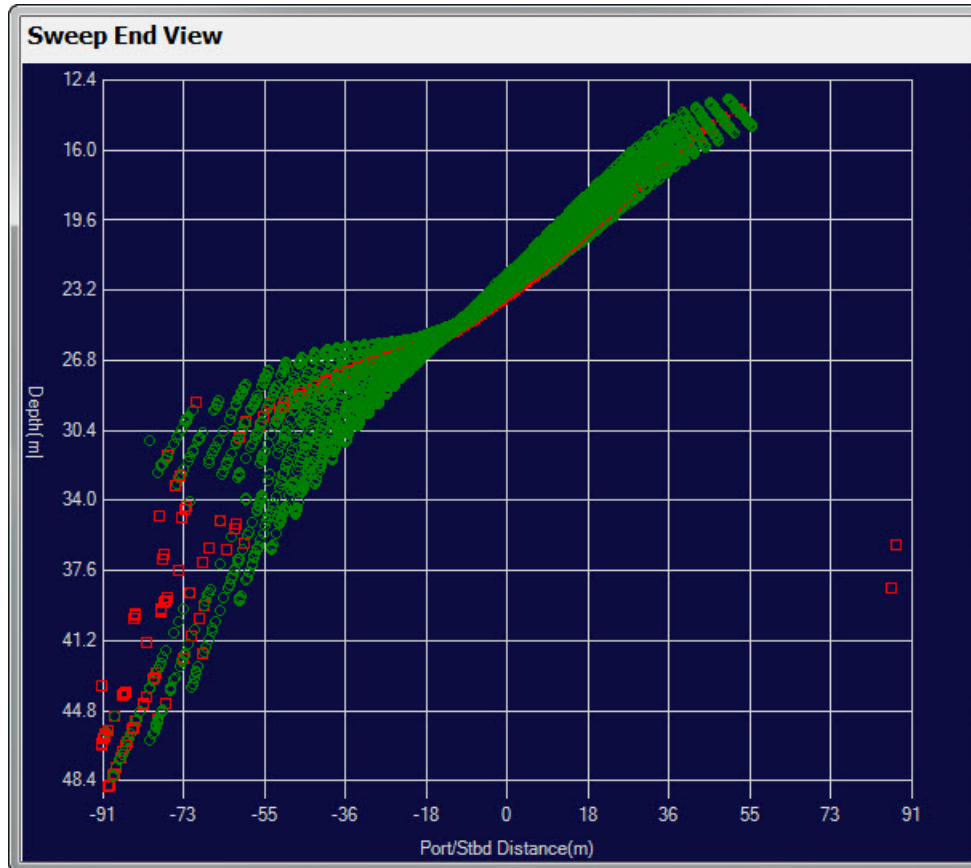


Triton Swath Editor

-- User Guide --



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This user guide is provided as a means to become familiar with TRITON's software through an explanation of the options available for manual swath editing. The user interface presented in this guide is subject to change to accommodate software upgrades and revisions. While every precaution has been taken to eliminate errors in this guide, TRITON assumes no responsibility for errors in this document.

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1.0 Swath Editor Interface

Swath Editor is an add-on application for BathyPro and BathyOne which allows users to manually edit raw soundings in XTF or GSF data files by adjusting how the sounding is flagged for processing.

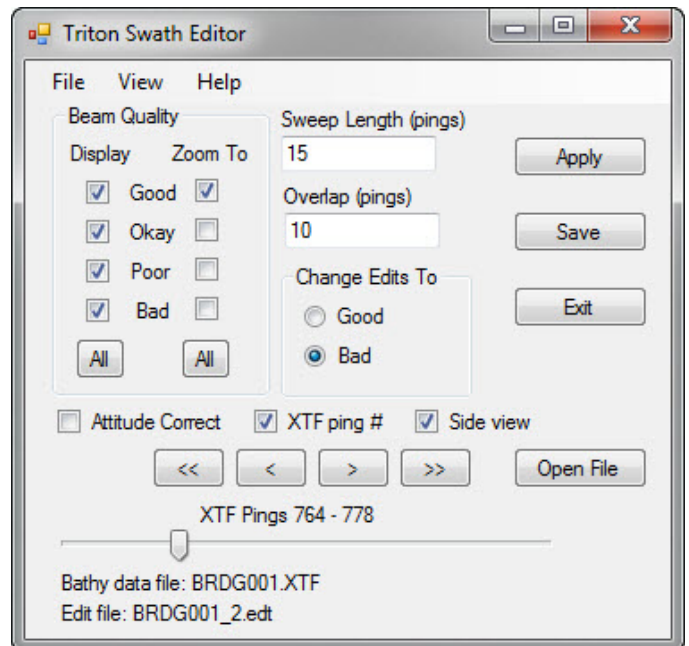
When the software is started, three windows will open: a control panel for adjusting how the soundings are displayed and flagged; a Sweep End View swath edit window showing the across-track section of the sounding data; and a Sweep Side View swath edit window showing the along-track section of the sounding data.

1.1 Triton Swath Editor “Control Panel”

The Triton Swath Editor window shown below is used for controlling the data views and editing operations and is referred to in this document as the “Control Panel”.

There are several options available in the control panel including:

- Menu Options - File, View, and Help
- Button Options - Apply, Save, Exit, and Open File
- Beam Quality Display and Zoom Options
- Sweep Length and Overlap
- Change Edits To - Good or Bad
- Attitude Correct
- XTF ping #
- Side View
- Navigation Controls
- File Information Display

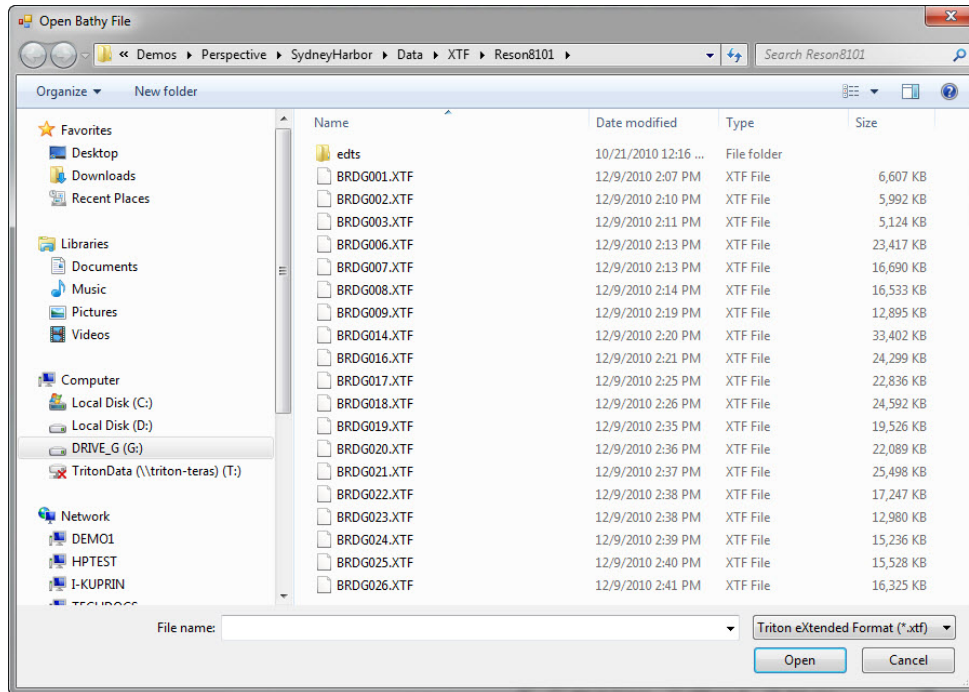


1.1.1 Menu Options

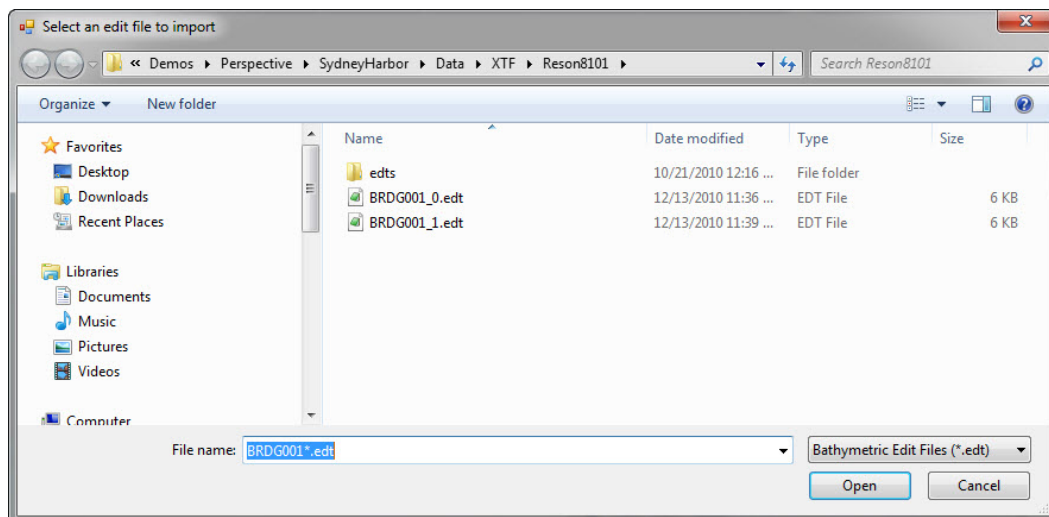
There are three menus along the top of the control panel. These are: File, View and Help. Options included in each menu are presented below.

➤ File:

- Open: Launches browser for locating and selecting files to edit. Supported formats include XTF and GSF files.



If edit files already exist for the XTF file being loaded, a second window will open allowing the user to select which edit file to apply to the data.



The window shown at the bottom of the previous page has two edit files to select from. Please note that for this to second window to automatically open, the edit files need to be in a subdirectory in the XTF data folder and the file name needs to start with the raw data file name.

For this example the raw data file is called BRDG001 and the available edit files are called BRDG001_0 and BRDG001_1. If more edits are applied and saved, they will be saved to a file automatically named BRDG001_2. This allows a user to track multiple phases of swath editing.

- Save: Edits are saved to EDT files for XTF files. For GSF files, edits are saved as adjustments to beam flags in the GSF file.
 - Exit: Closes the Swath Editor
- View
- GSF History: Allows user to view GSF history when working with GSF files.
- Help
- About: Shows the software version number

1.1.2 Button Options

There are four buttons on the right side of the control panel. These are: Apply, Save, Exit, and Open File.

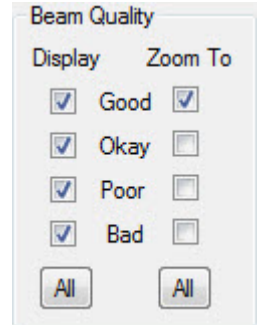
- Apply: This will change the currently selected sounding either to Good or to Bad depending upon the option selected in the 'Change Edits To' section of the control window (see Section 1.1.5).
- Save: Edits are saved to EDT files for XTF files. For GSF files, edits are saved as beam flag adjustments in the GSF file (same as File menu option).
- Exit: Closes the Swath Editor (same as the File menu option).
- Open File: Launches browser for locating and selecting files to edit. Supported formats include XTF and GSF files (same as the File menu option).

1.1.3 Beam Quality Display and Zoom Options

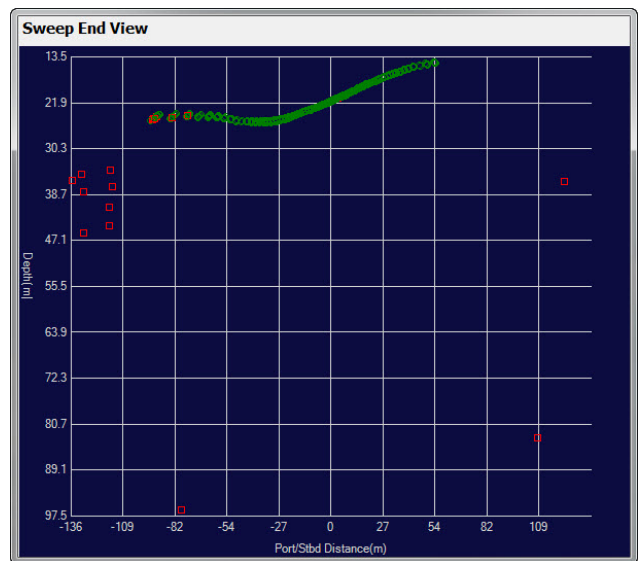
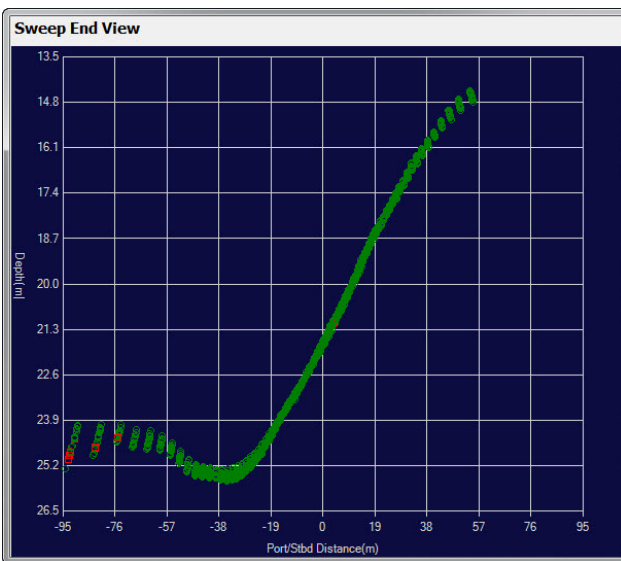
The Beam Quality section of the control panel is used to change how the sounding data is displayed in the editing windows based on how the sounding has been flagged. Triton's Swath Editor recognizes four distinct beam flag types to indicate how a sounding is used during processing. Other beam flags present in the data files are sorted into one of these groups depending on why it was flagged. The beam flags used by Swath Editor are:

- Good - good brightness, good colinearity
- Okay - good brightness, poor colinearity
- Poor - poor brightness, good colinearity
- Bad - poor brightness, poor colinearity

As shown in the image to the right, the Beam Quality section has two columns which control how the sounding data is displayed in the editing windows.



The column on the left are display options and indicate which type of flagged beam to display in the editing windows. The column on the right indicates which type of flagged beams to zoom the display to. The two images below show the same swath data in the across-track editing window. The image on the left displays 'Good' and 'Bad' soundings but is zoomed only to the 'Good' soundings, while the image to the right is zoomed to both the 'Good' and the 'Bad' soundings.

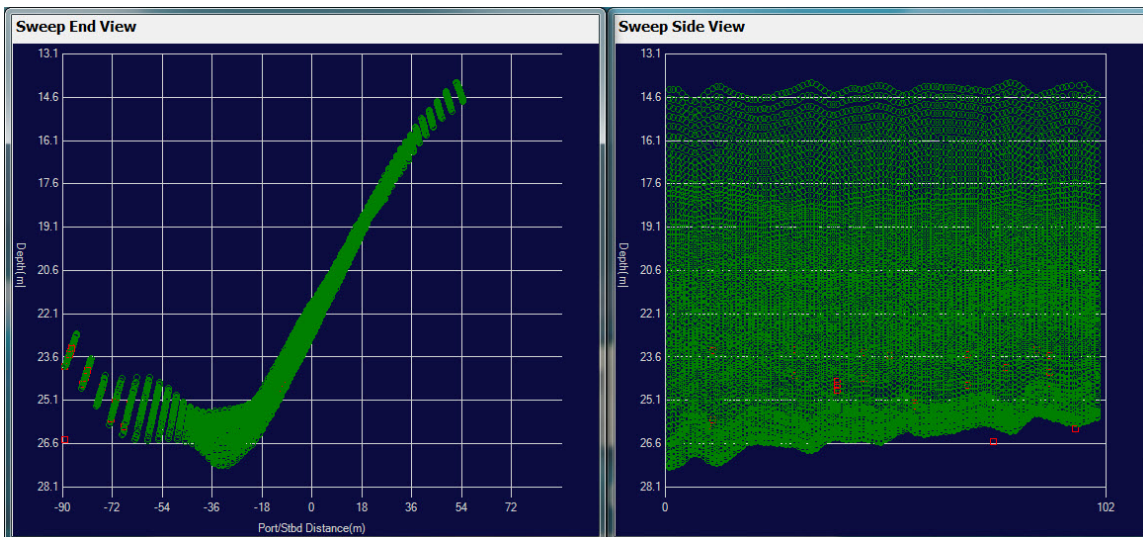
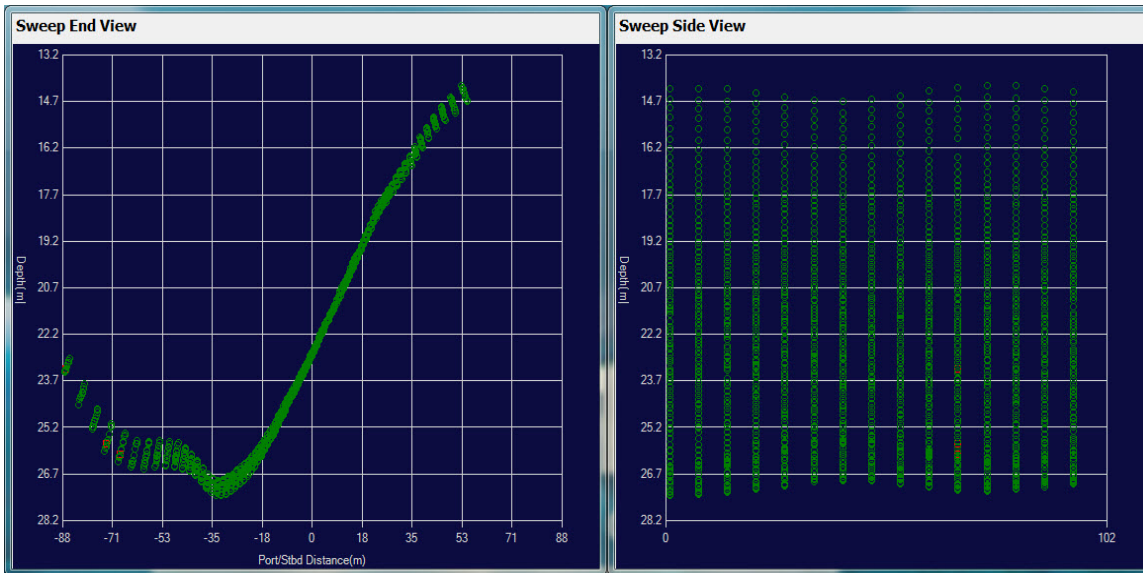


1.1.4 Sweep Length and Overlap

These controls, shown to the right, are for managing how many pings to display in the editing windows in one frame and when advancing to the next frame how many pings to overlap.

Sweep Length (pings)	<input type="text" value="15"/>
Overlap (pings)	<input type="text" value="10"/>

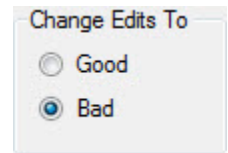
- Sweep Length (pings): this is the number of pings to display at a time in the editing window frames. Below are two examples, the top shows only 15 pings per frame while the bottom shows 100 pings per frame.



- Overlap: indicates the number of pings to repeat. In the example above with a Sweep Length of 15 and Overlap of 10, it would only repeat 5 pings. Assuming the view showed pings 300 to 314, the next frame would show pings 310 to 324.

1.1.5 Change Edits To - Good or Bad

This will set the value to be applied to the selected soundings. If 'Bad' is selected, clicking the Apply button in the control panel will change the beam flag for the selected soundings to 'Bad'.



1.1.6 Attitude Correct

Checking this box will apply attitude corrections to the soundings displayed in the editing windows.

1.1.7 XTF ping #

Checking this box will change the ping number display from a relative numbering scheme starting a one to the actual ping numbers in the raw data file.

1.1.8 Side View

Checking this box will open the Sweep Side View window (along-track display).

1.1.9 Navigation Controls

There are two methods for moving through the data file.

1. Near the bottom of the control panel are the following four buttons:



Go to the start of the line



Go backwards in file by the # of pings indicated in the Overlap field

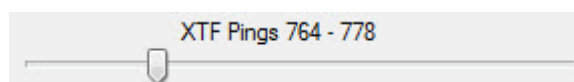


Go forwards in file by the # of pings indicated in the Overlap field



Go to the end of the file

2. Below the navigation buttons is a slider bar which can be dragged to any point in the data file. A real-time read out of the file ping number allows the users to drag the slider bar to a specific location in the file.



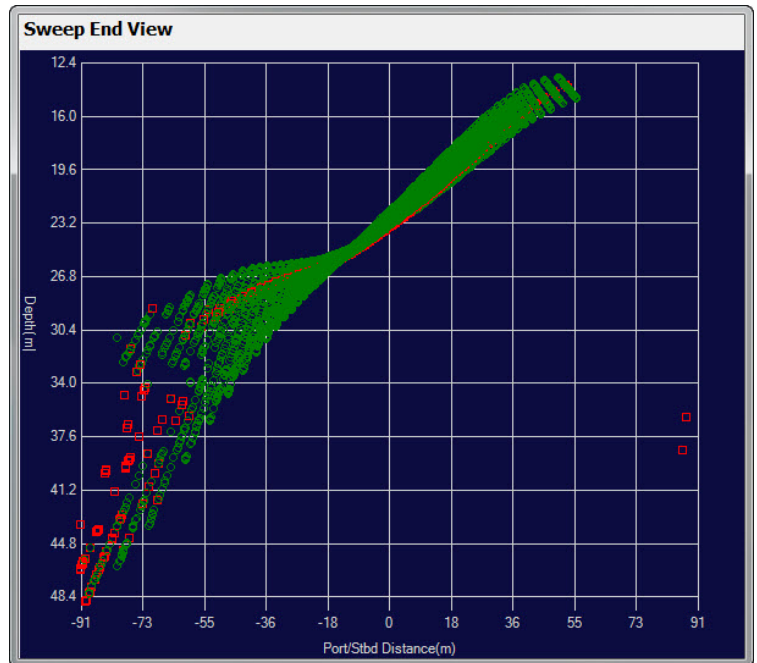
1.1.10 File Information Display

At the bottom of the control panel is a readout of the current file loaded into the Swath Editor and also the current edit file being used.

1.2 Swath Edit Window "Sweep End View"

A swath edit window is a display of the raw sounding data which allows the user to select individual soundings and manually flag them as 'Bad' or 'Good'. To the right is an example of the Sweep End View showing the across-track view of the swath data.

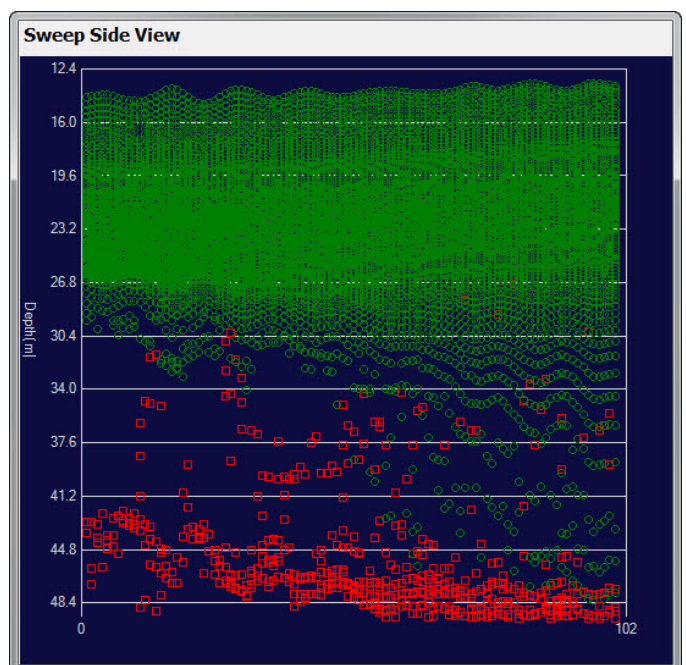
This picture shows 100 swaths overlapped with the red points indicating 'Bad' soundings and the green points indicating 'Good' soundings.



1.3 Swath Edit Window "Sweep Side View"

To the right is an example of the Sweep End View showing the across-track view of the swath data. This picture shows the same 100 swaths as above but along the trackline instead.

Note that the automatic filters in the sonar and the beam suppression filters did not remove all of the noise from this group of pings. Selecting the scattered soundings in the lower part of this display and changing their beam flags to 'Bad' will improve the quality of the final grid.



1.4 Editing Options

1.4.1 Sounding Selection

To change the beam flags of the soundings displayed in a Swath Edit Window the soundings must be selected. There are two ways to select soundings for editing.

1. **Point and Click:** As it sounds, point the cursor at a sounding and click the mouse button. When selected the point will highlight a light blue color.
2. **Select by Rectangle:** This option allows the user to draw a rectangle around as many points as desired. All points selected will be highlighted.

After the points are selected, click the Apply button in the Triton Swath Editor control panel to change the beam flags.

A couple things to note:

- Changing the beam flags does not affect the raw XTF data file. All edits are saved to either an EDT file or to the GSF file.
- The Apply button needs to be clicked before advancing to the next set of pings.
- Using the "Del" key on your keyboard is a shortcut for the Apply button.
- You can make multiple selections before hitting Apply by holding down the CTRL key.
- Make sure to select the correct setting in the "Change Edits To" option before the Apply button is clicked.

1.4.2 Saving Edits

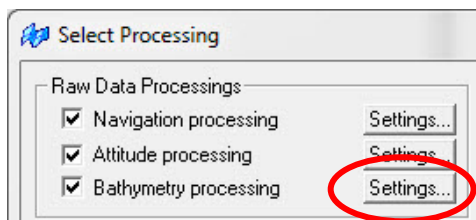
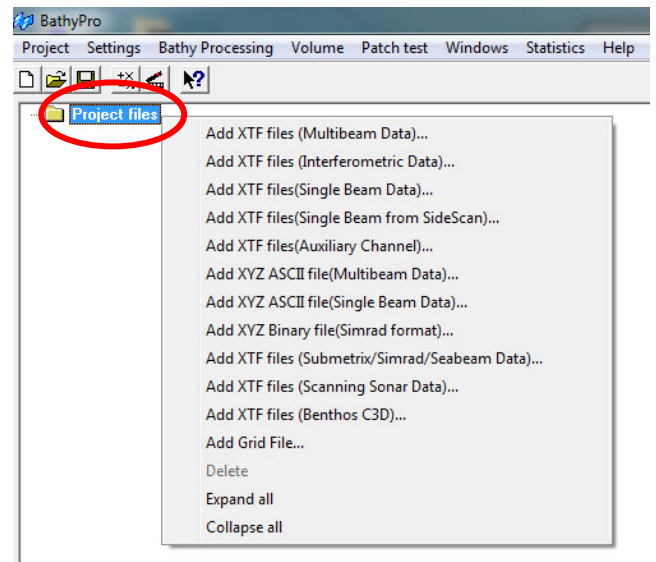
When finished editing a file, select the Save button in the control panel. For XTF files, the first time edits are saved a new subdirectory will be created (if not already there) in the XTF data folder called "edts". The edits will be written into a file which will automatically be named the same as the edited file with an "_#" at the end. The first time the file is edited the number will be zero and will increment for each time edits are saved for that file. For GSF files, the edits will be written to the GSF file as changes to the beam flags.

2.0 BathyPro Processing Workflow

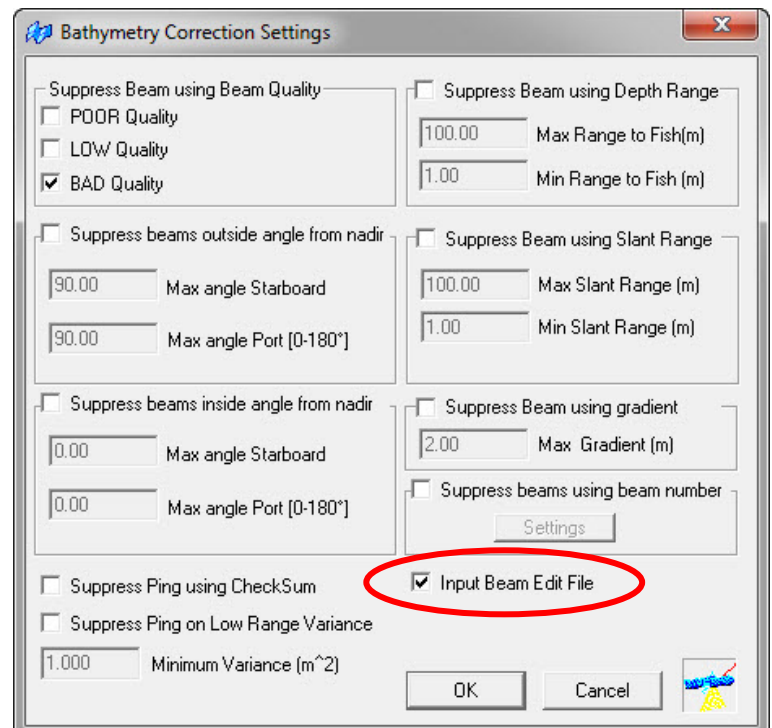
When processing bathymetry data using BathyPro, manual editing of the data is performed with the Swath Editor prior to importing the data into BathyPro. For each XTF file that is edited an EDT file is created to be applied during the processing step.

Here is an example workflow for using the Swath Editor with BathyPro:

1. Before starting, make sure all data files to be gridded together are in the same directory on the hard drive.
2. Launch the Swath Editor and edit each file as needed.
3. When finished manual editing, launch BathyPro and import the XTF files to be processed by right-clicking on the Project Files folder in the file tree and selecting the correct file format as shown to the right.
4. In the Select Processing window select the bathymetry processing 'Settings' button as shown below:



5. This will open the window shown to the right for setting the automated beam suppression filters. To apply manual edits, select the 'Input Beam Edit File' checkbox.
6. Click the 'Process' button.

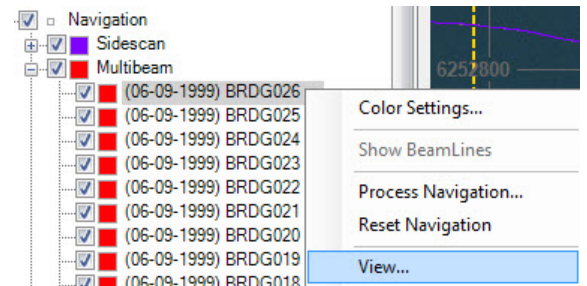


3.0 BathyOne Processing Workflow

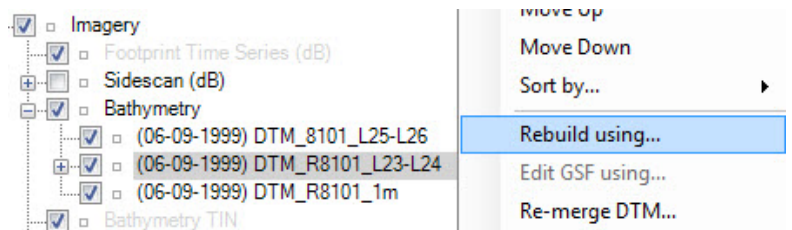
When processing bathymetry data using BathyOne, manual editing of the data is performed with the Swath Editor on *GSF* files after importing raw data into PerspectiveMap and creating a DTM file. In the process of creating the DTM, BathyOne also generates a *GSF* file for each input file. The advantage of using the *GSF* file for processing instead of the raw XTF data file is the ability to first apply automated beam suppression filters to the raw soundings, greatly reducing the amount of manual editing required.

Here is an example workflow for using the Swath Editor with BathyOne:

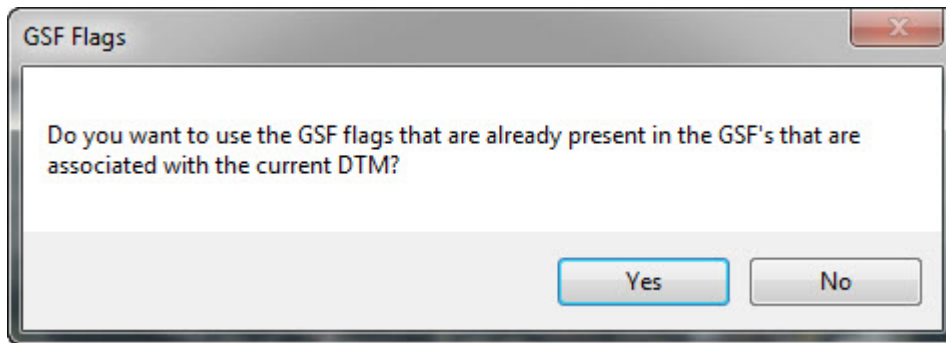
1. Import XTF files into PerspectiveMap and use the BathyOne wizard to process the bathymetry data.
2. Review the DTM generated in PerspectiveMap and identify areas that require manual editing. To reduce processing time, the Swath Viewer can be used to note the ping numbers that span the area needing manual editing. The Swath Viewer is launched by right-clicking on a bathymetry data file in the Navigation file tree and selecting 'View' (shown right) or by double clicking on the bathymetry navigation line in the map view.



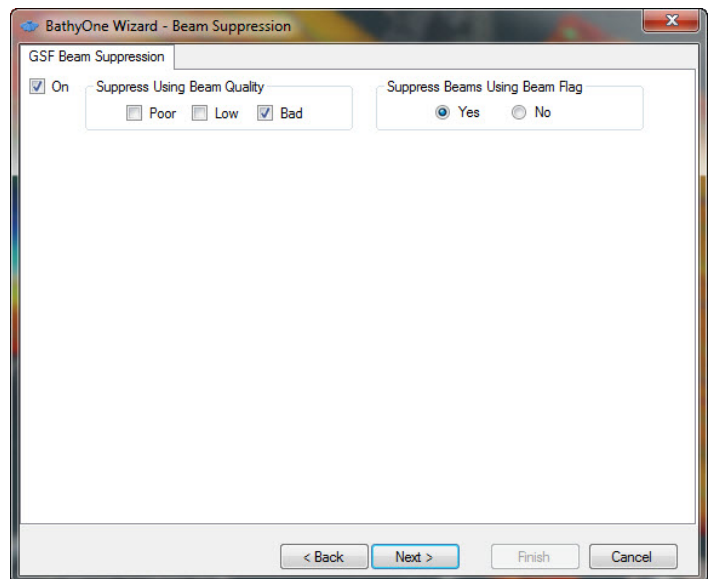
3. Launch the Swath Editor and open the *GSF* files to be processed and save the edits when finished. Note that the *GSF* files are located in a subdirectory in the DTM folder. Each DTM file has a folder with the same name containing the *GSF* files.
4. When finished editing the *GSF* files using Swath Editor, in PerspectiveMap right click on the DTM layer in the Bathymetry file tree and select 'Rebuild Using...'



A message will popup asking if you want to apply the edits in the GSF file.



Selecting 'Yes' will apply the beam flags from the GSF file during processing. The processing wizard that will popup is the same as the normal BathyOne processing wizard but the beam suppression page is limited. As shown to the right.



If you select 'No', then the edits made to the beam flags will be discarded and the full beam suppression page will be available in the processing wizard as shown below.

