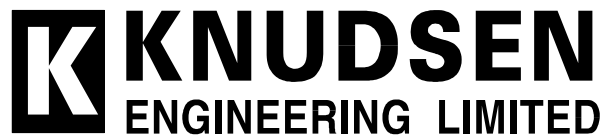


# 320 SERIES ECHOSOUNDER

## SOUNDERSUITE: POSTSURVEY

Supports Software: D409-03171

D101-03175  
Revision 3.0  
November 3, 2005



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## **1 INTRODUCTION**

### **1.1 About this manual**

This manual provides information about the Playback and Printing application, D409-03171, PostSurvey.exe. This program has been designed to review previously recorded 320 Echosounder SCSI envelope data files and to produce hard copies on selected thermal recorders and windows printers.

### **1.2 Software Description**

The 320 Series Echosounders developed and produced by Knudsen Engineering Limited were designed with a SCSI interface for recording detailed envelope data and parameter settings. PostSurvey is a specially designed Windows-compatible program created to play back these data records offline from the sounder and to create hard copy records. In addition to support for the Knudsen Engineering Limited proprietary file format (KEB), this application also supports XTF and SEG-Y Rev.0 formats.

### **1.3 Technical Support**

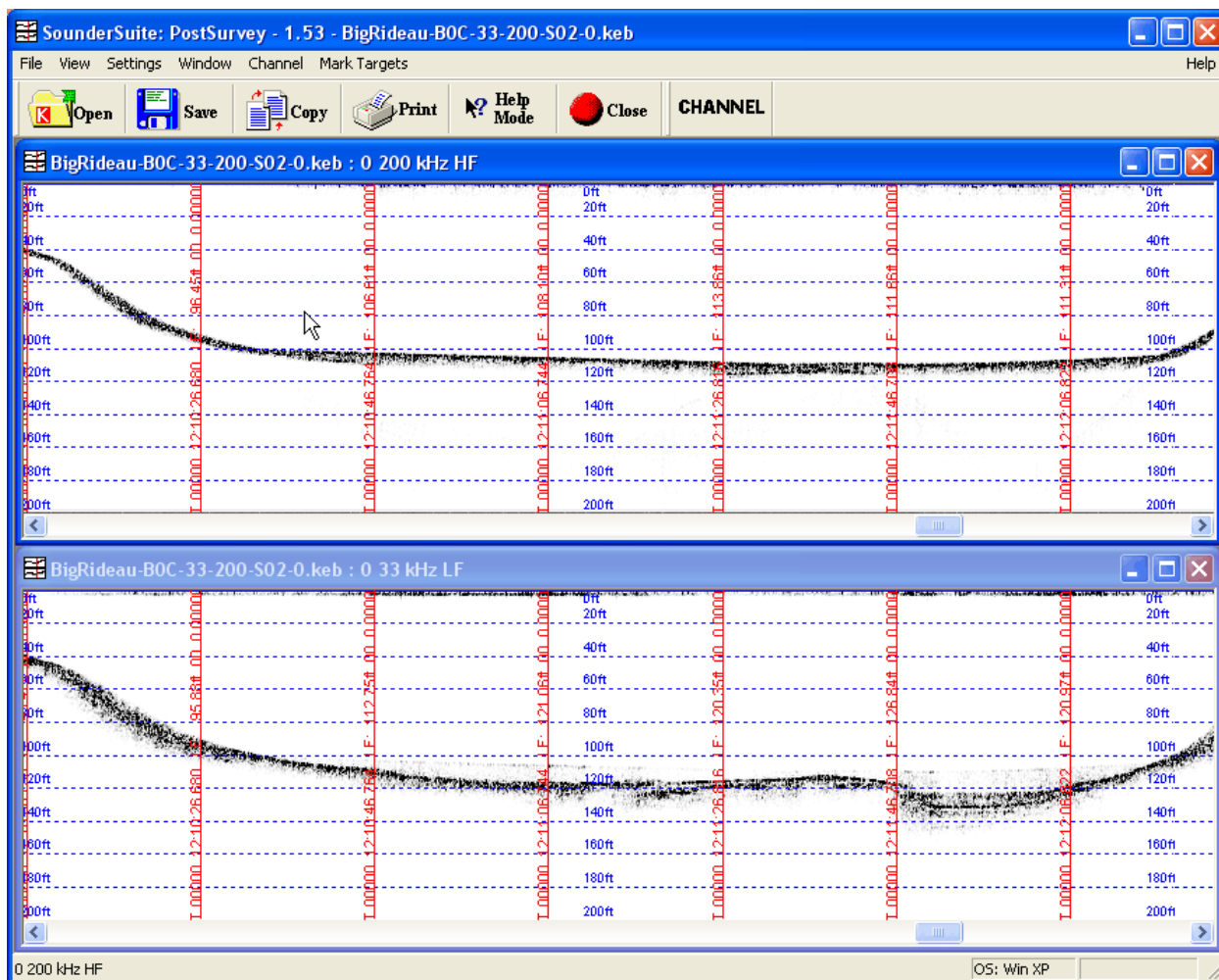
For technical support or to report problems please contact your local representative or:

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Voice: (613) 267-1165 8:30 am to 5:00 pm E.S.T. Core Hours  
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## 2 OPERATING INSTRUCTIONS

### 2.1 Description



The PostSurvey software is a multiple document interface Windows program design that provides the capability for data playback and printing of multiple KEL 320 Echosounder (KEB), XTF and SEG-Y data files on the PC. When the program is invoked, it creates a window with three control groups offered on the main menu bar (with limited functionality), a blank display area for greyscale or colour presentation of the echogram playback. Once a properly formatted KEB (B8 or B9 format), XTF or SEG-Y data file has been opened, an additional control group is added to the main menu bar and many more options are added to the original control groups.

---

## 3 File

### 3.1 Open

If the **Open** command is selected, the program responds with a File Selection dialog box to access the files. When a valid file (.keb, .xtf and .sgy) is opened, the data from that file will be loaded into memory and displayed starting with the first ping in the selected file.

### 3.2 Close

An opened file and all its associated windows can be closed using the **Close** command. This option is not active if a file is not already opened.

NOTE: An individual window can also be closed by clicking on the close button (X) located on the top right side corner of the active window.

### 3.3 Copy to Clipboard

This command is used to copy the image within the currently active window to the clipboard in a bitmap format which can then be copied into another graphical program for further editing.

Note: This option only copies what you see on the screen. If the user requires more than what is able to be viewed on the screen then it is better to use the Save to Bitmap feature instead.

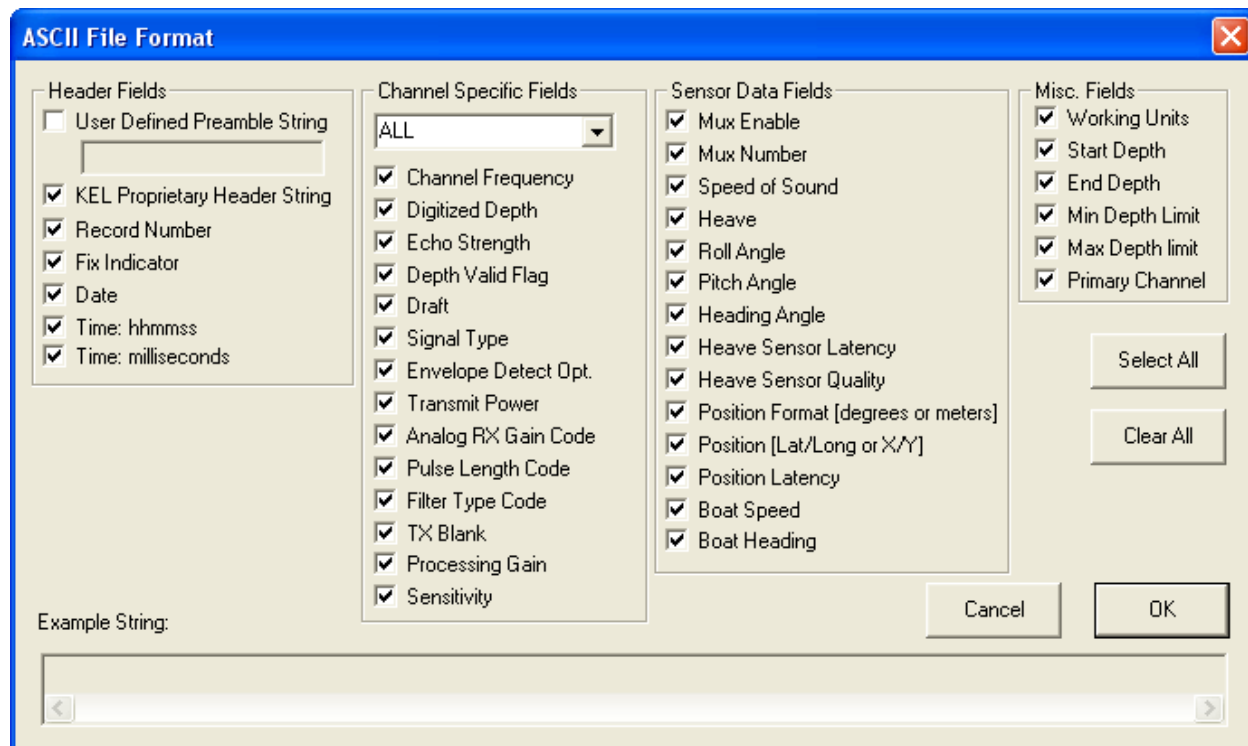
### 3.4 Save to Bitmap

The **Save to Bitmap** command saves the entire image for the currently active window to a DIB (.bmp) file. This command will save the data for only a single channel out of a data set. If a data set has more than one channel, the user will be prompted for the channel selection before the Save As dialog appears. The Save As dialog is displayed to allow for the selection of a name and location for the new image file.

### 3.5 Save Portion

This command allows the user to select a portion of the currently active document to be saved to a new KEB file in the latest recording format. Once this command has been selected the user will be prompted with a Save dialog box to allow them to choose a name and location for the new file.

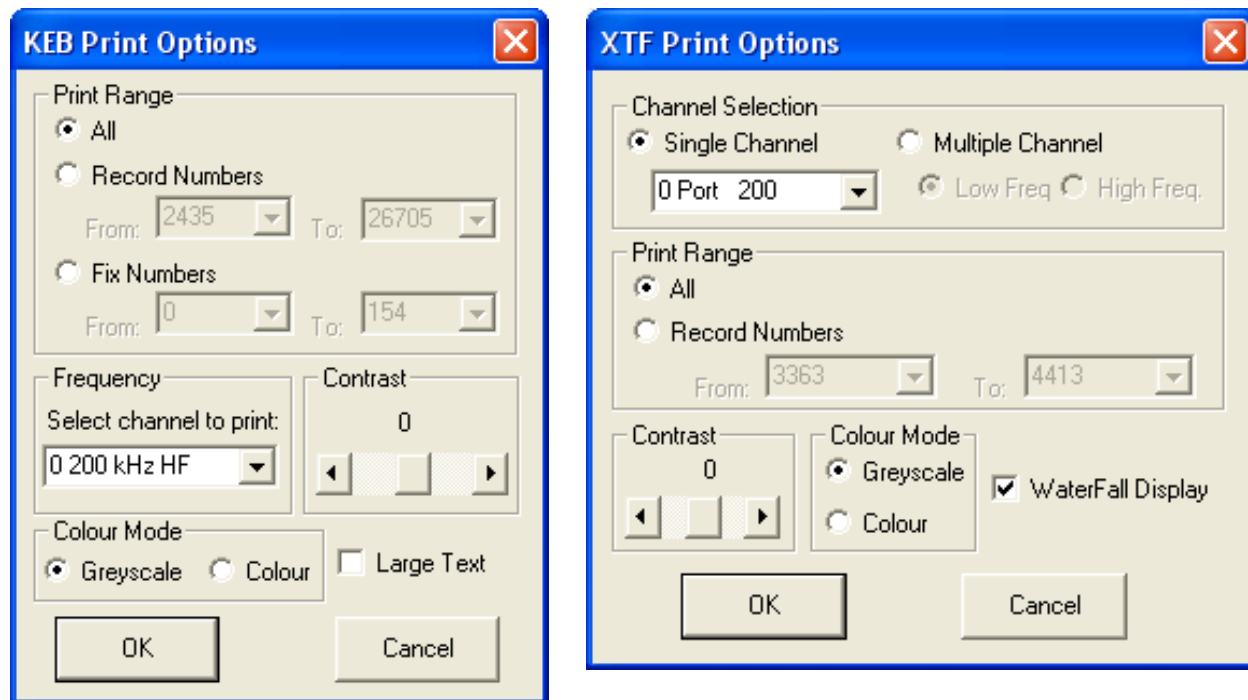
### 3.6 ASCII Dump



The ASCII Dump option will allow the user to select a variety of fields from the currently active data set that they would like to record into a new standard ASCII file. The new file will have the extension .kea, however the user can select the name and location through the standard Save As dialog box.

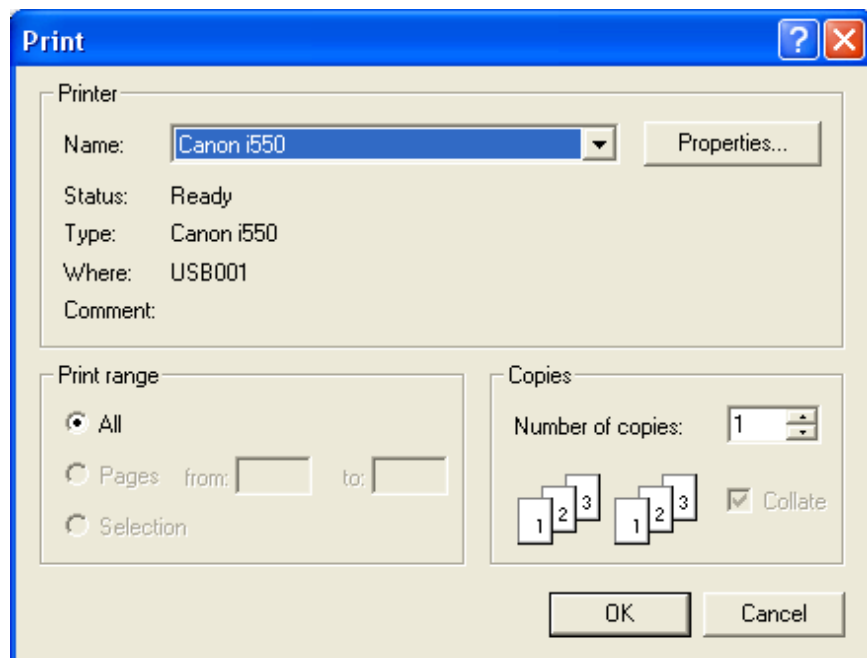


### 3.7 Print

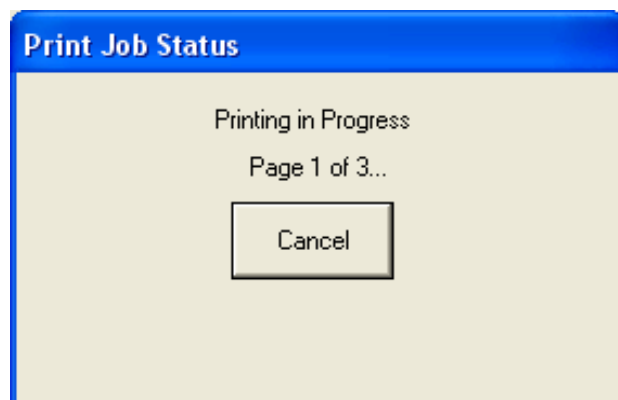


The **Print** option allows the user to print the entire data set or limited sections of the set to any Windows printer. This option is only available if a valid KEB, XTF or SEG-Y Data file is opened.

When the **Print** option is selected, depending on the file format of the currently active view the appropriate dialog box pops up that allows the user to setup printout presentation options similar to the screen options: Greyscale/colour mode, display mode, contrast (see Section 5.2). The Print Range option provides the user with the ability to select the entire line file set or only a section of the line file set to print. The printout can be limited to print between Record Numbers or Fix Numbers (if any exist).



Once the print options have been OK'd, the standard print dialog box appears. This allows the user access to the printer setup to change from the current default printer, and to modify printer setup options. Once all the desired selections are made and the user clicks on OK, the printing will begin. Currently, any printer setup selections made for the current print job will be lost on the next, and have to be re-selected.



NOTE: There is a Cancel Print capability but it has limited response capability once the printing procedure has started. Because the printouts are very graphically intensive and most systems print graphics quite slowly, the user should be certain he really wants to proceed before clicking OK in the Print dialog box.

NOTE: this menu option is only used to send data to standard Windows printers, not thermal recorders. Use the **Thermal Recorder: Send Data** command to print to thermal recorders.

**Important information:** The printed envelope output is very graphically intensive. Some printers with on-board memory may have problems with data overflow; reducing the print quality (resolution in dpi) may minimize this problem but it also reduces the quality of the printout. Preliminary testing with a limited number of printers had the best presentational results with the following printer setup options (click Setup in the Print dialog box to access): Landscape mode, Fine dithering, and the highest resolution available to the printer (this is a printer specific option). For users of Windows 95/98, the spooler options should be setup as follows to avoid creating excessively large temporary files (which can quickly overflow hard drives with limited available space): printing should start after the first page has spooled, and the spool data format should be RAW not EMF. In some cases, it may even be better to disable spooling altogether and send the data directly to the printer.

### 3.8 Print Preview

This option is not fully implemented at this time.

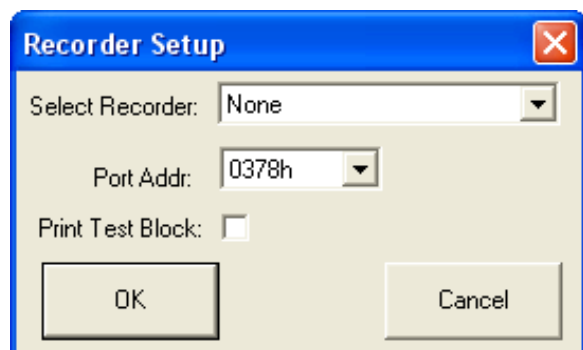
### 3.9 Print Setup

This option is not fully implemented at this time.

### 3.10 Thermal Recorder...

This menu option provides access to two sub-menu items that allow the user to setup and send data to a thermal recorder. This option is only available if a valid KEB data file is opened

#### 3.10.1 Setup



This option brings up a dialog box that allows the user to select a thermal recorder to be used for making hardcopies.

**Table 3-1: Supported Thermal Recorders**

Manufacturer	Models
EPC Laboratories	9800, GSP-1086, HSP-100
ODEC	TDU-850
iSys	V8.5e, V12
GeoAcoustics	9315

The **EPC GSP-1086** driver expects the user to have set the following parameters to the values listed via the unit's front panel menus:

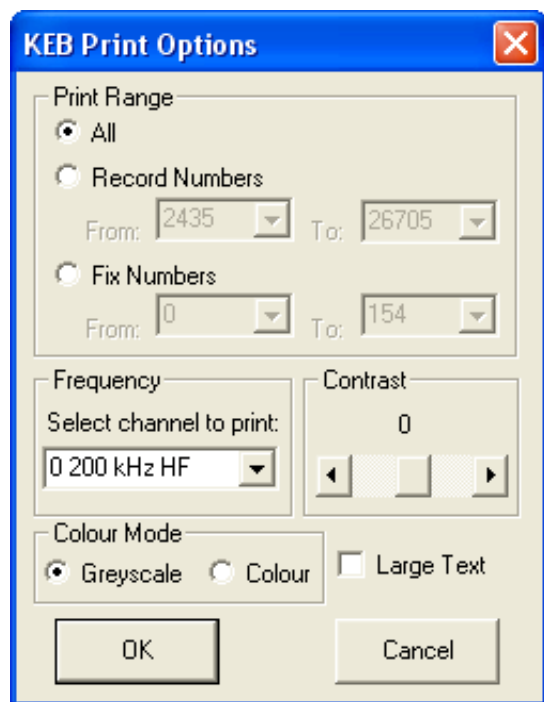
DATA INPUT = PARALLEL  
SWEEP = FORWARD  
SHADES = 064  
DATA TYPE = 6BITS  
WIDTH = 2048  
LPI = 200 nominal (not EXTERNAL )

The **Port Addr** option allows the user to specified the proper output port address for the printer port. For most systems, this value should be 0378h, but for some laptops and secondary printer ports the alternate value of 0278h could be required.

The **Print Test Block** check box allows the user to tell the application to send some test data to the selected thermal recorder to confirm it is interfaced properly. The test block consists of greyscale ramps with samples of imbedded grid and fix annotation text.

The recorder selection and port address settings are stored in the application's registry keys and restored the next time the program is invoked.

### 3.10.2 Send Data



The Send Data menu option is used to print the entire file or selected portions for the currently active file. This option is not available if a data file is not already opened. When this item is selected, it first causes a dialog box to pop up that allows the user to select the presentational parameters desired. If the OK box is clicked, the application then brings up a status display dialog box indicating the progress of the print job in terms of pings printed relative to the total number in the data set. It also provides the user with the ability to cancel the print job if desired.

Note: this menu option is only used to send data to thermal recorders, not standard Windows printers. Use the Print command to print to standard Windows printers.

## 3.11 Converter

### 3.11.1 To New KEB Format

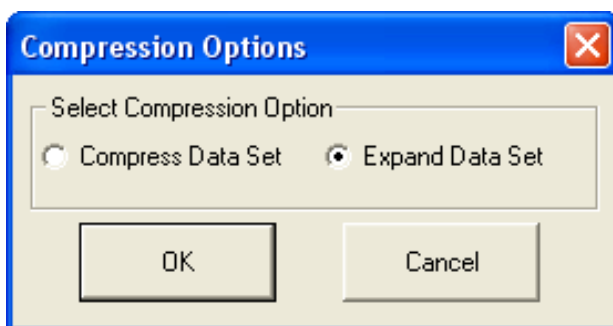
The PostSurvey application typically is setup to read the latest KEB format only. If the program cannot successfully open an old data file, it will probably need to be converted to the latest format to be viewed and processed within PostSurvey.

The Converter function must be run on all line file sets recorded with versions of the Echo Control software prior to D400-03167. The Converter function will convert types A1,A2,A3,B0,B1, B2 and B5 file formats to the latest KEB standard format.

To convert an entire "Bx" type line file set simply select a single file from anywhere within the line file set

and the conversion utility will use the associated log file to complete the conversion of that line file set. If no log file exists for that file set only the selected file in that set will be converted. If only a section of a data set is desired for conversion, the log file could be stripped down to the desired files using a hexadecimal editor. The log file may look like an ASCII file, but it uses null fields (00h) instead of space codes (20h) to separate the file names. Be aware the an ASCII editor would replace the null fields with spaces and the PostSurvey application would not know how to interpret the list properly.

To convert an “Ax” type line file set, simply select any file from within the desired data set and the conversion utility will find the first file of the set and begin converting all files associated with the line file set.



Before the selected data file is converted, the Compression Options dialog box appears to allow the user to setup the converter to create compressed KEB files or uncompressed files. Compressed KEB data files can save on storage space by as much as a half in ideal circumstances. Uncompressed files are easier to post-process with other packages. The file format definition, as well as the decompression algorithm, are available for those wishing to write their data processing applications.

### 3.11.2 To KEL Extended SEG-Y

This command will allow the user to convert a file recorded in the latest KEB file format to the KEL Extended SEG-Y file format. The Extended SEG-Y file format is a proprietary revision to the SEG-Y Rev.0 where some of the reserved fields in the trace header are populated with sounder specific settings and some other relevant data. It should be noted however, that some SEG-Y viewers are unable to handle files that have data recorded in these reserved fields.

### 3.11.3 To Standard SEG-Y

This command will convert a file recorded in the latest KEB file format to the SEG-Y Rev 0 format.

### 3.11.4 To Standard XTF

This command will allow the user to convert a file recorded in the latest KEB file format to the Standard XTF file format.



Before the conversion begins however the user is presented with a dialog box used to determine how the Navigation data fields should be handled. It is assumed that the user knows what units were in use at the time the data files were recorded.

### 3.11.5 Uncompress KEB File

This command will allow the user to create an uncompressed copy of a KEB file recorded originally in the standard compressed format using the Huffman compression algorithm built in to both the EchoControl and PostSurvey applications. NOTE: this does extract zip files.

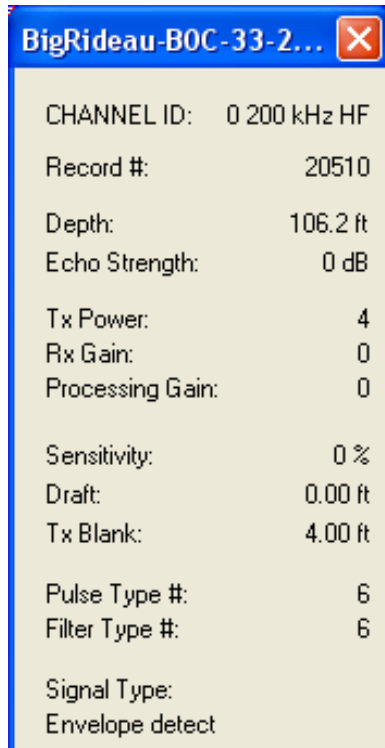
### 3.11.6 Exit

The user can terminate the PostSurvey program using the **Exit** command. Many configuration parameters are recorded as the program is terminated.

## 4 View

This control group allows access to functions that control the presentation of the envelope data. Most functions within this control group are only available if a valid line file is opened.

### 4.1 Channel Data



These Channel Data controls allow the user to display or close individual dialog boxes for each frequency channel. If the user clicks the left mouse button while pointing the cursor to a position of interest on the echogram display window, any active channel data dialog boxes will display the following data for the ping record represented by that point: record number assigned by the echosounder, the depth and echo strength determined by the echosounder's digitizer, and all of the transmit power, gain, sensitivity, draft, transmit blanking, pulse type and filter type settings used for that particular ping cycle.



## 4.2 Parameter Data

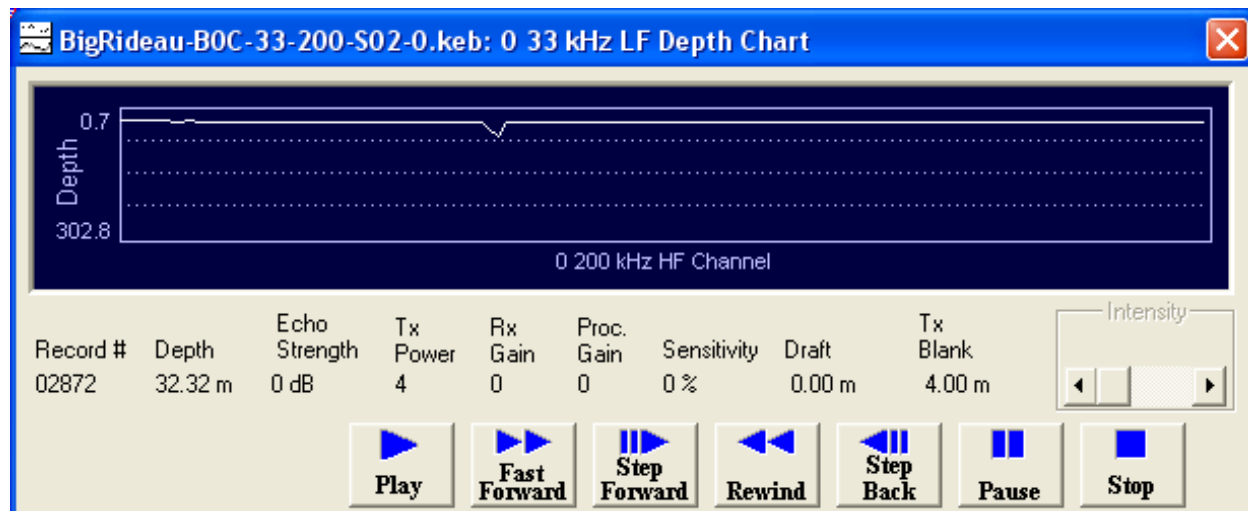


The screenshot shows a dialog box titled "BigRideau-B0C-33-2..." with a close button (X) in the top right corner. The dialog box contains a table of parameter data:

Record #:	2299
Time Stamp:	11:41:38.506
Working Units:	feet
Sound Speed:	4921 m/s
Window Limits:	0 - 100 ft
Primary Channel:	HF
Fix Status:	None
Fix Number:	00000
Heave:	0.00 ft
Latitude:	44 43.87573 N
Longitude:	076 14.31610 W

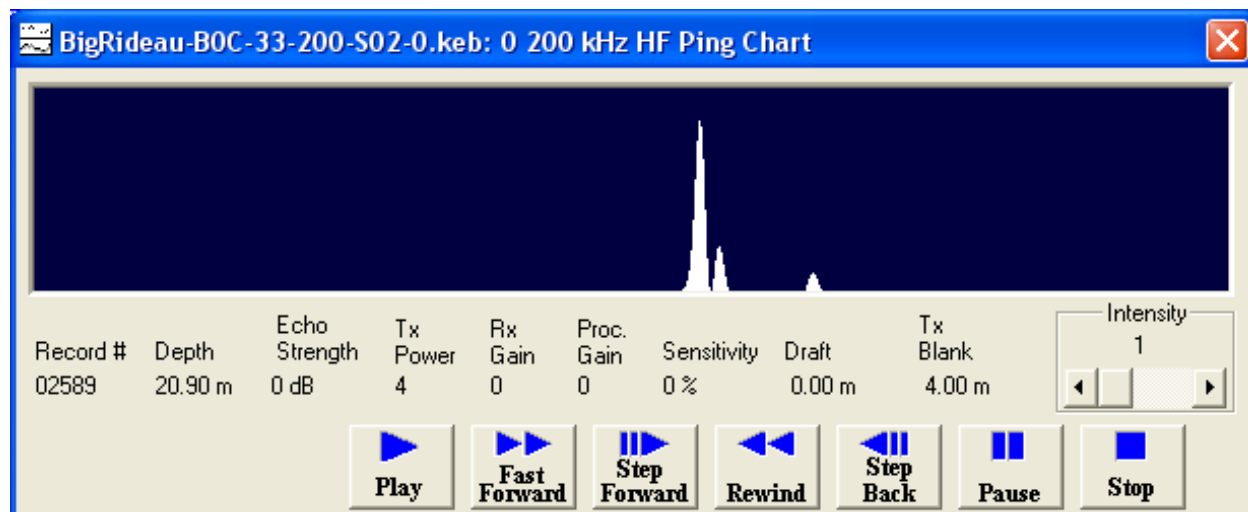
The Parameter Data option provides the user with the ability to display or close a dialog box that presents the non-channel specific data recorded from the echosounder. If the user clicks the left mouse button while pointing the cursor to a position of interest on the echogram display window, the active parameter data dialog box will display the following data for the ping record represented by that point: record number assigned by the echosounder, echosounder time stamp at start of the ping cycle, working units and speed of sound being used for calculations, upper and lower limits of the active window being displayed, primary channel used for bottom detection tests, fix status code and fix number if a fix condition exists, and the heave and position data used for the ping cycle.

### 4.3 Depth Chart



This option allows the user to view the digitized depth value for the entire data set in a simple line chart display. At the bottom of this chart are located many VCR like controls which allow the user various options for viewing the Digitized depth of the data set. Just under the display section of the graph is a parameter data section which displays the configuration parameters for the right most ping if playing forward through the file or the left most ping if playing backwards through the file. In order to close a particular chart you simply select the button that corresponds to the open chart along the Control Bar on the left side of the screen.

### 4.4 Ping Chart



The Ping Chart operates in much the same fashion as the Depth Chart, except the Ping Chart displays the intensity of each sample along an entire ping trace. To the right of the graph is an intensity slider control which will magnify the image in the display area by the factor displayed in the control. The VCR style

controls operate in the same manner as those for the Depth Chart.

#### 4.5 Status Bar

This control allows the user to enable and disable the application's status bar.



The status bar contains relevant information such as the name of the currently active line file in the left corner. The Windows Operating system is displayed in the box second from the right and the currently available thermal printer is displayed in the box furthest to the right

#### 4.6 Main Tool Bar

This control allows the user to enable and disable the application's Main tool bar.



The Main tool bar contains easy access controls which can also be found under the File Menu.

#### 4.7 Info Tool Bar

This control allows the user to enable and disable the application's Info tool bar.



The Info tool bar contains easy access controls which can also be found under the view menu.

#### 4.8 Settings Tool Bar

This control allows the user to enable and disable the application's Settings tool bar.



The Settings tool bar contains easy access controls which can also be found under the settings menu.

## 4.9 Channel Tool Bar

This control allows the user to enable and disable the application's Chan tool bar.



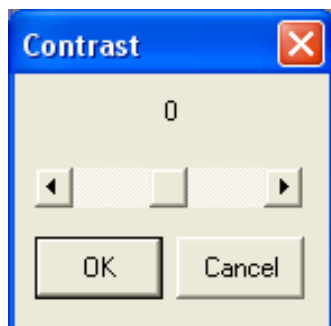
The Channel tool bar contains one button which allows the user to select the channel within the currently active data set that they would like to view. This tool bar is only active when more than one channel is recorded in the active data set.

## 4.10 Active Global Scroll

This control is a toggle that is only active if more than one channel is recorded in the currently active data set. Each channel in a given data set will be opened in a separate window. When the Active Global Scroll toggle is set it acts as a master scroll bar and will synchronize all open channel windows associated with the currently active data set.

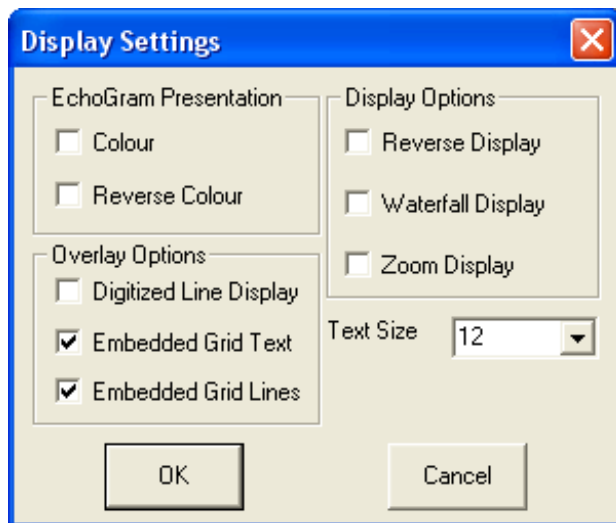
## 5 Settings

### 5.1 Contrast



This option pops up a dialog box with a single control that allow the user to increase/decrease the contrast of the displayed greyscale data.

### 5.2 Display



The **Display** option brings up a dialog box that allows the user to customize the display presentation to a configuration that suits his personal requirements.

#### 5.2.1 Colour

When **Colour** mode is selected (box checked), the envelope data displayed in the program window is in 15 colour levels, mapped from lowest to highest levels as follows: White(normal video) or Black (reverse video), Light Grey, Dark Grey, Cyan, Blue, Dark Blue, Dark Cyan, Dark Green, Dark Yellow, Green, Yellow,

Magenta, Dark Magenta, Red, Dark Red. If this item is not checked, the envelope data is displayed in levels of grey, where for normal video mode white is the lowest level return and black is the highest; for reverse video mode white is the highest level return and black is the lowest..

### 5.2.2 Reverse Colour

When **Reverse Colour** mode is selected, the display colours are configured to make black the main background colour. For both colour and greyscale modes, the lowest level return is assigned the colour black. When **Reverse Colour** is not selected (normal mode), the lowest level return is assigned the colour white.

### 5.2.3 Digitized Line Display

This control allows the user to display a red line over top of the echogram to indicate where the digitized depth was recorded along the trace. This control is only active if HF ONLY or LF ONLY display option is selected in the Display Setting dialog box. This control acts as a toggle to allow the user to switch the Digitized depth overlay on or off.

### 5.2.4 Embedded Grid Text

The **Embedded Grid Text** option allows the user to enable (box checked) or disable the use of embedded grid text. When this option is enabled, grid text is displayed within the envelope data display whenever a range or phase change occurs, or at evenly spaced intervals if no changes have occurred. The embedded text can be disabled for cases when the grid text changes obscure the envelope data.

### 5.2.5 Embedded Grid Lines

The **Embedded Grid Lines** option allows the user to enable (box checked) or disable the use of embedded grid lines. When this option is enabled, the chart grid is displayed within the envelope data . The embedded grid lines can be disabled for cases when it is undesirable such as bitmap creation for presentational purposes.

### 5.2.6 Reverse Display

This control will display the data set in Reverse View(last data sample displayed first). This control acts as a toggle to allow the user to switch back to Normal View(first data sample displayed first).

### 5.2.7 Waterfall Display

This control will display the data set along the y axis. This control works as a toggle to allow the user to switch back to standard view(display along the x axis).

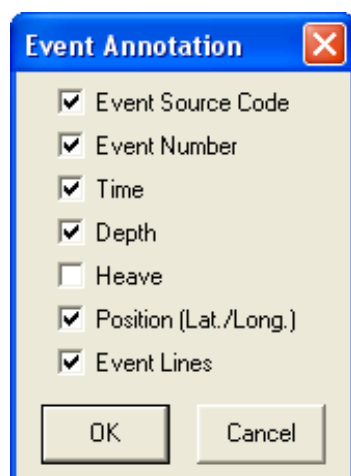
### 5.2.8 Zoom Display

This control is a primitive zoom control which will magnify the display by a factor of 2 along which every axis is currently active. This control acts as a toggle to allow the user the switch back to Regular view (1:1)

### 5.2.9 Large Text

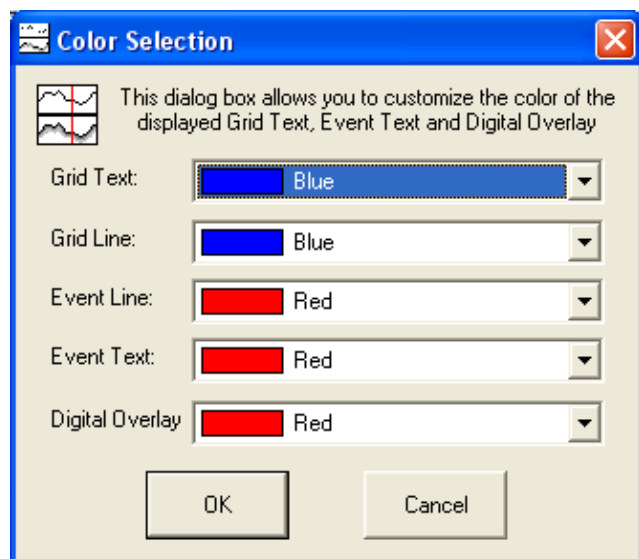
This option will double the size of the viewable text.

## 5.3 Event Annotation



This menu item brings up a dialog box that allows the user to select which of the available data parameters will be printed out on the event mark annotation line. The selections made here apply to the display, the Windows printer outputs, and the thermal recorder output. The user has no control on the ordering of the parameters; they are output in the order they are listed if they are checked off.

## 5.4 Colour Selection



The Colour Selection dialog box allows the user to customize the colour for select display components such

as the grid, annotation text, and overlays.

### **5.5 Alternate Printer**

This control is a toggle switch which was included for users having a problem printing to a select group of Windows printers. The default for this control is unchecked. If the grid data for the line file being printed is the only data that is displayed on a printout, then simply checking this control should resolve this problem.



## **6 Window**

This control group is only visible when a valid data file is opened.. This Control group allows the user to easily arrange the multiple files and Windows they have open. At the bottom of this control group is a list of all open line files. When a line file from this list is selected it then becomes the active file within the display area of the application.

### **6.1 Cascade**

This option will take all open windows and display them in a overlapped format down the display area of the application

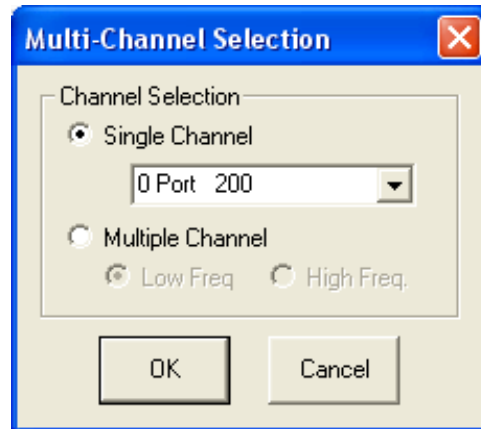
### **6.2 Tile**

This option will take all open windows and stretch them across the width of the display area and stack them on top of one another.

### **6.3 Arrange Windows**

This option will arrange all minimized file icons along the bottom of the display area within the application.

## 7 Channel



The Channel menu item, and similarly, the Channel tool bar button provide access to a control dialog used to activate additional channel windows for the currently active file set.

The Channel control is only active when more than one channel is recorded in the active data set.

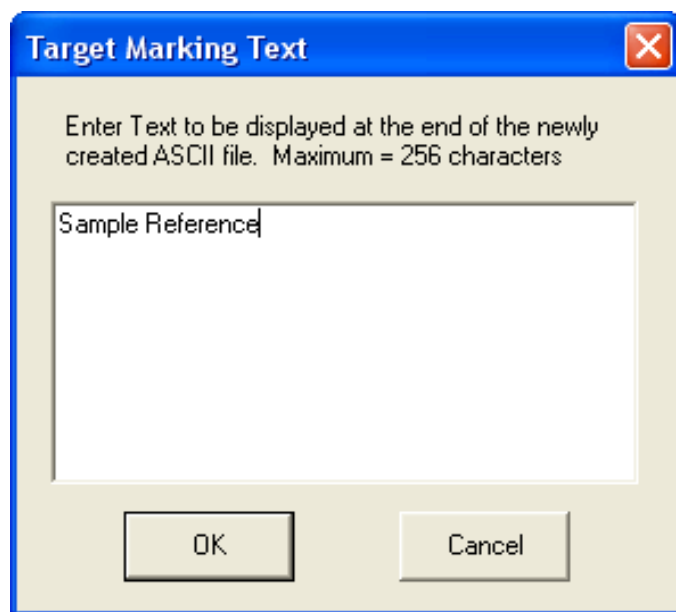
## 8 Mark Targets

This command is a utility within the PostSurvey program that allows the user to mark targets within the currently active data set. When this command is selected, the program enters the target marking mode in which the main menu is replaced with the target marking menu. To mark targets that will be recorded in a new comma-delimited ASCII file (.kea format) simply left click the mouse on the point of interest on the currently active data set.

### 8.1 Cancel

The **Cancel** command will disregard any targets that have been selected since entering Target Marking Mode and return to the main program.

### 8.2 Text



The **Text** command will display a dialog box which allows the user to enter text that will be appended to the new file. The maximum number of characters for the appended text is 256.

### 8.3 Write

**ASCII File Format**

**Header Fields**

- ☐ User Defined Preamble String
- ☒ KEL Proprietary Header String
- ☒ Record Number
- ☒ Fix Indicator
- ☒ Date
- ☒ Time: hhmmss
- ☒ Time: milliseconds

**Channel Specific Fields**

ALL

- ☒ Channel Frequency
- ☒ Digitized Depth
- ☒ Echo Strength
- ☒ Depth Valid Flag
- ☒ Draft
- ☒ Signal Type
- ☒ Envelope Detect Opt.
- ☒ Transmit Power
- ☒ Analog RX Gain Code
- ☒ Pulse Length Code
- ☒ Filter Type Code
- ☒ TX Blank
- ☒ Processing Gain
- ☒ Sensitivity

**Sensor Data Fields**

- ☒ Mux Enable
- ☒ Mux Number
- ☒ Speed of Sound
- ☒ Heave
- ☒ Roll Angle
- ☒ Pitch Angle
- ☒ Heading Angle
- ☒ Heave Sensor Latency
- ☒ Heave Sensor Quality
- ☒ Position Format [degrees or meters]
- ☒ Position [Lat/Long or X/Y]
- ☒ Position Latency
- ☒ Boat Speed
- ☒ Boat Heading

**Misc. Fields**

- ☒ Working Units
- ☒ Start Depth
- ☒ End Depth
- ☒ Min Depth Limit
- ☒ Max Depth limit
- ☒ Primary Channel

Select All

Clear All

Example String:

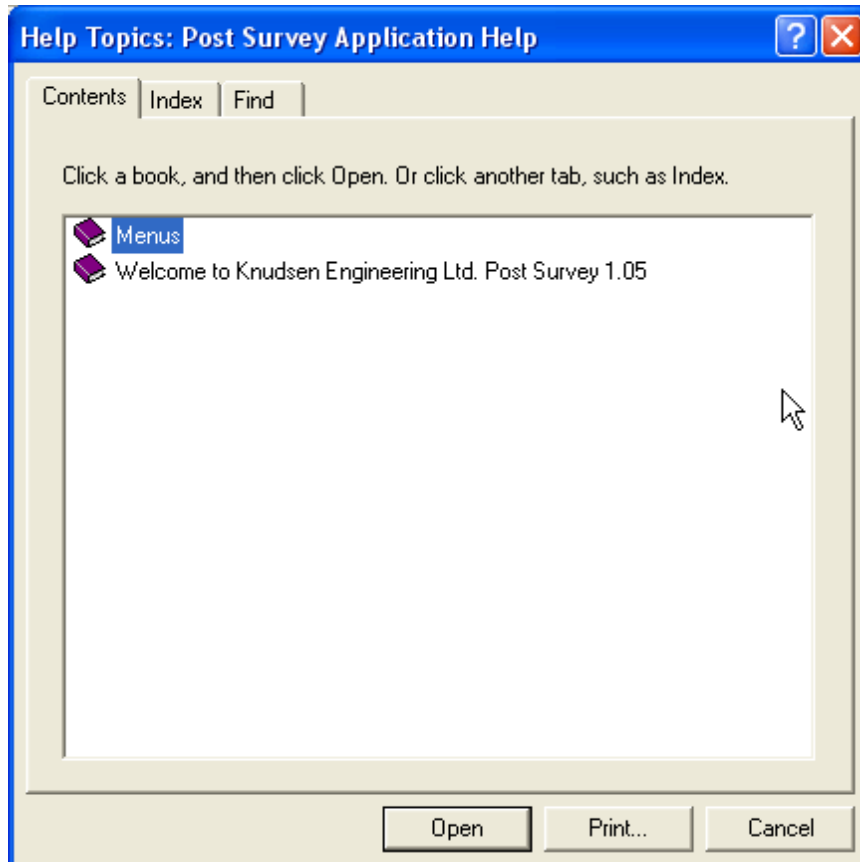
Cancel OK

The **Write** command will record all the selected targets into a new comma-delimited ASCII file with the extension .kea. The data will include the text annotation setup in the Text functional, as well as the fields selected using the dialog illustrated above. After selecting the fields to be recorded and selecting OK the user will then be presented with the standard Save dialog box that allows them to specify a name and location for the new file.

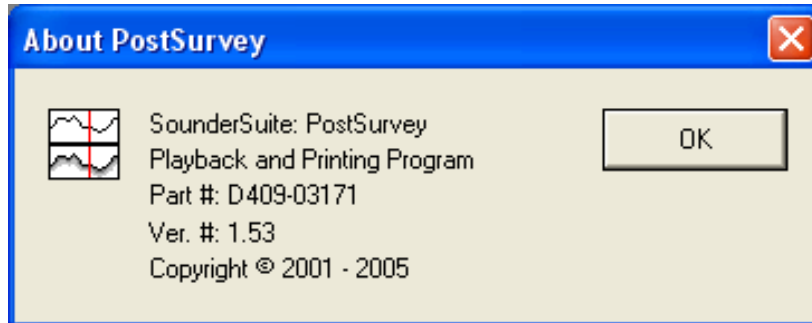
## 9 Help

### 9.1 Help Topics

This is an online help menu that containing the same information as found in this manual. This help manual is available through the application at run time.



## 9.2 About PostSurvey



The **About PostSurvey...** menu item brings up a simple dialog box stating the name of the PC software program, the KEL part number for the program, and the latest revision number.