

# TSCOM Report to GC 2018

Preliminary report  
15-16 November 2018

Hosted by Geoscience Australia and  
Land Information New Zealand

Canberra, Australia

# Venue

TSCOM met jointly with SCRUM November 12-13, 2018,  
at Hotel Kurrajong, Canberra, Australia

We gratefully acknowledge Geoscience Australia and  
Land Information New Zealand for:

- Excellent logistical support
- Fine venue
- Superb hospitality provided by our hosts

# Reports of Activities

- TSCOM tabled reports on:
  - GEBCO\_2014 grid
  - EMODNet
  - Crowd-Sourced Bathymetry
  - IHO DCDB
  - Cook Book Update
  - Metadata Working Group
  - Outreach Working Group
  - GEBCO Symposium
- Reports on Seabed 2030 and regional mapping activities were taken under SCRUM
- See reports for the details

# TSCOM Actions

- GEBCO\_2014 grid maintenance
- BODC request to withdraw grid display software and associated GDA CDROM, in favor of development of online services
- Request to review and update TSCOM ToRs
- Support of Seabed 2030
- Cook Book updated – new Chapter “Finding Gaps to Map”
- Initiated Metadata Working Group
- IHO Publication B-7 (Guidelines for Ocean Mapping) reviewed by TSCOM
  - B-7 retired, superseded by GEBCO website
- Interim amendment of IHO Resolutions
  - Full amended version pending guidelines from Seabed 2030
  - See GGC34-5.3



# TSCOM Work Plan and Budget

## 1.1. IHO-IOC GEBCO Technical Sub-Committee on Ocean Mapping (TSCOM) Work Plan 2019-2020

### 1.1 TSCOM Tasks

- B Ensure conduct of TSCOM meeting in 2019 (IHO Task 3.6.1)
- C Ensure effective operation of IHO DCDB (IHO Task 3.6.2)
- D Encourage the contribution of bathymetric data to the IHO DCDB (IHO Task 3.6.3), identify priority areas for regional mapping and promote data contribution through GEBCO participation in RHCs meetings
- E Maintain IHO bathymetric publications (IHO Task 3.6.6) including: B-4, B-9, B-10 and B-11
- F Develop the on-line function of B-4 (Information concerning recent bathymetric data) (IHO Task 3.6.6)
- G Contribute to outreach and education about ocean mapping (IHO Task 3.6.7) by development of outreach and educational materials and printing of IHO-IOC GEBCO World Map
- H Ensuring IHO-IOC GEBCO Web site is kept current and updated regularly (IHO Task 3.6.8)
- I Develop short course and course material on compiling digital bathymetric models (DBMs) to be included in GEBCO from a heterogeneous bathymetric source database (IHO Task 3.6.9)
- K Provide technical support and advice to Seabed 2030 Project Director, RDACCs and GDACC

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 (€)	GGC Decision
B	Ensure conduct of TSCOM meeting	H		2019	2019	P	Chair TSCOM			
C	Ensure effective operation of IHO DCDB	H		Continuous		O	Director DCDB			
D1	Encourage the contribution of bathymetric data to the IHO DCDB	H		Continuous		O	All members of GEBCO GC through the Chair			

# TSCOM Work Plan and Budget

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 (€)	GGC Decision
D3	Promote data contribution through GEBCO participation in RHCs meetings	H		Continuous		O	All members of GEBCO GC through the Chair		See SCRUM WP	
E	Maintain IHO bathymetric publications	M M L M		Continuous		O	All members of GEBCO GC through the Chair	B-4 - Information concerning recent bathymetric data B-9 - GEBCO digital atlas B-10 - The history of GEBCO B-11 - GEBCO Cookbook	See SCRUM WP	
F	Develop the on-line function of B-4	M		Continuous		O	Director DCDB			
G3	Printing of IHO-IOC GEBCO World Map	M		2015	2018		Chair TSGOM + Chair SCRUM	B-9 - GEBCO digital atlas		
H	Ensuring IHO-IOC GEBCO Web site is kept current and updated regularly	M	Add news items relating to GEBCO's activities  Add documents relating to GEBCO's meetings and events	Continuous  Continuous		O  O	BODC		2,500	

**Commented [DJW1]:** Task considered completed and transferred to GDACC under Seabed 2030 Project.

# TSCOM Work Plan and Budget

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 (€)	GGC Decision
I	Add instructive chapters in IHO-IOC GEBCO Cook Book related to Seabed 2030 as needed	M	Provide technical support	2018	2030	O	Chair TSCOM			
K	Support Seabed 2030	H	Provide scientific expertise and outreach	2018	2030	P	Chairs TSCOM, SCRUM, Outreach, SCUFN			

## 1.2 TSCOM Meetings (IHO Task 3.6.1 refers)

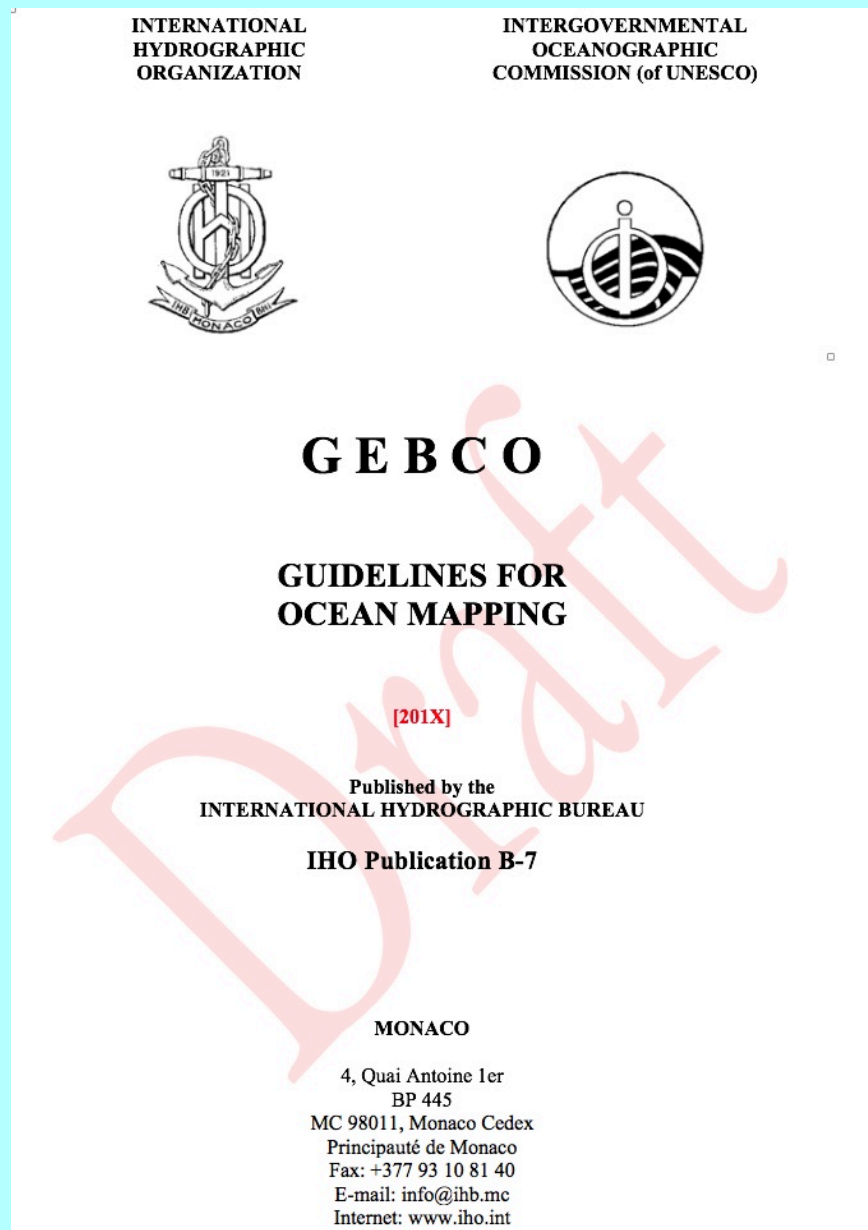
Date	Location	Activity
1-4 October 2012	IHB, Monaco	<u>XXVIII<sup>th</sup> Meeting</u>
7&9 October 2013	Venice, Italy	<u>XXIX<sup>th</sup> Meeting</u>
11-13 December 2014	Mountain View, California USA	<u>XXX<sup>th</sup> Meeting</u>
5-7 October 2015	Kuala Lumpur, Malaysia	<u>XXXI<sup>th</sup> Meeting</u>
10-12 October 2016	Viña del Mar, Chile	<u>XXXII<sup>th</sup> Meeting</u>
13-14 November 2017	Busan, Korea	<u>XXXIV<sup>th</sup> Meeting</u>
5-6 November 2018	Canberra, Australia	<u>XXXV<sup>th</sup> Meeting</u>

Chair: Karen Marks  
Vice-Chair: Thierry Schmitt  
Secretary: David Wyatt

Email: Karen.Marks@noaa.gov  
Email: Thierry.Schmitt@shom.fr  
Email: adso@iho.int

# TSCOM Reviewed B-7 Guidelines

- Up-to-date information already on GEBCO website
- IHO Publication B-7 retired





# Interim Amendment of IHO Resolutions

- TSCOM/SCRUM completed interim amendment last year
- Updated language, data format and transfer protocols
- Word “or” highlighted in yellow is change from GGC34-5.3
- Full amendment pending input from Seabed 2030

## IHO Resolutions

The following IHO Resolutions cover topics and issues, in total or part, for which the GEBCO Guiding Committee (GGC) and its subordinate bodies are subject matter experts. It is therefore appropriate for the GGC to task the relevant subordinate body/bodies to review the Resolutions and propose changes and amendments as necessary for GGC34.

In the first instance it is considered this process will be led as indicated below:

3/1929 as amended (*Centralization of oceanic soundings*) - TSCOM;  
3/1932 as amended (*Collecting oceanic soundings*) - TSCOM;  
4/1932 as amended (*Metadata for oceanic soundings*) - TSCOM/SCRUM;  
2/1962 as amended (*Oceanographic observations*) - SCRUM/TSCOM; and  
8/1962 as amended (*Oceanographic information*) - SCRUM/TSCOM.

CENTRALIZATION OF OCEANIC SOUNDINGS	3/1929 as amended	85/2008	A5.3
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1 Full details of the information required to accompany data, and the criteria for its quality control, are contained in the GEBCO Guidelines (IHO Publication B-7).

2 Data Storage and exchange of data.

- a) Member States are requested to remind institutions and organizations within their own country of the desirability of collecting bathymetric data, whenever possible, in the course of oceanographic missions.
- b) It is recommended that Member States inform the IHO Secretariat of any details concerning recent bathymetric data collected by themselves or by other national institutions and organizations, about which they may have been notified. The standard format below should be used for this purpose:
  - i) Country of origin;
  - ii) Institution or authority responsible for the mission;
  - iii) Name of vessel which carried out the soundings;
  - iv) Date (month and year);
  - v) Location (general sea area or significant points along track); and
  - vi) Terms under which data may be obtained (address for requests, method of ordering, price, or whether free on a mutual data exchange basis, etc.).

The IHO Secretariat will issue an annual CL requesting such information.

3 All bathymetric data collected should be forwarded by HOs to the IHO Data Centre for Digital Bathymetry (DCDB) via File Transfer Protocol (FTP), email, or mail (CD, DVD, or hard drive) in the formats below. Other formats will be considered on a case-by-case basis. The IHO DCDB should be notified of digital data that have been found to be in error; if possible, a corrected version should be submitted as well.

- **Raw sonar data:** MGD77T or the original manufacturer's format
- **Processed data:** BAG, NetCDF, tiff, xyz, sd, asc, etc.
- **Metadata:** XML or text

# Interim Amendment of IHO Resolutions

## 4 Information concerning Recent Bathymetric Data IHO Publication B-4

At the beginning of each calendar year, the **IHO Secretariat** shall make available an updated version of the online publication B-4 showing all bathymetric data received during the preceding year. These data will be available for download from the IHO DCDB **in the formats provided and listed above**.

COLLECTING OCEANIC SOUNDINGS	3/1932 as amended	85/2008	A5.1
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- 1 It is strongly recommended that Hydrographic Offices include in their programmes regular and systematic surveys of ocean areas beyond the continental shelves.
- 2 It is recommended that when Hydrographic Offices plan oceanic surveys they attach sufficient importance to obtaining data which will be useful not only for navigation purposes but also for promoting knowledge of the morphology of the sea floor **and filling gaps in global ocean survey coverage**.
- 3 It is recommended that Hydrographic Offices interested in the same oceanic areas arrive at an understanding among themselves regarding a suitable division of their zones of activity and priorities.
- 4 It is recommended that, as concerns oceanic soundings, Hydrographic Offices work in close cooperation with the oceanographic bodies of their respective countries and use a standard procedure for recording data.
- 5 It is recommended that ships fitted with MBES or SBES be requested to collect bathymetric soundings and communicate the results of such soundings to the Hydrographic Offices of their respective countries with all information required to enable their accuracy to be estimated. The use of sound velocity calibration in accordance with the guidance set out in the IHO Manual on Hydrography (C-13) is recommended.
- 6 It is recommended that newly-discovered topographic undersea features should be properly mapped and named following the "Standardization of Undersea Feature Names" IHO-IOC Publication B-6.

METADATA FOR OCEANIC SOUNDINGS	4/1932 as amended	85/2008	A5.2
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It is resolved that oceanic soundings, together with the metadata and potential additional supplementary information, shall be collected and **exchanged in digital form**.

Metadata should comprise at least information on:

- a) the survey in general as e.g. date, area, equipment used, name of survey platform;
- b) the geodetic reference system used, i.e. horizontal and vertical datum; including ties to WGS 84 if a local datum is used;
- c) calibration procedures and results;
- d) sound velocity;
- e) positioning information e.g. GPS, RT-DGPS, GLONASS, GALILEO;
- f) tidal datum and reduction (if applicable); and
- g) accuracies achieved and the respective confidence levels.

# Interim Amendment of IHO Resolutions

<b>OCEANOGRAPHIC OBSERVATIONS</b>
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<b>2/1962 as amended</b>
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<b>59/1991</b>
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<b>A1.3</b>
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It is recommended that Member States should make every effort to collect and coordinate the collection of all types of oceanographic data, by their hydrographic services and other of their national institutions. The results of all such observations should be communicated to appropriate national and international Oceanographic Data Centres for maximum utilization by all marine scientific and hydrographic users.

<b>OCEANOGRAPHIC INFORMATION</b>
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<b>8/1962 as amended</b>
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<b>IHC 16</b>
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<b>C3.13</b>
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1 It is recommended that the introductory part of Sailing Directions includes oceanographic information concerning general currents and a brief account of the main characteristics (temperature, salinity, density) of surface water.

2 It is recommended that a reference be made to the relevant oceanographic and tidal atlases, whenever possible.

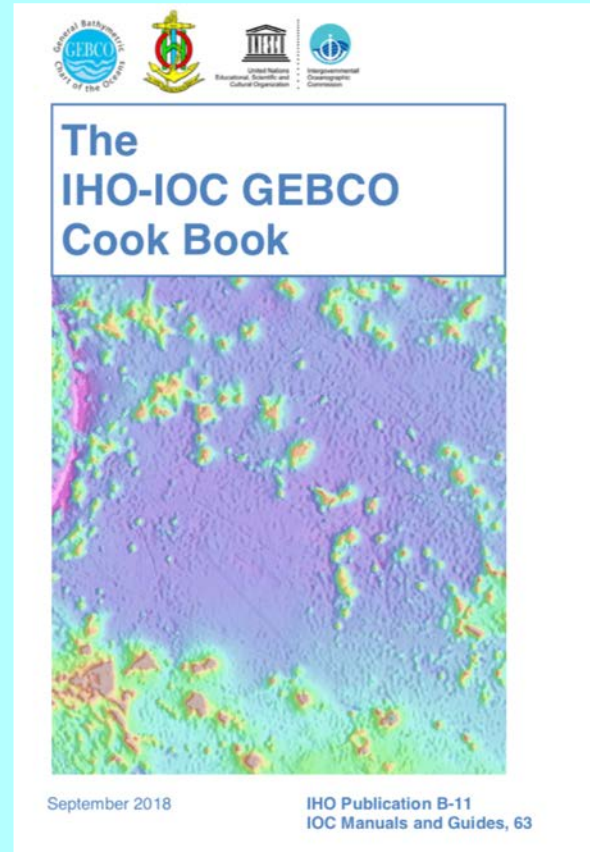
# Future GEBCO Grid Updates

- GEBCO\_2014 grid currently on GEBCO website for download
- Data have been added to “GEBCO\_2017,” but not publicly available
  - will serve as base for new grid release through NF-GEBCO Seabed 2030 Project
- GEBCO\_2018 grid at 15 arc-second resolution due December 2018
- Up-sampling 30 arc-second GEBCO grid to 15 arc-second spacing only increases resolution over subsequently incorporated higher resolution bathymetric surveys
- Up-sampling will greatly increase megabyte size of grid made available for download from GEBCO website
- GEBCO grid altimetric depths are based on SRTM30\_Plus V5, recommend GEBCO officials contact Scripps about using SRTM15\_PLUS



# New Updates to Cook Book

- **Update published Sept. 2018**
- New Chapter 16: Finding Gaps to Map
  - Section 16.1 – Google Earth Pro and SRTM30\_PLUS Overlays
  - Section 16.2 – Assessing Gaps via Bathymetric Sounding Density
  - Section 16.3 – GIS Approach to Prioritizing the Gaps to Map



# Metadata Working Group

- Federica Foglini is Chair
- Metadata guidelines for contributing bathymetric data to S2030
- 25 volunteers to work on MWG
- Survey about metadata needs
- Results being synthesized
- Discussions ensuing

# 13<sup>th</sup> Annual GEBCO Symposium



**14 NOVEMBER 2018**  
CANBERRA, AUSTRALIA

Hosted by:  
**GEOSCIENCE AUSTRALIA** and **LAND INFORMATION NEW ZEALAND**



**GEBCO Symposium: MAP THE GAPS**

- James O Fairfax Theatre, Australian National Gallery, Nov. 14, 2018
- Tim Kearns and Jaya Roperez, Conveners
- 44 presentations, 4 Digital Posters
- Attendees from all over the world

**MAP THE GAPS**  
A GEBCO SYMPOSIUM ON BATHYMETRY



# Break-out: South and West Pacific Ocean

- Led by Geoffrey Lamarche

- Attendees:

Fan Miao (China)

Jennifer Jenchks (USA)

Hanruka Ogawa (Japan)

Tim Kearns (USA)

Robin Beaman (Australia)

Paul Johnson (USA)

Mark Zimmerman (USA)

Wendy Stewart (Australia)

Lindsay Gee (USA)

Hyo Hyun Sung (S. Korea)

Eunmi Chang (S. Korea)

Felipe Barrios Burnett (Chile)

Patricio Carrasco (Chile)

Geoffroy Lamarche (New Zealand)

Shin Tani (Japan)

Brook Tozer (USA)

Karen Marks (USA)

Toyoki Sasakura (Japan)

Motoharu Sonogashira (Japan)



# Break-out: South and West Pacific Ocean

## Summary Points

- Investigate if NCEI (in collaboration with ESRI) can provide a GIS layer in IHO DCDB that shows polygons of where data exist but are not available.
  - SID and dates of surveys are needed so users can estimate when data might become available.
- Address how to get polygons of existing (but not available) data and planned surveys from 1) research, 2) industry, and 3) governments.
  - RDACC committee members are strong in reaching out to various countries and states.
- Develop a survey register of planned surveys and proposed tracklines to avoid remapping.
  - Explore tools for optimal pathways, fuel savings (help from ESRI), etc.

# Break-out: South and West Pacific Ocean

## Actions

- Make software package or method for enabling polygon contributions that is easy to use
- Develop work flow for users to submit data to S2030, and communicate it to the public
- What are tools for visualizing gaps?
  - Bathy Globe from CCOM (UNH)
  - May be demonstrated in IHO-IOC Cook Book chapter

# Plenary: GEBCO Outreach and Capacity Building

- Led by Sung
- Discussions on growing GEBCO community, potential targets, resources needed, linking GEBCO webpages to targets, outreach and engagement
- Notes to be submitted to Permanent Secretary
- Activity is ongoing

# END OF PRESENTATION