

**A GEBCO Community Vision for Improving the Availability,  
Discoverability & Accessibility of Bathymetric Data  
REPORT**

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**SUMMARY**

**Executive Summary:** This document provides updates on the ongoing work laid out in the action plan for developing A GEBCO Community Vision for Improving the Availability, Discoverability & Accessibility of Bathymetric Data.

**Action to be taken:** See paragraph 7

**Related documents:** *Proposed GEBCO Community Vision for Improving the Availability, Discoverability & Accessibility of Bathymetric Data Action Plan*

## **1. Overview/Introduction**

Improving the availability, discoverability and accessibility of global bathymetry data requires an understanding of the needs of a diverse community of individuals and organizations who create, manage and utilize data for a wide variety of purposes.

A proposed action plan for developing *A GEBCO Community Vision for Improving the Availability, Discoverability & Accessibility of Bathymetric Data* was developed in 2023 by considering the complementary perspectives of data providers, curators, stewards, consumers and tool developers to identify current needs, and to ensure that data and metadata are future-ready for emerging technical solutions. This plan identifies the needs and goals within the community and serves as a living document to better promote ongoing and future collaboration efforts. TSCOM, together with Seabed 2030, the IHO DCDB and the greater GEBCO community, will strive to support, implement and further promote the activities described in the plan.

## **2. Background**

A community engagement series consisting of virtual and hybrid events was coordinated to solicit input and develop a vision for improving the accessibility and discovery of bathymetry data. The series was designed and convened by the GEBCO TSCOM, the International Hydrographic Organization's Data Center for Digital Bathymetry (IHO DCDB), and the Regional Center for the Atlantic and Indian Oceans of the Nippon Foundation - GEBCO Seabed 2030 Project.

A series of live webinars and a hybrid working meeting, co-organized in 2023 by TSCOM, IHO-DCDB, and Seabed 2030, served as the basis of this action plan. The events focused on complementary aspects of the data life cycle related to (1) Data Sharing & Archiving, (2) Data

Discovery & Data Gaps, (3) Data Processing & Integration and (4) Metadata Enhancements - which can connect and fortify all aspects of data stewardship and access.

Participants in all engagement events included representatives from academia, government and industry, and individuals with perspectives as survey planners, surveyors, data managers, data publisher representatives, applications developers, geospatial data experts, sonar manufacturers, data processors and data consumers. A detailed summary of these events and feedback gathered from the community are available in the Oceans 2023 Gulf Coast Conference Paper (*to be posted in November 2023 on the [IEEE website](#)*).

**An action plan was written and submitted to TSCOM in October 2023 and serves as a proposed roadmap to deliver the key priorities identified during this series of community events.** The following paragraphs describe the core goals of that action plan, and accomplishments to date.

### **3. Increase data availability: Transit mapping**

*Objective A. Develop the message - clear request and motivation - to participate in transit mapping.*

The groundwork for developing the messaging for encouraging the participation in transit mapping was laid in 2023 in preparation for papers and presentations at Oceans 2023 Gulf Coast and FEMME.

*Objective C. Develop best practices and workflows*

Progress was made towards the development of best practices, tools and workflows by updating the [Transit Mapping Section](#) of the Ocean Mapping Community Wiki.

### **4. Enhance metadata and improve web services**

*Objective A. Develop the message - clear request and motivation - that can be relayed, expanded, and spoken encouraging various communities to enhance and extend metadata and web services.*

The clear request and motivation behind the need to enhance metadata and improve web services has been in the works for several years, with most of the discussion focusing on the enhancements and improvements needed to facilitate the creation of an integrated web service layer showing what has and has not been mapped (Data-no-Data or DnD layer) – though the improvements and enhancements needed would improve the accessibility and useability of these services for any number of uses. This messaging was captured in the paper, [An Assessment of the Unified Data-No-Data Single Layer Proof of Concept](#) which was posted on the TSCOM website this year. The need for improvements and enhancements as well as the suggestions proposed in the paper above were further explored as part of the webinar series and hybrid work meeting, and the feedback obtained during those events has been integrated into the action plan.

*Objective B. Develop documentation that defines what is needed.*

The paper, [An Assessment of the Unified Data-No-Data Single Layer Proof of Concept](#), laid out suggestions for web service improvements and metadata enhancements that would facilitate programmatic querying of web services and the creation of an integrated DnD layer. As that paper is now a year old, work is underway to re-evaluate target web services and confirm/update the findings

of the assessment. Members of the community are also working to further define metadata enhancements to be requested of service providers.

Through the webinar series and hybrid work meeting, a subset of service providers (IHO DCDB, PANGAEA) have been identified and have confirmed their willingness to prototype suggested changes to services and improvements to metadata that would in turn facilitate the Data-no-Data layer concept. Collaboration is underway.

## **5. Encourage the use of a common generic sonar format for bathymetry**

*Objective A. Develop the message - clear request and motivation - that can be relayed, expanded, and spoken encouraging various communities focused around the importance of preserving and sharing processed swath formats in addition to products.*

GMRT has long recommended GSF as a processed swath file format that enables data re-use and additional data processing. This has been adopted by several groups and Geoscience Australia and GMRT have been working together through the AusSeabed-GMRT project and have been promoting the use of GSF as a processed multibeam file format. As part of that project, open source code that extracts all information from GSF files was developed as a means of making data cloud-performant. Ongoing work in this space will further elucidate possible solutions for GSF as a standard and exchange format. Discussions at the recent NOAA HSRP meeting in Sept 2023 included GSF as a useful standard for sharing processed multibeam data in a swath file format, but highlighted a number of issues that have evolved that have hindered its use as an archive data format. This includes misunderstandings about the format, the method and frequency of library updates, variations in library implementations, and lack of synchronization of various sonar formats and the various commercial library implementations. Discussions are ongoing with a goal of establishing a suitable forum or workshop for stakeholders to address the issues.

## **6. Unify an approach for disseminating information & outcomes**

*Objective A. Develop messaging campaigns to increase reach of information gathered and written for Goals 1-3.*

While a unified approach for disseminating information still needs to be developed, active members in the community are moving forward with authoring articles and presenting at workshops (described above).

## **7. Actions**

The TSCOM is requested to:

- a. **Note** the contents of this report;
- b. **Endorse** the proposed *A GEBCO Community Vision for Improving the Availability, Discoverability & Accessibility of Bathymetric Data* action plan and;
- c. **Take** any other action deemed appropriate.