the annual report of activity and associated work plan and associated budget lines.

**Decision 8. GGC approved the SCET Work Plan**

There was a brief discussion on the nature of the production of the GEBCO grid and whether a dedicated SOP was required. It was agreed that this would merit further investigation.

**Action 15. SC Chairs to investigate the need(s) for SOPs to cover the GEBCO Grid Production**

1. **GGC Work Plan 2022-2023**
2. Approve GGC funding requests and Work Plans including outputs/deliverables for next period

It was agreed that the GGC work plan will be refreshed post meeting taking into account the updated and approved sub-committee work plans. In doing so, appropriate lines would be updated to reflect the budget allocation decisions and current timelines of the governance review and development of the strategy.

1. **SECRETARY RESPONSIBILITIES**
2. Confirm responsibilities

Nil

1. **GGC MEMERSHIP -** [**Document**](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/MISC/GEBCO_2022_EN_GGC_Membership.pdf)
2. Identification of individuals, whose terms are due to complete within the next two years

It was noted by the IHO Sec that a number of GGC members were coming to their end of their respective terms.

Shin Tani – Finishing his second and final term on the GGC, Shin Tani was thanked by all for his significant contribution to the GGC and the wider GEBCO programme, noting his term as Chair of the GGC.

David Millar and Karina Zwolak – Both have finished their first term on the GGC and had indicated that they were will to serve a second term. Under the RoPs, this was confirmed by acclimation and the two will being their second 5 year terms in 2024, finishing in 2029.

It was noted that Marzia Rovere would finish her 2nd and final term on the GGC in 2024, but would finish her 3 year term on the GGC in 2023. It was proposed that Marzia continue for one further year of a second 3 year term on the GGC until she steps down at GGC41. This was proposed and agreed by the GGC via acclamation

It was noted that Evert Flier also finished his first 3 year term on the GGC in 2023, and would complete his first 5 year term on the GGC in 2024. Similarly it was proposed that he be elected as Chair for 1 further year as the GGC chair until 2024, where he will be nominated for a second 5 year term on the GGC.

1. **NEXT MEETING** 
   1. Dates and venue for GGC41

The Chair indicated that the intention is to hold GGC41 in Fiji in November 2024. Date TBC.

* 1. Draft Agenda for GGC41

To be developed post meeting and circulated in due course

1. **ANY OTHER BUSINESS**
2. **Review of Action Items from GGC40**

See list of agreed actions [here](https://iho.int/uploads/user/Inter-Regional%20Coordination/GEBCO/GGC/GGC40/GGC40_2023_EN_List_of_Actions_Draft.pdf).

1. **CLOSURE OF THE MEETING**

The chair closed the meeting and thanked all for their participation.