



17th Conference of the EAthC /  
*17<sup>ème</sup> Conférence de la CHAtO*

**Crowdsourced Bathymetry**

**Portuguese Hydrographic Office**

**Agenda Item 03.4A**



IHO

# Agenda

International  
Hydrographic  
Organization

1

**Project background**

2

Data collection and management

3

Contribute and get involved

4

Actions requested from EAtHC17





IHO

## 1. Project background

### 1.1. What is Crowdsourced Bathymetry?

- ➔ In **2014**, the IHO initiated a collaborative project to encourage mariners to **collect bathymetric data** (crowdsourced bathymetry (CSB)).
- ➔ CSB is the **collection and sharing of depth measurements** from vessels, using **standard navigation instruments**, while engaged in **routine maritime operations**.
- ➔ It is a major **contribution** for ocean mapping.

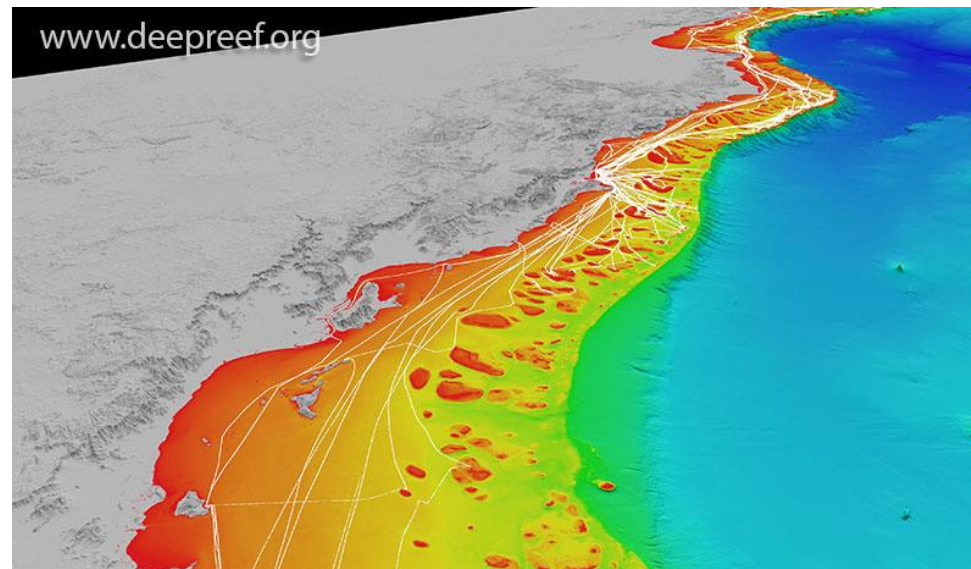


IHO

## 1. Project background

### 1.2. Why is Crowdsourced Bathymetry important?

- ➔ Data with scientific, commercial & research value at no cost to the public sector
- ➔ Fill gaps where data is scarce (eg: Arctic, SIDS)
- ➔ Useful along shallow, complex coastlines
- ➔ Identify uncharted features
- ➔ Assist in verifying charted information
- ➔ Confirm whether charts are appropriate for the latest traffic patterns.



*3D view of northern Great Barrier Reef showing all vessel tracks as of December 2019*



IHO

# 1. Project background

## 1.3. CSB Working Group

International  
Hydrographic  
Organization

### ➔ Last meeting (CSBWG12):

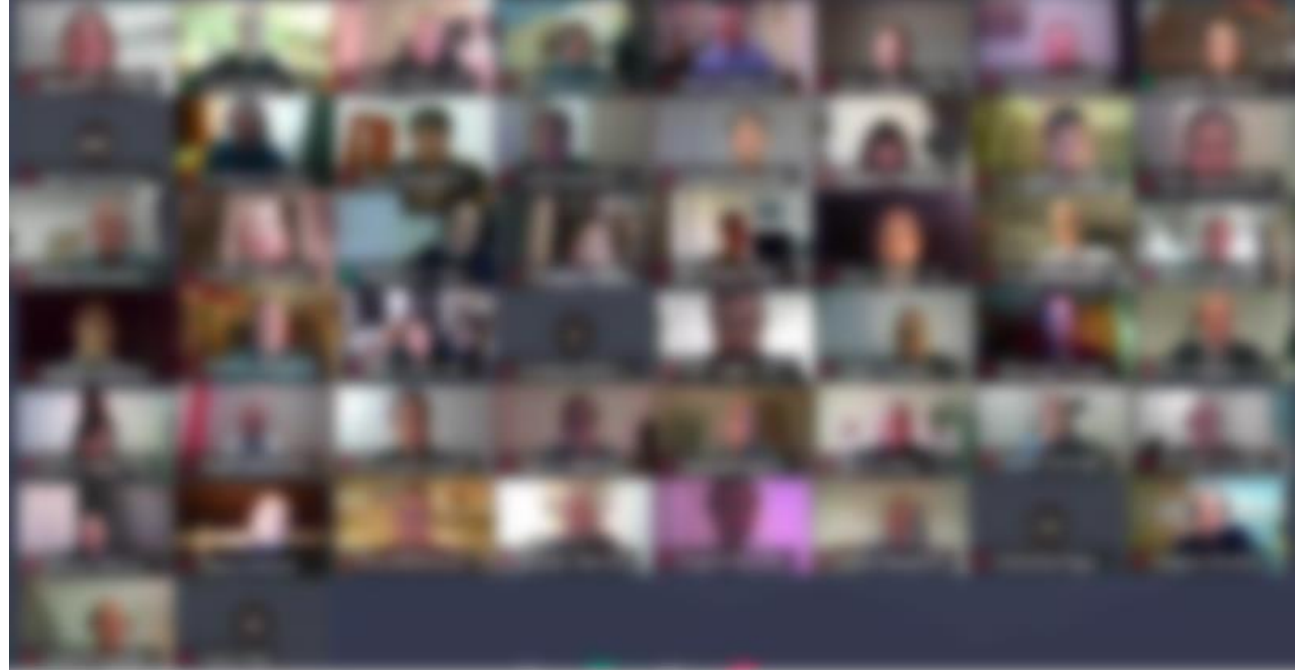
- 7 – 10 Mar 2022 (VTC);

### ➔ Composition:

- Representatives of member states: 18;  
(EAtHC: France, Portugal, UK, USA)
- Expert contributors: 22.

### ➔ Next meeting (CSBWG13):

- 10 – 12 Jan 2023 – USA.





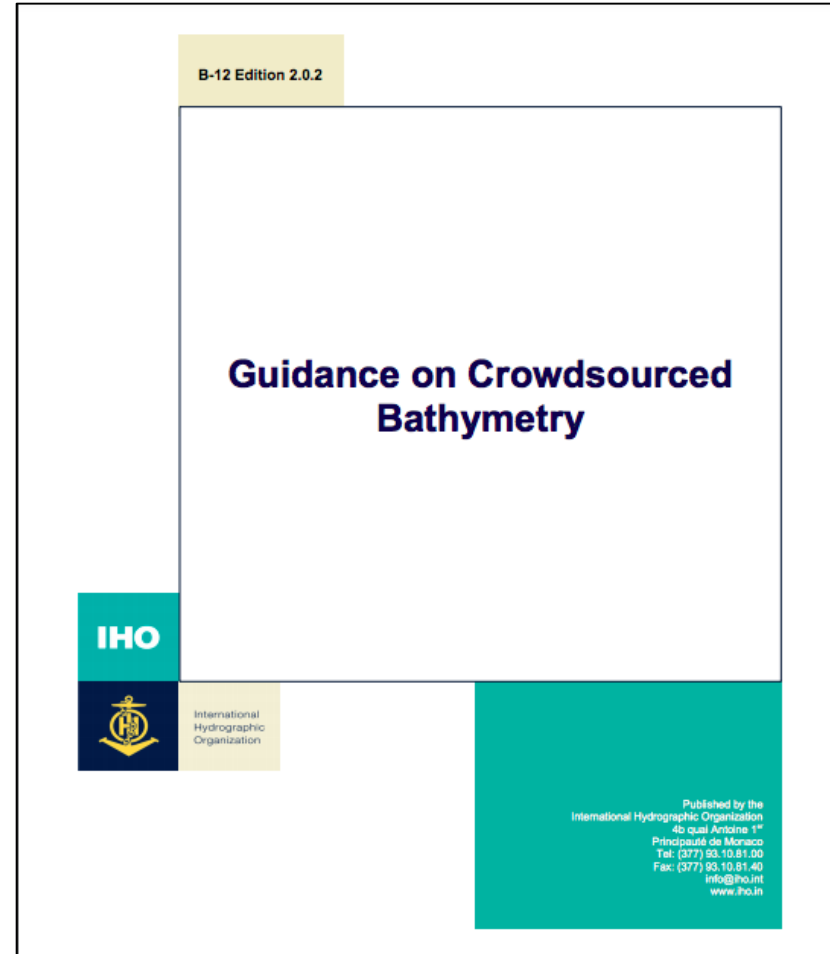
IHO

# 1. Project background

## 1.4. Publication B-12

International  
Hydrographic  
Organization

- ➔ States the **IHO policy and best practices** for the collection and contribution of CSB.
- ➔ Edition 2.0.0 was published in **2019**.





IHO

# 1. Project background

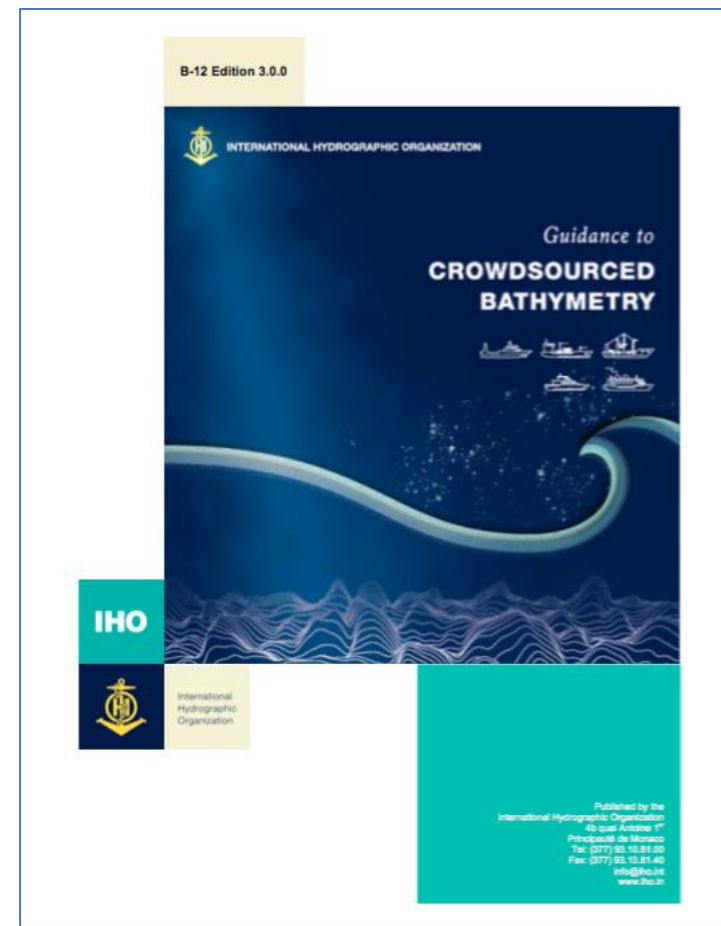
## 1.4. Publication B-12 – Update

➔ **CL 25/2022** requests **approval** of B-12 IHO Guidance on Crowdsourced Bathymetry **Edition 3.0.0**.

➔ Responses due no later than **October 1<sup>st</sup>, 2022**.

### ➔ Updates

- Incorporating feedback from operational use and experience;
- Making the document more "equipment agnostic";
- Simplifying the document;
- Making it more accessible to ALL readers  
(data collectors, providers and users).





IHO

## Agenda

International  
Hydrographic  
Organization

1

Project background

2

**Data collection and management**

3

Contribute and get involved

4

Actions requested from EAtHC17







IHO

## 2. Data collection and management

### 2.1. IHO CL 21/2020 & IRCC CL 01/2020

- ➔ All coastal states are requested to indicate their position on the provision of CSB data from ships within waters subject to their jurisdiction into the public domain as well as
- ➔ To date, 32 coastal States have replied positively.
- ➔ **EAtHC:** Cameroon, Portugal, USA.



[https://iho.int/uploads/user/Inter-Regional%20Coordination/CSBWG/MISC/B-12\\_2020\\_EN\\_Acceptance\\_of\\_CSB\\_Data\\_in\\_NWJ\\_v3.0.pdf](https://iho.int/uploads/user/Inter-Regional%20Coordination/CSBWG/MISC/B-12_2020_EN_Acceptance_of_CSB_Data_in_NWJ_v3.0.pdf)



IHO

## 2. Data collection and management

### 2.1. IHO CL 21/2020 & IRCC CL 01/2020

International  
Hydrographic  
Organization

#### ➔ IHO CL 21/2020:

- Member states are requested to indicate their position on the provision of CSB data.
- Review the CL and answer the questionnaire.
- [https://iho.int/uploads/user/circular\\_letters/eng\\_2020/CL21\\_2020\\_EN\\_v1.pdf](https://iho.int/uploads/user/circular_letters/eng_2020/CL21_2020_EN_v1.pdf)

#### ➔ IRCC CL 01/2020:

- Member states are requested to indicate their position on the provision of CSB data.
- Review the CL and answer the questionnaire.
- [https://iho.int/uploads/user/Inter-Regional%20Coordination/IRCC/IRCC Letters/IRCC Letter 2020 01 CSB Activities.pdf](https://iho.int/uploads/user/Inter-Regional%20Coordination/IRCC/IRCC_Letters/IRCC_Letter_2020_01_CSB_Activities.pdf)



IHO

## 2. Data collection and management

### 2.1. IHO CL 21/2020 & IRCC CL 01/2020

International  
Hydrographic  
Organization

#### ➔ Questionnaire:

- Do you support or object to the CSB data provision for depth measurements from the internal waters, territorial sea, or EEZ of your country?
- Do you wish to be informed when such information is received by the IHO DCDB?
- Do you wish to review such information before its ingestion into the IHO DCDB?
- Do you wish for the opportunity to put caveats on the further dissemination of such data?

Enclosure to IHO CL 21/2020  
IHO File S3/2649

#### CROWDSOURCED BATHYMETRY DATA PROVISION – COASTAL STATE POSITION FOR WATERS SUBJECT TO THEIR NATIONAL JURISDICTION

##### TEMPLATE FORM

(to be returned to the IHO Secretariat **no later than 4 September 2020**)

E-mail: [cl-ic@iho.int](mailto:cl-ic@iho.int) - Fax: +377 93 10 81 40)

##### **IHO clarification on Crowdsourced Bathymetry Activity**

For the purpose of this Circular Letter, the following terms have the specified meanings:

Bathymetry is the determination of ocean, coastal, and inland water depths. The general configuration of sea floor as determined by profile analysis of depth data.

Crowdsourcing is a process by which people and/or groups voluntarily submit observations, data, or information to accomplish a task or goal.

Crowdsourced bathymetry is defined by the IHO as the collection of depth measurements from vessels, using standard navigation instruments, while engaged in routine maritime operations.

Crowdsourced bathymetry data provision is the transmission to the IHO Data Centre for Digital Bathymetry for ingestion, aggregation, categorization, and public dissemination of depth measurements made by vessels, using standard navigation instruments, while engaged in routine maritime operations.

IHO Data Centre for Digital Bathymetry (DCDB) was established in 1990 to steward the worldwide repository of bathymetric data. The Centre archives and shares, freely and without restrictions, depth data contributed by mariners. The IHO DCDB is an IHO resource that is hosted by the U.S. National Oceanic and Atmospheric Administration (NOAA) on behalf of IHO Member States.

Internal Waters, Territorial Sea, and Exclusive Economic Zone have the same meanings as are given those terms under the 1982 UN Convention on the Law of the Sea.

##### Questions:

- 1) Do you support or object to the crowdsourced bathymetry data provision for depth measurements from the internal waters of your country?

SUPPORT

OBJECT

CAVEAT:

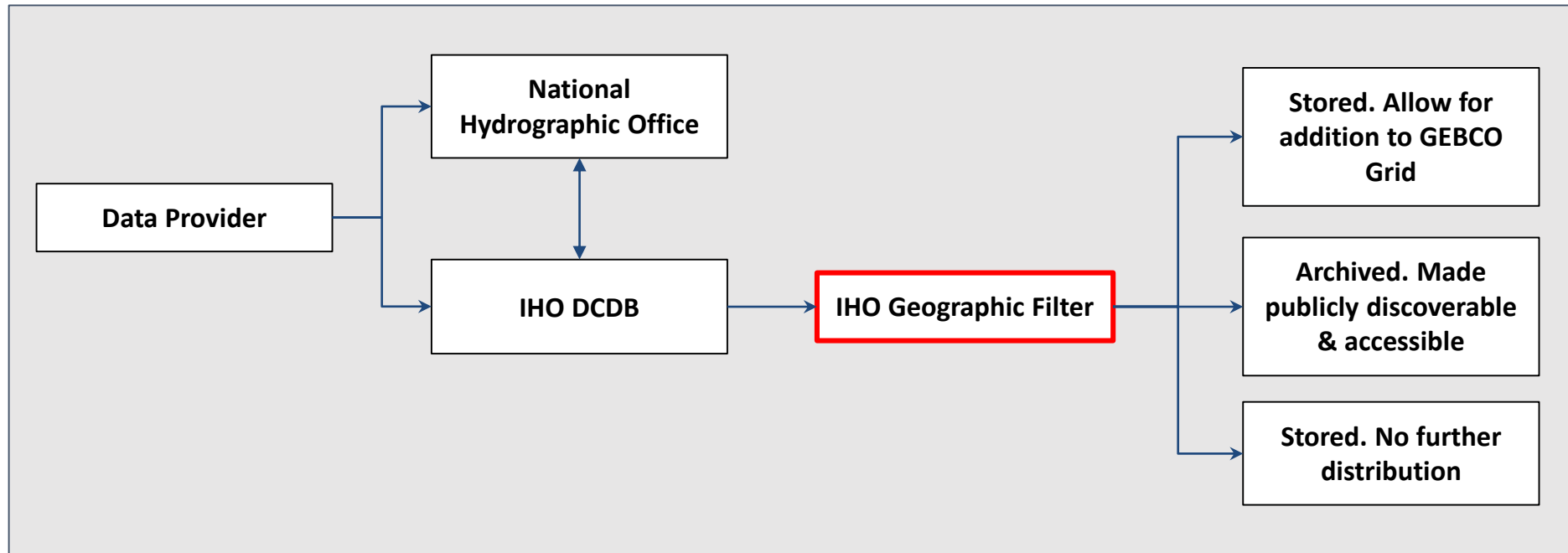


IHO

## 2. Data collection and management

### 2.2. Geographic Filter

- ➔ IHO Data Centre for Digital Bathymetry (DCDB) implemented a geographic filter for incoming data, to take into account the positions of coastal states on the distribution of CSB collected in their areas of jurisdiction.



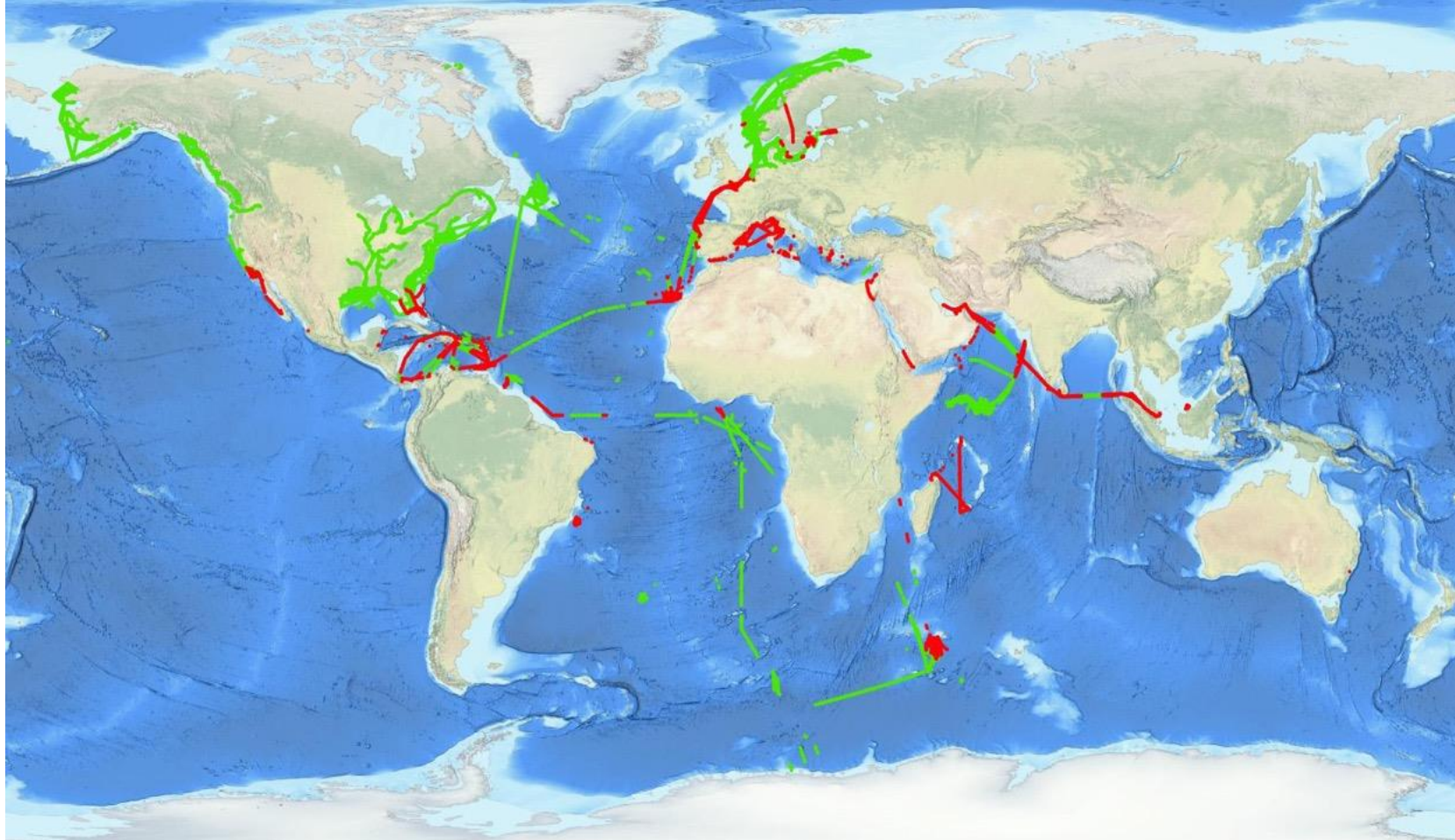


IHO

## 2. Data collection and management

### 2.2. Geographic Filter

➔ Data waiting for CL responses...





## 2. Data collection and management

### 2.2. Geographic Filter

- ➔ Automating the notification and approval process of data for coastal states who have provided positive responses but request pre-approval of data before the public distribution from DCDB.

The screenshot shows a web application interface for data management. At the top, there is a navigation bar with 'Home' and 'Manage' links, and a user profile for 'Chris Slater' with a 'Log Out' button. The main area is divided into a left sidebar with search options and a central map. The map displays a globe with various colored regions, and a 'French Exclusive Economic Zone' is highlighted in pink. A data table is overlaid on the map, showing details for the selected zone. Below the map, there is a table of data records with columns for Trace Id, Publish, External Id, Provider, Platform, Instrument, Start Time, End Time, File Name, File Size, and Last Updated.

Trace Id	Publish	External Id	Provider	Platform	Instrument	Start Time	End Time	File Name	File Size	Last Updated
000033e4-759c-4591-af98-04c29f6b967b	true	MACGR-9221566-AIDAAURA-oyHjp011	MacGregor	Anonymous		2020-03-28T03:08:33Z	2020-03-28T03:10:16Z	20220322085844674039_9221566-AIDAAURA-oyHjp011.tar.gz	965	2022-03-28T21:17:48.738516Z
000042ca-d435-4d84-aaa4-ec04163d4dc2	true	MACGR-9221566-AIDAAURA-oyHjp011	MacGregor	Anonymous		2020-04-29T03:00:32Z	2020-04-29T03:02:36Z	20220322083434750180_9221566-AIDAAURA-oyHjp011.tar.gz	798	2022-03-28T15:16:03.354039Z



IHO

## Agenda

International  
Hydrographic  
Organization

1

Project background

2

Data collection and management

3

**Contribute and get involved**

4

Actions requested from EAtHC17



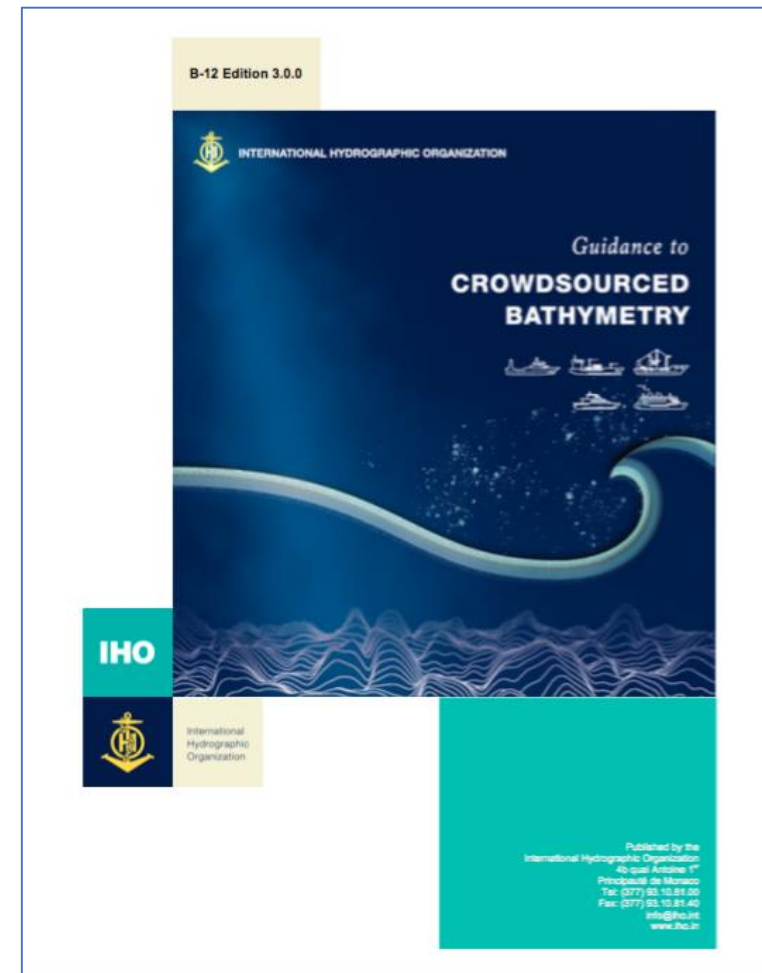


IHO

### 3. Contribute and get involved

#### 3.1. How mariners can collect and contribute?

- ➔ DCDB accepts CSB contributions through a network of “Trusted Nodes”:
  - Eg: organizations, companies or universities serving as data liaisons between mariners (data collectors) and the DCDB;
  - Trusted Nodes may supply data logging equipment, provide technical support to vessels, download data from data loggers, and be responsible for data transfer directly to the DCDB.
  
- ➔ CSB data must be provided in either CSV or GeoJSON, and capture the minimum required information (XYZ, timestamp).







IHO

### 3. Contribute and get involved

#### 3.2. Examples of CSB Trusted Nodes

##### ➔ Rose Point Navigation System

- Mariners can enable their electronic charting system log file to record *position, depth, and time*.

##### ➔ Navico C-MAP

- New CSB feed b/w DCDB & navigation software company.

##### ➔ MacGregor/Carnival Cruise Line

- Data provided by Voyage Data Recorders (VDR)

##### ➔ Petroleum Geo-Services (PGS)

- Data feed from PGS vessels to the DCDB

##### ➔ M2Ocean

- Testing data submissions with data collected by Hydroballs (small autonomous bathymetric buoys)

##### ➔ James Cook University

- Distributed data loggers to volunteer vessels along the Great Barrier Reef





IHO

## 3. Contribute and get involved

### 3.3. How to become involved?

- ➔ Offer a positive response to the IHO or IRCC Circular Letters.
- ➔ Consider joining and/or attending the CSBWG – **it is open to all.**
- ➔ Encourage local participation in CSB collection and sharing.
- ➔ Volunteer to become the next Seabed 2030-funded CSB Program.



IHO

## Agenda

International  
Hydrographic  
Organization

1

Project background

2

Data collection and management

3

Contribute and get involved

4

**Actions requested from EAtHC17**





IHO

## 4. Actions requested from EAtHC17

International  
Hydrographic  
Organization

### → EAtHC is invited to:

1. Take note of the presentation.
2. Actions related with CSB will be addressed in MSDI presentation.

Thank you for your attention