



Echoview Tutorial: Getting Started

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Overview

This tutorial is optimized for Echoview 11 and provides an introduction to Echoview.

This tutorial is not intended as a comprehensive user manual.

Further information on Echoview tools and topics can be found in the latest version of the Echoview help file. This can be viewed online and is installed with Echoview. Press F1 when using Echoview to open the help file and read context-sensitive information.

Throughout this tutorial further reading is referred to the Echoview help file or other Echoview learning materials: <https://www.echoview.com/technical-support>

Prerequisites

This tutorial assumes you have Echoview installed, and the following skills and knowledge:

- Familiarity with a supported Microsoft Windows™ operating system. For more information refer to the Echoview Help file page: Computer requirements.
- A basic understanding of echosounding techniques and hydroacoustic surveying. For more information, see texts such as *Fisheries Acoustics* (Simmonds and MacLennan, 2008, Chapman and Hall, London).

Echoview modules

This tutorial requires a license with the Echoview Essentials module. If you do not yet have access to an Echoview license with this module, please contact sales@echoview.com to request an evaluation license.

Contacting Echoview

For assistance with this tutorial please contact support@echoview.com.

Troubleshooting

The files for a tutorial are typically located in C:\Echoview Software\Tutorials\. The file path may be different if you chose to install the tutorials elsewhere on your system. If the files are not in this folder, use Windows Explorer to search for them. If they are not loaded on your machine, download and reinstall the tutorial from www.echoview.com or from the Echoview USB drive.

If you receive a message saying that the version of Echoview you are running cannot read the file you have opened, you may be running an old version of Echoview. You can download the latest version of Echoview from www.echoview.com.

Topic 1: Understanding Echograms

In this topic you will learn:

- about the main features of the echogram window, and
- how to use the basic features of the echogram window to view data.

Overview of echograms

An echogram is a pictorial representation of the water column recorded by an echosounder. Data from each ping of the echosounder are represented by vertical columns on the echogram and multiple pings are displayed in time sequence. The colors within each column vary according to the value of each data sample within the column. A standard echogram presents volume or point backscatter data, but other variables can also be presented as echograms.

Working with echograms

In Echoview, the echogram window is the principal window used to display data for quality control, echo integration and analysis of backscattering strength and other data.

1. Start Echoview by selecting it from the **Start** menu or by double-clicking the Echoview shortcut on the desktop.
2. On the Welcome screen, click **Open an EV file**.
3. Browse to `GettingStarted_Topic1.EV`, click **Open**. Echoview displays an echogram window like the one shown in Figure 1.

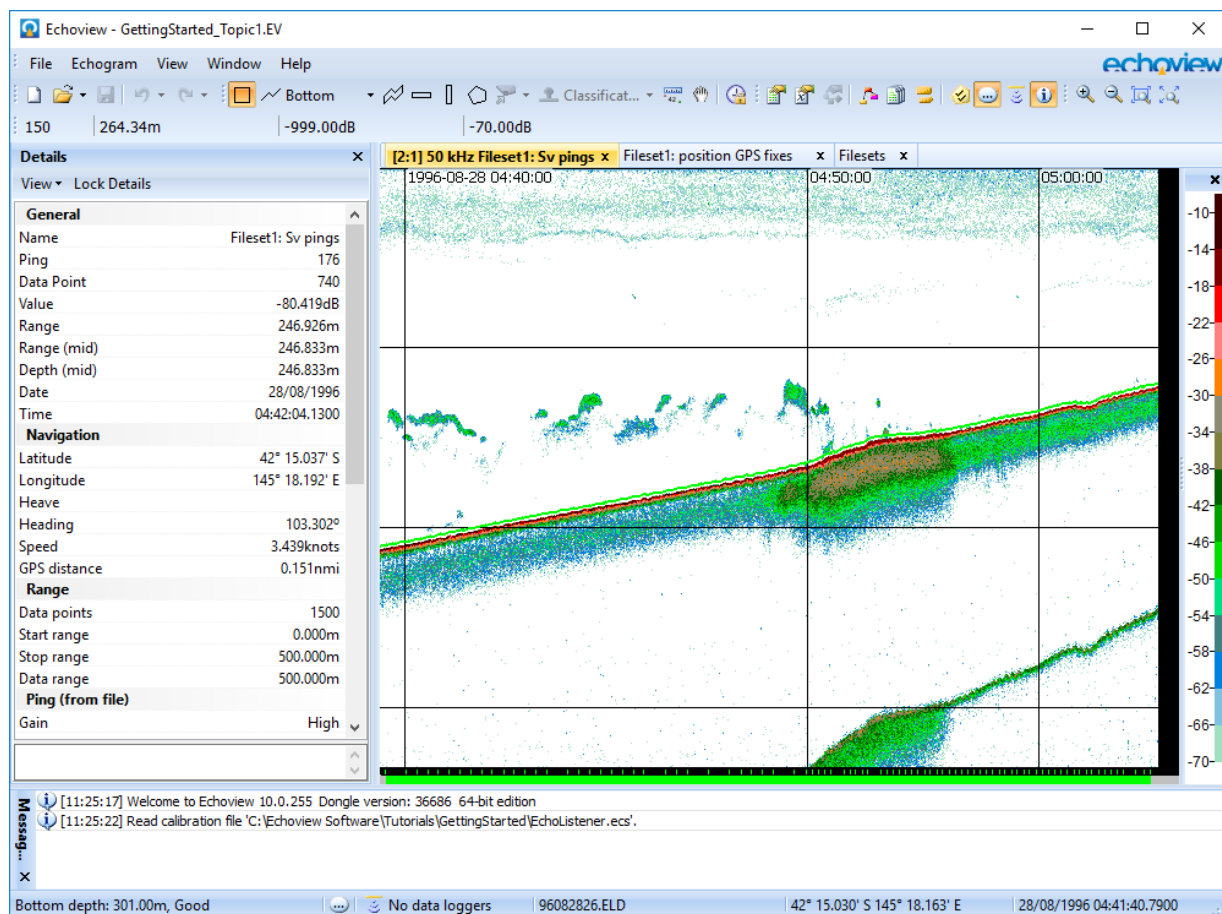


Figure 1. Echoview displaying an echogram from the `GettingStarted_Topic1.EV` file. The Details and Message dialog boxes are also displayed.

Data values

Echoview provides key information about the data point (sample) at which the mouse pointer is pointed on the:

- Tool bar (at the top of the main window)

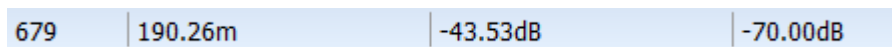


Figure 2. Information toolbar showing ping number (679), sample depth (190.26 m) and sample value (-43.53 dB) for the sample beneath the mouse pointer, and the color display minimum value (-70.00 dB).

- Status bar (at the bottom of the main window)

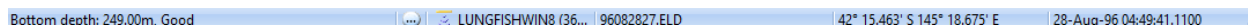


Figure 3. Echoview status bar showing the name of the active line (Bottom depth); its depth/range (depth: 249.00 m) and status (Good) of the active line on the same ping as the selected sample; a Message reminder; the data file name (96082827.ELD); the coordinates (42° 15.463' S 145° 18.675' E) and date/time (28-Aug-96 04:49:41.1100) at which the ping was recorded.

- Details dialog box on the left-hand side of the echogram.
4. Move the mouse pointer over the echogram and observe the changes on the Information toolbar, the status bar, and the Details dialog box. The information displayed in these areas is updated for each data sample over which the mouse pointer passes.

Color scheme

Echoview uses colors to represent data values. It includes many standard color schemes and allows you to create custom color schemes.

To see which values a color represents you can check the Color Legend (on the right-hand side of the Sv pings echogram).

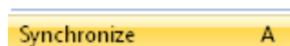
This dialog box relates colors to sample values, e.g. samples with a value in the range -70 to -66 dB will be displayed with turquoise coloring.

5. Click in the echogram window to activate it and then press and hold the – key (on the main keyboard, not the number pad) several times to reduce the Color display minimum value. The echogram and the Color Legend change as the Color display minimum setting is lowered. Samples with a value below the color display minimum value (-70 dB in the example above) are displayed in the color at the bottom of the Color Legend (white in the example above). Color display minimum is known as Display threshold in other applications.
6. Press and hold the = key to increase the color display minimum to -70 dB
7. Press Y. The color scheme changes to the alternate palette for the selected color scheme.
8. Press Y again to toggle back to the primary color scheme.
9. Right-click in the Color Legend. The color legend shortcut menu opens. You can change the color scheme, toggle the alternate color scheme and change the display settings from this menu.

Tips

- There are many shortcut key combinations in Echoview that can make data processing more efficient. Refer to the Echoview help file for a full list of shortcuts as well as instructions on how to customize shortcuts:
 - About keyboard shortcuts
 - Echogram keyboard shortcuts
 - User-defined keyboard shortcuts

- If a menu item has a shortcut it will be shown to the right of the item:



Navigating

Zooming

Echoview provides a variety of zooming tools that allow you to view data in more or less detail. You can zoom on echograms using the mouse wheel, the zoom toolbar, zoom commands on the Shortcut (right-click) menu or keyboard shortcuts.

1. Click the **Rectangle tool** on the toolbar.
2. Click and drag on the echogram to form a rectangular selection similar to the one shown below.

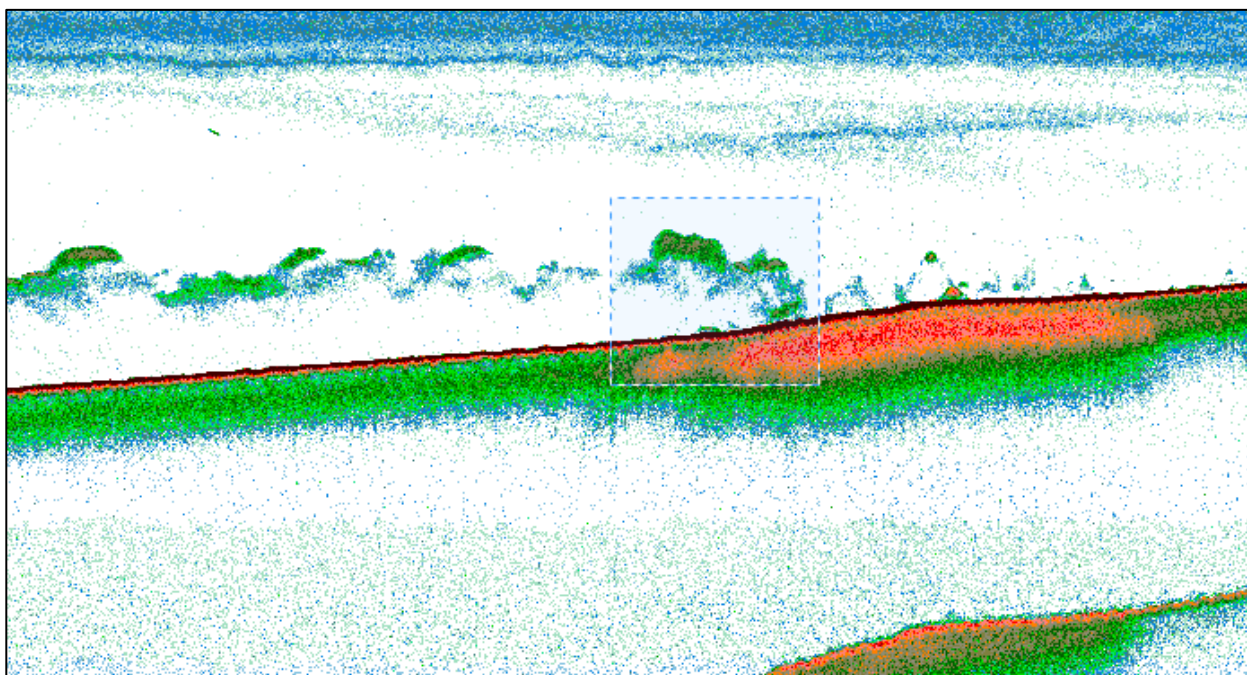


Figure 4. Echogram showing rectangular selection.

3. On the Shortcut menu (right-click), click **Zoom In**.

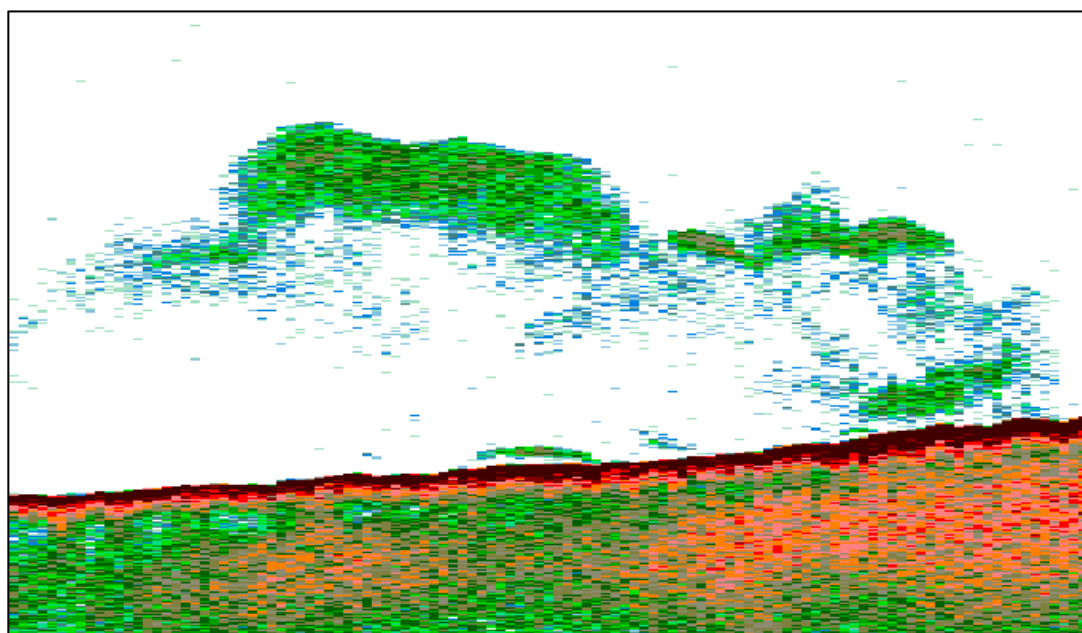


Figure 5. Echogram after zooming in.

4. Repeat steps 2 and 3 to zoom-in further.

5. On the Shortcut menu (right-click), click **Zoom Out** to zoom out one zoom level.
6. On the Shortcut menu (right-click), click **Unzoom** to zoom out to the minimum zoom level.
7. Use the center mouse wheel to zoom in and out.
8. Hold down the CTRL key and use the mouse wheel to zoom out beyond a 1:1 pixel ratio.

Scrolling

Vertical and horizontal scroll bars can be used to move around the echogram.

1. Use the rectangle selection tool to create a selection and zoom in on part of the echogram.
2. Use the horizontal and vertical scroll bars to move around the echogram.
3. Resize the echogram window to see more or less of the echogram in the horizontal (time) dimension. In the vertical dimension (depth), the echogram is dynamically scaled to fit the window.

Further information

- Echoview installs a file called `Echoview_shortcuts.cfg` that specifies some of the default keyboard shortcuts that Echoview uses. This file can be modified to specify user-defined keyboard shortcuts. For more information, refer to the Echoview help file topic - User-defined keyboard shortcuts.
- Some Echoview actions are available to the Undo or Redo features.
- You can flip the echogram so that depth or range reads from the bottom-up via a setting on the Display page of the Variable Properties dialog box.

Before moving onto the next topic, you should close the EV file without saving changes.

1. On the **File** menu, click **Close**.
2. Click **No** when prompted to save changes to the EV file.

Topic 2: Understanding Cruise Tracks

In this topic you will learn how to:

- display a cruise track
- display a map
- navigate around the Cruise Track window.

Overview of cruise tracks

A cruise track is a graphic representation of a connected series of GPS fixes collected at the same time as the ping data.

Working with cruise tracks

1. On the **Welcome Screen**, click **Open an EV file**. Browse to `GettingStarted_Topic1.EV`, click **Open**.
2. On the **View** menu, select **Cruise Track, position GPS fixes**. The **Fileset 1: position GPS fixes** window becomes the active window.
3. Close the **Sv pings** and **Filesets** windows.

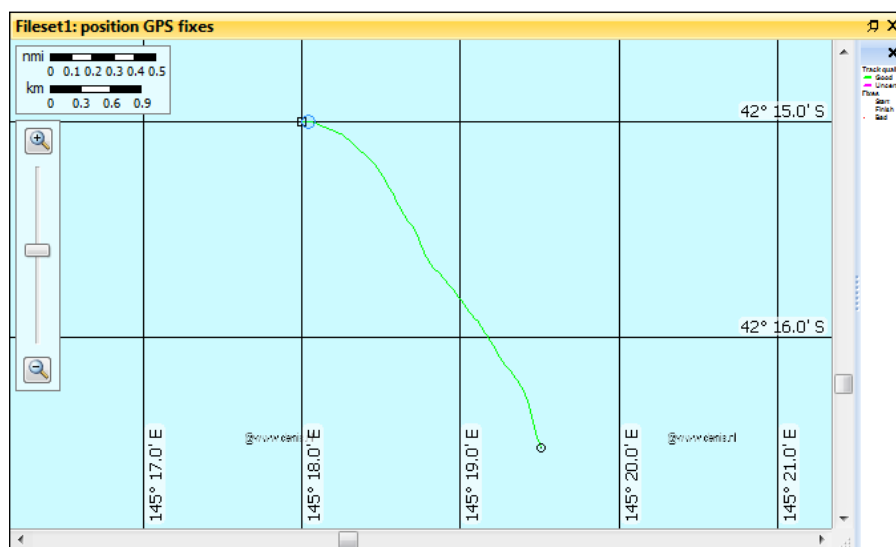


Figure 6. The Cruise Track window.

Loading maps

Echoview allows you to load map files into the Cruise Track window.

4. On the **View** menu, click **EV File Properties** (or press F6).
5. Click the Mapping tab.

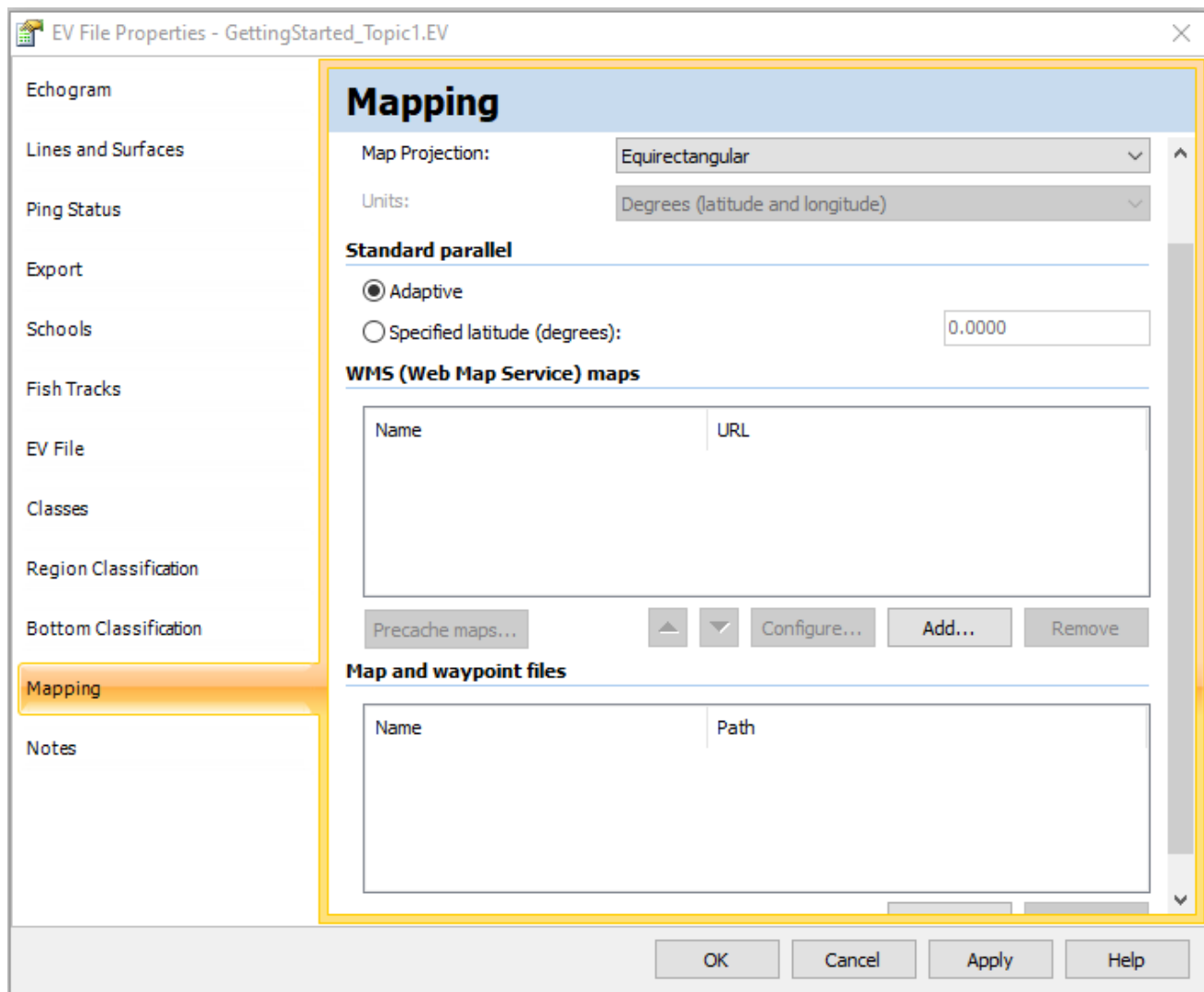


Figure 7. Mapping page of the EV File Properties dialog box

6. Scroll down to the **Map and waypoint files** section. Click **Add**. The Add Map File dialog box is displayed.
7. Select the file `tasmania2pts.MIF`. Click **Open**.
8. Click **OK**.
9. Zoom out in the cruise track window. A map of Tasmania and the cruise track are displayed. This has changed the scale of the Cruise Track window and the cruise track may be hard to see. However, if you look closely, you can see the cruise track in the Macquarie Harbour area.

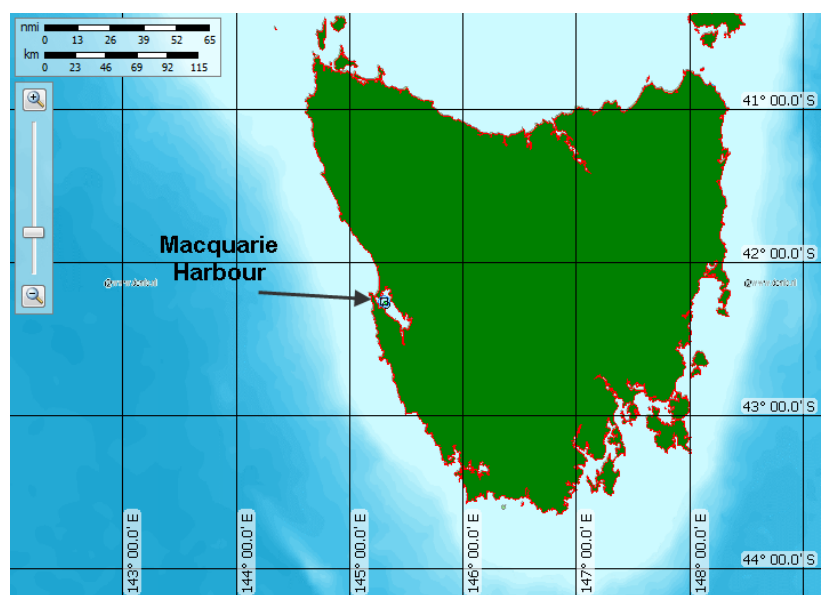


Figure 8. Cruise Track window showing the map of Tasmania.


10. Make a selection over the Macquarie Harbour area (as shown above) by clicking the mouse and dragging.
11. Use the mouse wheel or the **Zoom In tool**  to zoom in. The horizontal and vertical scroll bars are now displayed.



Figure 9. Map zoomed into Macquarie Harbour with a selection made over the cruise track area.

12. Make a selection around the cruise track and zoom in further.

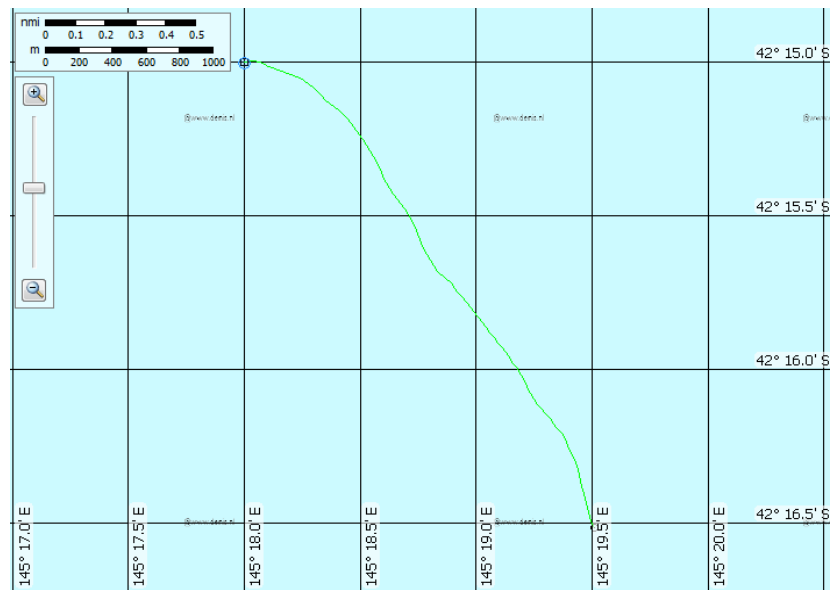


Figure 10. Map of Tasmania with the cruise track area enlarged.

Synchronizing echograms with a cruise track

Echoview allows you to synchronize echograms with a cruise track.

13. On the **View** menu, select **Echogram, Sv pings**.
14. Arrange the echogram and the cruise track so that they are displayed side by side. Point to the end of the cruise track (the black circle).
15. From the **Shortcut** (right-click) menu, click **Synchronize**. The data logged at the end of the cruise track is displayed in the Echogram window.
16. Point to the start of the cruise track (the black square) on the Cruise Track window.
17. From the **Shortcut** (right-click) menu, click **Synchronize**. The data logged at the start of the cruise track is displayed in the Echogram window.

Further information

- The **Vertical band tool** enables you to make a selection on a cruise track and define regions. For more information, refer to the Echoview help file topic “Using cruise tracks – Define a region”.

To remove a map file from your EV File:

1. Open the EV File Properties dialog box (F6).
2. Click the **Mapping** page.
3. Select the map and click **Remove**.

To keep a map file in your EV File, but remove it from view in the Cruise Track window:

1. Ensure the **Cruise Track** window is selected.
 2. Open the Variable Properties dialog box (F8).
 3. Click the **Cruise Track Display** page.
 4. Clear the map in the **Map display** section.
- Echoview can use WMS maps in cruise track windows to provide context.
 - An alternative GPS processing method (to account for early bad fixes) is available on the Data page of the cruise track Variable Properties dialog box.
 - The Echoview status bar displays the Cartesian co-ordinate calculated area of a rectangular or polygon selection made in a Cruise Track window. Refer to the Echoview help file “Using cruise tracks” for more information.
 - Echoview supports ESRI shapes.

Before moving onto the next topic, you should close the EV file without saving changes.

1. On the **File** menu, click **Close**.
2. Click **No** when prompted to save changes to the EV file.

Topic 3: Files and Filesets

In this topic you will learn:

- about the Filesets window
- how to load data files into Echoview
- what an EV file is
- how to use EV files to manage your data.

Working with data files and filesets

Definitions

You need to understand the following terms to continue with this topic:

Term	Definition
Data file	Files of data logged from echosounders and other equipment. Data files are usually primary information archived from a survey. Note: Data files are never modified by Echoview.
Variable	An Echoview "variable" is a time-series of measurements of one data type. An acoustic variable, where the data is made up of pings, can be displayed as an echogram. A position variable, where the data is made up of GPS fixes, can be displayed as a cruise track. Other variable types are also possible.
Fileset	A set of data file(s) and the variable(s) derived from those data file(s).

The Filesets window

The **Filesets window** is used to manage filesets, data files and variables. It can contain a single fileset or multiple filesets. Each fileset will be displayed on a separate tabbed page.

Open `GettingStarted_Topic4.EV`.

1. On the View menu select **Filesets**. The Filesets window is displayed. This window has three distinct sections: the *Data Files* section at the top, a *Calibration file* section in the middle and *Raw Variables* at the bottom.

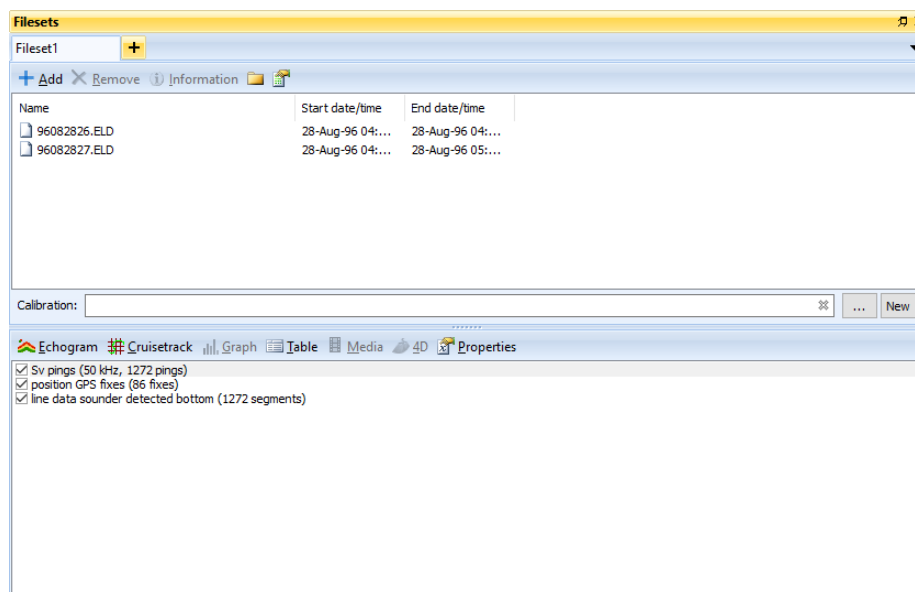


Figure 11. The Filesets window.

Data Files section

The **Data Files** section of the Fileset window displays the name and folder of the data file(s) that have been added to the current fileset as well as the time of the earliest and latest ping in each data file.

Calibration file section

The **Calibration file** section of the Filesets window displays the calibration file used for the fileset, if selected. Buttons enable you to browse to add, remove or edit a calibration file.

Raw Variables section

The **Raw Variables** section of the Filesets window displays information on the variables (telegrams/tuples and other measurements) that Echoview has derived from the data file(s). Raw variables may be viewed in several ways - this is achieved through context-sensitive buttons. The Properties button for a variable is always available.

The **Data Files** section in this EV file contains two data files and the **Raw Variables** section contains three variables (Sv pings, position GPS fixes and a sounder-detected bottom line). Echoview allows you to add multiple data files of the same type to a fileset (e.g. multiple data files from the same survey) and when it detects common data types in these files (e.g. a common telegram) it derives a single raw variable that incorporates measurements from these files. This allows you to view data that was logged in multiple data files as a single echogram and to analyze data in multiple data files by analyzing a single variable.

Tips

- For further information about the Filesets window refer to the Echoview help file:
 - About the Filesets window.
 - Filesets window shortcuts.
- The shortcut for the Filesets window is F10.
- You can copy data file paths from the Filesets window.
- Problems in data files are flagged when they are first added to the Filesets window. Flags appear as messages in the Messages dialog box.
- Echoview supports data files of any size.
- You can use Echoexplore to find and catalog compatible echosounder and sonar data files on your computer. You can download Echoexplore from the [Echoview website](http://www.echoview.org/echoexplore/).

Working with EV files

Echoview uses EV files to organize data files and filesets. You might create a single EV file containing all the data for a complete survey, an EV file for each transect of a survey, or an EV file for each day of a survey.

Creating an EV file

1. On the **File** menu, click **New**. If the New EV File dialog box is displayed, click **No Template**. The Dataflow and Filesets windows are displayed.

Adding data files to an EV file

2. Click **Add** in the Filesets window. The Add Data files dialog box is displayed.
3. Select the data file `DemoData.ek5`. Click **Open**. The `DemoData.ek5` file is displayed in the **Data Files** section of the Filesets window. This data file contains 14 raw variables that are listed in the **Raw Variables** section as shown.

You could add other .ek5 files to this fileset (e.g. data files from earlier or later in the same survey) and Echoview would add the pings from those files to existing variables. This allows you to view a continuous echogram rather than separate echograms for each data file.

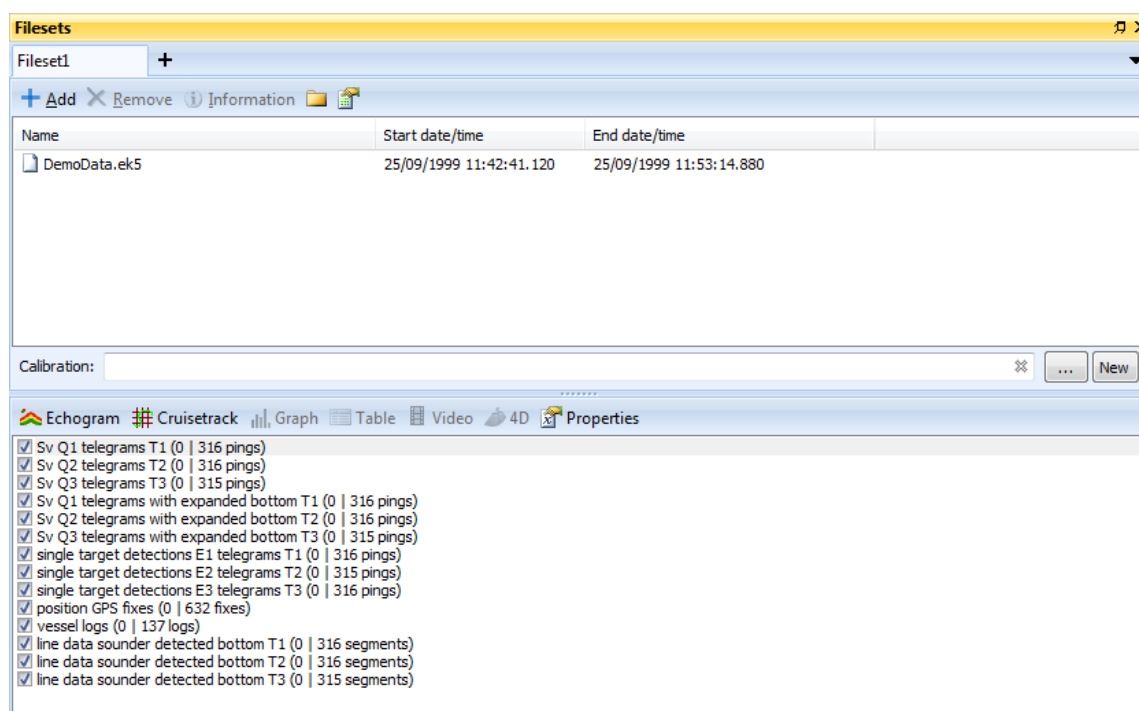


Figure 12. Filesets window with the Demodata.ek5 data file added.

Displaying the echogram of a variable

4. In the Raw variables section, click **Sv Q1 telegrams T1**.
5. Click **Echogram**. The echogram of **Sv Q1 telegrams T1** variable is displayed.

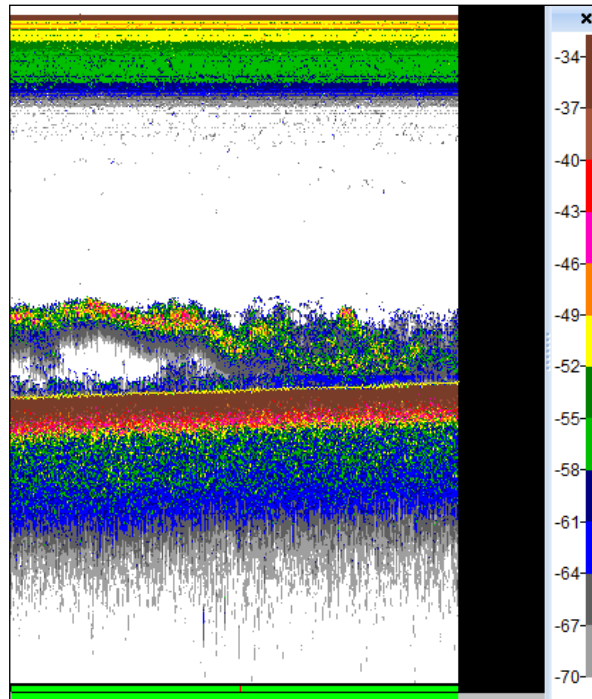


Figure 13. Echogram of the Sv Q1 telegrams T1 variable

6. In the Raw variables section, click **Sv Q2 telegrams T2**.
7. Click **Echogram**. Echoview displays the echograms for the **Sv Q1 telegrams T1** and **Sv Q2 telegrams T2** variables simultaneously.

Saving an EV file

8. On the **File** menu, click **Save As**. The **Save As** dialog box is displayed.
9. Select the folder in which the tutorial data have been saved.
10. In the **Filename** box, type **GettingStarted_Topic3**. Echoview adds the .EV file extension automatically when you save the file.
11. Click **Save**.

Saving your workspace

Your workspace “remembers” the windows that are displayed in Echoview, together with their positions and contents. Echoview can save this workspace so that when you open this EV file again, you find it the way you left it.

12. Adjust the borders between the windows that you have open.
13. Zoom into a part of the Sv echogram
14. On the **File** menu, click **Close**.
15. On the **File** menu, click **Exit**.
16. On the **Welcome Screen**, under **Recent files** click on the EV file name. Echoview opens the EV file, and displays the window as you left it.
17. On the **View** menu, click **EV File Properties**.
18. Click the **EV File** tab. Under **Workspace** look at the **When EV file is opened** list. You can configure the Echoview workspace behavior. Press F1 for Help. The workspace is saved in the same folder as your EV file, in a file of the same name with the .evwx extension.
19. You may close the EV file.

Topic 4: Bottoms and Lines

In this topic you will learn about sounder-detected bottoms (which are categorized as raw lines), editable lines and virtual lines.

Working with sounder-detected bottom lines

Overview of sounder-detected bottom lines

Echoview can derive the (recorded) sounder-detected bottom from most data files and displays it as a line on an echogram.

1. Open the `GettingStarted_Topic4.EV` file.
2. Display the Sv pings echogram.
3. Click the echogram and on the **Shortcut** menu (right-click) select **Variable Properties**.
4. Click the **Lines** page.
5. Click **Fileset1: line data sounder-detected bottom**.
6. Click **OK**. The sounder-detected bottom line is displayed as a yellow line running above the dense green/blue bottom area on the echogram. A close look at the yellow line in this EV file will reveal that the sounder-detected bottom is not accurate (you may have to scroll to the right depending on the display settings on your PC). In this example, the sounder-detected bottom line has jumped from the bottom echo to the second bottom echo.

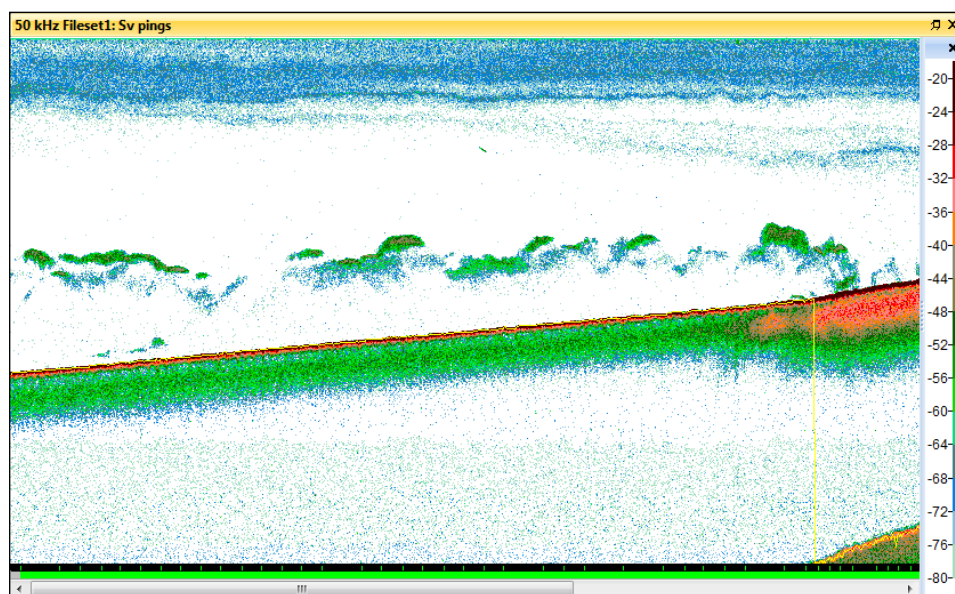


Figure 14: The yellow sounder-detected bottom line on the Sv pings echogram.

Changing line display thickness and color

Echoview allows you to specify a custom line thickness and line status color for a line variable.

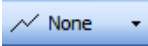

7. Click on the sounder-detected bottom line and on the **Shortcut** menu (right-click) select **Line Properties**.
8. Click the **Display** page.
9. Select **Custom**.
10. Use the up or down arrow to change the line thickness.
11. Click on the color panels to change the default line status colors.
12. Click **OK**. The line is now displayed in your chosen thickness and color.

Working with editable lines

Overview of editable lines

Echoview allows you to create any number of editable lines and each line can be given a name. You can create editable lines in a number of ways, including:

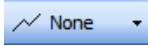

- hand drawing the line
- specifying a fixed depth
- using a line pick algorithm to detect the seafloor
- applying an offset (linear or angle offset) to an existing line.

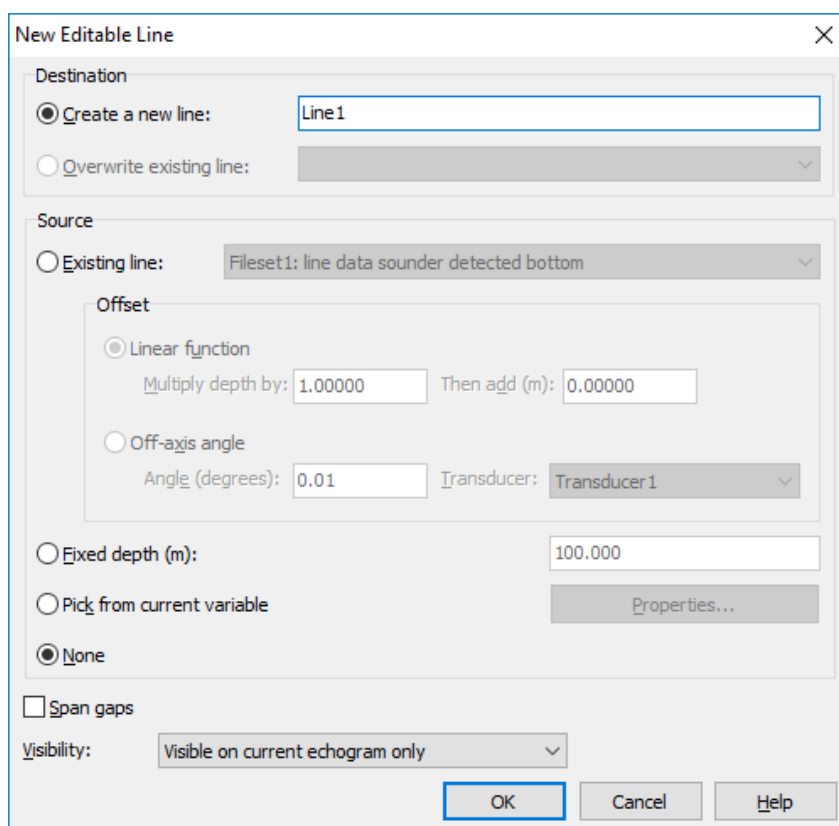
You can use the **Line and Surface** tool  or open the Dataflow window  to create new editable lines.

Creating lines using a line pick algorithm

You will practice creating lines using a line-pick algorithm and specifying a fixed depth in this topic. Refer to the help file for information about creating lines using the other methods.

In this exercise, you will create a new line using the default line pick algorithm. This algorithm is tuned for echo integration and will create a line that is just above the bottom echo.

- On the Echogram tools toolbar, click the **Line and Surface tool** list , and then click **New Editable Line**. Alternatively, click **Dataflow**  to open the Dataflow window. Click **Fileset1: SV pings** to select it, then on the **Shortcut** menu (right-click), point to **New**, and click **Editable Line**. The New Editable Line dialog box is displayed.



The dialog box is titled "New Editable Line" and contains the following sections:

- Destination:**
 - ☒ **Create a new line:** Line1
 - ☐ **Overwrite existing line:** (dropdown menu)
- Source:**
 - ☐ **Existing line:** Fileset1: line data sounder detected bottom
 - Offset:**
 - ☒ **Linear function:**
 - Multiply depth by: 1.00000
 - Then add (m): 0.00000
 - ☐ **Off-axis angle:**
 - Angle (degrees): 0.01
 - Transducer: Transducer1
 - ☐ **Fixed depth (m):** 100.000
 - ☐ **Pick from current variable:** Properties...
 - ☒ **None**
- ☐ **Span gaps**
- Visibility:** Visible on current echogram only
- Buttons:** OK, Cancel, Help

Figure 15: The New Editable Line dialog box.

- In the **Create a new line** box, type: New Bottom. You could name the line anything you wanted.
- Under **Source**, click **Pick from current variable**.

16. Select Span gaps.
17. Click **OK**. The new editable line is displayed as a green line on the echogram.

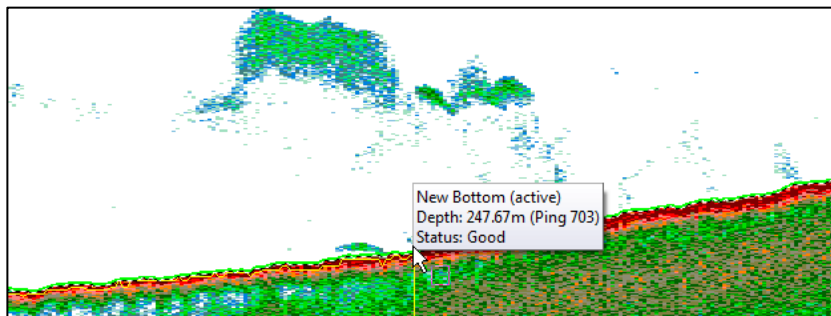



Figure 16: The active New Bottom line as a running line.

Creating fixed-depth lines

Lines can also be created with a fixed depth. In this example, you will create a fixed-depth line that could be used to exclude transducer ring-down from the echo integration area.

18. Click the **Rectangle** tool  on the toolbar.
19. Make a rectangular selection at the top of the echogram that includes the surface area (as shown below).
20. Zoom in on the selection.
21. Adjust the **Color display minimum** until it is -79dB . The echogram should appear similar to the example below.

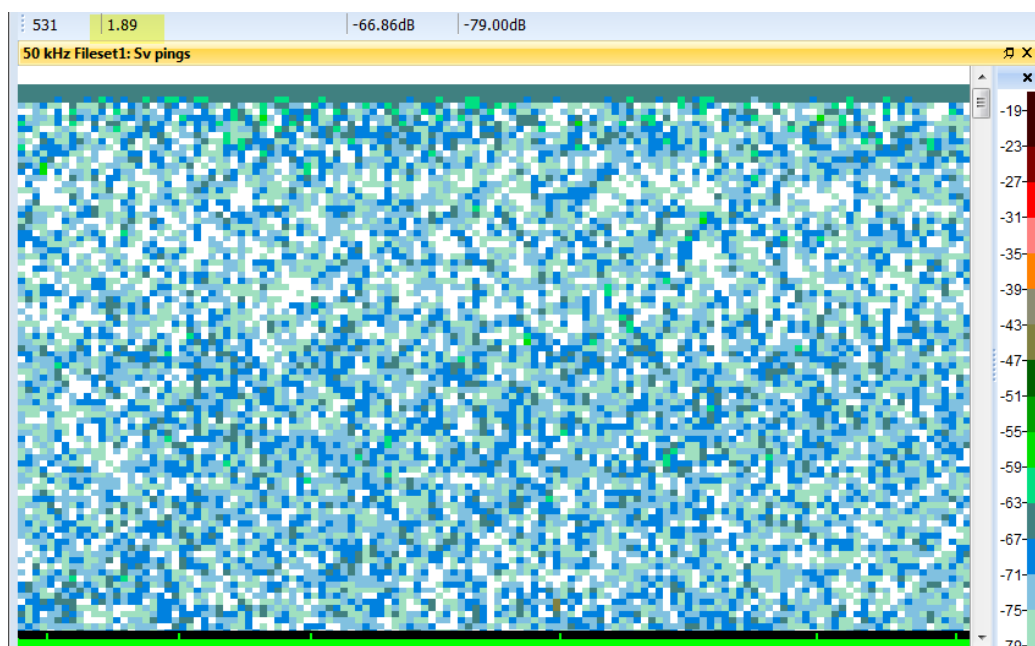
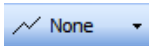



Figure 17: Echogram showing high sample values (the blue-gray band) in the first 2 meters.

22. Point to the bottom of the blue-gray band at the top of the echogram. The depth displayed in the tool bar shows approximately two meters. You now know the required depth of the fixed-depth line that you will create.
23. On the Echogram tools toolbar, click the **Line and Surface tool list**  and then click **New Editable Line**. Alternatively, click **Dataflow**  to open the Dataflow window, then on the **Shortcut** menu (right-click), point to **New**, and click **Editable Line**.
24. Under Destination, click **Create a new line**.

25. In the **Create a new line** box, type: Fixed-depth line.
26. Under Source, click the **Fixed depth** option.
27. In the **Fixed depth** box, type: 2.5.
28. Click **OK**. The fixed-depth line is displayed on the echogram.

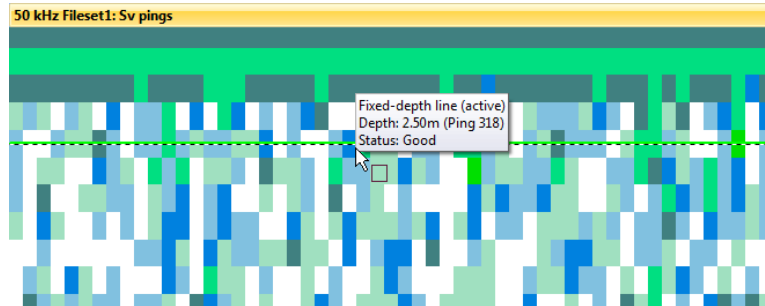


Figure 18: Echogram showing fixed-depth line at 2.5 meters.

Choosing which lines are visible on an echogram

Lines are stored in the EV file and are displayed by default on only the active echogram. You can however select which lines to display on each echogram.

29. On the Echogram menu, click **Variable Properties**. The Variable Properties dialog box is displayed.
30. Click the **Lines** tab.

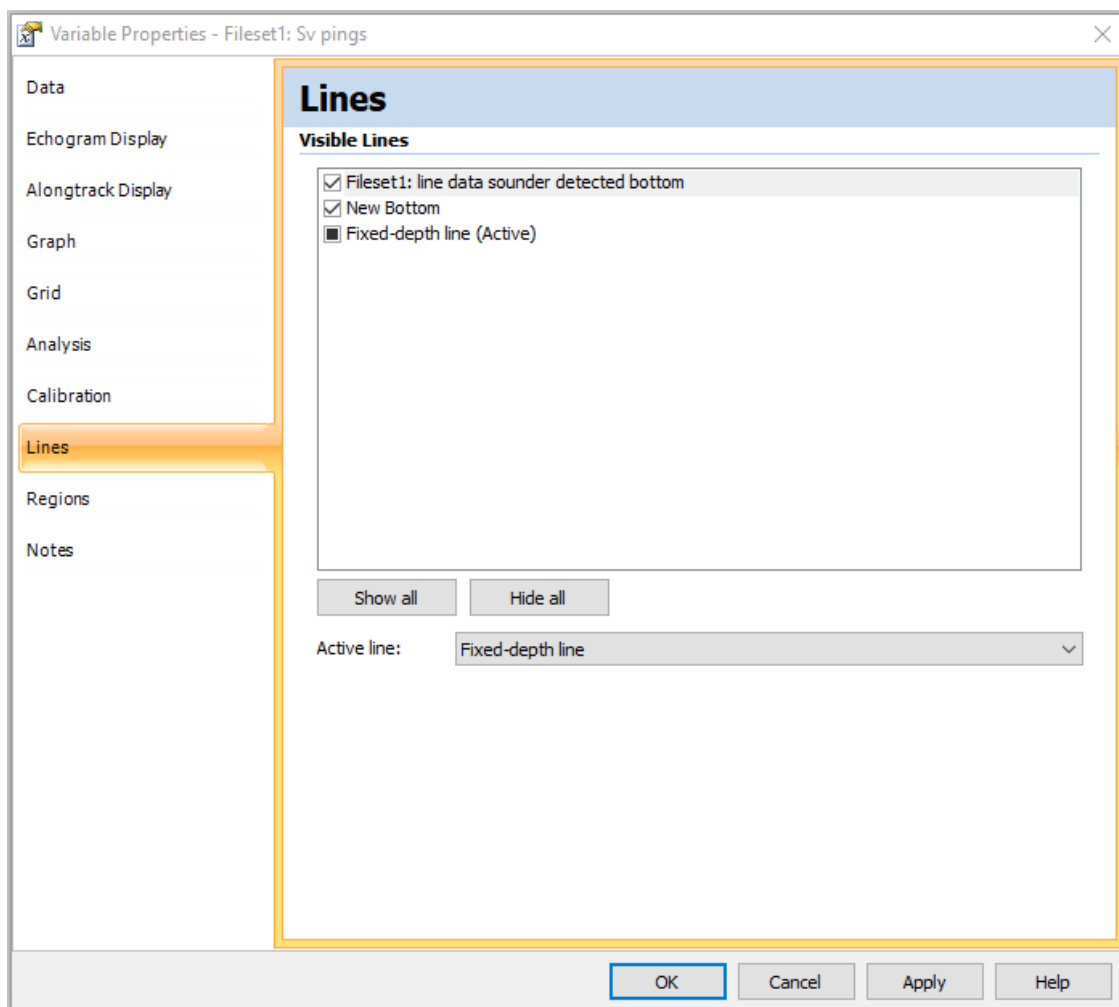


Figure 19: Lines page of the Variable Properties dialog box showing visible and active line.

31. Clear the sounder-detected bottom option.
32. Click **OK**. The sounder-detected bottom line is no longer displayed on the echogram. You may need to zoom out to confirm this.

Editing lines

You can manually edit editable lines (but not sounder-detected bottoms - they are read from the data file and cannot be changed).

33. Make a selection on the echogram at the location shown below.

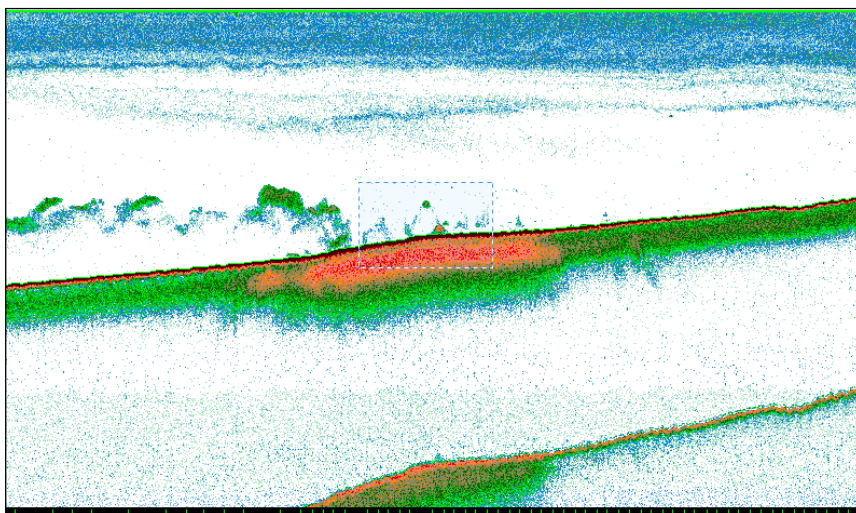


Figure 19: Echogram showing selection to be zoomed.

34. Zoom in to see more detail.

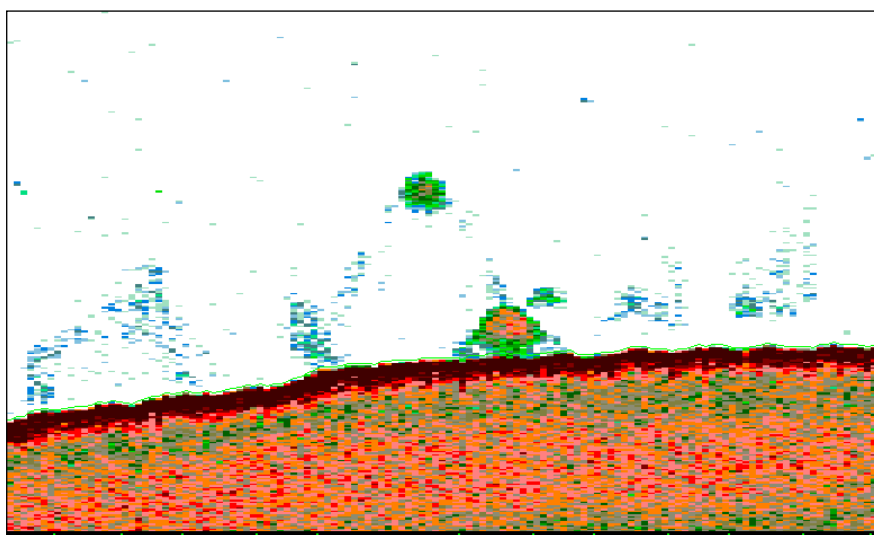


Figure 20: Echogram zoomed in over selection.

35. Click the **Line and Surface** tool.
36. On the drop down list, click **New Bottom**. New Bottom is selected as the active line to which edits will be applied.

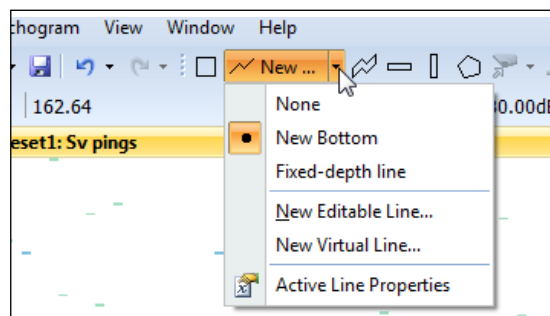


Figure 21: Echoview toolbar with New Bottom, Line and Surface tool selected.

37. Progressively click from left to right (or click and drag) over the object that appears to be just above the bottom. **Note:** Line edits can be finer than single pings and single-sample depths.

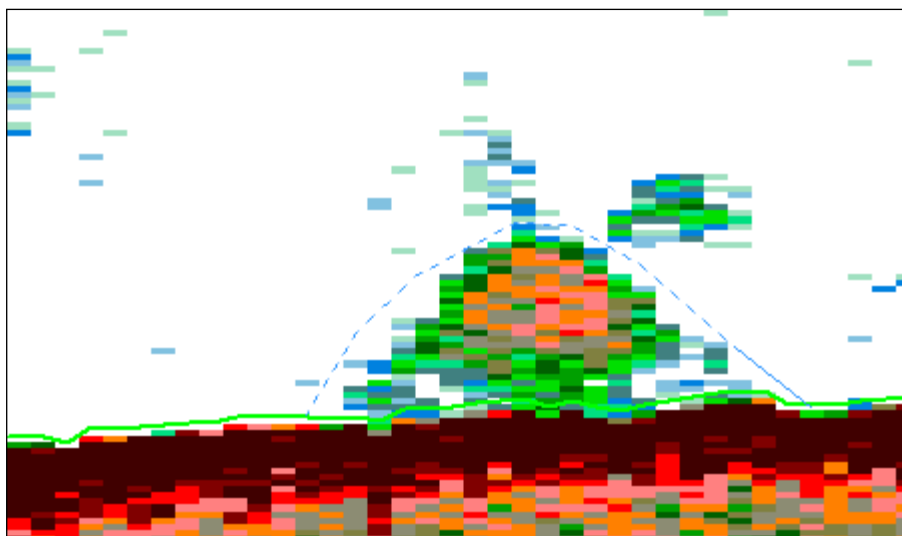


Figure 22: Echogram showing line drawing over bottom object.

38. On the **Shortcut** (right-click) menu, click **Update Active Line**. The line is redrawn over the object as shown below.

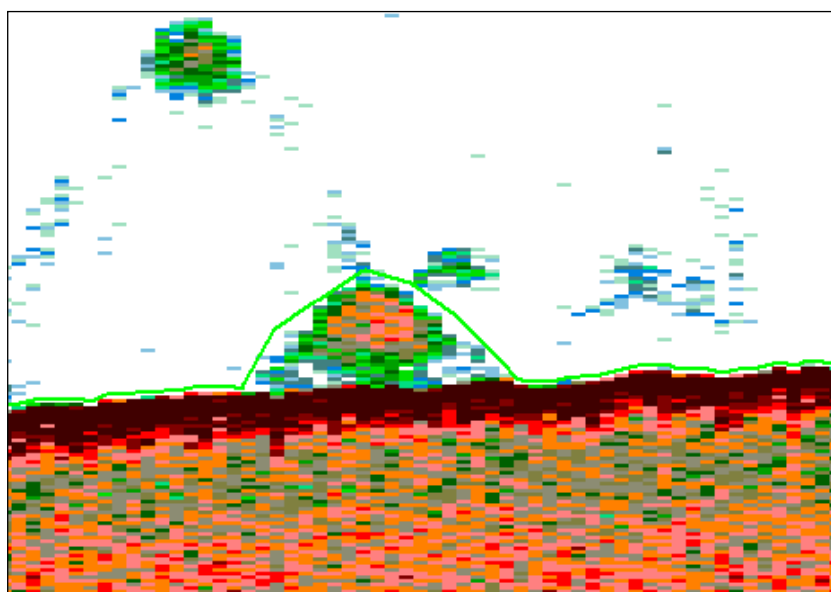


Figure 23: Echogram showing the redrawn line.

Working with virtual lines

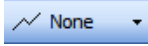

Overview of virtual lines

In addition to editable lines and raw lines, Echoview supports a category of lines known as virtual lines.

Virtual lines are lines that are defined relative to a line, another virtual line, or a raw line. The relationship between a virtual line and the line on which it is based is dynamic, that is, if you change the reference line the virtual line will be updated automatically. For example, if you had defined a virtual line based on the New Bottom line you created in an earlier exercise, the virtual line would have been redrawn automatically when you edited the bottom line.

Creating virtual lines

In this example you will create a virtual line that is offset by -10 meters from the New Bottom line.

39. On the **Shortcut** (right-click) menu, click **Unzoom**.
40. On the Echogram tools toolbar, click the **Line and Surface tool** list , then click **New Virtual Line**. Alternatively, click **Dataflow**  to open the Dataflow window, then on the **Shortcut** menu (right-click), point to **New**, and click **Virtual Line**.
41. From the Operator list, select **Linear offset**.
42. In the **Name** box, type: New bottom minus 10 meters.
43. Click **OK**. The Line Properties dialog box is displayed.

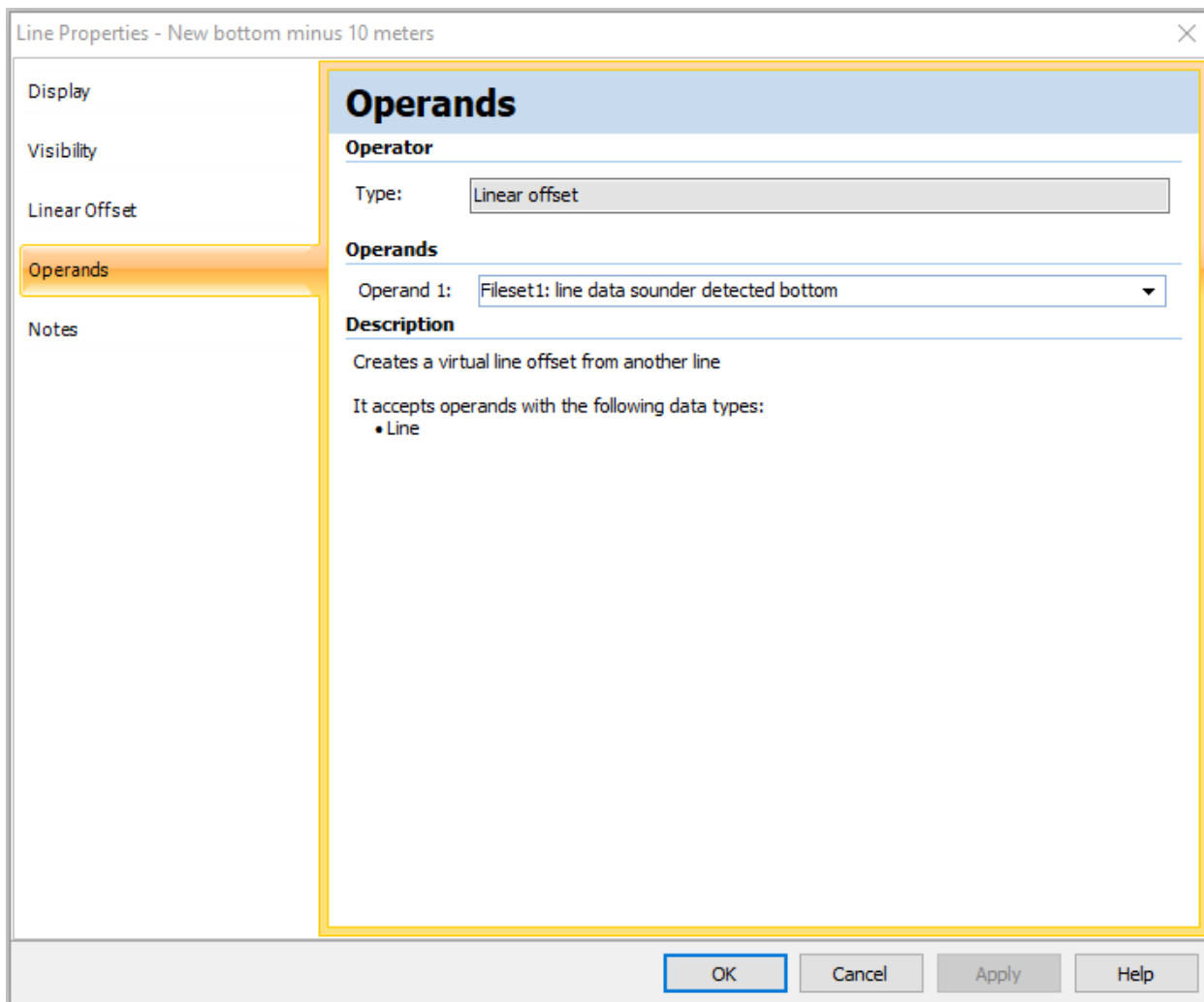


Figure 24: Line Properties dialog box.

44. Click the Operands page.
45. In the Operand 1 list select **New Bottom**.
46. Click the Linear Offset page.
47. In the **Multiply depth by** box, type: 1.
48. In the **Then add** box, type: -10.
49. Click **OK**. The virtual line is displayed as a green line with a dashed pattern and appears 10 meters above the New Bottom line.

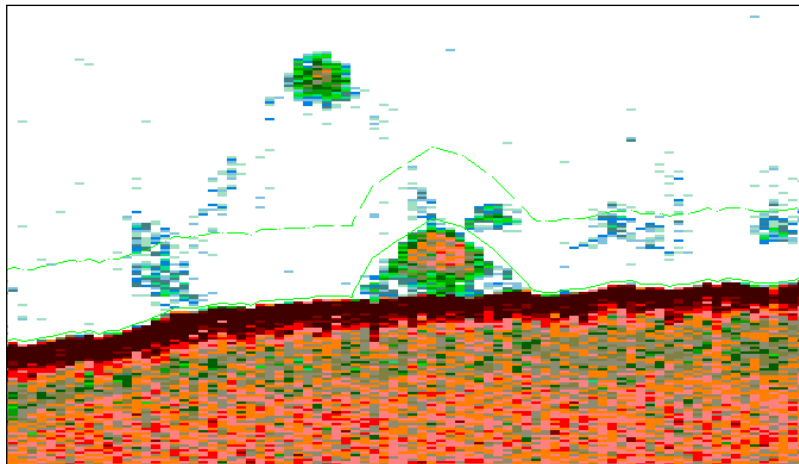


Figure 25: An echogram displaying a virtual line 10 m above the acoustic bottom line.

Try editing the **New bottom** line again and observe that the virtual line is automatically updated.

Further information

- Raw lines include sounder-detected bottom lines and line data read from data files. Raw lines can represent depths from a sensor (trawl or other types of depth information) or heave. Raw lines can't be edited but you can create editable lines based on raw lines.
- Operators create virtual lines. There are virtual line operators that are equivalent to editable line types and line manipulation operators that can crop, combine or filter lines.
- There are several line pick algorithms available. The line pick algorithm is specified under (F6) **EV File Properties: Lines and Surfaces**. A line pick is started using **Pick New Line** from the (right click) **Shortcut** menu.
- The color and thickness of any line can be customized in the Line Properties dialog box.
- For more information about lines, line settings and line uses refer to the Echoview help file: About lines.

Before moving onto the next topic, you should close `GettingStarted_Topic4.EV` file.

It is recommended that you save the file with a different name (using Save As) so you can repeat this topic at a future date if required.

Topic 5: Selections and Regions

In this topic you will learn how to make selections and create and edit regions.

Overview of selections and regions

Selections and regions are subsets of an echogram and can be used for some or all of the following:

- to place visual markers on an echogram.
- for on-screen analyses.
- to select data for inclusion or exclusion from on-screen and export analyses.


Note: This topic does not cover the uses to which selections and regions can be put. For more information about how they can be used, refer to other tutorials and the help file.

Working with selections



Selections can be used for on-screen analyses, to define regions, to select the single targets to include in a fish track, etc. Echoview provides multiple selection tools to ensure you can make selections quickly and accurately.

1. Open the `GettingStarted_Topic4.EV` file.
2. Display the Sv pings echogram.

Making selections using the Rectangle tool

The first tool on the tool bar that you can use to make a selection is the **Rectangle** tool . You have used this tool in previous topics to define areas to zoom-in on. The rectangle tool allows you to make a rectangular selection on the visible portion of an echogram.

Making selections using the Horizontal band tool and Vertical band tool

The **Horizontal band** tool  and **Vertical band** tool  allow you to make rectangular selections that span the entire horizontal and vertical dimensions of the echogram respectively.

3. Click in the Echogram window.
4. Click the **Horizontal band** tool.
5. Move the mouse pointer to a depth of approximately 200 meters on any ping on the echogram. The depth of the sample at which the mouse pointer is pointing is displayed in the tool bar.
6. Click and drag the cursor to depth of approximately 250 meters.
7. Release the mouse button. A horizontal selection is created between the depths of 200 meters and 250 meters.

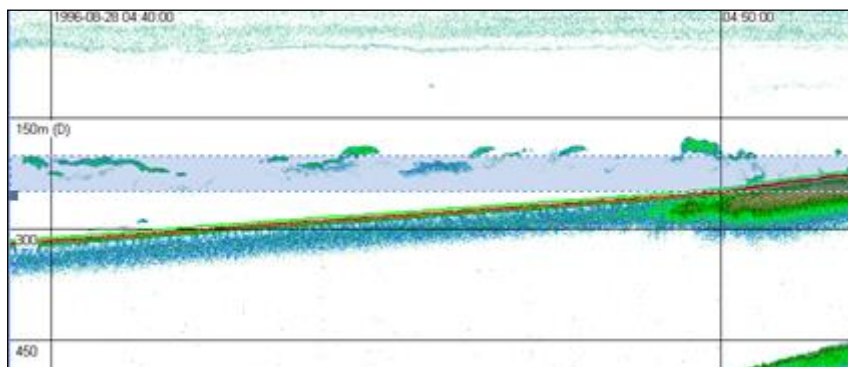


Figure 26: A horizontal selection on an echogram.

8. Use the horizontal scroll bar to scroll to the right. You will notice that the selection spans the entire echogram.

The **Vertical band** tool works in a similar way but defines a selection in the vertical dimension. You can practice using this tool now if you wish.

Making selections using the Parallelogram tool

The **Parallelogram** tool  allows you to make selections that are not perfectly vertical or horizontal, e.g. a selection that follows the bottom or a fish track.

In the following example, you will create a selection with a thickness of 15 meters that follows the bottom of the echogram.

Note: You will use approximate values for the purpose of this exercise but could create a more accurate selection using the same techniques.

9. Use the horizontal scroll bar to display the far left of the echogram.
10. Click the **Parallelogram** tool.
11. Move the mouse pointer to a depth of 330 meters at the far left of the echogram.
12. Click and drag until the mouse pointer is just above the bottom line (approximately 300 meters) then release the mouse button. **Note:** This sets the thickness (height) of the parallelogram. This thickness will be used for the entire selection.
13. Move the mouse pointer to the point just above the bottom where the gradient of the bottom first changes slightly (at the time reference of approximately 4:42:00).
14. Click just above the bottom at this point. The first section of the parallelogram selection is drawn.

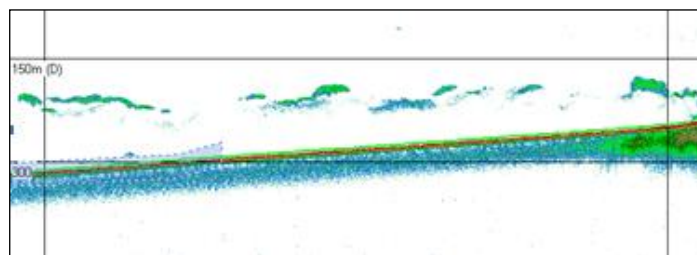


Figure 27: The first part of the parallelogram selection is shown.

15. Position the mouse pointer so it is just above the bottom at the point where the gradient of the bottom changes again (for the purpose of this exercise use the time reference of 4:50:00).
16. Click left mouse button. The second section of the parallelogram selection is drawn.

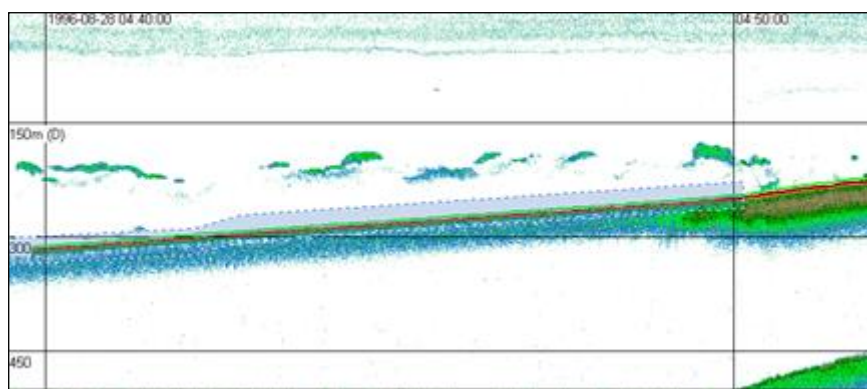


Figure 28: The second part of the parallelogram selection is now shown.

17. Position the mouse pointer so it is just above the bottom of the echogram at the right most point that is currently displayed in the echogram window.
18. Click the left mouse button. Another section of the parallelogram selection is drawn.

Note: You could scroll across and continue the selection. You can do this now if you wish.

Making selections using the Polygon tool

The **Polygon** tool  allows you to make selections of any almost shape using a free-hand drawing tool.

19. Click the **Polygon** tool.

20. Click and drag to create a shape of your choosing (e.g. draw a selection around a school). When you are ready to close the polygon, drag the mouse pointer back over your starting point. Then on the right-click menu select **Define Region**. **Note:** You can draw and close polygons using other techniques that are described in the help file.

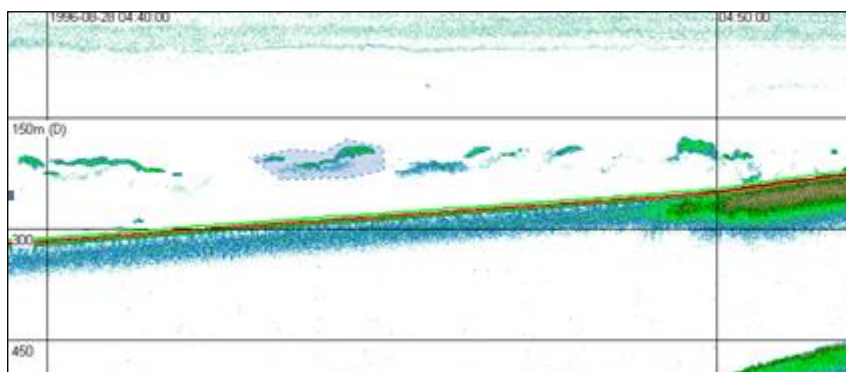


Figure 29: An echogram showing a polygon selection.

Tips

- Echogram windows remember their active tools.

Working with regions

Overview of regions

Regions are like permanent selections and can be used for many purposes in Echoview, including:

- placing visual markers on an echogram
- on-screen analysis
- identifying part(s) of an echogram to include in analyses
- identifying part(s) of an echogram to exclude from analyses
- defining fish tracks
- defining schools.

Echograms can be synchronized to the active region. On-screen analysis results can be linked to an active region.

Region types

Echoview has five region types:

Region type	Description
Analysis	A part of an echogram that you can analyze separately from other parts of the echogram.
Bad data (no data)	A part of an echogram that is unwanted and which can be handled in a specific way in analyses.

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Bad data (empty water)	A part of an echogram that is unwanted and which can be handled in a specific way in analyses.
Marker	A part of an echogram that is of interest and should be visible on an echogram, but is neither bad data nor data that needs to be analyzed separately from other parts of the echogram.
Fish track	A selection of closely associated single targets that are assumed to have to have been generated by one fish. Note: Fish-track regions are a special class of region and some of the information/procedures described in this topic do not apply. Fish-track regions are covered in more detail in the "Introduction to Fish Tracking" tutorial.

Note: Region type is one level of classification only. Echoview also allows you to create region classes.

Creating regions

You create regions from selections.

In this exercise you will create an analysis region using the rectangle tool.

21. Click the **Rectangle** tool  on the toolbar.
22. Make a selection around an area of interest on the echogram.
23. From the **Shortcut** (right-click) menu, click **Define Region**. The region is defined and the Region Browser dialog box is displayed.

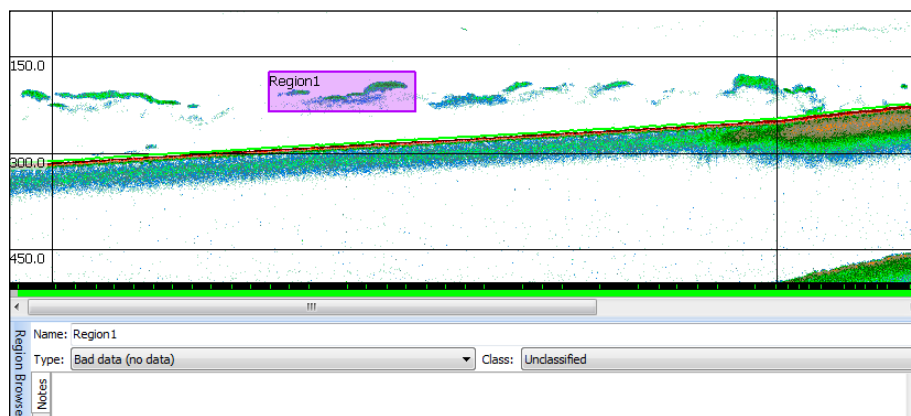


Figure 30: A region is displayed on the echogram and the Region Browser dialog box is displayed.

24. Under **Name**, type the region name: Test region.
25. Under the **Type** list, select Analysis.
The region name and type has changed. The shading on the echogram has changed from purple to yellow. Echoview assigns a different color to each region type so you can quickly identify region types while you are working on an echogram.

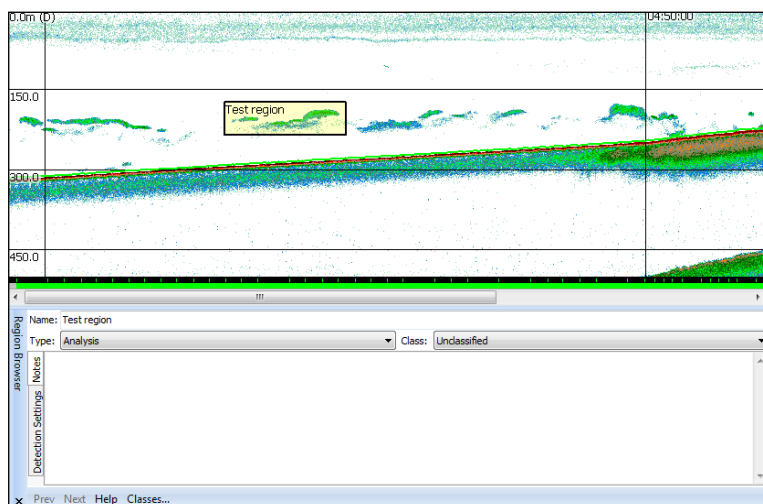




Figure 31: The region name and region type have changed on both the Region Browser dialog box and on the echogram.

26. Close the Region Browser dialog box.

Editing regions

Once you have created a region you can change its properties (e.g. name and type) and shape (i.e. samples included in a region) at any time.

You can change the properties of a region using the Region Browser dialog box. To display the Region Browser dialog box, select the region and click the **Region Browser** tool . This may require using the **More buttons** tool  first.

Echoview allows you to change the shape of a region in three ways using the **Region edit** tool :

- by moving the nodes (anchor points) of the region
- by redrawing parts of the region boundary
- by nudging (creating indentations in) the region boundary.

If you would like to practice any of these techniques, see the "Editing regions" topic in the help file.

If you are going to complete another tutorial or practice what you learned in this tutorial you can close the EV file and leave Echoview running, otherwise close Echoview.

Tips

- Region properties include a Notes page where you can input text in your own language.
- You can export a 'log book' of regions (including their notes and locations) to a csv file by opening the **Echogram** menu and selecting **Export** then **Regions** then **Log Book**.