

Data Extraction and Processing

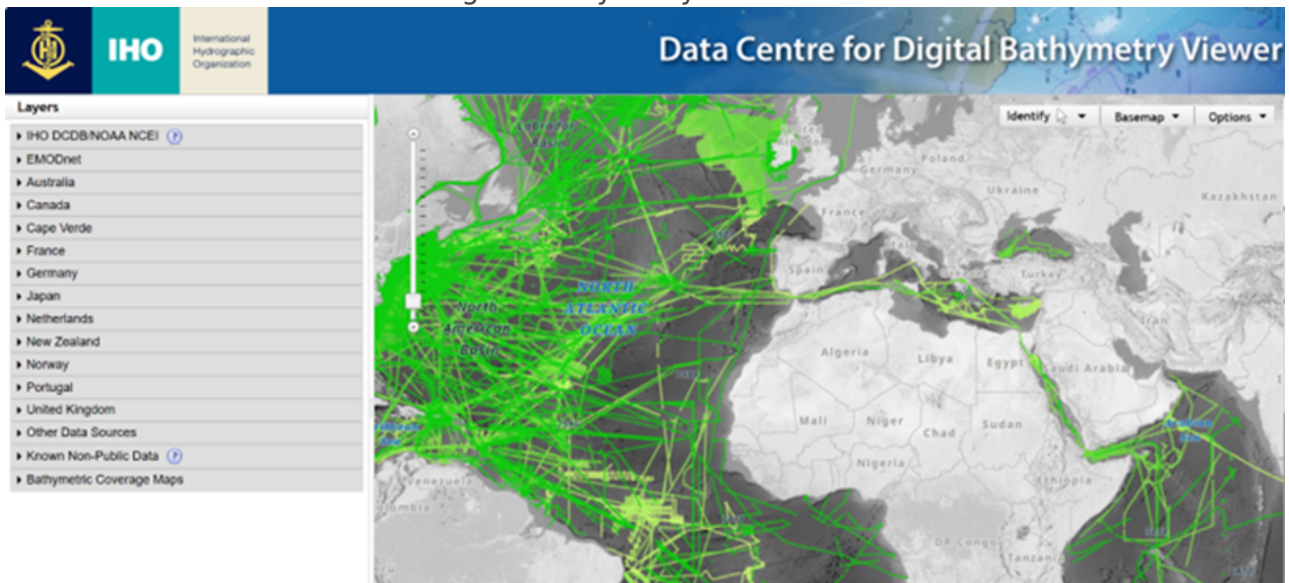
If your stakeholders would like to see their data for themselves, it may become pertinent that you download and share the data yourself. To do this, you will need to follow the steps outlined in the [NCEI/DCDB data extraction](#) section. Once raw data are obtained from the DCDB, they should be tide corrected using the CSB Processing Tool in Pydro Explorer, following the instructions in the [Pydro tidal corrections](#) section.

- [NCEI/DCDB data extraction](#)
- [Pydro tidal corrections](#)

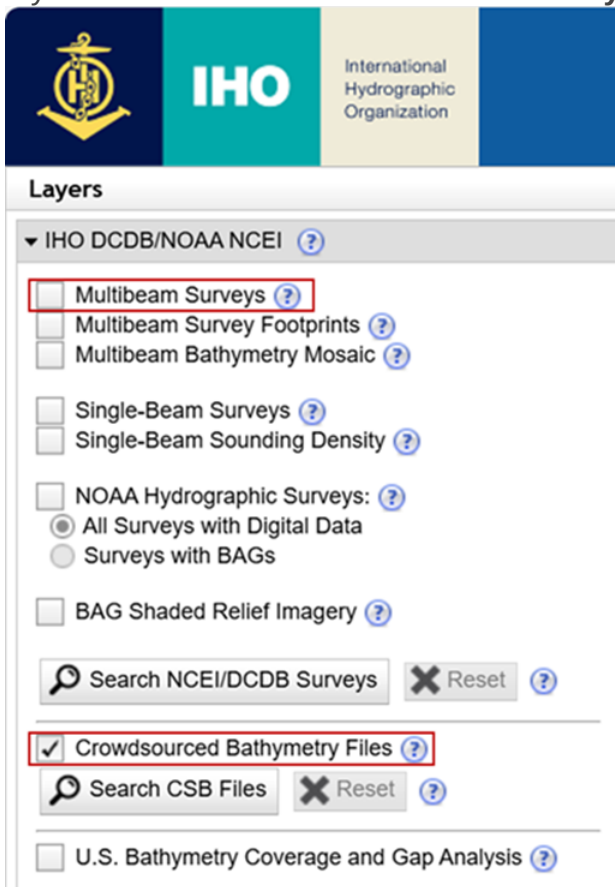
NCEI/DCDB data extraction

Perform the following steps to extract CSB data from the DCDB:

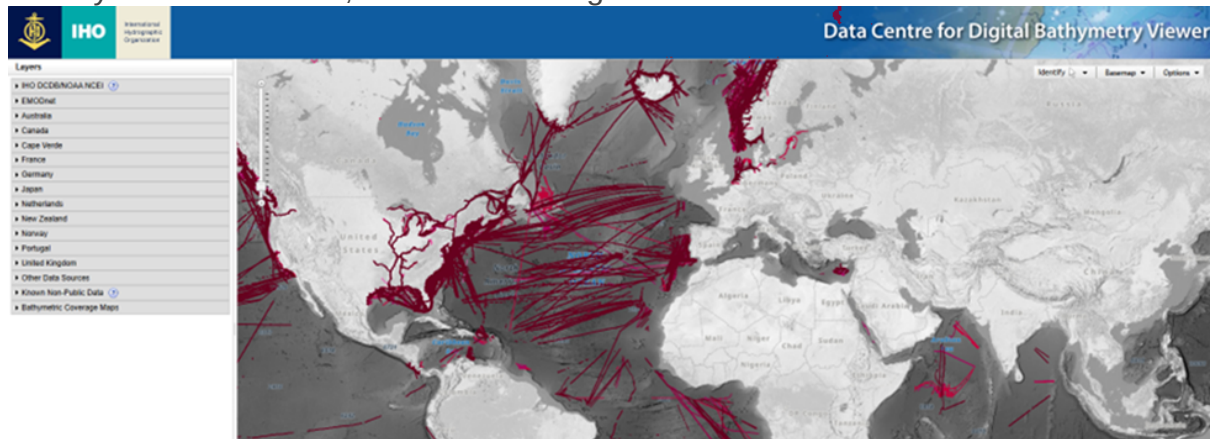
1. Go to the IHO Data Centre for Digital Bathymetry Viewer.



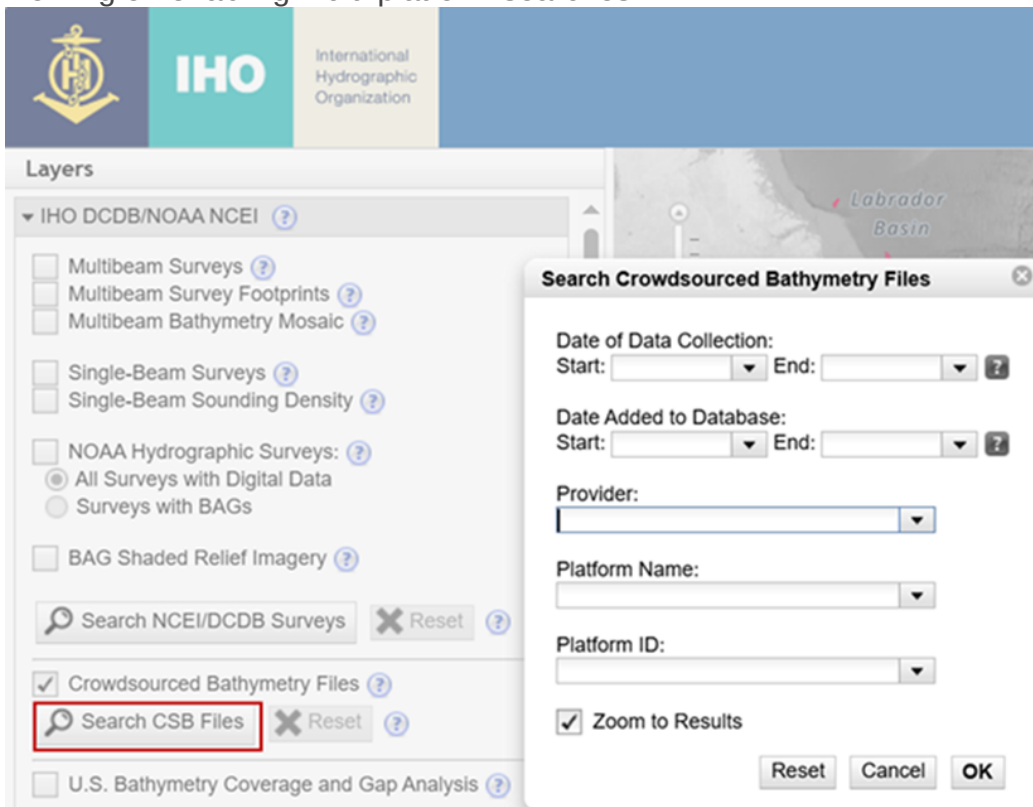
2. Click the **IHO DCDB/NOAA NCEI** drop down menu, uncheck the '**Multibeam Surveys**' layer and select the '**Crowdsourced Bathymetry Files**' layer.



- As an alternative to steps 1 and 2, you can use [this link](#) (bookmark it) to navigate directly to the CSB data, instead of having to deselect the multibeam data

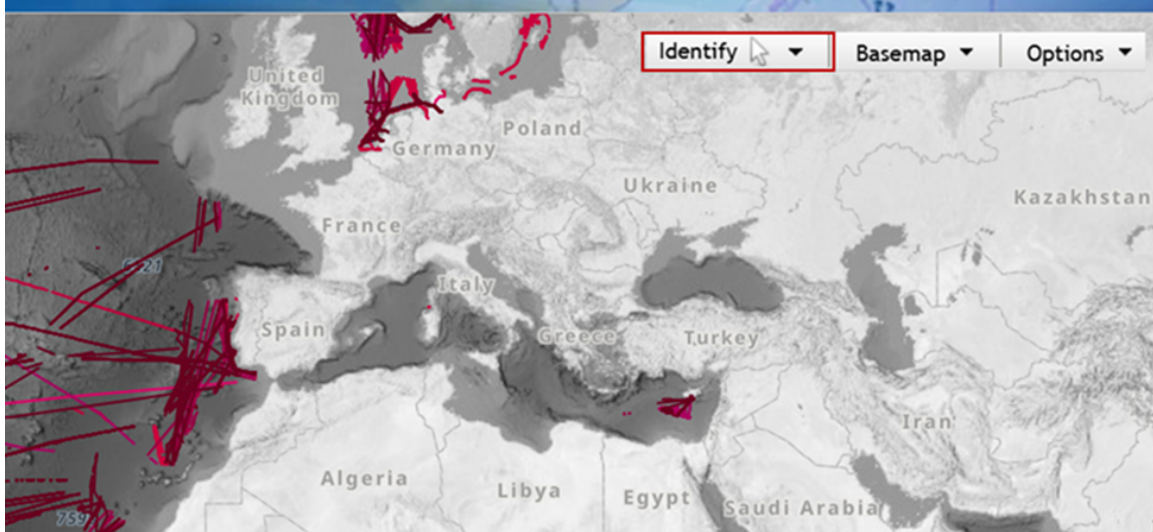


3. Zoom in on the area you want to extract data from. You can also select '**Search CSB Files**' to filter for a certain date range, Provider (Trusted Node), or Platform Name (vessel name). You can currently only search by one 'Platform Name' at a time, but the DCDB is working on enabling multi-platform searches.

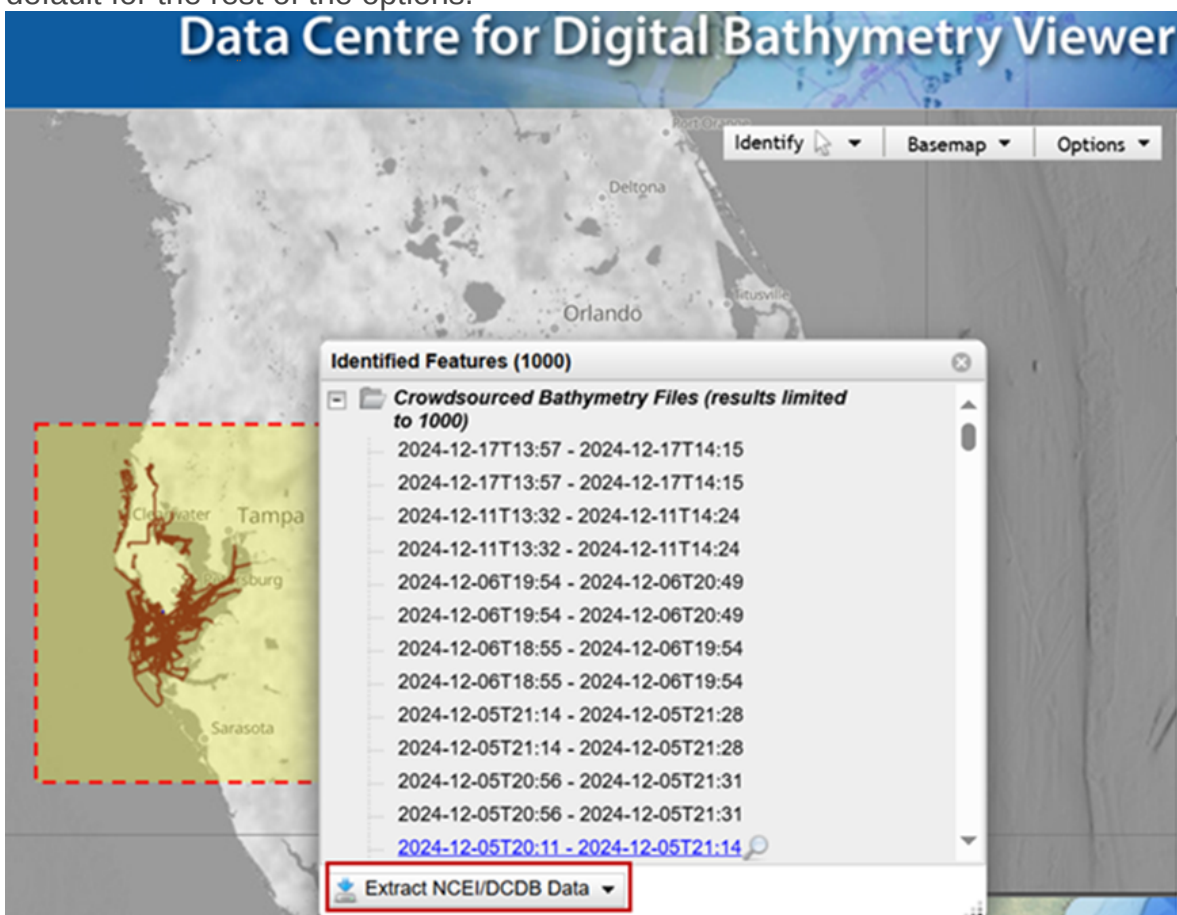


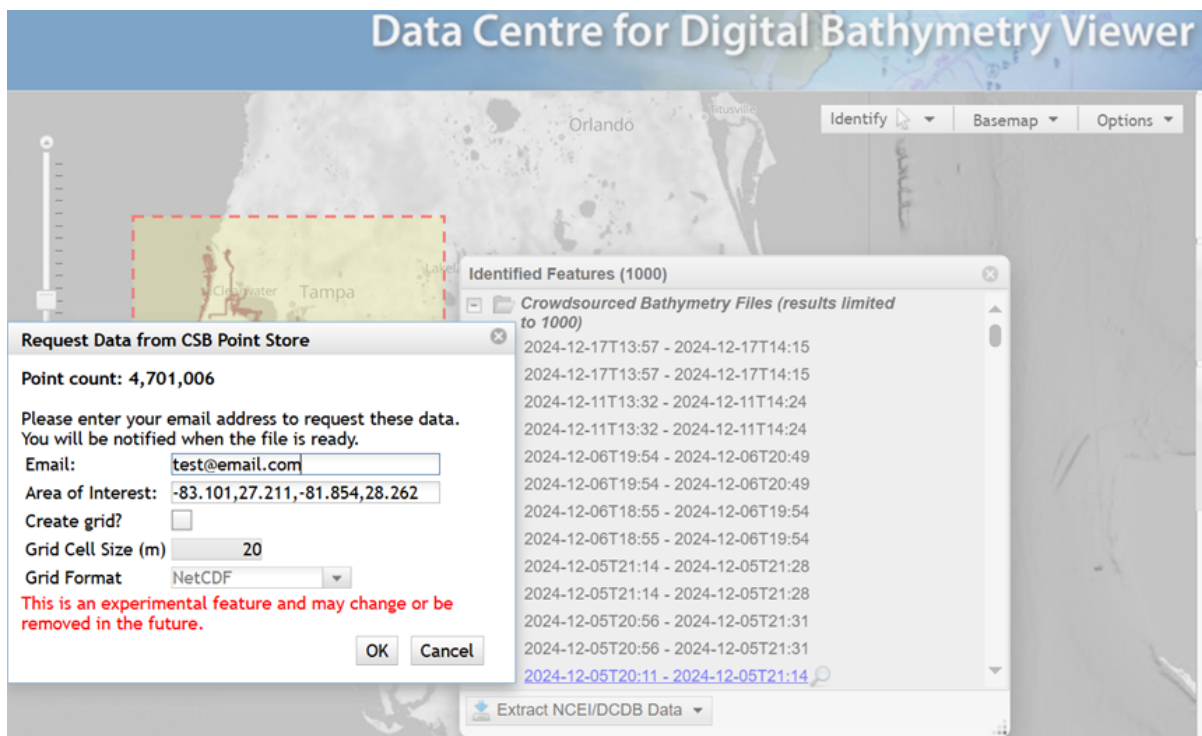
4. When you are ready to extract data, click the '**Identify**' drop-down menu and select the option you would like to use.

Data Centre for Digital Bathymetry Viewer



5. Draw your bounding area of interest, select '**Extract NCEI/DCDB Data**' and choose the '**Extract CSB Point Store Data**.' You will be prompted to enter an email address where the link to download files will be sent to. Do not check the box for 'Create Grid.' Leave the default for the rest of the options.





- Depending on the current volume of requests and the size of your requested area, you should receive an email with a link to download your data within a few minutes.

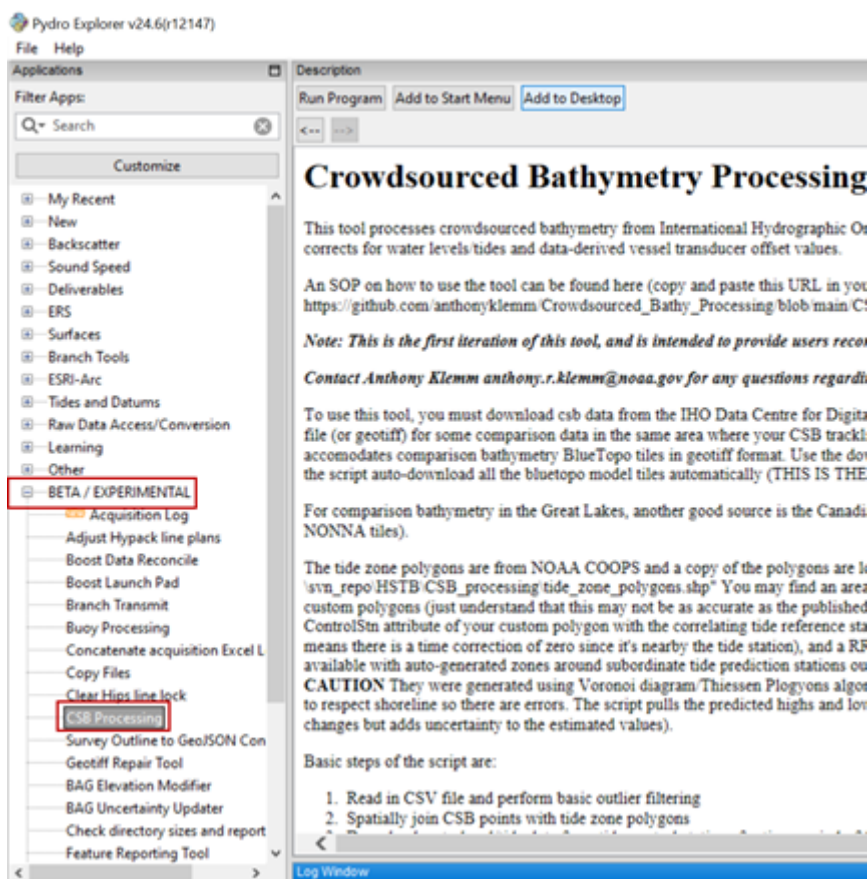
Your CSB data are now downloaded and ready to have Pydro tidal corrections applied.

Pydro tidal corrections

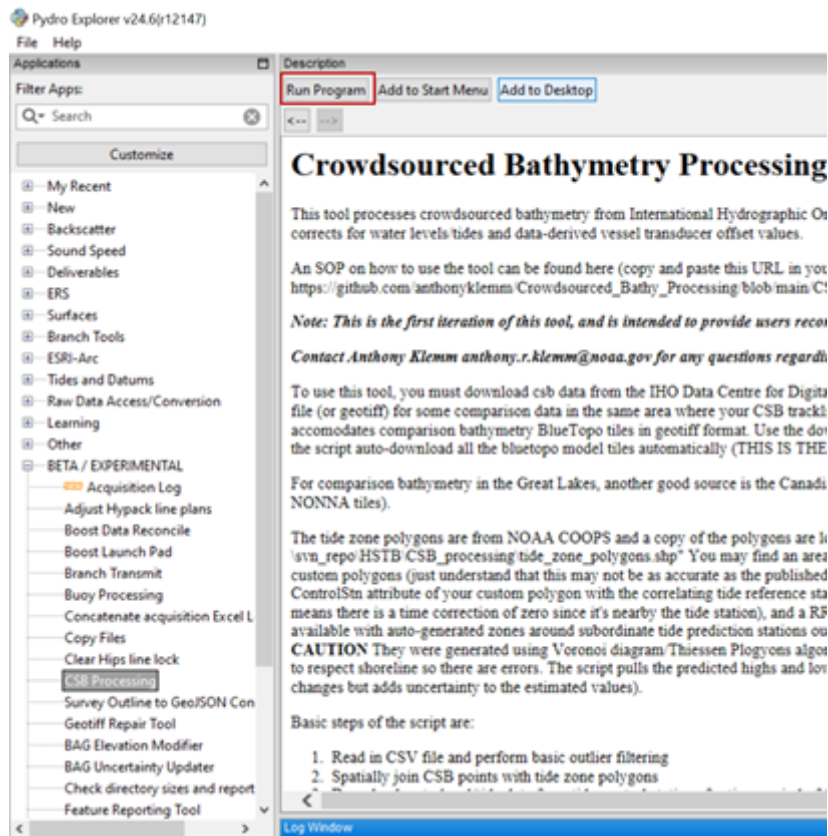
Support Contact: Anthony Klemm, NOAA Office of Coast Survey
anthony.r.klemm@noaa.gov

Perform the following steps to process CSB data extracted from NCEI/DCDB to correct for tides and data-derived vessel transducer offset values:

1. You will need to download the **Pydro** software [here](#).
2. Follow the [Data Extraction](#) instructions to retrieve the data you want to process.
3. When you receive the email link from NCEI, download the data and save it in an appropriate location.
4. Open **Pydro**, navigate to the '**BETA/EXPERIMENTAL**' section of the Applications pane, and select '**CSB Processing**.'



5. Click '**Run Program**'. You'll see a Windows terminal execute the python environment and a GUI should eventually pop up.



If no GUI pops up, open the command line window to check if the following error was encountered:

```
ModuleNotFoundError: No module named 'pyfes'
```

To resolve this error, enter the following line of code: `conda install -c conda-forge pyfes`

Click **Run Program** again and the GUI should pop up.

```
Pydro Explorer - conda instal x + v
ModuleNotFoundError: No module named 'pyfes'

(Pydro3_11) C:\Pydro24\NOAA\SITE-P~1\Python3\svn_repo\HSTB\CSB_PR~1>conda install -c conda-forge pyfes
Channels:
- conda-forge
- defaults
Platform: win-64
Collecting package metadata (repodata.json): done
Solving environment: done

## Package Plan ##

environment location: C:\Pydro24\envs\Pydro3_11

added / updated specs:
- pyfes

The following packages will be downloaded:

package | build | size | channel
-----|-----|-----|-----
pyfes-2024.6.0 | py311hdc42418_4 | 288 KB | conda-forge
Total: 288 KB

The following NEW packages will be INSTALLED:

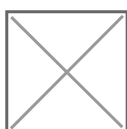
pyfes conda-forge/win-64::pyfes-2024.6.0-py311hdc42418_4

Proceed ([y]/n)? y

Downloading and Extracting Packages:
Preparing transaction: done
```

6. In the popup window: **(1)** locate and select the **Folder** containing the file you downloaded from NCEI; navigate to the Tide Zone Beta.shp file (see file path provided below); and specify an output folder. **(2)** make sure this is checked to use automated BlueTopo data, **(3)** the checked boxes in the image below are the suggested outputs and grid resolution **(5-10)** for the workflow.

Note: to streamline data processing, set a designated folder where Pydro outputs .gpkg files, so a single folder connection can be added to your GIS project.



For use outside the United States, the CSB Processing tool has an option to use a global tide model (AVISO+ FES2022b) to resolve/correct depths to approximate Lowest Astronomical Tide (approx LAT).

Inside United States waters, it is recommended (but not required) to use the Discrete Tide Zoning model option instead.

US Tide Zone .shp location: C:\Pydro24\NOAA\site-packages\Python3\svn_repo\HSTB\CSB_processing\BETA_subordinate_tide_zones\tide_zone_polygons_new_WGS84_merge.shp

- Click '**Start Processing**' and allow it to run. You can watch processing progress in the command line window. The application window will close when processing is complete.

```
Pydro24 Explorer - python C:\x + v
2025-12-10 10:09:33,761 - INFO - ...updating 7637 rows for vessel_speed_smoothed.
2025-12-10 10:09:34,157 - INFO - Completed Step 3.
2025-12-10 10:09:34,157 - INFO -
***** Starting Final Gridding & Export Stage *****
2025-12-10 10:09:34,173 - INFO - No tessellation scheme provided. Processing all data into a single file.
2025-12-10 10:09:36,252 - INFO - Initial query returned 4677529 points from the database.
2025-12-10 10:10:33,727 - INFO - Saving 4677529 points to GeoPackage...
2025-12-10 10:17:11,849 - INFO - Saved final points GeoPackage (EPSG:4326): C:\Users\schernoch\Documents\CSB\Data\Tide_Corrected_Data\CSB_20251114\final_products\csb_final_points.gpkg
2025-12-10 10:17:20,537 - INFO - Determined overall EPSG zone for raster as: 32617
2025-12-10 10:17:27,666 - INFO - Found 4448542 non-outlier points to create raster from.
2025-12-10 10:19:16,717 - INFO - Final gridded GeoTIFF created at C:\Users\schernoch\Documents\CSB\Data\Tide_Corrected_Data\CSB_20251114\final_products\csb_final_gridded.tif
2025-12-10 10:19:16,935 - INFO -
Organizing final GeoTIFFs by EPSG code...
2025-12-10 10:19:16,951 - INFO - Moved csb_final_gridded.tif → C:\Users\schernoch\Documents\CSB\Data\Tide_Corrected_Data\CSB_20251114\final_products\EPSG_32617
2025-12-10 10:19:16,951 - INFO -
Building VRTs for each EPSG folder...
2025-12-10 10:19:16,951 - INFO - Found 1 files in C:\Users\schernoch\Documents\CSB\Data\Tide_Corrected_Data\CSB_20251114\final_products\EPSG_32617. Building VRT...
2025-12-10 10:19:16,951 - INFO - VRT created: C:\Users\schernoch\Documents\CSB\Data\Tide_Corrected_Data\CSB_20251114\final_products\EPSG_32617\mosaic_EPSG_32617.vrt
2025-12-10 10:19:16,951 - INFO - Building overviews for VRT...
2025-12-10 10:19:29,499 - INFO - Overviews built for C:\Users\schernoch\Documents\CSB\Data\Tide_Corrected_Data\CSB_20251114\final_products\EPSG_32617\mosaic_EPSG_32617.vrt
2025-12-10 10:19:29,499 - INFO - ***** Final Gridding & Export Stage Complete *****
2025-12-10 10:19:32,123 - INFO - ***** ALL STAGES DONE! Total processing time: 49 minutes and 11.0 seconds
2025-12-10 10:19:32,123 - INFO - processing complete. closing application window.
```

Your CSB data are now tide corrected and have been output in a GeoPackage (.gpkg) that can be visualized using GIS software.