Home Products Services Resources News Contact About

Search NCEI

Home / IHO Data Centre for Digital Bathymetry (DCDB)

IHO Data Centre for Digital Bathymetry (DCDB)

John Cartwright*
Geospatial Architect
john.cartwright@noaa.gov

Jennifer Jencks
DCDB Director
jennifer.jencks@noaa.gov

Clint Campbell*
CSB Technical Lead
clinton.campbell@noaa.gov

Payton Cain*
Software Developer
payton.cain@noaa.gov

IHO CSBWG16
26-28 March 2025
Wellington, New Zealand

**CIRES in support of NOAA*

IHO

International Hydrographic Organization

Today's Talk

The Role of the DCDB

Data Providers and Metrics

Recent Improvements

Ongoing and Planned Enhancements

ncei.noaa.gov/iho-data-centre-digital-bathymetry

IHO International Hydrographic Organization

Search NCEI

Home Products Services Resources News Contact About

Home / IHO Data Centre for Digital Bathymetry (DCDB)

IHO Data Centre for Digital Bathymetry (DCDB)

The International Hydrographic Organization (IHO) Data Centre for Digital Bathymetry (DCDB) was established in 1990 to steward the global collection of bathymetric data. The Centre archives and shares, freely and without restrictions, depth data contributed by mariners and other stakeholders consistent with IHO direction and guidance. The IHO DCDB is hosted by the U.S. National Oceanic and Atmospheric Administration (NOAA) on behalf of the IHO Member States.

The DCDB archive includes over 70 terabytes (uncompressed) of oceanic depth soundings acquired with multibeam and single beam sonars by hydrographic, oceanographic and industry vessels during surveys or while on passage.

25% of the deep ocean floor has been mapped with direct measurement and approximately 50% of the world's coastal waters remain unsurveyed. (Source: GEBCO)

About Multi/Singlebeam Bathymetry Crowdsourced Bathymetry

International Hydrographic Organization

About | Multi/Singlebeam Bathymetry | Crowdsourced Bathymetry

IHO Crowdsourced Bathymetry Initiative

The IHO defines crowdsourced bathymetry (CSB) as depth measurements collected and contributed by vessels, using standard navigation instruments, while engaged in routine maritime operations.

In 2014, the IHO recognized that trad
there was a need to encourage and s
enable mariners and professionally
collected on vessels with common c
supplement the more rigorous and s
world.

Contribute CSB Data

Access CSB Data

IHO Guidance on

The IHO's Crowdsourced Bathymetr
hydrographic experts, was tasked by
data loggers, preferred data formats

The guidance document also provid
uncertainty and accuracy issues with crowdsourced bathymetry.

B-12 Edition 3.0 IHO Guidance Document on Crowdsourced Bathymetry

Contribute CSB Data

The DCDB accepts CSB contributions through a network of "Trusted Nodes," which may be 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, or 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). The IHO DCDB intends to publicly release the Trusted Node's data in its original form under the CC0 public domain dedication via the IHO DCDB Viewer.

The following documents clarify some aspects on CSB related to the submission of data to IHO DCDB:

- IHO CSB Trusted Node Agreement Form Template
- Guidance for Submitting CSB Data to the IHO DCDB
- Sample CSB File Formats
- Example CSB GeoJSON file

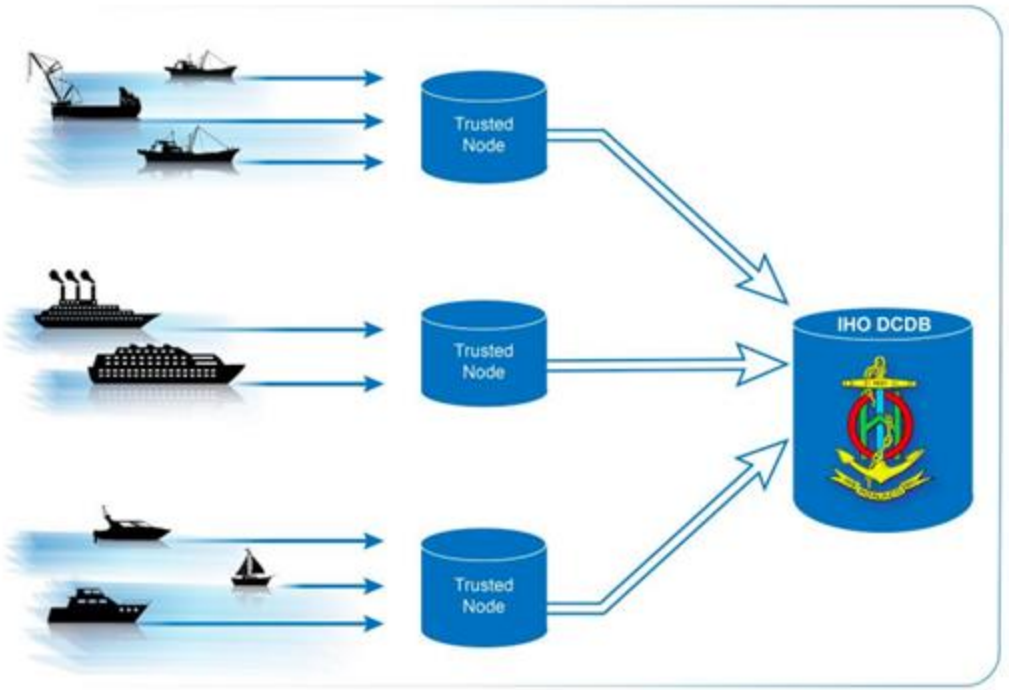
Those interested in contributing data or becoming a Trusted Node should contact the DCDB at bathydata@iho.int .

The collection of crowdsourced bathymetry information contributions is authorized under the OMB Control Number included in the Paperwork Reduction Act and Privacy Act statements.

ncei.noaa.gov/iho-data-centre-digital-bathymetry

CSB Data Flow (Ideal Scenario)

The DCDB accepts CSB contributions through a network of "**Trusted Nodes**"



CSB Data Flow (Ideal Scenario)

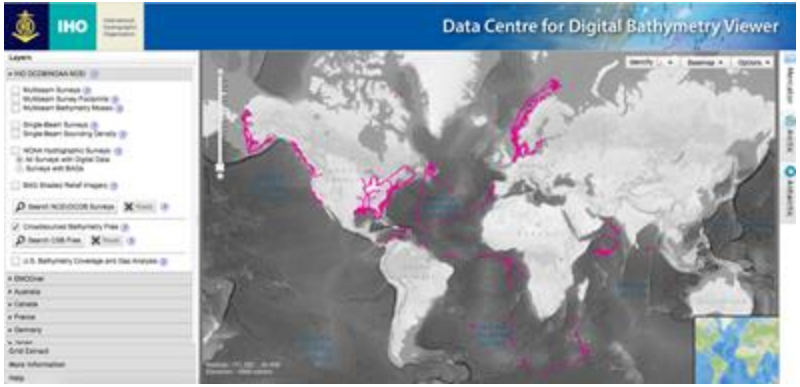

```
{
    "crs": {
        "horizontal": {
            "type": "EPSG",
            "value": 4326
        },
        "vertical": "Transducer"
    },
    "providerContactPoint": {
        "orgName": "Example Cruises Inc",
        "email": "support@example.com",
        "logger": "Rose Point ECS",
        "loggerVersion": "1.0"
    },
    "convention": "XYZ CSB 3.0",
    "dataLicense": "CC0 1.0",
    "platform": {
        "uniqueID": "EXAMPLE-f8c469f8-df38-11e5-b86d-9a79f06e9478",
        "correctors": {
            "positionReferencePoint": "GNSS"
        }
    }
}
```


CSB data log file (with JSON metadata string)


```
                                                    2020-02-25T01:08:06Z
                                                    2020-02-25T01:08:07Z
68.498965, 15.832905, 61.3, 2020-02-25T01:08:11Z
68.498965, 15.832905, 61.3, 2020-02-25T01:08:11Z
68.498655, 15.833184, 61.3, 2020-02-25T01:08:15Z
68.498592, 15.833239, 61.3, 2020-02-25T01:08:16Z
68.498213, 15.833567, 55.3, 2020-02-25T01:08:23Z
68.49815, 15.833622, 55.3, 2020-02-25T01:08:24Z
68.49815, 15.833622, 55.3, 2020-02-25T01:08:24Z
68.497713, 15.83401, 54.3, 2020-02-25T01:08:30Z
68.497399, 15.834287, 53.3, 2020-02-25T01:08:35Z
68.497399, 15.834287, 53.3, 2020-02-25T01:08:36Z
68.497336, 15.834341, 53.3, 2020-02-25T01:08:36Z
68.497147, 15.834506, 59.3, 2020-02-25T01:08:39Z
68.497147, 15.834506, 59.3, 2020-02-25T01:08:40Z
68.497084, 15.83456, 59.3, 2020-02-25T01:08:40Z
68.496959, 15.83467, 59.3, 2020-02-25T01:08:43Z
68.496897, 15.834725, 59.3, 2020-02-25T01:08:44Z
68.496897, 15.834725, 59.3, 2020-02-25T01:08:44Z
68.496708, 15.83489, 54.3, 2020-02-25T01:08:47Z
68.496708, 15.83489, 54.3, 2020-02-25T01:08:47Z
68.496646, 15.834946, 54.3, 2020-02-25T01:08:48Z
68.496457, 15.835112, 49.3, 2020-02-25T01:08:50Z
68.496457, 15.835112, 49.3, 2020-02-25T01:08:51Z
68.496205, 15.835332, 53.3, 2020-02-25T01:08:55Z
68.496143, 15.835387, 53.3, 2020-02-25T01:08:55Z
```


Data and identifying token are submitted to DCDB via HTTPS post

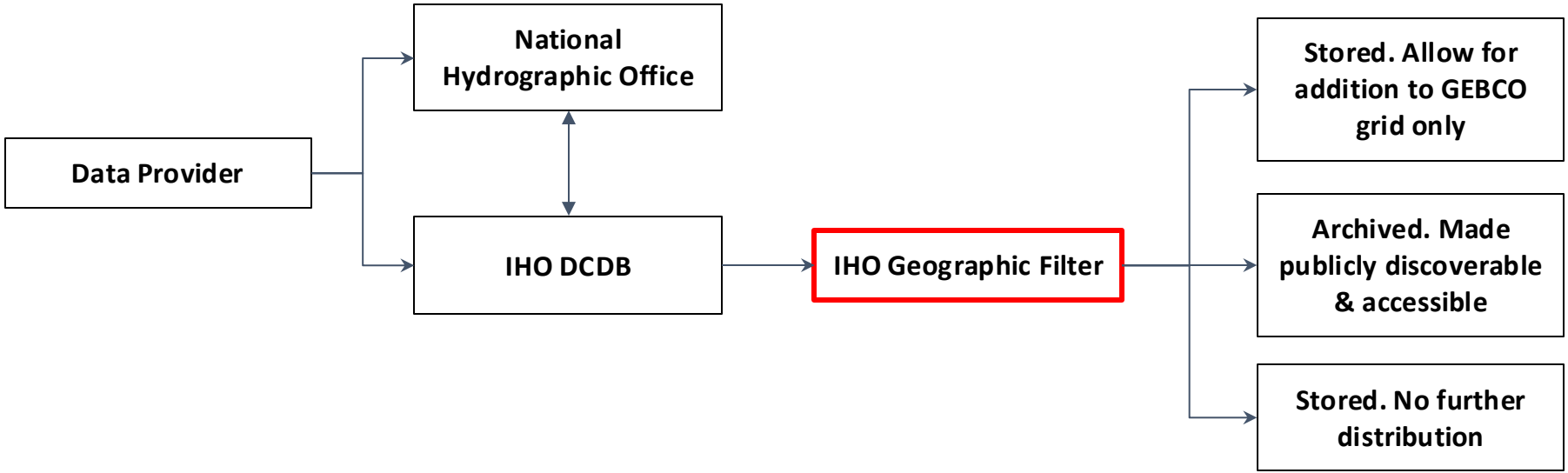
Data discovery and access via map viewer.



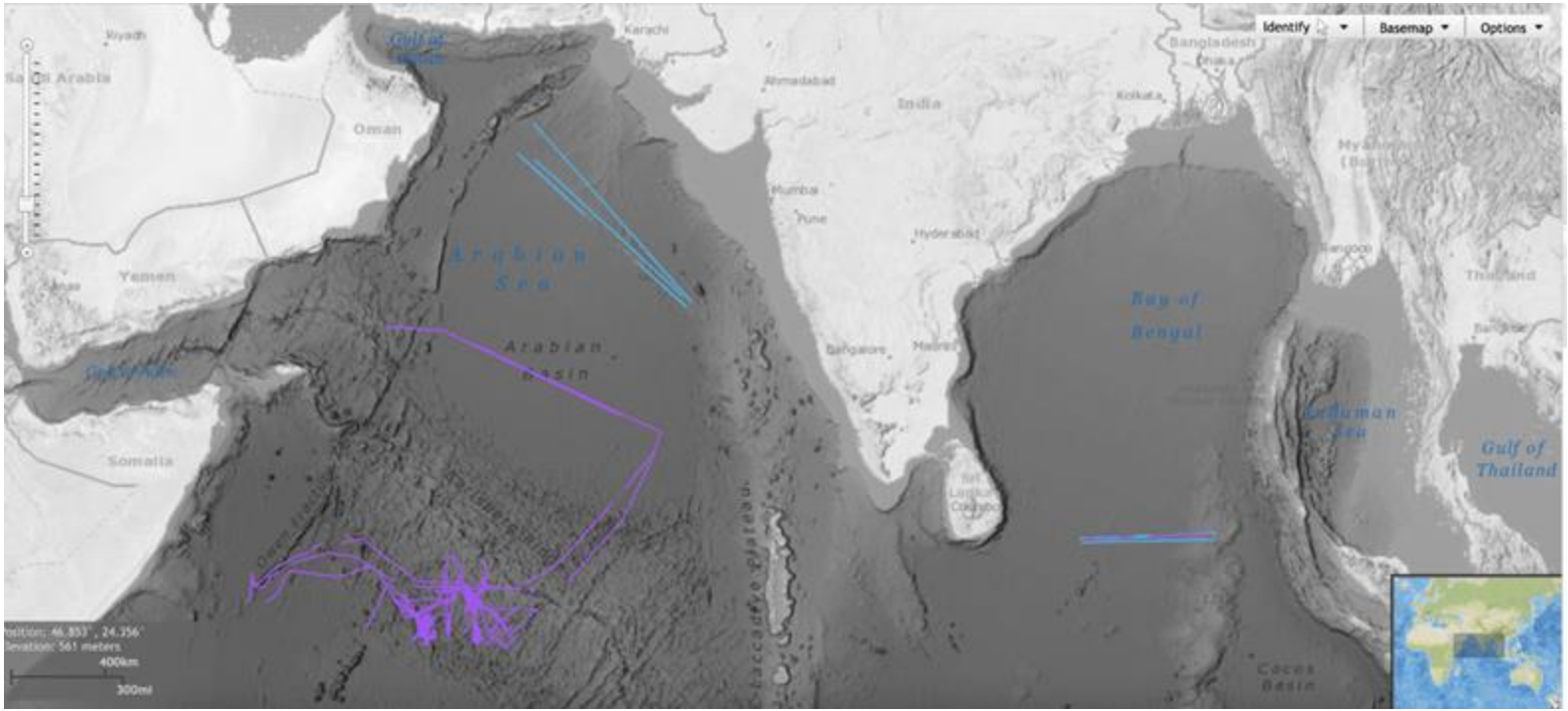
Frequent update of viewer

Geographic Filter

In response to feedback provided to the IHO, the DCDB implemented (and continues to update) a geographic filter for incoming data to take into account coastal countries' positions on the distribution of CSB collected in their areas of jurisdiction.



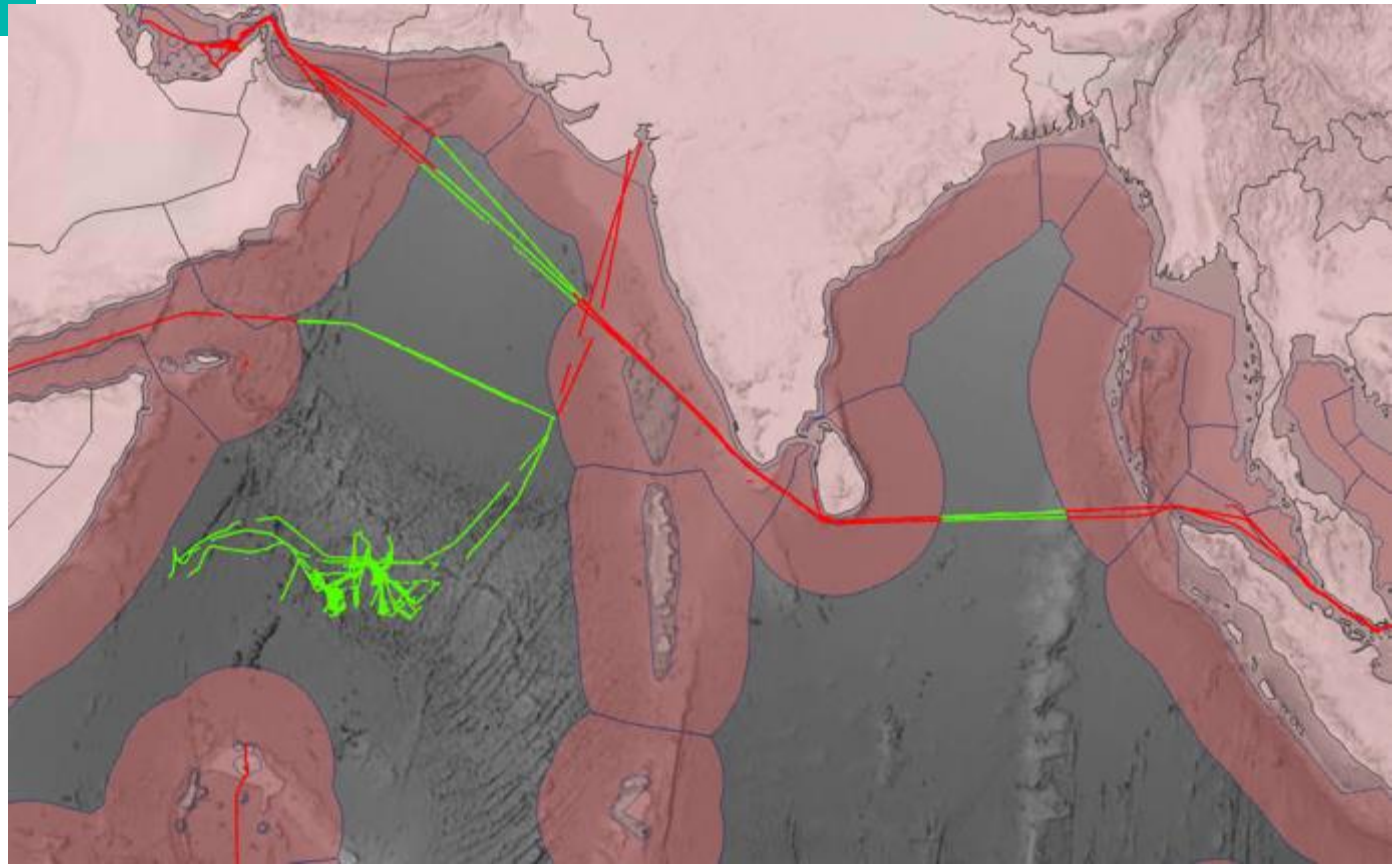
Geographic Filter



IHO

International Hydrographic Organization

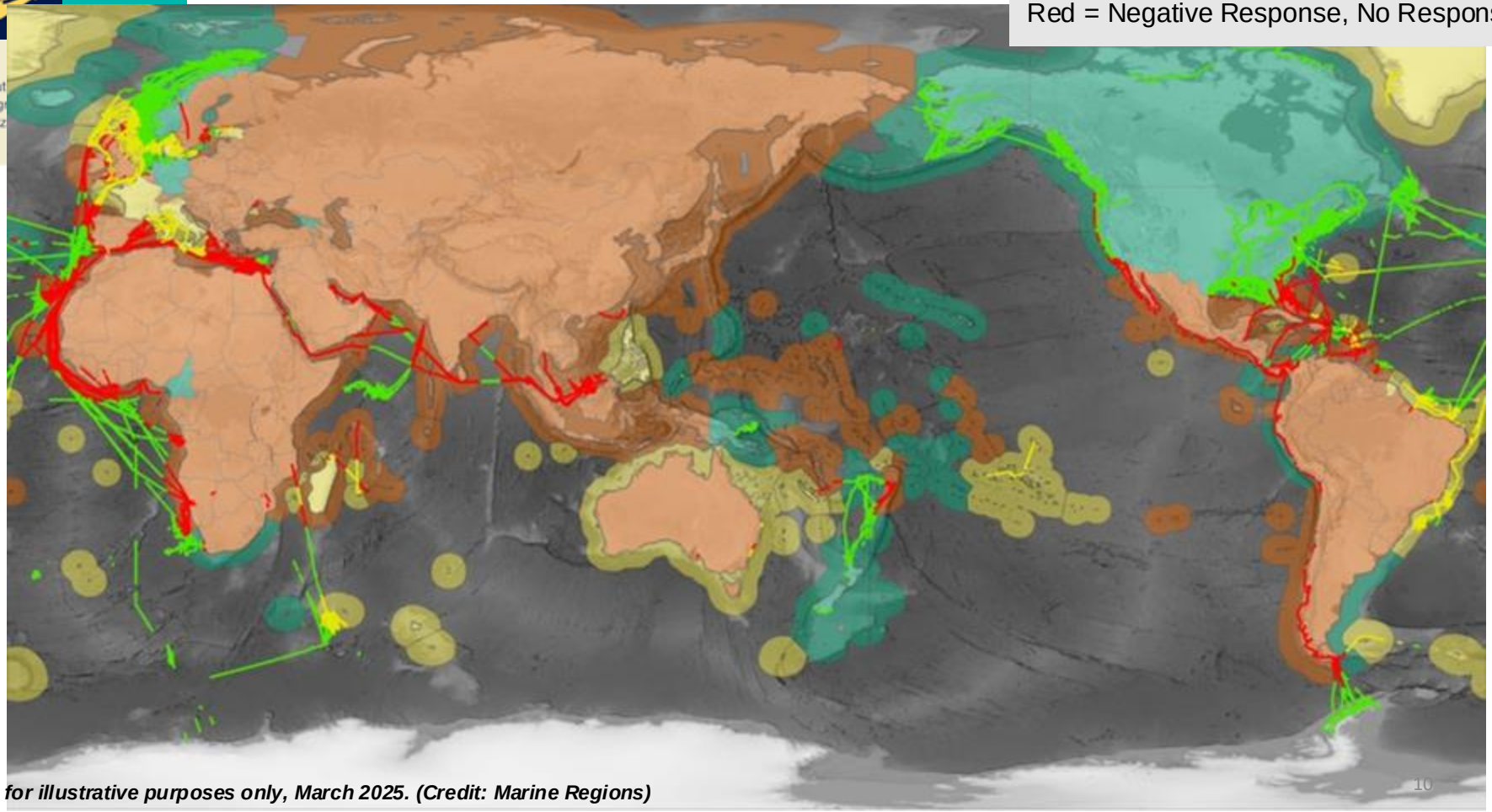
Geographic Filter



Map for illustrative purposes only. (Credit: Marine Regions)

Geographic Filter

Green = Positive Response
Yellow = Positive Response w/ caveats
Red = Negative Response, No Response



Map for illustrative purposes only, March 2025. (Credit: Marine Regions)

International Hydrographic Organization

About Multi/Singleb

IHO Crowdsource

The IHO defines crowdsourced bath
navigation instruments, while enga

In 2014, the IHO recognized that tra
there was a need to encourage and
enable mariners and professionally
collected on vessels with common
supplement the more rigorous and
world.

Contribute CSB Data

Access CSB Data

IHO Guidance on

The IHO's Crowdsourced Bathymet
hydrographic experts, was tasked b
data loggers, preferred data format

The guidance document also provi
uncertainty and accuracy issues wit

B-12 Edition 3.0 IHO Guidance Docu

Contribute CSB Data

Access CSB Data

There are several ways to access CSB data, including:

CSB File Access

Download Comma Seperated Value (CSV) or GeoJSON files, including full metadata as contributed, via the IHO DCDB Viewer or NOAA's Bathymetric Data Viewer. Data is delivered as a gzipped tar file with the contents nested in directories several levels deep.

You can also download CSV files directly from the NOAA Open Data Dissemination Program AWS S3 bucket. Users can review the registry of open data, browse data in the bucket and download individual files, or use standard AWS-provided and third-party S3 tools and SDKs for programmatic access. The files are organized by date and are as provided by the Trusted Nodes.

Note: *CSV files downloaded from the S3 bucket contain the following attributes:*

- *unique_id*
- *file_uuid*
- *lon*
- *lat*
- *depth*
- *time*
- *platform name*
- *provider*

The metadata record can be accessed separately from the Crowbar API (described below).

CSB Soundings Access

Use the CSB Data Extract API to download soundings from a virtual seamless collection. You can call the API directly, or use the DCDB map viewer for a more human-friendly experience. Soundings are in CSV format with attributes including location, depth, time, platform name, and unique file identifier. Gridded soundings are also available by request at a specified resolution.

The Crowbar API is a RESTful API that can query for sounding metadata. To test queries, follow the link and select 'Search API' under 'Select a definition'.

See Crowdsourced Bathymetry Frequently Asked Questions for additional information.

al-
bathymetry

IHO

International Hydrographic Organization

Access CSB Data

There are several ways to access CSB data, including:

CSB File Access

Download Comma Seperated Value (CSV) or GeoJSON files, including full metadata as contributed, via the IHO DCDB Viewer or NOAA's Bathymetric Data Viewer. Data is delivered as a gzipped tar file with the contents nested in directories several levels deep.

You can also download CSV files directly from the NOAA Open Data Dissemination Program AWS S3 bucket. Users can review the registry of open data, browse data in the bucket and download individual files, or use standard AWS-provided and third-party S3 tools and SDKs for programmatic access. The files are organized by date and are as provided by the Trusted Nodes.

Note: *CSV files downloaded from the S3 bucket contain the following attributes:*

- *unique_id*
- *file_uuid*
- *lon*
- *lat*
- *depth*
- *time*
- *platform name*
- *provider*

The metadata record can be accessed separately from the Crowbar API (described below).

CSB Soundings Access

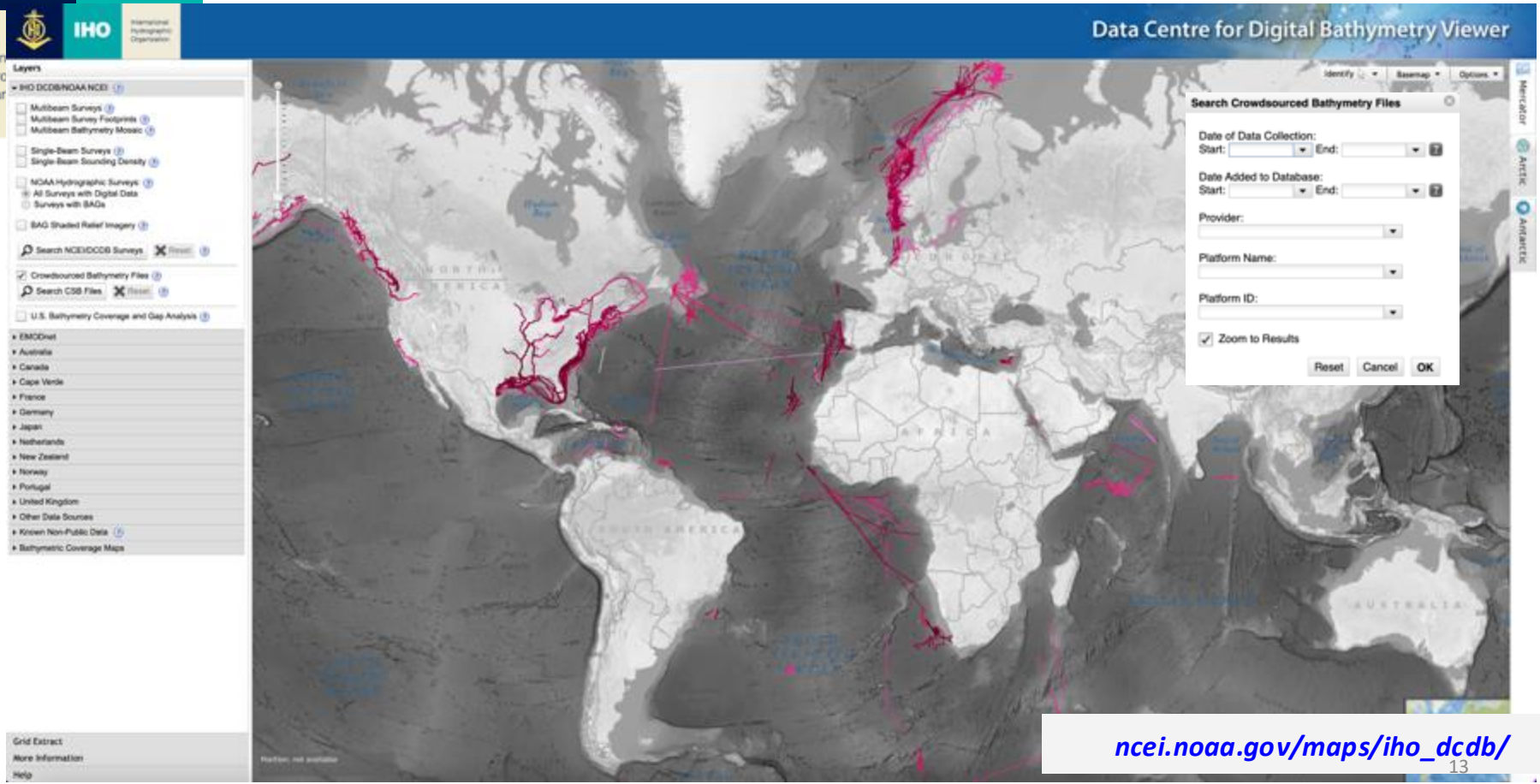
Use the CSB Data Extract API to download soundings from a virtual seamless collection. You can call the API directly, or use the DCDB map viewer for a more human-friendly experience. Soundings are in CSV format with attributes including location, depth, time, platform name, and unique file identifier. Gridded soundings are also available by request at a specified resolution.

The Crowbar API is a RESTful API that can query for sounding metadata. To test queries, follow the link and select 'Search API' under 'Select a definition'.

See Crowdsourced Bathymetry Frequently Asked Questions for additional information.

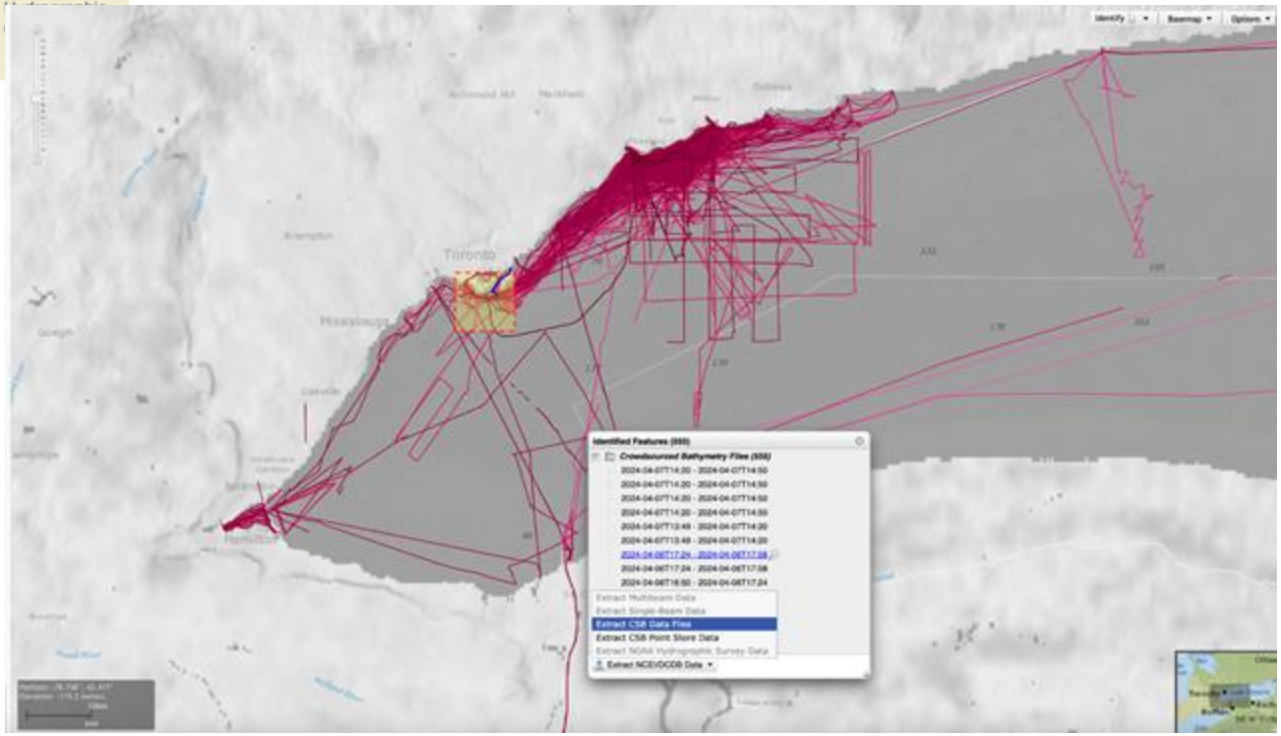
ncei.noaa.gov/iho-data-centre-digital-bathymetry

CSB File Access - Interactive Map/Data Viewer



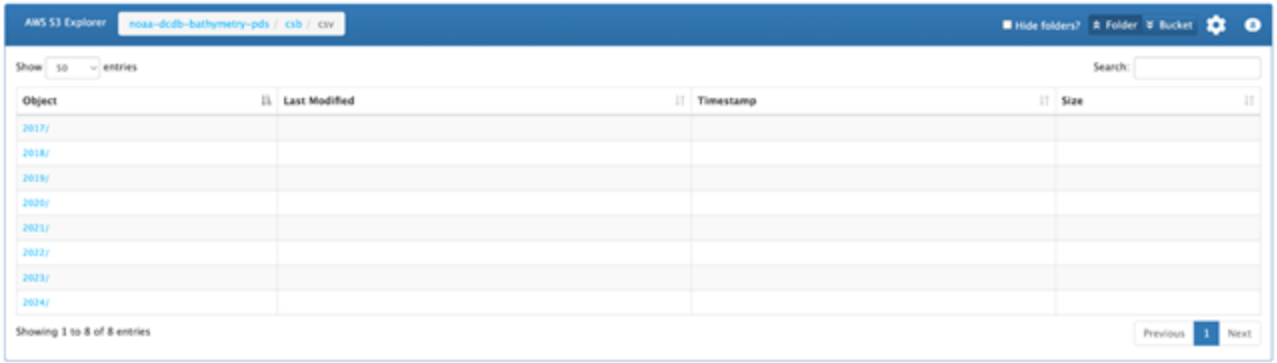
ncei.noaa.gov/maps/iho_dcdb/

CSB File Access - Interactive Map/Data Viewer



- Users provide their email address and receive a link to download the data.
- Download CSV or GeoJSON files, including full metadata as contributed
- The package is delivered as a gzipped tar file with the contents nested in directories several levels deep.

CSB File Access - Cloud Access (S3 Bucket)



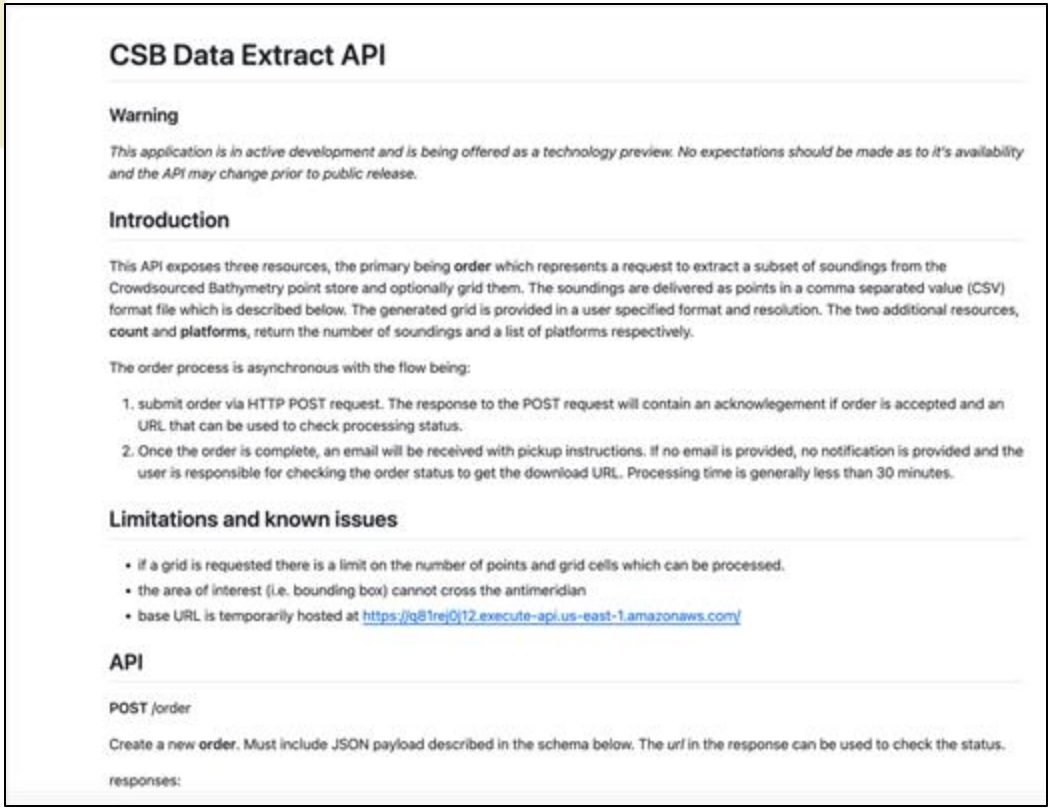
- Download CSV-format files directly from an **AWS S3 bucket.**
- Users can review the registry of open data, browse data in the bucket and download individual files, or use AWS-provided and third-party tools and SDKs for programmatic access.

Note: *CSV files downloaded from the S3 bucket only contain UniqueID, File_UUID, lon, lat, depth, time, platform name, provider attributes - full metadata is not provided.*

noaa-dcdb-bathymetry-pds.s3.amazonaws.com/index.html#csb/csv/

CSB Soundings Access - CSB Data Extract API

International Hydrographic Organization



CSB Data Extract API

Warning

This application is in active development and is being offered as a technology preview. No expectations should be made as to it's availability and the API may change prior to public release.

Introduction

This API exposes three resources, the primary being **order** which represents a request to extract a subset of soundings from the Crowdsourced Bathymetry point store and optionally grid them. The soundings are delivered as points in a comma separated value (CSV) format file which is described below. The generated grid is provided in a user specified format and resolution. The two additional resources, **count** and **platforms**, return the number of soundings and a list of platforms respectively.

The order process is asynchronous with the flow being:

1. submit order via HTTP POST request. The response to the POST request will contain an acknowlegement if order is accepted and an URL that can be used to check processing status.
2. Once the order is complete, an email will be received with pickup instructions. If no email is provided, no notification is provided and the user is responsible for checking the order status to get the download URL. Processing time is generally less than 30 minutes.

Limitations and known issues

- if a grid is requested there is a limit on the number of points and grid cells which can be processed.
- the area of interest (i.e. bounding box) cannot cross the antimeridian
- base URL is temporarily hosted at https://q81rej0j12.execute-api.us-east-1.amazonaws.com/

API

POST /order

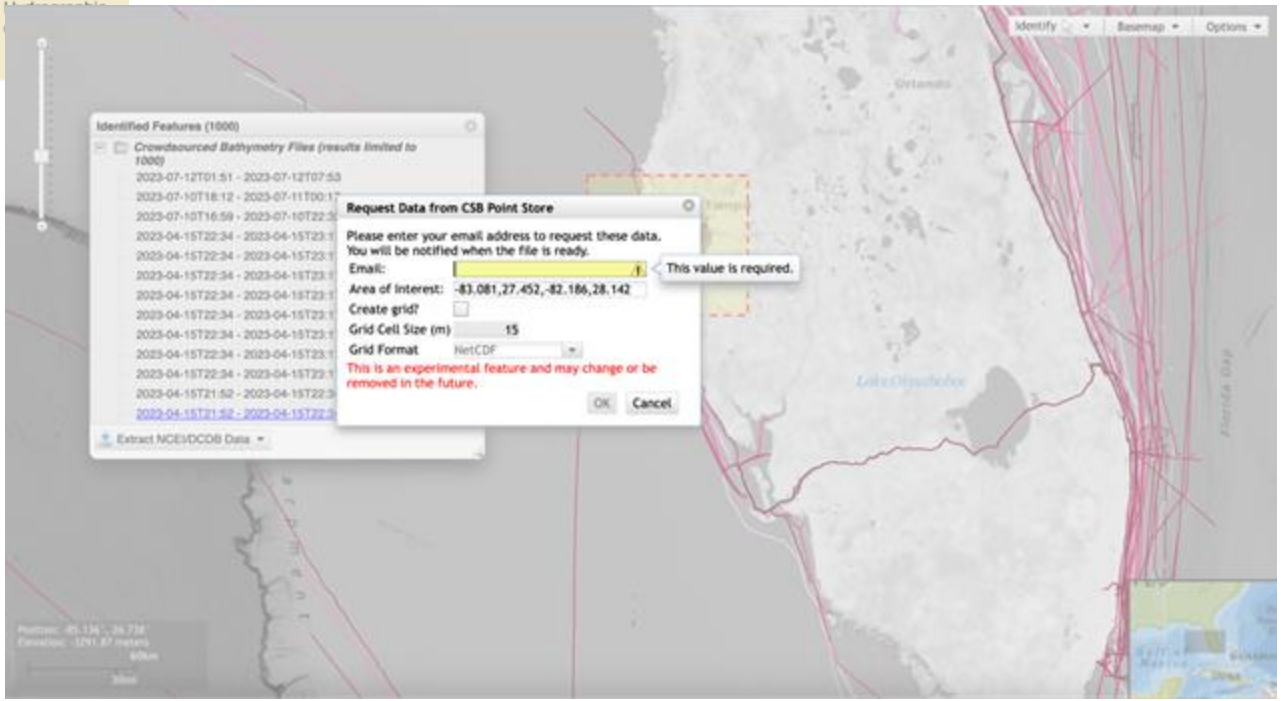
Create a new **order**. Must include JSON payload described in the schema below. The *url* in the response can be used to check the status.

responses:

- Created a cloud-hosted scalable point data store to better handle and store CSB data as a seamless collection of points.
- This point data store can be accessed directly via an API
- Allows for programmatic query and extract from point store

github.com/CI-CMG/pointstore-api-docs/blob/main/pointstore_api.md

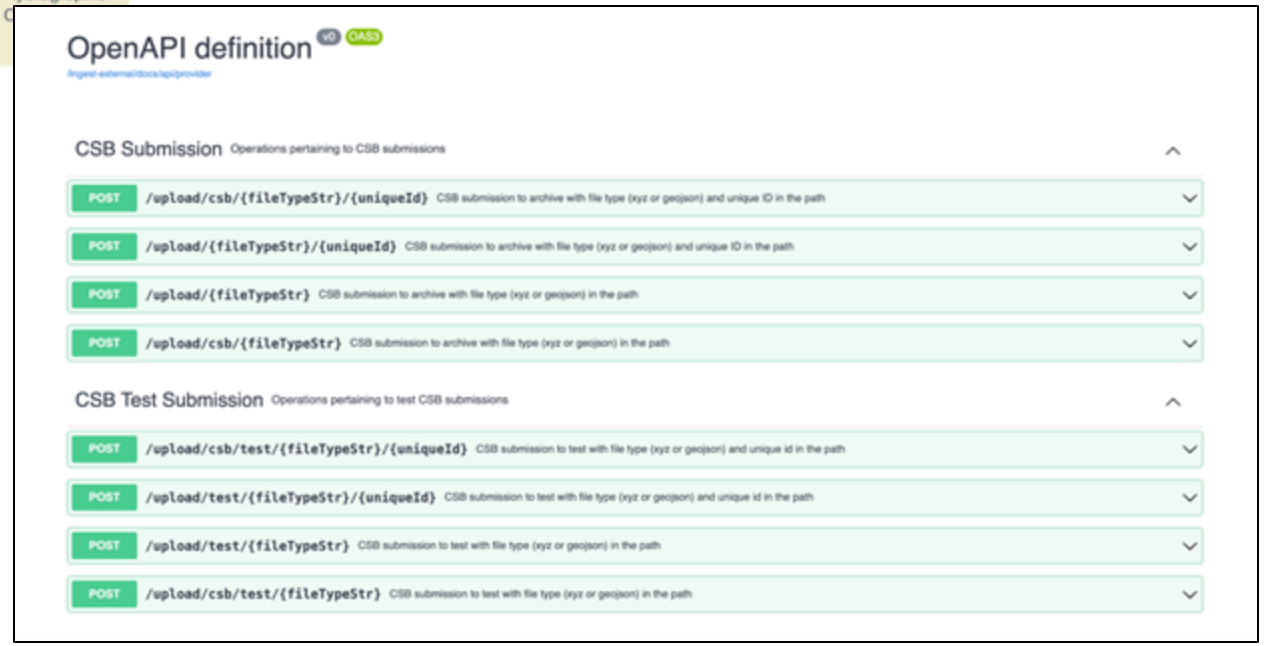
CSB Soundings Access - CSB Data Extract API



- This API can be called by using the **DCDB Map Viewer** for a more human-friendly experience.
- The soundings can be requested as a gridded product with a specified resolution.

ncei.noaa.gov/maps/iho_dcdb/

Crowbar API (New)



- The Crowbar API is a RESTful API that **<u>can query for sounding metadata.</u>**
- To test queries, follow the link and select 'Search API' under 'Select a definition'.

ngdc.noaa.gov/ingest-external/crowbar/view/main/api-docs

Today's Talk

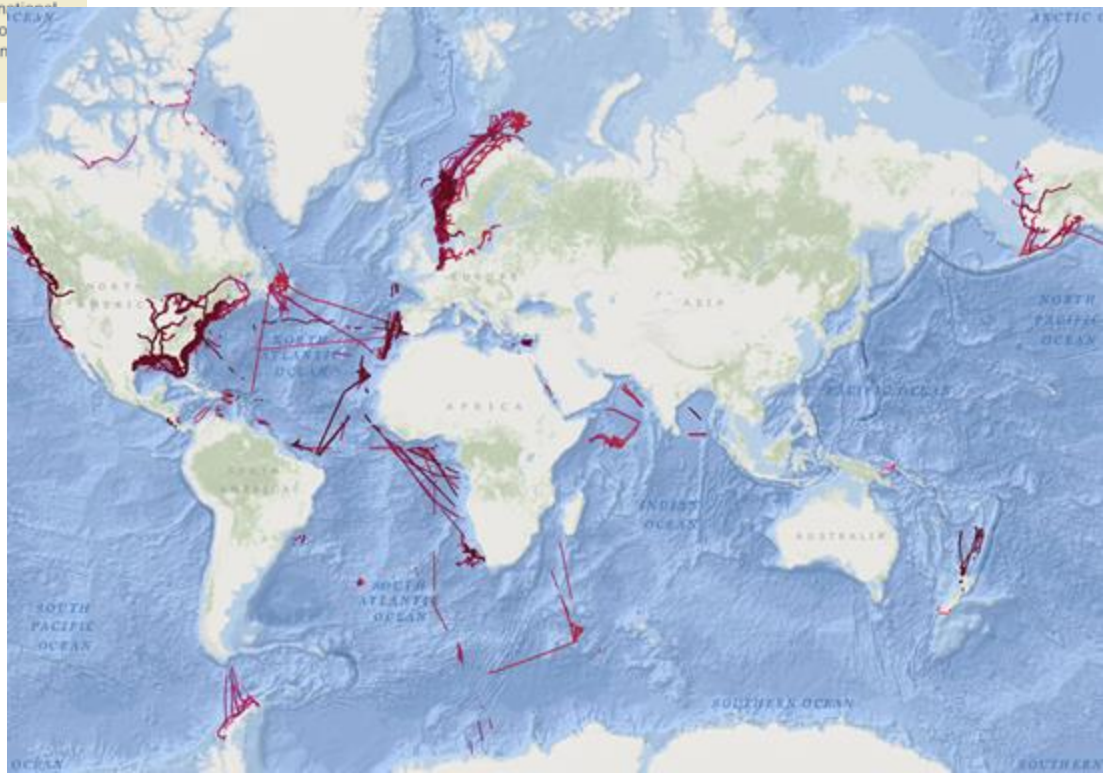
The Role of the DCDB

Data Providers and Metrics

Recent Improvements

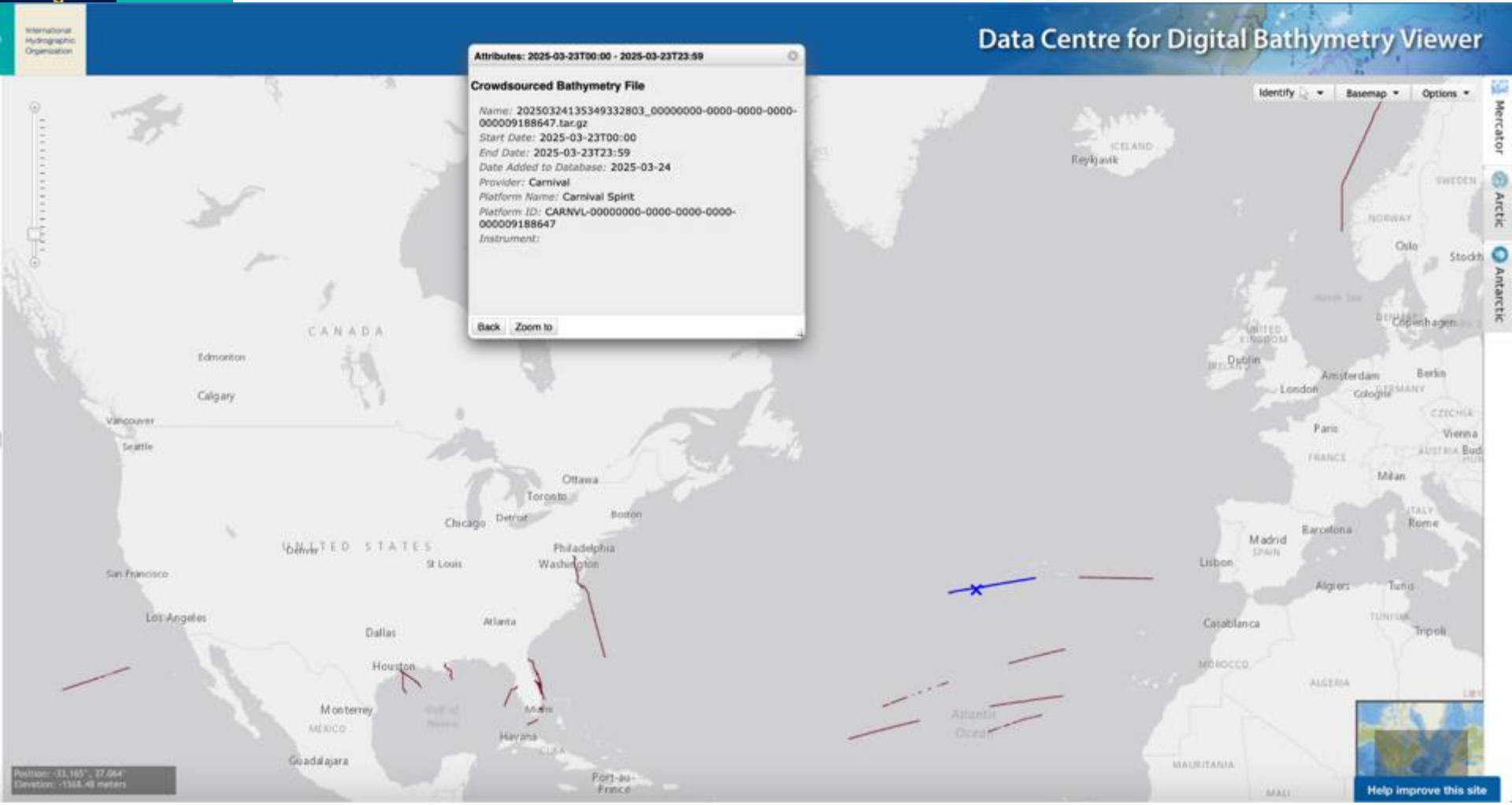
Ongoing and Planned Enhancements

Current Trusted Nodes

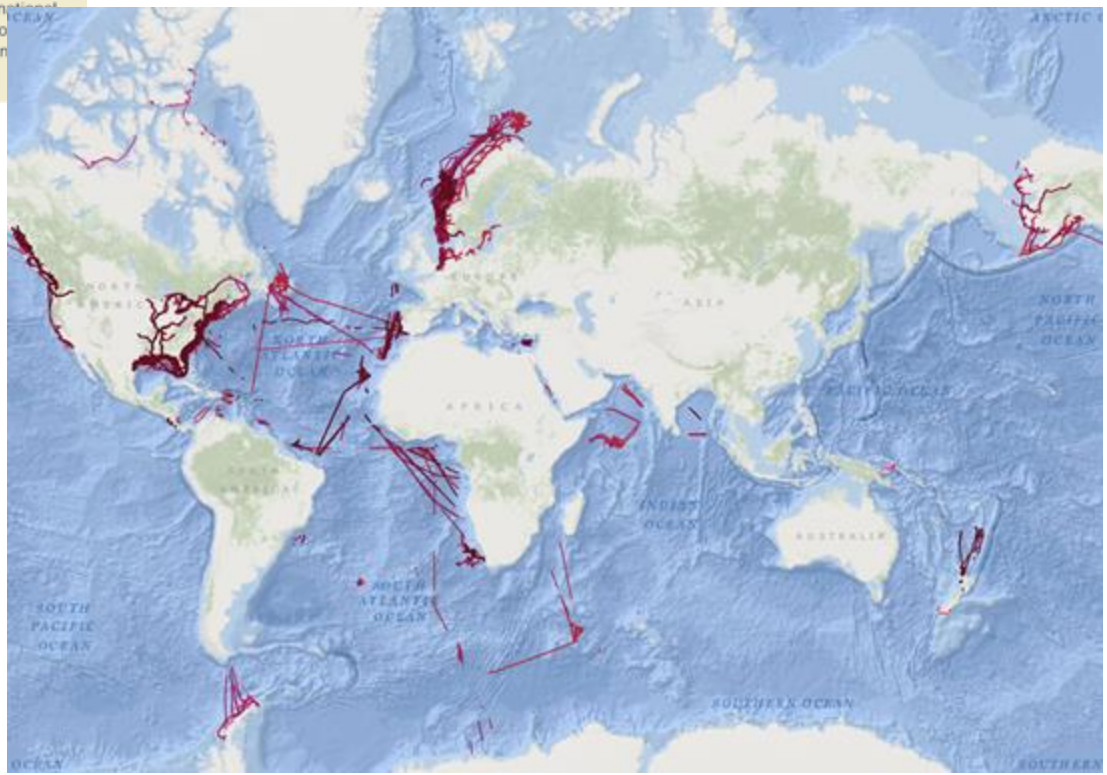


Publicly available data:

- Alcatel Submarine Networks
- AquaMap
- COMIT USF
- FarSounder
- Great Lakes Observing System (GLOS)
- MacGregor Germany
- OMS Group
- Orange Force Marine (OFM)
- Petroleum Geo-Services (PGS)
- Rosepoint Navigation Systems
- Seabed 2030
- SeaKeepers
- ***Carnival Corp***


International Hydrographic Organization
Data Centre for Digital Bathymetry Viewer
Attributes: 2025-03-23T00:00 - 2025-03-23T23:59
Crowdsourced Bathymetry File
Name: 20250324135349332803_00000000-0000-0000-0000-00000918647.tar.gz
Start Date: 2025-03-23T00:00
End Date: 2025-03-23T23:59
Date Added to Database: 2025-03-24
Provider: Carnival
Platform Name: Carnival Spirit
Platform ID: CARNVL-00000000-0000-0000-0000-00000918647
Instrument:
Back
Zoom to
Identify
Basemap
Options
Mercator
Arctic
Antarctic
CANADA
Edmonton
Calgary
Vancouver
Seattle
San Francisco
Los Angeles
Denver
Chicago
Detroit
Ottawa
Toronto
Boston
Philadelphia
Washington
St Louis
Dallas
Atlanta
Houston
Monterrey
MEXICO
Guadalajara
Havana
Port-au-France
ICELAND
Reykjavik
NORWAY
Oslo
SWEDEN
Stockholm
Copenhagen
Dublin
London
Amsterdam
Cologne
Berlin
Paris
Vienna
Milan
Rome
Barcelona
Madrid
Lisbon
Algiers
Tunis
Casablanca
Tripoli
MOROCCO
ALGERIA
MAURITANIA
Atlantic Ocean
Help improve this site

CSB Data Holdings



41.8 GB from 14 trusted nodes currently publicly accessible

- 81% from Rose Point
- 483 vessels (up from 369 at CSBWG15 and 257 in 2022)
- 315 vessels associated with Rose Point

Additional 10.4 GB filtered based on responses to IHO C/L

IHO

International Hydrographic Organization

Today's Talk

The Role of the DCDB

Data Providers and Metrics

Recent Improvements

Ongoing and Planned Enhancements

What do we mean by “Crowbar”?

- CSB data ingest pipeline
  - Data ingest from external data providers
  - GeoJson / XYZ data formats
  - Uniformly formatted and packaged outputs
  - Archival at DCDB
- CSB data management tool
  - Application users (Admin, Read/Write, etc.)
  - Embedded map viewer
  - Fine grained geographic controls for data visibility
  - Submission information and audit messages
- Coastal State Review Application
  - Allows for automation of the CS approval process of data

IHO

International Hydrographic Organization

General “Data Management” Enhancements

- **508 Compliance:** A 5 month effort mandated by our organization
- Implemented a **document tracking changes** in CROWBAR
- Made UI Changes for **Adding Reporting Metrics**
- Added ability to **POST zipped files** to decrease network overhead - allowing users to send via mobile connection (request by AquaMap)

Enhancement requests received by Work Item H Team

International Hydrographic Organization

	Issue #	Issue Reported/Fix Requested	Brief description	Details	Improvement, bug, or new feature?
2	DA-1		CSB metadata in cloud	Not all of the GeoJSON metadata for the volunteer observers is available in the S3 bucket store (limited data is available in the CSV files, but not all). Ideally, there would be some mechanism in the S3 store to allow for lookup of metadata (e.g., a composite file indexed by the UUID of the observer), or an API that would allow translation of an observer's UUID to the full available metadata. Since metadata can change between different observation periods, it might be necessary to accumulate all metadata records for an observer into the response (with timestamps), or have the API return the "most recent" metadata given a timestamp in addition to the UUID.	New
3	DA-2		Banner on cloud tools alerting to different CRS	Georgie discussed negative CSB values with B. Calder. Notes from that call are here: 6-Jul-2023 Calder call (see topic 1, summary in red at top) THis came up when CIDCO expressed interest in sending data referenced to the ellipsoid. The mix in coordinate reference systems is problematic for end users, particularly if the different CRS are not captured in metadata from their access point (i.e. no indication in cloud). Long-term, Calder thinks this could be mitigated by making sure more robust metadata is in the cloud, with the full metadata record accessible within a click or two (see "CSB metadata in cloud"). Until that is complete, he advised adding a banner to the point store and cloud bucket indicating that negative values may be related to ellipsoid vertical reference, review full metadata available via the map viewer. This should also be discussed with John Cartwright as there are likely implications for how the point store data is gridded.	New
4	DA-3		Searching by file name	The ArcGIS MapService API used to search the main database uses different names for files than are used for the S3 bucket. Automated translation is possible, but this is fragile with respect to changes in naming in the future. A consistent naming scheme, a GeoPackage in the S3 bucket that was accessible for search, or a maintained API for translation, would be better. Example of the queries that CCOM team used (example created by Jesse Varner): https://gis.ngdc.noaa.gov/arcgis/rest/services/csb/MapServer/1/query?where=PLATFORM%3D%27Copper+Star%27&outFields=*&returnGeometry=true&uniqueIds=4326&f=pjson	New
5	DA-4	post-CSBWG15	Searching bucket by location	The S3 bucket used at DCDB for distribution is not directly searchable, so it is not possible to immediately determine which files to use to correspond to a particular location. Having a searchable interface for the S3 bucket (e.g., AWS Athena) would be one option.	New
6	DA-5	post-CSBWG15	Streamlining email responses	At CSBWG15, Anthony Klemm mentioned that when he pushed a lot of requests to the Point Cloud API he had to enter his email address. This triggered hundreds of automated emails. Team should review a more simplified email notification process for such cases.	Improvement
7	DA-6	post-CSBWG15	Filtering for date in pointstore API	It would be very useful to be able to apply a range of dates when searching against collection_date or archive_date, rather than a single day (YYYY-MM-DD). For example, {"collection_date" :["1970-01-01" "1970-01-02"]}. If there's only juice for one, the preference would be to filter on collection date.	Improvement
8	DA-7	post-CSBWG15	Filtering for multiple observers in pointstore API	For "provider" or "platform", could be provide a list of string names to search for multiple observers, rather than having to make multiple round-trip calls?	Improvement
9	DA-8	post-CSBWG15	Filtering by bounding box in pointstore API	Would it be possible to specify a Shapely (https://pypi.org/project/shapely/) polygon (in EPSG:4326) rather than a square bounding box? This is also used in things like GeoPandas, and would make interfaces simpler.	Improvement
10	DA-9	post-CSBWG15	Helper requests for filtering in pointstore API or CROWSBAR API	Helper requests for filtering (i.e., to assist in common queries rather than having to generate these from scratch): For example: (a) For a given spatial and temporal range, please list the total number of data points available, and the names of all "providers" and "platforms". (b) For each "provider", list all "platforms".	Improvement

CSB Work Item Progress | Crowbar brain dump | Crowbar | CSB discovery and access

	Issue #	Issue Reported/Fix Requested	Brief description	Details	Improvement, bug, or new feature?
2	Crowbar-1	2024	508 Compliance	Will block future releases. Rudy has knowledge to support, review is in process as of 5-June-2024	Improv...
3	Crowbar-4	2024	Release notes	Implement a document tracking changes in CROWBAR across different versions, highlighting version currently in DEV, TEST, PROD. Mable release notes as an example. Mable Release Notes	New
4	Crowbar-5	2024	(review missing SB2030 files)		
5	Crowbar-6	2024	Capture original file name	Ensure that the original file name, as sent by the trusted node, is captured in the database prior to rename. This would have allowed the team to easily assess which SB2030 files were successfully submitted	Improv...
6	Crowbar-7	2024	Add legend to "C's Exclude Response"	Currently in the Filter view it is not clear what the various drop-down options under Cs Exclude Response mean. Add a legend of some sort, particularly to make clear the differences between "manual" and "maybe" as this is currently very ambiguous. "manual" seems to allow a user to be assigned, but "maybe" does not.	Improv...
7					
8	Crowbar-9	2024	Add 'heading' to 'formatted' copy of FarSounder files	FarSounder is now including heading information in geojsons, per sounding. This ends up in "provided" copy of data but not "formatted". Can the system be tweaked to add heading to the "formatted" version when it is included?	Improv...
9	Crowbar-10	2023	Add user to multiple regions at once	Allow a user to be assigned to either the view or approve role for all areas for a particular sovereign where Cs Exclude Response is set to manual. Currently the user must be added to each area individually, which can be time-intensive and error-prone for regions like France.	Improv...
10	Crowbar-12	2024	Include list in monitoring email	In Crowbar Results email, add a method to determine whether the traceID corresponds to a TEST submission or a (archive) PROD submission. This could be an additional column.	Improv...
				When adding a user to an area, have the User Name either auto-populate as admin type or provide a drop-down of users in	

CSB Work Item Progress | Crowbar brain dump | Crowbar | CSB discovery and access

Request: Update how Crowbar determines "processingLevel"

Request:

1. *Reading the data, I need to know what's been done to it --- if there has been any processing that I might need to undo, for example. So long as the metadata in the file is complete, that should be enough.*

Details:

1. Currently Crowbar **defaults** to ‘raw', adding a line to the file metadata (ref: GeoJSON schema).
2. Determination should come from "dataProcessed" element (pg 27 in B-12)..

Status: Resolved

1. Removed DCDB-created “processingLevel” field
2. If “dataProcessed” element is null, Crowbar will set to False

Request: Full metadata accessibility in cloud buckets

Request:

1. As a user I need to be able to find the metadata for a given logger that's provided in the GeoJSON files.

Details:

1. Metadata is not available in the S3 cloud bucket. Select attributes are available in the CSV files..

Status: Resolved

1. Metadata files are not included in the cloud bucket. The Data Extract API will only include the basic attributes (provider, platform, date, etc) available to filter on.
2. The Data Extract API has been extended so that each sounding contains a reference to the filename from which it originated.
    1. This unique file identifier can then be used to retrieve the metadata for that sounding using the Crowbar API.
3. The Crowbar API has been extended to allow searching for file metadata using file_uuid attribute (among many other attributes)
4. The cloud bucket file locations will be listed within the existing file metadata already returned by the Crowbar API

Request: Searching S3 cloud bucket files by spatial and non-spatial attributes

Request:

1. As a user I need to be able to reliably find data in the cloud buckets given reasonable search criteria (e.g., geographic area of interest, platform UUID, bounding box, time period, etc.)

Details:

1. The cloud bucket is organized by collection date (year/month/day) and it is not easy to discover relevant files using other criteria.

Status: Resolved

1. Attributes can now be searched via the Crowbar API

Request: Filtering soundings (points) via the CSB Data Extract API

Request:

1. As a user I need to be able to limit the points extracted by specified spatial and attribute criteria

Details:

1. Allow filtering for multiple providers/platforms, date ranges and bounding box

Status: Resolved

1. CSB Data Extract API can now be searched using start/end dates and with multiple providers or platforms
2. Geographic searches are still limited to rectangular areas which do not cross the antimeridian.
3. Workaround is to search for files using the Crowbar API and then search the CSB Data Extract API with file_uuid

Request: List the names of providers and platforms via the CSB Data Extract API based on AOI and date range

Request:

1. Support real-time CSB Data Extract API requests to report the names of providers and platforms given an geographic AOI and/or date range. Support both collection date and archive date

Details:

1. Accept geographic AOI and date range and return the list of provider/platform names via a synchronous API request.
2. The user would be responsible for polling the endpoint to get the names when they are eventually available

Status: Resolved

1. CSB Data Extract API now includes an endpoint "/platforms" which returns a list of providers/platforms matching specified criteria.
2. The endpoint supports as similar set of filter criteria (rectangular AOI (does not cross the antimeridian), providers, date, etc.) as the other endpoints.

Request: Count the number of soundings via the CSB Data Extract API based on AOI and date range

Request:

1. As a user I need a way to estimate the size of my data extract request prior to placing the order.
2. Support real-time (i.e. synchronous) CSB Data Extract API requests to report the number of soundings given a geographic AOI and/or date range.
3. Support both collection date and archive date

Details:

1. This would allow feedback in a web application's user interface or provide a programmatic application to safeguard against accidentally extracting too much data.

Status: Resolved

1. CSB Data Extract API now includes "/count" endpoint which returns a JSON-formatted response with the count of soundings

Request: Streamline email responses

Request:

1. Provide option to not receive email notification

Details:

1. Currently an email address is required when placing an order. This allows the system to notify the requester when their data are ready. This email notification is a supplement to the API endpoint which allows the user to check on the status of an existing order at any time and which will report the download URL when the data are ready.
2. The downside: *A single user generating many orders via an automated process will receive an email notification for each one, a situation requiring the user to manage the unwanted messages.*
3. Make the email notification optional.
    a. If no "email" property is provided in the order payload (see JSON Schema for payload) or if the value for the property is empty, no email will be sent when the order is complete.
    b. It is then entirely the responsibility of the requester to monitor the status of the order via the CSB Data Extract API.

Status: Resolved

1. The CSB Data Extract API no longer requires an email address when placing an order.

Request: Mixing of CRS

Request:

1. As a user I want to be able to provide data to the archive with a well defined vertical CRS, which potentially includes a CRS, such as an ellipsoid, in which negative values (i.e., above datum) are acceptable.
2. Modify DCDB ingest to accept negative values and specified vertical datums.
3. Make any CRS information available for a given CSV file and include (per point) in the CSB Data Extract API.

Details:

1. Initially, the CSBWG community envisioned all submissions to the DCDB would be using the same coordinate reference system (CRS), with all depths positive as specified in B-12 Edition 1.0.
2. When B-12 was updated, metadata fields were added to track the CRS.
    1. "Vertical reference of depth" as described in B-12 suggests that it can be an arbitrary string.
3. In summer of 2023, the DCDB realized that there is a mix of CRS within the archive,
    1. Having a mix of CRS within the CSB Data Extract API is far from ideal and could be misleading to end users
4. Without a consensus of how to capture the CRS in the metadata OR consensus on what a target for a VDatum conversion might be, standardization of the CRS across the archive does not appear to be feasible.

Status: (Partially) Resolved

1. The DCDB accepts negative values and specified vertical datums.
2. The DCDB will leave the soundings in the CRS as submitted but has made the metadata describing the CRS (as captured by the Trusted Node) available to users of the S3 bucket and CSB Data Extract API.

CSB Coastal State Review Application

The DCDB developed a **CSB Coastal State Review Application** to automate the approval process of data for coastal states who have provided positive responses but request pre-approval of data before the public distribution from DCDB.

Updates:

- Improved user experience
- 508 compliant workflow
- Configurable number of items in table view

Many thanks to Denmark who have, to date, been the only user of the application, and therefore have provided much-needed feedback.

Today's Talk

The Role of the DCDB

Data Providers and Metrics

Recent Improvements

Ongoing and Planned Enhancements

Crowbar Frontend Refactor (Internal)

Request (or Need):

1. As a result of a federal security review in late 2024, Crowbar needs to undergo a frontend refactor.

Suggested Solution:

1. The development team decided to refactor using React instead of upgrading to Vue3, which will offer better scalability, performance optimizations, and a larger more supported ecosystem.

Next Steps:

1. This is currently under development and will likely be completed by the end of May 2025 (released under Crowbar v1.6.0)

Request: Duplicate timestamp (OFM)

Request:

1. OFM would like to send xyz files that have multiple positions/depth records for a single timestamp record.
2. Use case: "*We are trying to gather data from devices like fish finders. Hence the multiple position and depth for a single time stamps. It is not duplicate positions data but rather very precise lat/longs within that time stamp. "*

Suggested Solution

1. Update Crowbar to allow for duplicate times/positions.

Next Steps

1. This change is planned after Crowbar's frontend is refactored (April-June; released under Crowbar v1.6.0).

Request: Resolving erroneous timestamps (A. Klemm)

Request:

1. At CSBWG15, A. Klemm presented on a new approach to resolving totally erroneous timestamps, referencing 2002 data from TUG RANGER.
    1. Team created an approach to reference AIS timestamp, finding a static offset of 7168. When applied, it allowed millions of data points to be used that otherwise would have been thrown out.
    2. Anthony suggested that the DCDB consider adopting such an approach.

Suggested Solution

1. Update Crowbar to handle/resolve erroneous timestamps before archiving metadata.

Next Steps

1. This change is planned after Crowbar's frontend is refactored (April-June; released under Crowbar v1.6.0).

Request: Point count for nonpublic data (internal)

Request: Implement tools for viewing basic metrics about nonpublic/filtered CSB data.

Details:

1. Currently data managers do not have a tool to determine the number of points that have been filtered.
2. Additional metrics that DMs should be able to easily access that could likely be determined from the database already: volume filtered, linear km filtered, volume filtered per coastal state, VOLUME PER PROVIDER.

Suggested Solution

1. Create a dashboard for admins to view metrics on nonpublic/filtered CSB data.

Next Steps

1. This change is planned after Crowbar's frontend is refactored (July-Sept; released under Crowbar v1.7.x).

Request: Compatibility with geojson schema v. 3.2

Request:

1. Ensure Crowbar's ingest pipeline is compatible with GeoJSON schema updates
2. Request ability to submit files with different versions of the metadata profile, to accommodate different loggers (and protect against having loggers fail if they have been out of contact for a while and haven't been updated to the current profile).

Details:

1. The current version of Crowbar (1.5.3) is only compliant with schema v3.0.0 & v3.1.0.
2. The request is to ensure Crowbar can accept files in format 3.2.0, as detailed in the CSB GeoJSON schema developed in collaboration with CCOM.
3. Currently "uniqueVesselID" is only within "trustedNodePlatform" and would cause file rejection as Crowbar looks for "uniqueID" only within "platform".

Suggested Solution:

1. Modify Crowbar to check the format description in the mandatory metadata, and adjust the search for logger ID to compensate.
2. Given that the development effort required would be considerable, the DCDB suggests holding off until schema 3.2.0 is out of beta and is production ready.

Next Steps:

1. This change is planned after Crowbar's frontend is refactored (July-Sept; released under Crowbar v1.7.x).

Request: External Facing Dashboards

Request:

1. Build out our internal DCDB dashboard for external community use.
2. **CSBWG15 report (Action 6):** Gather feedback on metrics that could feed a DCDB Dashboard and report back to CSBWG Intersession.

Details:

1. Keep the internal DCDB dashboard focused on the technical user. Add features like new data alerts, monitoring number of views, etc.) - MZ
2. Have a separate contributor friendly dashboard for helping to tell the story and energize contributors - MZ
3. Providers could just add an image tag wherever they want to show off their stats. - HH
4. Show top contributors (at the vessel level) in past month; growth rate of contributions from each trusted node each quarter; number of individual contributors from each trusted node - AK

Next Steps

1. "*Enhancing the DCDB CSB Internal Dashboard*" and "*Building a prototype DCDB CSB External Dashboard*" has been added to our development backlog for 2025
2. DCDB will meet with Farsounder to discuss potential collaboration/ leveraging/lessons learned etc.
3. This work is planned for July-Sept

FY19	53,211,046	39%	137,942,587
FY20	204,956,771	60%	342,899,358
FY21	271,375,292	44%	614,274,650
FY22	181,124,301	23%	795,398,951
FY23	139,657,381	15%	935,056,332
FY24	278,985,984	23%	1,214,042,316

Request: Coastal State Review Application Enhancements (Denmark)

Requests:

1. Explore the possibility of providing a single zipped JSON file download for all entries (geometries and metadata).

Next Steps

1. Review suggestions, proposed implementation plan and timeline - contingent on DCDB's conclusion and available resources

Any Other Items to Note

The DCDB CSB Data Manager position has been vacant since June 2024

The U.S.G is under a hiring freeze for the foreseeable future

Crowdsourced Bathymetry (“Crowbar”) is only one of several focus-areas for the DCDB software development team

Shared and constrained resource areas impact almost every item listed above, along with our ability to work with the community on documenting, contributing, searching for and accessing data in a timely manner.

Feedback on, and prioritization of, “wants vs needs” from the CSBWG is key.

So is your patience. Which we greatly appreciate.

Thank you!

Home Products Services Resources News Contact About

Search NCEI

Home / IHO Data Centre for Digital Bathymetry (DCDB)

IHO Data Centre for Digital Bathymetry (DCDB)

John Cartwright*
Geospatial Architect
john.cartwright@noaa.gov

Jennifer Jencks
DCDB Director
jennifer.jencks@noaa.gov

Clint Campbell*
CSB Technical Lead
clinton.campbell@noaa.gov

Payton Cain*
Software Developer
payton.cain@noaa.gov

IHO CSBWG16
26-28 March 2025
Wellington, New Zealand

**CIRES in support of NOAA*