

**14th MEETING OF THE IHO INTER-REGIONAL COORDINATING COMMITTEE
IHO-IRCC14**

Denpasar - Bali, Indonesia, 6-8 June 2022

Report of the GEBCO Guiding Committee (GGC)

Submitted by:	Chair, GGC
Related Documents:	SCUFN Work Plan TSCOM Work Plan SCRUM Work Plan SCOPE Work Plan
Related Projects:	Nippon Foundation-GEBCO Seabed 2030

Chair:	Evert Flier, Norway
Vice-Chair:	Marzia, Rovere
Secretary:	Sam Harper, IHO
Member States:	Please see Annex A – GGC Officials are individual experts rather than representatives of Member States
Expert Contributors:	N/A – See statement above
<i>see Annex A for full details</i>	

1. Meetings Held During Reporting Period

GEBCO Meeting Schedule

Due to the ongoing disruption caused by the COVID-19 pandemic, the normal GEBCO meeting schedule was adjusted to accommodate travel restrictions and to progress work items. As a result the Annual Subcommittee Meetings, Map the Gaps Symposium and the 38th GEBCO Guiding Committee meeting (which would ordinarily be held concurrently) were held separately. Given the number of new office holders and the time elapsed since a physical meeting had been held, there was a strong desire to hold GGC38 as a hybrid event, allowing for those who were able to meet in person. This resulted in GGC38 being deferred until April 2022, with a virtual intersession meeting held in February to allow core business items to be progressed. It is the intention to return to the normal meeting schedule for 2022. In doing so, it is noted that there will be two GGC meetings in 2022 but this is considered necessary to progress key work items whilst returning to the normal meeting schedule.

Dates and Venues of GEBCO Meetings

The dates of the GEBCO Meetings held since IRCC13 are as follows:

- Sub-committee on Undersea Feature Names (SCUFN): 16 – 17 Nov 21 & 14 – 18 March 22 (UNESCO, Paris - Hybrid)
- Technical Sub-committee on Ocean Mapping (TSCOM): 9 Nov 21 & 19 Nov 21 (VTC)
- Sub-committee on Regional Undersea Mapping (SCRUM): 2 Nov 21 & 11 Nov 21 (VTC)
- Sub-committee on Communications and Public Engagement (SCOPE): 4 Nov 21 & 15 Nov 21 (VTC)

- Map the Gaps Symposium: 30 Nov – 2 Dec 21 (VTC)
- GGC Intersession Meeting 01 2022: 2 Feb 22 (VTC)
- GGC38: 20 – 22 Apr 22 (IHO, Monaco – Hybrid)

Future Meetings

The dates and venues of future meetings are as follows:

- 2022 Map the Gaps Symposium: 27 – 28 Oct 22 (Southampton, UK - Hybrid)
- GGC39: 31 Oct – 1 Nov 22 (Southampton, UK – Hybrid)
- SCUFN: 28 Nov – 2 Dec 22 (IHO Secretariat, Monaco)
- TSCOM: tbd
- SCRUM: tbd
- SCOPE: tbd

2. Work Program

New Office Holders

Since IRCC13, a number of new Office Holders have started their tenures. These are summarized as:

Position	Incoming	Outgoing	Tenure
IHO appointed GGC member	Dr Geoffroy Lamarche	Mr Sam Harper	2021-2026
IHO appointed GGC member	Tbc*	Capt. Rodrigo Obino	2022-2027
IOC Appointed GGC member	Mr Paul Brett	Dr Martin Jakobsson	2021-2026
Chair TSCOM	Mr George Spoelstra	Dr Thierry Schmitt	2022-2025
Vice-Chair TSCOM	Ms Federica Foglini	Ms Caitlyn Raines	2022-2025
Chair SCRUM	Ms Aileen Bohan	Dr Vicki Ferrini	2022-2025
Vice-Chair SCRUM	Cdr Hugo Montoro	Ms Aileen Bohan	2022-2025
Chair SCOPE	Mr Tim Kearns	*	2022-2025
Vice-Chair SCOPE	Dr Eunmi Chang	*	2019-2022

*Following the resignation of the SCOPE Chair, one of the two Co Vice-Chairs, Dr Eunmi Chang assumed the role of Acting Chair, whilst the other Co Vice-Chair, Mr Tim Kearns assumed the role of sole Vice-Chair. Mr Tim Kearns was subsequently elected to the Chair position, starting a new term with Dr Eunmi Chang stepping down as acting Chair and reassuming her role as Vice-Chair.

Bathymetric Publications

The GGC is responsible for the following Bathymetric Publications, listed here with a summary of their status and relevant activity:

B-6 – *Standardisation of undersea feature names.* The latest edition 4.2.0 of Publication B-6 was published in October 2019. Work is currently underway to update this publication with a decision as to whether this will be by way of a Revision or new Edition to be decided.

B-8 – *Gazetteer of Undersea Feature Names.* Work in 2021 included (1) resolving reported issues or enhancement requests, bringing the number of outstanding issues to zero, (2) providing maintenance releases and (3) beginning development on Gazetteer v5.0 which will provide interoperability with the Beta-Gazetteer developed by the Korean Hydrographic and Oceanographic Agency.

Significant changes are needed in the current GEBCO Gazetteer in order to support the KHOA Beta-Gazetteer integration and simplify future development. Face-to-face meetings between GEBCO Gazetteer developers and KHOA Beta-Gazetteer developers took place at SCUFN 35.1 (March 2022). The agreed-upon goals for 2022 work include:

- Supporting KHOA's developers as they develop and test the Beta-Gazetteer integration using well known authentication and integration standards (OAuth, REST APIs)
- Updating the API, fixing reported bugs and adding requested enhancements
- In-depth testing
- Updating the user interface to use a modern and more maintainable framework,

B-9 – *GEBCO Digital Atlas*. Publication B-9 has been redundant for some time given the digital nature of the GEBCO Global Gridded Product. It has been decided that this publication should be withdrawn and not replaced.

B-10 – *The history of GEBCO*. Publication of B-10 was last published in 2003 to coincide with GEBCO's 100th anniversary. Work is currently underway to produce a new Edition in 2023 to coincide with the 120th anniversary.

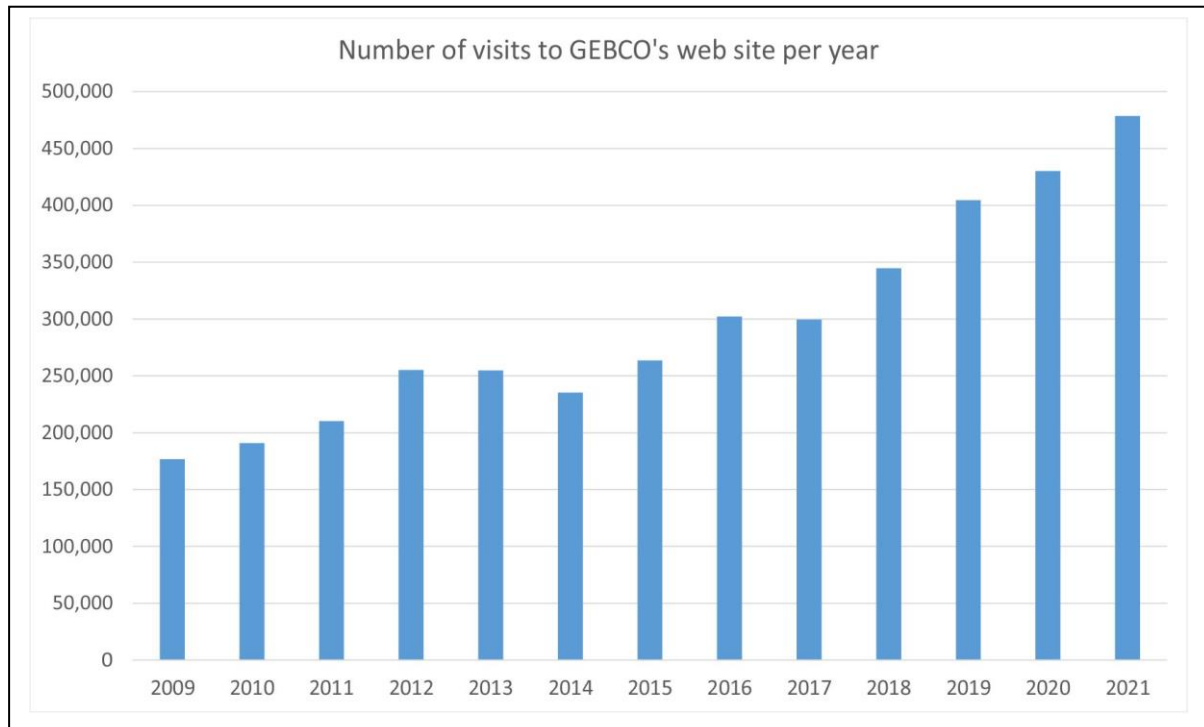
B-11 IHO/IOC Manuals and Guides – *GEBCO Cookbook*. The last IHO-IOC GEBCO Cookbook update was published in October 2019. Christie Reiser (NOAA) was selected as the new Chief Editor/Chief of the Editorial Board in October 2021 after Karen Marks retired. The GEBCO Cookbook Editorial Board was formed in February 2022, which reports to the TSCOM. The Editorial Board was formed to maintain/update the B-11 materials/chapters. The Editorial Board plans to publish the next revision of B-11 as a smart e-pub in a new format with an associated DOI. The Editorial Board is drafting the ToRs and will submit to TSCOM for review by May 2022. The Editorial Board is reaching out to existing/new authors to update existing material and call for new chapters with a goal to publish a revision to existing chapters by the end of 2022 and adding new material in the following revision by the end of 2023.

GEBCO Website

GEBCO's web site (<https://www.gebco.net>) and the Nippon Foundation-GEBCO Seabed 2030 Project web site (<https://seabed2030.org>) are maintained and updated at BODC. News items, meeting information and ad hoc page update requests from the GEBCO committees have been added to the web sites throughout the year.

A key activity since HSSC13 has been the migration of the GEBCO site to a new management platform (Drupal). The new platform will allow users external to BODC to manage sections of the site and give more options for future development of the site. The majority of the site content has been migrated to the new platform and awaits feedback from the web site Working Group before release. This migration work was directly funded through an additional budget line provided through TSCOM.

The analysis of visits to the GEBCO Website since 2009 shows a steady increase in traffic (Figure 1), with just under 90,000 extra visits in 2021.



Building on development activity from the previous reporting period, a dedicated web mapping service (WMS) has been created for the GEBCO_2021 Grid. This WMS includes a number of pre-processed layers:

- Shaded relief imagery coloured for elevation
- Imagery showing ice surface and sub-ice topography
- TID grid colour coded for TID value
- Layer showing areas based on measured data or pre-generated grids

Sub-Committee on Undersea Feature Names (SCUFN) Activities

SCUFN currently has two IOC appointed membership vacancies following the automatic resignation of post of Capt. Alekseev after more than two years of non-participation and the pending resignation of the current Chair Dr. Hyun-Chul Han at the next meeting. IOC has issued a call for replacement SCUFN members. It is expected that the current Vice Chair will assume Chair responsibilities commencing at SCUFN36 in 2023.

SCUFN has received 343 new and deferred proposals of which 140 have been accepted, 36 not accepted, 32 pending, 117 deferred, 17 withdrawn and 1 adopted. The SCUFN Secretary has been extremely proactive in requesting all proposers that have had their naming proposals accepted to provide the associated data to the DCDB.

One of the key enduring challenges for SCUFN is increasing pressure from some parties for political statements by observers and formal interventions via diplomatic channels. This activity is putting SCUFN members under undue pressure as well as affecting the output of the group.

Technical Sub-Committee on Ocean Mapping (TSCOM) Activities

Given the change of leadership in TSCOM, the group has undertaken an initial review of stakeholder requirements to ensure that work items can be prioritized appropriately. In parallel, the group has expressed a desire to grow the membership/participation to give better geographical representation and a broader spectrum of stakeholders.

Key work areas of the past reporting year have included the provision of feedback and review on SRTM15+, the continued work of the Metadata Working Group including the support to the IHO CSBWG, the work of the Cookbook Editorial Board and the work of the GEBCO Website Working Group. TSCOM continues to collaborate extensively with the IHO DCDB team, with a number of virtual workshops and DCDB industry day planned for 2023.

A new Working Group on Opportunistic Mapping Resources has been created under the leadership of Erin Heffron. The aim of the working group is develop, test and deliver resources that promote the acquisition of seabed data by the seafloor mapping community in areas identified as gaps in the current coverage. In pursuing this work, significant engagement with the Nippon Foundation GEBCO Seabed 2030 Project (SB2030) team and other GEBCO Sub-Committees has been undertaken to avoid any duplication of effort.

New and emerging activities include work on an Undersea Feature Detection tool, validation of bathy data from Deep Argo Float activity, the development of variable-resolution grids and improved interaction with the Seabed 2030 team.

Sub-Committee on Regional Undersea Mapping (SCRUM) Activities

A key activity for SCRUM in the past reporting year has included the review and update of the SCRUM web pages on the GEBCO website and the development of outreach materials. SCRUM participates in the GEBCO Web Page Working Group meetings. New content has been added to the SCRUM YouTube channel from regional engagement efforts undertaken over the year. Materials were developed and disseminated for use at regional IHO and IOC meetings covering GEBCO, and other regional engagement opportunities; coordinated participation in regional IHO and IOC meetings has resulted in 11 out of 12 Regional Hydrographic Commission meetings having dedicated GEBCO/Seabed2030 presentations. SCRUM has worked closely with members of the IHO CSBWG to identify SB2030/CSB coordinators for RHCs and to coordinate participation at RHC meetings. To date, coordinators have been identified for 13 RHCs and 3 still to be determined.

The GEBCO 2021 Grid included new regional data submissions assembled by the Seabed 2030 Regional and Global Data Assembly and Coordination Centers (RDACCs and GDACC). SCRUM members contributed to the review of the draft product using a web application in advance of its release. Modifications were made to the web application for gathering input to help guide and prioritise future mapping activities, and this was posted on the SCRUM web page. The committee discussed the relevance of this application and felt it was a good way to solicit input from the broad community, but questioned whether or not it is being used. If it is to be continued SCRUM members have input on additional features that could be added, but feel that further development should only be undertaken if this information is actually being used.

Sub-Committee on Communications and Public Engagement (SCOPE) Activities

Key SCOPE activities in the last reporting period have included the delivery of the 2nd Map the Gaps Symposium of 2021, significant social media activity and the development of outreach and communications assets. In addition, some early work has been undertaken to plan the updating of IHO

Publication B-10 in time for the 120th anniversary in 2023.

Looking ahead to 2022, key focal areas are to be the finalization and implementation of a GEBCO wide communication strategy, further refinements to the GEBCO website, development of an update GEBCO world map, development of education materials and the Map the Gaps Symposium.

Creation of new Sub-Committee on Education and Training (SCET)

During GGC38, the work that has been undertaken to establish a new GEBCO Sub-Committee on Education and Training (SCET) was presented. The aim of SCET is to develop and coordinate the education and training strategy of the GEBCO Programme. In addition, SCET aims to raise awareness amongst academic institutions of gaps in education and training that may impact on the progress and development of ocean mapping and in particular, the objectives of the GEBCO Programme.

Subsequently the ToRs and RoPs were reviewed and accepted by the GGC. GGC38 agreed to submit these ToRs and RoPs to IRCC14 for formal endorsement and acknowledgement of the inaugural Chair and Vice-Chair Elects:

Mr Paul Brett – Chair Elect
Dr Rochelle Wigley – Vice Chair Elect

The SCET ToRs and RoPs are included at Annex C.

The Nippon Foundation – GEBCO Training Programme

The program is in its 18th year. In addition to the five students currently at UNH, 102 scholars, from 43 countries have been through the course. COVID -19 has significantly disrupted the program in 2020, 2021 and 2022 with international travel restrictions and lockdowns at the University of New Hampshire. Through a combination of online remote teaching and flexibility of scheduling the course has been able to continue, albeit with a different experience for some of the students.

In 2020/21 The Nippon Foundation Ocean Affairs Department selected the training program as one of three capacity building programs for external review. The intent was to examine the impact of the programs and how well they contribute to NF's overall strategy of strengthening human resources to address global ocean issues. The Training program received the highest possible rating and the reviewing organization said it was one of the most outstanding programs they have ever reviewed.

The human resource needs of Seabed 2030 and the evolution of methods of ocean mapping mean that it is timely to review the training program at UNH to ensure that it will meet future needs. This was previously planned for last year, however a draft proposal for a GEBCO Subcommittee on Education and Training (SCET) was presented. Establishment of SCET could involve interaction with the UNH training program so no action has been taken on a review.

The Nippon Foundation – GEBCO Seabed 2030 Project

2021 was the fourth year of the Nippon Foundation – GEBCO Seabed 2030 Project (SB2030). The project into five work pages, with key developments summarized below:

- **WP1 – Data.** Published ocean map coverage stands at 20.6% and there will be steady growth when the next version of the Grid is published in Jun 22. IBCAO 4.1 and IBCSO 2.0 have

published for the Arctic and Southern Oceans respectively. Extensive engagement with data donors.

- **WP2 – Process improvements.** The Surveying System Bathy Data Uploader has been developed in collaboration with Kongsberg with a Beta version in testing. Statistics routines developed on Amazon Web Services are being utilised and will allow better tracking of progress towards the target coverage. Collaboration continues with Scripps on SRTM15+ base grid improvements as well as the University of New Hampshire (UNH) to develop their Web App Visualisation tool.
- **WP3 – Innovation.** A technology strategy white paper is being written and expected to be delivered in year five. There has been recent progress on gridding statistics improvements across the centres, demonstrations of a new generation of CSB loggers (UNH) have been undertaken, as well as establishing the Global Centre as a CSB Trusted Node (data receiver). Finally, the proof of concept of autonomous data gathering on Saildrone’s Pacific crossing (TOTT) was successful.
- **WP4 – Mapping activities.** A number of data gathering initiatives have been undertaken or are ongoing, including the Ocean Frontier Mapping Project. In addition, existing and new partnerships have led to the collection of SDB data as well as planned/completed CSB activities in South Africa, Greenland, Palau and in the South West Pacific. Fugro transit data donations have exceeded the 2 million sq km milestone. Seabed 2030 is also collaborating in the *NIWA- Nippon Foundation Tonga Eruption Site Mapping Project (TESMaP)* that will see a blend of crewed and uncrewed technology conduct extensive research around the Hunga Tonga–Hunga Ha'apai area..

WP5 – Management. There has been extensive virtual and face-to-face engagement over the period with highlights including representation at COP 26, the Paris Peace Forum, the Southern Ocean Decade & Polar Forum, the One Ocean Summit and Monaco Oceans Week. The SB2030 management team has been further bolstered with the recruitment of a Head of Partnerships and Head of Communications and Decade Initiatives. The next phase of Wind in The Sails (WITS) survey and global prioritisation work is being finalised and a report will be shared in due course.

Sustained outreach and engagement activities means the number of MoUs and active supporters are growing:

- 6 new MoUs this period – 23 in total
- 7 MoUs under negotiation

NF Alumni Engagement included:

- Ocean Frontier Mapping Project
- Scoping a secure remote data processing facility
- Head of Engagement is chair of 2022 Alumni Seminar organising committee

Key media activity includes:

- ‘In-depth’ periodic newsletters
- Press releases widely circulated
- 102 media items

GEBSCO Governance Review

In December 2021, an informal meeting between the IHO, IOC and GEBSCO Chair/Vice Chair was held to discuss areas of mutual interest and implications of emerging initiatives. In doing so it was

acknowledged that a routine review of governance is not only good practice, but would likely help to ensure GEBCO remained relevant during this period of change. In considering how to move forward, it was noted that there was a strong need to ensure that the work of GEBCO continued to support the strategic objectives of IHO and IOC.

Following this meeting, IHO Assistant Director and GEBCO Secretary Mr Sam Harper, were tasked with developing a proposal for such a governance review to be presented to GGC38 for discussion and approval. In doing so, a significant amount of research and preliminary analysis has been undertaken and a proposed scope and methodology developed. An initial update was provided to the 1st GGC Intersession Meeting of 2022, with the final proposal made to GGC38. The core elements of the review are stakeholder mapping and engagement, mapping of the existing organization and functional structure, a review of the legal structure and framework, a gap analysis of existing governance instruments, a review of the financial status and the identification of findings and recommendations. GGC38 agreed to seek endorsement of IRCC14 for the creation of a dedicated Project Team and associated ToRs and RoPs (Annex D).

The Proposed Project Team would be led by:

Mr Sam Harper - IHO (Chair)

Mr Julian Barbier – IOC (Vice Chair)

GEBCO Strategic Plan

In developing the plan for the GEBCO Governance Review, it was noted that one of the gaps was for a GEBCO Strategic Plan that clearly sets out the connections between the strategic objectives of the parent organisations, the future direction of GEBCO and the work of the subordinate bodies, initiatives and activities.

With this in mind, two strategy discussion sessions were held alongside GGC38 with the aim of 1) confirm the need for such a strategy, and 2) discuss the scope and next steps. There was strong support for the initiative amongst GGC members and observers, and it was generally acknowledged that such a strategic plan would have to include internal and externally facing components. GGC38 subsequently agreed to seek endorsement of IRCC14 for the creation of a dedicated Drafting Team and associated ToRs and RoPs (Annex E).

The proposed Drafting Team would be led by:

Dr Geoffroy Lamarche (Chair)

Mr David Millar (Vice Chair)

GEBCO Code of Conduct

Under the leadership of the GGC Vice-Chair, a GEBCO Code of Conduct has been developed. The task given to the team was to create a GEBCO wide Code of Conduct covering standards of respect and tolerance; individual status within GEBCO in relation to host national organisations and industry stakeholders; governance issues in relation to leadership positions and potential conflicts of interest. To date, a first version had been drafted with a second shorter version developed that included examples of behaviors and disciplinary measures and procedures.

The latest draft comprises a foreword which establishes the inspiring principles and an ethical conduct section subdivided into:

- I. General Conduct
- II. Conflicts of interest
- III. Proper Use and Protection of GEBCO brand and assets
- IV. Outside Communication
- V. Harassment, Discrimination and Bullying
- VI. Whistleblowing

This latest draft has subsequently been reviewed by the UNESCO Ethics Committee who have provided feedback on the document. The key observations from this committee were that it is currently very long and detailed which would benefit from being made higher level, shorter and simpler. The specific recommendation was that much of the document could be re-cast into a GEBCO Charter that clearly set out expected behaviours and conduct. With this in mind, GGC38 took an action to develop a GEBCO Charter based upon the draft code of conduct, again under the leadership of the GGC Vice-Chair. It was also noted that this work should be done in close collaboration with the Governance Review Project Team and the Strategic Plan Drafting Team to avoid overlaps.

3. Progress on IRCC Action Items

There were no specific action items for the GGC arising from IRCC13

4. Problems Encountered

Aside from the enduring challenges posed by the global COVID-19 pandemic, the principle challenge to delivery of GEBCO objectives is funding. The GEBCO Programme relies heavily on the goodwill of a large number of volunteers. During GGC38 it was noted that some individuals from the Sub-Committees, who are acting in their individual capacities as experts, may find the financing of travel a challenge in the future. Whilst the GEBCO GGC ToRs and RoPs do allow for the reimbursement of travel, it was acknowledged that the annual income is simply not enough to sustain this.

Whilst no specific action is required of IRCC14 at this stage, it should be noted that this position may change following the completion of the Governance Review and Strategic Plan.

5. Any Other Items of Note

None

6. Conclusions and Recommended Actions

Despite the challenges posed by COVID-19 and two years of virtual meetings, the GEBCO Programme and its sub-ordinate bodies, activities and projects have remained highly productive. The GGC has set itself an ambitious yet challenging agenda of delivery, strategic planning and governance. This has been thought through very carefully noting the other pressures on the various stakeholders and participants. It is however deemed necessary if GEBCO is to remain relevant given the extent of the change occurring within the ocean science and seabed mapping landscape.

The GGC work plan (Annex B) reflects this both in terms of new activity and the amount of the existing budget that has been allocated to activities in this reporting year.

7. Justification and Impacts

Justifications for planned activities have been provided in the description provided in the body text of this report.

There are no anticipated impacts on IRCC or any of its other bodies.

8. Action Required of IRCC

The IRCC is invited to:

- a. Note this report

- b. Endorse the creation of SCET and its associated ToRs and RoPs
- c. Endorse the creation of the Governance Review Project Team and its associated ToRs and RoPs
- d. Endorse the creation of the Strategic Plan Drafting Team and its associated ToRs and RoPs
- e. Encourage RHCs to actively contribute new data to GEBCO
- f. Encourage RHCs to discuss how nations can share existing data

ANNEX A

**IHO-IOC GEBCO GUIDING COMMITTEE
(GGC)**

List of GGC members – 29 March 2022

1. IHO Appointed Members:	Term
Period:	
Mr Shin Tani (Japan)	(2018-2023)
Mr David Millar (USA)	(2018-2023)
Mr Evert Flier (Norway) <i>(Chair)</i>	(2019-2024)
Dr Geoffroy Lamarche (New Zealand)	(2021-2026)
Vacant	
2. IOC Appointed Members:	
Dr Marzia Rovere (Italy)* <i>(Vice-chair)</i>	(2019-2024)
Dr Karolina Zwolak (Poland)	(2018-2023)
Ms Kim Picard (Australia)	(2021-2026)
Commander Prashant Srivastava (India)	(2021-2026)
Mr Paul Brett (Canada)	(2022-2027)
3. Ex-officio Members:	
Ms Aileen Bohan <i>(Chair of SCRUM)</i>	
Mr George Spoelstra <i>(Chair of TSCOM)</i>	
Mr Hyun-Chul Han <i>(Chair of SCUFN)</i>	
Mr Timothy Kearns <i>(Chair of SCOPE)</i>	
Ms Jennifer Jencks <i>(Director of IHO-DCDB)</i>	
* Members serving a second 5-year term.	
4. Secretary:	
Mr Sam Harper (IHO)	(2021-2026)

NOTE: Members of the Secretariats of the IHO and IOC are permanent non-voting Observers in the Committee.

IHO-IOC GEBCO Guiding Committee (GGC) Work Plan 2021-2022

GGC Tasks

- A Organise and conduct GGC 39 meeting in 2022 (IHO Task 3.6.1)
- B Ensure conduct of TSCOM, SCRUM, SCOPE and SCUFN meetings in 2022 (IHO Tasks 3.6.1)
- C Ensure effective operation of IHO DCDB (IHO Task 3.6.2)
- D Ensure the delivery of the SCUFN Work Plan
- E Ensure the delivery of the TSCOM Work Plan
- F Ensure the delivery of the SCRUM Work Plan
- G Ensure the delivery of the SCOPE Work Plan
- H Ensure the development of a SCET Work Plan
- I Liaise with and provide support to Seabed2030 project (IHO Task 3.6.5)
- J Conduct GEBCO Governance Review
- K Develop GEBCO Strategic Plan

Task	Work item	Priority H-high M-medium L-low	Milestones	Start Date	End Date	Status P-planned O-ongoing C-completed	Contact Person(s) * indicates leader	Related Pubs/Standard	Funding Bid (€)	Approved Funding (€)
A	Organise and conduct GGC39 meeting	H		2022	2022	P	Chair GGC Sec		0	0
B	Ensure conduct of TSCOM, SCRUM, SCOPE, SCUFN and SCET meetings	H		2022	2022	P	Chair GGC, Chair, TSCOM, Chair SCRUM, Chair SCOPE and Chair SCUFN		0	0
C	Ensure effective operation of IHO DCDB	H		Continuous		O	Director DCDB	See TSCOM Work Plan	0	0

Task	Work item	Priority H-high M-medium L-low	Milestones	Start Date	End Date	Status P-planned O-ongoing C-completed	Contact Person(s) * indicates leader	Related Pubs/Standard	Funding Bid (€)	Approved Funding (€)
D	Ensure the delivery of the SCUFN Work Plan (Annex x)	H		Continuous		O	GGC + SCUFN Chair		15,000	15,000
E	Ensure the delivery of the TSCOM Work Plan (Annex x)	H		Continuous		O	GGC + TSCOM Chair		23,000	23,000
F	Ensure the delivery of the SCRUM Work Plan (Annex x)	H		Continuous		O	GGC + SCRUM Chair		16,000	16,000
G	Ensure the delivery of the SCOPE Work Plan (Annex x)	H		Continuous		O	GGC + SCOPE Chair		38,000	38,000
H	Ensure the development of a SCET Work Plan	H		2022	2022	O	SCET Chair		0	0
I	Support Seabed2030	H	Provide scientific expertise, regional connections and outreach	2018	2030	O	GGC + Chairs TSCOM, SCRUM, SCOPE, SCUFN	See SC Work Plans	0	0
J	Conduct GEBCO Governance Review	H		2022	IHO and IOC Assemblies 2023	O	Chair GEBCO Governance Review Project Team		2,000	2,000
K	Develop GEBCO Strategic Plan	H		2022	IHO and IOC Assemblies 2023	O	Chair Strategic Plan Drafting Team		0	0

Annex C**GENERAL BATHYMETRIC CHART OF THE OCEANS (GEBCO)
SUB-COMMITTEE ON EDUCATION AND TRAINING (SCET)
TERMS OF REFERENCE AND RULES OF PROCEDURE****Preamble**

The Sub-Committee on Education and Training (SCET) was established in 2022 to develop and coordinate the education and training strategy of the GEBCO Programme. In addition, SCET aims to raise awareness amongst academic institutions of gaps in education and training that may impact on the progress and development of ocean mapping and in particular, the objectives of the GEBCO Programme. SCET cooperates with the TSCOM (Technical Sub-Committee on Ocean Mapping), which aims at serving and advising technical aspects in building and use of GEBCO products, SCRUM (Sub-Committee on Regional Undersea Mapping), which aims at coordinating regional mapping initiatives, SCUFN (Sub-Committee on Undersea Feature Names), which aims at serving as a designated authority for all matters concerning undersea feature names, and SCOPE (Sub-Committee on Communications, Outreach, and Public Engagement), which aims to raise awareness of the GEBCO Programme.

1 Terms of Reference

- 1.1 The Sub-Committee reports to the Joint IOC-IHO GEBCO Guiding Committee (GGC) as its designated authority for all education and training matters relevant to the goals of GEBCO as set out in the GGC Terms of Reference and Rules of Procedure.
- 1.2 The Sub-Committee shall:
 - 1.2.1 Regularly survey academic institutions, and their associated alumni programmes, providing Ocean Mapping programmes to identify any topics which will impact on the goals of GEBCO and the development of the next generation of ocean mappers.
 - 1.2.2 Foster and maintain collaboration and engagement, including identifying placement opportunities, with the various academic institutions providing ocean mapping programmes.
 - 1.2.3 Identify gaps in existing education and training programmes that, if addressed, would contribute to fulfilling the goals of the GEBCO programme. Where appropriate and/or requested, provide advice to the relevant institutions.
 - 1.2.4 Identify requirements for further education and training, and engage with relevant institutions and organizations (academic and commercial) for opportunities for the provision of suitable courses and workshops.
 - 1.2.5 Establish, support, and/or disband working groups or project teams, as needed, to carry out specific tasks or product development that advance the GEBCO Programme.
 - 1.2.6 Work closely with other GEBCO Sub-Committees and subordinate bodies of the IHO and IOC on matters of common interest.

2 Rules of Procedure

- 2.1 Membership of the Sub-Committee is covered by the following rules:

- 2.1.1 Members of the Sub-Committee are experts in their own right acting exclusively for the benefit of the Joint IHO-IOC GEBCO Programme. ¹
- 2.1.2 SCET shall normally consist of a Chair and Vice-Chair and a number of additional members. Members should be encouraged to participate according to their individual technical expertise and their ability to complement the overall technical breadth of the committee as a whole. Any member of the GEBCO community interested in participating is eligible to become an active member of the committee at the discretion of the Chair
- 2.1.3 Members are expected to participate actively in the committee's work. This can include, but is not limited to, attendance at in-person or virtual meetings, active and substantive email correspondence, or meaningful contribution to a GEBCO activity. After a non-participation period of a member exceeding 2 years, the member's status is changed to a non-voting inactive member, and the Chair may approach them about withdrawing his/her membership.
- 2.2 The Chair and Vice-Chair shall be elected by active Sub-Committee members. Their nominations are subject to endorsement by the GGC.
- 2.3 The Chair and the Vice-Chair are elected for a three-year period. The Chair and Vice-Chair may be re-elected for additional terms for a maximum of three consecutive terms if desired by the sub-committee members and subject to their availability. The Chair or, in his/her absence, the Vice-Chair shall conduct the business of the Sub-Committee.
- 2.4 Meetings will usually be held every year, ideally before the GGC meeting. In the intervening period the Sub-Committee shall conduct its business via all appropriate media.
- 2.5 Individuals, entities and organizations that can provide a relevant and constructive contribution to the work of the Sub-Committee may be represented at meetings as Expert Contributors with observer status, at the discretion of the Chair or Vice-Chair.
- 2.6 Members are expected to attend all meetings.
- 2.7 Observers from IHO and/or IOC Member States may attend meetings.
- 2.8 The quorum to hold a meeting shall be not less than 50% of the listed active Sub-Committee Members. The Sub-Committee shall strive to make decisions by consensus. If consensus cannot be reached, decisions shall be taken by simple majority vote. Only listed active members present may cast a vote. The Chair shall have the casting vote if there is a tie.
- 2.9 Recommendations and advice of the Sub-Committee shall be provided directly to the appropriate subordinate bodies of GEBCO.
- 2.10 Resolutions of the Sub-Committee shall be submitted to the GGC for consideration and decision.
- 2.11 The Chair shall submit an annual report to the GGC.

¹ So far as IOC is concerned, the Sub-Committee is classed as a Joint Group of Experts under the IOC Guidelines for subsidiary bodies.

Annex D

GEBCO Governance Review Project Team (GGRPT) Terms of Reference and Rules of Procedure

Preamble

In December 2021, an informal meeting between the International Hydrographic Organisation (IHO), the Intergovernmental Oceanographic Commission (IOC) and GEBCO Chair/Vice Chair was held to discuss areas of mutual interest and implications of emerging initiatives. It was noted that the ocean science and seabed mapping landscape is undergoing significant change, and that the work of GEBCO (including that of the Nippon Foundation GEBCO Seabed 20230 Project) has never been so relevant or visible. Noting that GEBCO would need to evolve with this changing environment in order to remain relevant, and that its organisational structure has grown in recent years, it was deemed prudent that a review of the programmes governance should be undertaken.

A proposal for such a Governance Review, together with the intended scope, methodology and timeline was produced by the GEGCO Guiding Committee (GGC) Secretary and subsequently approved by GGC38. These Terms of Reference and Rules of Procedure provide the framework through which the dedicated Project Team will conduct this review.

1. Terms of Reference

- 1.1 Conduct a comprehensive review of the governance of the GEBCO Programme, including:
 - 1.1.1 The organizational and governance instruments and practices associated with GEBCO, its Guiding Committee and its Subcommittees;
 - 1.1.2 The organizational and governance arrangements between GEBCO and external bodies that it routinely interacts with;
 - 1.1.3 The organizational and governance arrangements for projects and any work items that GEBCO is involved in.
- 1.2 The aim is to ensure that the GEBCO programme has the appropriate governance in place to effectively and efficiently deliver its annual work plan (and those (or equivalent) of its subordinate bodies and activities), guided by the strategic objectives of its parent organisations (the IHO and IOC) and the GEBCO Strategic Plan².
- 1.3 Given that the GEBCO Strategic Plan has not yet entered into force, the following assumptions should be considered:
 - 1.3.1 GEBCO is a Programme and will be an enduring endeavour;
 - 1.3.2 GEBCO will remain a joint Programme of the IHO and IOC;
 - 1.3.3 GEBCO relies on its parent organisations to hold funds;
 - 1.3.4 GEBCO needs to be able to fundraise, spend and allocate funds to its bodies, projects, collaborative activities and contracted services;
 - 1.3.5 The funds held on GEBCO's behalf will/could increase significantly;
 - 1.3.6 GEBCO as a Programme will have subordinate committees, working groups, projects and other work packages
- 1.4 In conducting the review, the following considerations must be observed:
 - 1.4.1 The organisational frameworks and operating rules of the IHO and IOC must be adhered to in both conducting the review, and in making recommendations for future action;
 - 1.4.2 Whilst strict compliance is not required, ISO 21500:2021 and its associated

² The GEBCO Strategic Plan is being developed by the Strategy Drafting Working Group (SDWG) and expected to enter into force after endorsement at the 3rd IHO Assembly and the 32nd IOC Assembly.

standards should be used as the benchmark for programme governance best practice, especially where GEBCO functions or activities exist outside the area of expertise of the parent organisations;

- 1.4.3 Notwithstanding 1.4.1 and 1.4.1, any recommendations should be proportionate, and mindful of international, multi-sectoral and sometimes voluntary nature of those contributing to the GEBCO Programme;
 - 1.4.4 The work undertaken to develop a GEBCO Code of Conduct and GEBCO Potential Approaches to Fundraising Strategy should be considered by the review in order to avoid duplication of effort and where appropriate, incorporate and insights or recommendations into the final report;
- 1.5 The review should include the following elements as a minimum:
- 1.5.1 GEBCO stakeholder mapping and engagement with a formal report summarizing key findings;
 - 1.5.2 Mapping of GEBCO organizational and functional structure, detailing the nature of any relationships, reporting lines, obligations or liabilities;
 - 1.5.3 Review of the legal structure and framework with a statement on the current and recommended future status (if change is deemed necessary);
 - 1.5.4 Review of financial arrangements with a statement on the current and recommended future status (if change is deemed necessary);
 - 1.5.5 A gap analysis of the current governance instruments (e.g. MoUs, ToRs etc.);
 - 1.5.6 A summary report of initial findings;
 - 1.5.7 A final report summarising the work undertaken, findings and recommendations.
- 1.6 The report of initial findings should be submitted to the GGC, not less than two weeks before GGC39, currently scheduled.
- 1.7 The final report of work undertaken, findings and recommendations should be completed in time to meet the deadlines associated with reporting to IHO and IOC Assemblies in 2023.
- 1.8 In undertaking the tasks described in 1.5, 1.6 and 1.7, it may not be possible to complete all elements by the stated deadlines. In this case, the GGRPT may use its discretion to recommend that further work is required on a particular task, and provide a summary of what has been achieved to date.
- 1.9 These Terms of Reference can be amended in accordance with paragraph 1.9 of the GEBCO Guiding Committee Terms of Reference.

2. Rules of Procedure

- 2.1 The Project Team is composed of a subset of members of the GGC, supported by an Expert Advisory Panel (EAP).
- 2.2 The GGRPT will appoint a secretary to administer meetings and provide a written record of formal proceedings, decisions and actions.
- 2.3 The Chair and Vice-Chair will be representatives of the IHO and IOC. As decided at GGC38, Mr Sam Harper (IHO) will serve as the Chair, and Mr Julian Barbière (IOC) the Vice-Chair. If the Chair is unable to carry out the duties of the office, the Vice-Chair shall act as the Chair with the same powers and duties.
- 2.4 The Project Team is empowered to identify suitably qualified members of the EAP, and to engage them as required in order to provide assurance to the GGC (and the bodies to which the GGC is accountable) that the work that undertaken is of sufficient quality, is impartial and is objective in its recommendations.

- 2.5 The Project Team should normally work by correspondence, but if decided by the Project Team, meetings can be scheduled in conjunction with any IHO meetings. The Chair or any member of the Working Group, with the agreement of the simple majority of all members of the Working Group, can call extraordinary meetings. In case of meetings, all intending participants shall inform the Chair and Secretary ideally at least two weeks in advance of their intention to attend meetings of the Project Team.
- 2.6 Decisions shall generally be made by consensus. If votes are required on issues or to endorse proposals presented to the Project Team, decisions shall be taken by a simple majority of Project Team Members present and voting. When dealing with matters by correspondence, a simple majority of all responding Project Team Members shall be required.
- 2.7 The working language of the Working Group shall be English.
- 2.8 Findings and recommendations of the Project Team shall be submitted to the GGC endorsement in line with timescales indicated at 1.6 and 1.7.
- 2.9 The Working Group will be disbanded once the GGC considers the Review complete.
- 2.10 These Rules of Procedure can be amended in accordance with paragraph 1.9 of the GEBCO Guiding Committee Terms of Reference.

Annex D

GEBCO Strategy Drafting Working Group Term of Reference and Rules of Procedures

Preamble

At its April 2022 General Meeting (GGC38), the GEBCO Guiding Committee (GGC) decided to develop a strategy that would fully align the work of GEBCO with the strategies of its parent organizations, the International Hydrographic Organization (IHO) and the Intergovernmental Oceanographic Commission of UNESCO (IOC/UNESCO) as well as fully support and consider The Nippon Foundation-GEBCO Seabed 2030 project and the United Nations Decade of Ocean Science for Sustainable Development, to which GEBCO is associated. A Strategy Drafting Working Group (SDWG) was established and the GGC nominated a chair and co-chair. The following Terms of Reference (ToR) and Rules of Procedure (RoP) have been developed to set the role and mandate of the SDWG and provide the SDWG with guidelines and direction to progress the work and for members' participation.

1. Terms of References

- 1.1. The role of the Strategy Drafting Working Group is to conduct a reflection and a comprehensive drafting of a first Strategic Plan for GEBCO that considers the parameters and environment outlined in the Preamble above.
- 1.2. There should be a scoping and a drafting phase
- 1.3. During the scoping phase, the Working Group should
 - 1.3.1. Review the current and future strategic context in which the GEBCO operates
 - 1.3.2. Propose an outline for the content of the Strategy;
 - 1.3.3. Consider the appropriate goals and roles of the various sub-committees and projects;
 - 1.3.4. Establish the management plan and timetable for developing a draft Strategy;
 - 1.3.5. Submit to GGC a proposed timeline and outline of content for the Strategy
- 1.4. During the drafting phase, Working Group should
 - 1.4.1. Discuss and propose a revised mission statement, and a revised vision if it is deemed necessary and appropriate
 - 1.4.2. Define the criteria for measuring success and propose priorities for the GEBCO;
 - 1.4.3. consider the role and the interrelations between sub-committees / projects, work plan and performance indicators;
 - 1.4.4. Provide a first draft of the strategy to parent organisations for comments within 3 months of these Term of Reference and Rules of Procedure being endorsed.
 - 1.4.5. Provide a final draft of the strategy in time for the 2022 GEBCO annual general meeting, GGC39 (date TBC)
- 1.5. These Terms of Reference can be amended in accordance with paragraph 1.9 of the GEBCO Guiding Committee Terms of Reference.

2. Rules of Procedure

- 2.1. The Working Group shall be composed of
 - 2.1.1. The Chair and co-Chair nominated by the GGC (Schedule 1)
 - 2.1.2. The head or a representative nominated by the head, of each of GEBCO sub-committee: TSCOM, SCRUM, SCOPE, SCUFN, and SCET
 - 2.1.3. The head or a representative nominated by the head, of the Seabed 2030 project
 - 2.1.4. The head or a representative nominated by the head, of the DCDB
 - 2.1.5. A representative of IOC/UNESCO
 - 2.1.6. A representative of IHO
- 2.2. The Chair and Vice-Chair of the SDWG elected during GGC38. If the Chair is unable to carry out the duties of the office, the Vice-Chair shall act as the Chair with the same powers and duties.
- 2.3. The Chair and Vice-Chair of the SDWG should appoint a secretary for the Working Group. The Secretary shall prepare the minutes of each meeting and prepare the report to the Assembly as directed by the Chair.
- 2.4. The Chair and Vice-Chair of the SDWG report to the Chair of the GGC
- 2.5. The work of the SDWG should normally work by correspondence and on a virtual collaborative workspace. The Chair or any member of the Working Group, with the agreement of the simple majority of all members of the Working Group, can call extraordinary virtual meetings. In case of virtual meetings, all intending participants shall inform the Chair and Secretary ideally at least two weeks in advance of their intention to attend virtual meetings of the Working Group.
- 2.6. Decisions shall generally be made by consensus. If votes are required on issues or to endorse proposals presented to the Working Group, decisions shall be taken by a simple majority of Working Group Members present and voting. When dealing with matters by correspondence, a simple majority of all responding Working Group Members shall be required.
- 2.7. The draft record of meetings shall be distributed by the Secretary within ten working days of the end of meetings and participants' comments should be returned within ten working days of the date of despatch.
- 2.8. The working language of the SDWG shall be English.
- 2.9. Recommendations of the SDWG shall be submitted to GGC for endorsement.
- 2.10. The Working Group will be disbanded after submission of the final strategy.
- 2.11. These Rules of Procedure can be amended in accordance with paragraph 1.9 of the GEBCO Guiding Committee Terms of Reference.