After a survey, the following data will have been collected:

|  |  |  |
| --- | --- | --- |
| **Data** | **Data/Program(s) Needed** | **Where it goes** |
| Plankton Tow Data | Excel, Ruskin RBR | Source Data > planktonsamplingData.csv |
| CTD Cast | YSI Castaway CTD | Source Data > CTD\_Raw.csv  Source Data > planktonsamplingData.csv |
| Tagging Reports | Tagger Logs | Source Data > Tagging\_Raw.csv |
| SSB Estimates from Jenna  (Time delayed) | Echoview output | Main Data > SSB Estimates.csv |

**Plankton Tow Data**

Data collected on the Ruskin RBR Depth Probes needs to be extracted using the Ruskin Software. This can generally be done on the boat and saved ahead of time, as you need to plug the probe into the software to turn it on/off during the plankton tows anyways. Steps for doing this can be found in the appendix.

**Be sure to also take a screenshot (Win+Shift+S) of each tow’s depth profile and save it to the Github folder for your survey, as “Tow 1.jpg” and “Tow 2.jpg”, before leaving Ruskin RBR.**

For the other general plankton data, fill in as much of the spreadsheet as possible. See the Appendix for a description of each column, if needed. The following columns need to be entered in a certain format:

*Ground* – “SB” or “GB”, not fully spelled such as “Scots Bay”.

*id* – same format as the plankton sampling jars, such as “GB2022-01”.

*Sample* – “Y” or “N” for yes or no, respectively.

*ExtraBox* – Answers are “No”, “Both”, “East”, or “North”, if any of the extra survey boxes were used during a Scots Bay survey.

*TideDirection* – should be “with” or “against” the tide, as written.

Other columns should simply be entered the same as previous data, such as DD/MM/YYYY for date.

**CTD Cast**

For the CTD data, export the cast data as a .csv file using the YSI Castaway CTD software (see Appendix for steps). Open this file and copy and paste the raw data (without the column headers) into the CTD\_Raw.csv file in Source Data. Be sure to add in the other columns in the datasheet manually as needed, these are: id, ground, plankton\_ID, Date, Lat, Lon, Year, Survey. Mostly just be sure to follow the same Date format as previous entries.

The general data from the CTD cast (average temperature, depth, lat/long, etc.) will also need to be added to planktonsamplingData.csv

**Tagging Reports**

Important: the columns ‘Julian’, ‘Year’, and ‘Tag\_Annual’ are added later by the R script and can be ignored. All other columns should be manually entered from each tagger’s log. Ground should be fully spelled out as “Scots Bay”, “German Bank”, or “Other”. “CTD” is the CTD id name from the .csv file name; this is if the tagger does their own CTD cast (e.g. Lisa used to have one aboard the Morning Star), and not the HSC tech’s cast from the Plankton Vessel.

**SSB Estimates**

After each survey, Jenna processes the data in Echoview and outputs a biomass estimate. This will take a few weeks after each survey to produce. Once this value is known, it can be placed into the Main Data > SSB Estimates.csv spreadsheet. \*subject to change as process may change if we can automate the process from Map+Region > Table A+B+C forward.

**APPENDIX**

**Plankton Tow Data Export (Ruskin Depth Probe)**

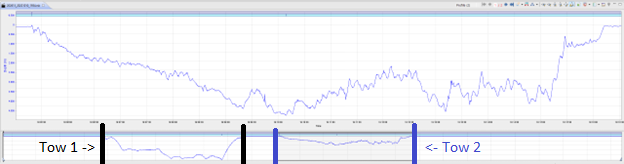
Step 1) Load the Ruskin RBR software (can ‘search’ for “Ruskin” on windows). 

Step 2) In the middle taskbar on the far right there is “Toggle channel visibility” (the furthest option with a dropdown arrow); uncheck any channel that isn’t “depth”.

Graphical user interface, text, application

Description automatically generated

Step 3) At the bottom of the screen, use the left/right borders of the box to narrow in on each individual tow. For example, in the image below only the second tow is isolated (not both tows at once).



Step 4) For each tow, note the general start and end times. I personally open a notepad to write this down, as we’ll be adding a few other points soon. **Before proceeding, also take a screenshot of each tow using the Windows Snipping Tool (Win+Shift+S) and save this to the github folder for your survey. These need to be saved exactly as “Tow 1.jpg” and “Tow 2.jpg”.**

Path: C:\Users\herri\Documents\GitHub\HerringScience.github.io\HTML Markdown\Surveys\YEAR\SURVEY

Text

Description automatically generated

Step 5) Under the top left Navigator, right click the dataset you are currently using, choose Export, and select Microsoft Excel (\*.xlsx) format. This should be saved in the Github folder for your current Year and Survey. The exact path of this should be:

C:\Users\herri\Documents\GitHub\HerringScience.github.io\HTML Markdown\Surveys\YEAR\SURVEY

Graphical user interface, text, application, chat or text message

Description automatically generated

Step 6) Once extracted, open the file and navigate to the Data worksheet on the bottom left.



Step 7) Scroll down until you find the starting time of the first tow that you noted down. For example, in Step 4’s notepad I noted Tow 1 as starting at 19:00, so I would scroll to this point in the data:



Step 8) The far-right column is Depth which is what we are focusing on. Click on this first entry for Depth and drag your selection all the way down to the End time for Tow 1 (e.g., in this case 19:10). You should have all the Depth values for your time range selected (e.g., from 19:00 to 19:10).

Step 9) While selected, the bottom right of the Excel sheet will update Average and Maximum values. Record these values for both Tows 1 and 2 in the notepad.



Step 10) Both of these values should be entered in the planktonsamplingData.csv spreadsheet under the AvgTowDepth and MaxTowDepth columns.

**Plankton Tow Data Columns**

Ground – “SB” or “GB” for Scots Bay or German Bank, respectively.

id – the ID tag given to the plankton tows, there should be two per survey barring weather and/or equipment issues. Format is SB2023-01 for tow 1, SB2023-02 for tow 2 from the same survey. If any tow has more than one jar, it still falls under that tow label (e.g. if tow SB2023-02 has two jars they are both under the -02 tow).

Survey.No – the survey number for this ground for this year.

Date – Date of the survey in DD/MM/YYYY format.

StartTime – the time that the survey was scheduled to start in the survey plans.

Sample – whether fishing was completed (“Y”) after the survey or not (“N”). Filling this in will be time delayed as it may take a few days after the survey for fishing to occur, but if you know that fishing happened for certain it can be added immediately.

Vessel.No – number of vessels attending the survey.

ExtraBox – for Scots Bay surveys only, whether the North or East extra boxes were assigned to any vessels for the survey. Answers are “No”, “Both”, “East”, or “North”.

EVessel – if a vessel was assigned to the East box, list the full name of the vessel here.

NVessel – if a vessel was assigned to the North box, list the full name of the vessel here.

PlanktonVessel – the vessel that the plankton tows were conducted on.

No\_jars – number of jars associated with each individual tow.

Lon1, Lat1 – the lat/lon coordinates for the start of the tow.

Lon2, Lat2 – the lat/lon coordinates for the end of the tow.

Time1 – time when the tow was started.

Time 2 – time when the tow was ended.

TowTime – total duration of the tow (or difference between the tow end and start times).

Gear – diameter of the netting used, should be defaulted to “1/500” for the 1/500um netting.

Net – diameter of the metal ring used, should be defaulted to “1” for the 1m ring.

SurfaceTemp – no longer used, previously taken from the wheelhouse sensors.

AirTemp – outside air temperature during the tow, can be taken from any weather forecast for the area.

WaterDepth1/2 – no longer used, previously taken from the wheelhouse sensors.

TowType – type of tow conducted, should be defaulted to “Surface Tow”.

Speed – speed of the vessel during the tows, in knots. Generally recorded by the captain.

Heading – heading of the vessel during the tows, in degrees. Generally recorded by the captain.

TideDirection – whether the vessel was “with” or “against” the tide during the plankton tows. Normally one tow with be with, and one will be against the tide.

AvgTowDepth -

**CTD Cast Data Columns**

id – ID of the CTD cast, can be found in the file name of the exported CTD .csv

Pressure, Depth, Temperature, Conductivity, Specific\_conductance, Salinity, Sound\_velocity, Density – all of these columns are added from the raw CTD data (pasted in) and not added manually.

Ground – ground that the CTD cast was taken on, generally “Scots Bay” or “German Bank” spelled out fully.

Plankton\_ID – id of the associated plankton tow(s).

Date – Date of the CTD cast.

Lat/Lon – Location of the CTD cast, generally given directly by the device assuming GPS satellites are in range. If GPS can not be found in a reasonable time frame, Lat/Lon from the wheelhouse can also manually be added.

Year – Year of the CTD cast.

Survey – survey number for the current year that the CTD cast occurred.

**CTD Cast Data Export**

Step 1) Load the YSI Castaway CTD software (can ‘search’ for “CTD” on windows).

Step 2) Change from the default map page to “Show Files”

Graphical user interface, application

Description automatically generated

Step 3) Select the most recent cast (ordered chronologically with the newest on top), or find the cast you are interested in by date/time. Make sure that the cast has samples under “Number of samples” and that ‘Sample type’ is not invalid, which may indicate that you did a point sample cast instead of a regular cast (e.g. the bottom cast in this photo).

Table

Description automatically generated

Step 4) With the cast selected, choose Export Files from the top right taskbar. Make sure format is set to .csv (should be defaulted) and leave all other checkboxes selected.

Graphical user interface, application

Description automatically generated

Step 5) It is probably best to export directly into the folder associated with your survey. The export defaults to Documents, which is where the Github folder already is.

Graphical user interface

Description automatically generated with medium confidence

You will need to navigate a bit further to find the exact survey folder.

The exact path you should follow will be: Documents/GitHub/HTML Markdown/Surveys/ and then pick your Year and Survey (SB# or GB#).