Self-Contained ADCP Applications
WinSC and PlanADCP
User's Guide

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WinSC and PlanADCP User's Guide

1 Introduction

This guide is an overview on using the Self-Contained ADCP Applications utility software provided with your system. The CD contains two major modules: *WinSC* and *PlanADCP*. The *WinSC* program works as a shell program to launch the *PlanADCP* program. The *PlanADCP* program allows the user to create a deployment configuration file. After creating a deployment configuration file (or loading an existing file) the *WinSC* program will continue with the testing, deployment, recovery of data, and quick view of the data.

> **NOTE.** This guide covers *WinSC* version 1.29 and *PlanADCP* version 2.04.

1.1 System Requirements

WinSC and *PlanADCP* require the following:

- Windows XP®, Windows 2000®, Windows NT 4.0® with Service Pack 4 installed, Windows 98®, or Windows 95®
- Pentium class PC 233 MHz (350 MHz or higher recommended)
- 32 megabytes of RAM (64 MB RAM recommended)
- 6 MB Free Disk Space plus space for data files (A large, fast hard disk is recommended)
- One Serial Port (two or more High Speed UART Serial Port recommended)
- Minimum display resolution of 800 x 600, 256 color (1024 x 768 recommended)
- CD-ROM Drive
- Mouse or other pointing device

1.2   Software Installation

To install the Self-Contained ADCP Applications utility software, do the following.

a. Insert the compact disc into your CD-ROM drive and then follow the browser instructions on your screen. If the browser does not appear, complete Steps "b" through "d."

b. Click the **Start** button, and then click **Run**.

c. Type **<drive>:launch**. For example, if your CD-ROM drive is drive D, type **d:launch**.

d. Follow the browser instructions on your screen.

Once, installed, you will have two shortcuts added to your Windows® **Start** menu, **RD Instruments** folder. The **WinSC** shortcut will start *WinSC*. **PlanADCP** will start the *PlanADCP* program.

> **NOTE.** *PlanADCP* is launched through *WinSC*. Alternatively, you can run *PlanADCP* as a stand-alone module.

1.3   Conventions Used in this Guide

Conventions used in the *WinSC* and *PlanADCP* User's Guide have been established to help you learn how to use these programs quickly and easily.

Windows menu items are printed in bold: **File** menu, **Import Mission**. Items that need to be typed by the user or keys to press will be shown as **<F1>**. If a key combination were joined with a plus sign (**<ALT+F>**), you would press and hold the first key while you press the second key. Words printed in italics include program names (*WinSC*, *PlanADCP*) and file names (*dpl1_6.dpl*).

Code or sample files are printed using a fixed font. Here is an example:

```
WorkHorse Broadband ADCP Version X.XX
RD INSTRUMENTS (c) 1996-2005
ALL RIGHTS RESERVED
>
```

You will find two other visual aids that help you: Notes and Cautions.

> **NOTE.** This paragraph format indicates additional information that may help you avoid problems or that should be considered in using the described features.

> **CAUTION.** This paragraph format warns the reader of hazardous procedures (for example, activities that may cause loss of data or damage to the ADCP).

2   Using WinSC

The program *WinSC* is designed to take a user from the planning stage through data recovery.

2.1   Starting WinSC

a. In Windows, click **Start**, **Programs**, **RD Instruments**, **WinSC** (default location – use your installation settings if different). *WinSC* will start and display the **Welcome** screen.
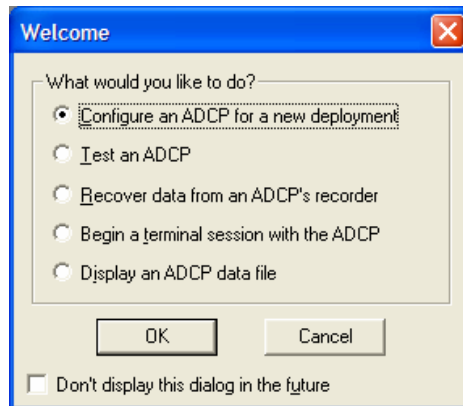
Figure 1.   WinSC Welcome Screen

b. The **Welcome** screen provides quick access to the most often used functions of *WinSC*. You may select one of the functions and click **OK** or click **Cancel** to begin using *WinSC*.

- **<u>*Configure an ADCP for a new deployment*</u>** – This will create a new deployment file and start the deployment wizard (see "Deployment Wizard," page 11).

- **<u>*Test an ADCP*</u>** – this will start the testing portions of the deployment wizard (see "Test the ADCP," page 15).

- **<u>*Recover data from an ADCP's recorder*</u>** – This will open the recover data screen (see "Recover Data," page 17).

- **<u>*Begin a terminal session with the ADCP*</u>** – This will open a terminal window and allow you to "talk" to the ADCP (see "Terminal Window," page 15).

- **<u>*Display an ADCP data file*</u>** – This will open a raw data file and display the data (see "View Recorded Data," page 18).

> **NOTE.** If you do not want to see the Welcome message when *WinSC* starts, select the **Don't display this dialog in the future** box and click **OK**.

2.2   WinSC Shortcut Keys

Use the following keys to quickly do tasks.

Table 1:   WinSC Shortcuts

Function	Shortcut
New deployment	Control-N
Open	Control-O
Recover Recorded Data	Control-Page Down
Terminal	Control-T
Save	Control-S
Print	Control-P
ADCP Setting	F5
Send a Break (Terminal mode only)	End

2.3   Setup ADCP Communication

Before you can establish communications with the ADCP for the first time, you must configure *WinSC*.

> **NOTE.** These settings will be used when *WinSC* is started.

a. Connect and power up the ADCP as shown in the appropriate ADCP User's Guide.

b. Start *WinSC*.

c. At the **Welcome** screen, click **Begin a terminal session with the ADCP**. Click **OK**.

> **NOTE.** If *WinSC* has not been configured, you will be prompted to set the communications settings. Click **Yes** to continue.

Figure 2.   Setting the Communication Port

d. Select the COM port that the ADCP is connected to (see Figure 2). If you are unsure of the setting, use **Auto Detect**.

e. Select the baud rate, parity, and stop bits (see Figure 3). If you are unsure of the settings, use **Auto Detect**.
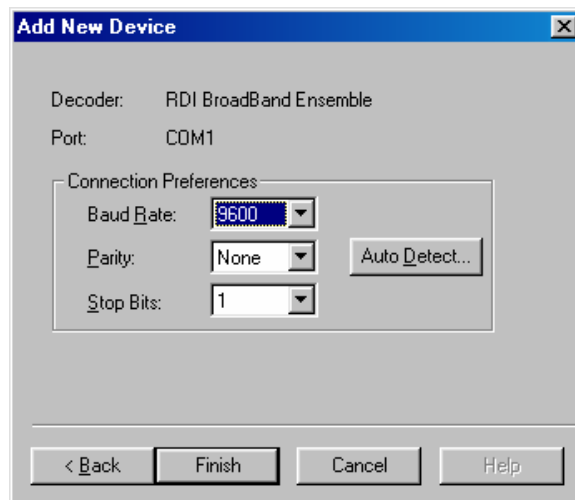
Figure 3.   Setting the Communication Settings

> **NOTE.** *WinSC* and the ADCP must both be using the same communications settings. See the CB-command in the WorkHorse Command and Output Data Format Guide.

f. Click **Finish**.

g. On the **File** menu, click **Break** (you can also press the **End** key to send a break). You should see the wakeup message appear on the deployment log window. For example;

```
>>>>>> Function starting 10/02/98 08:34:31 >>>>>>

[BREAK Wakeup A]

WorkHorse Broadband ADCP Version x.xx
RD Instruments (c) 1996-2005
All rights reserved.
>
```

2.4   Changing the Communication Settings

Once you establish communications with the ADCP for the first time, *WinSC* uses the same settings for future communications. To change the settings, do the following.

a. Connect and power up the ADCP as shown in the appropriate ADCP User's Guide.

b. Start *WinSC*.

c. At the **Welcome** screen, click **Begin a terminal session with the ADCP**. Click **OK**.

d. From the **ADCP** menu, click S**ettings…F5**.

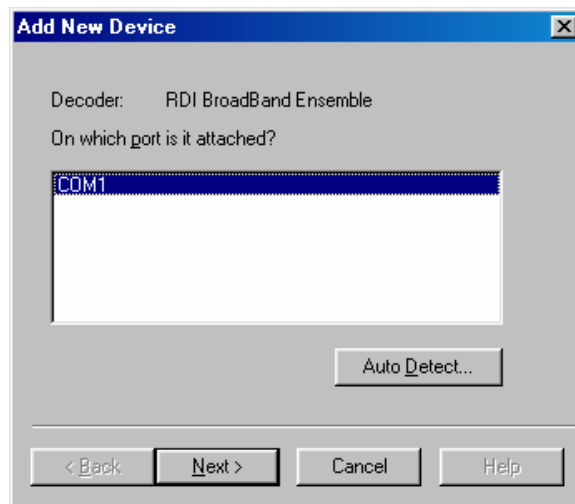**Figure 4.   Communication Menu**

e. Select the COM port that the ADCP is connected to (see Figure 4). If you are unsure of the setting, use **Auto Detect**.

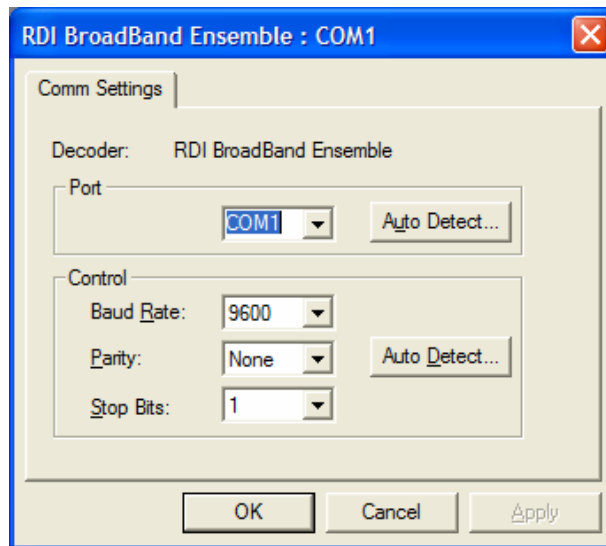f. Select the baud rate, parity, and stop bits. If you are unsure of the settings, use **Auto Detect**.

> **NOTE.** *WinSC* and the ADCP must both be using the same communications settings. See the CB-command in the Command and Output Data Format Guide.

g. On the **File** menu, click **Break** (you can also press the **End** key to send a break). You should see the wakeup message appear on the ADCP terminal window. For example;

```
[BREAK Wakeup A]

WorkHorse Broadband ADCP Version x.xx
RD Instruments (c) 1996-2005
All rights reserved.
>
```

3   Deployment Files

Deployment files keep track of what steps have been completed for the deployment. All files will be in the same directory using the deployment name. For example, if you save the deployment file as *Test1.dpl*, the deployment log file will be *Test1.scl*, and the first raw data file collected during this deployment will be *Test1000.000* (see "File Naming Conventions," page 10). All files will be located in the folder named Test.

To create a new deployment file do *one* of the following.

- At the **Welcome** screen, click **Configure an ADCP for a new deployment**. This will create a new deployment file (default name *Dpl1_*) and start the deployment wizard. When you are ready, click **File**, **Save** to name the deployment file.

- On the **File** menu, click **New Deployment**. A deployment log file (default name *Dpl1_*) will open and the deployment wizard will start. When you are ready, click **File**, **Save** to name the deployment file.

3.1   Saving Deployment Files

Save the deployment file by clicking **File**, **Save As**. Enter a **New Directory Name** for the file that you have just created (the deployment file and directory name will match). This deployment file will save which steps have been completed in the Deployment Wizard and the path to the command file. You can use this same method in case you wish to create several different setup files for the same ADCP. As an example, you could create a command text file that has a 6-meter depth cell (bin) size. You might save this to a text file with the name *BIN6M.txt* and call the deployment file *Dpl_6.dpl*. You could then create another command file and *.dpl file with a 16-meter depth cell (bin) size with the same concept. Then when you want to actually use the proper command file you just have to select the *.dpl file you intend to use.
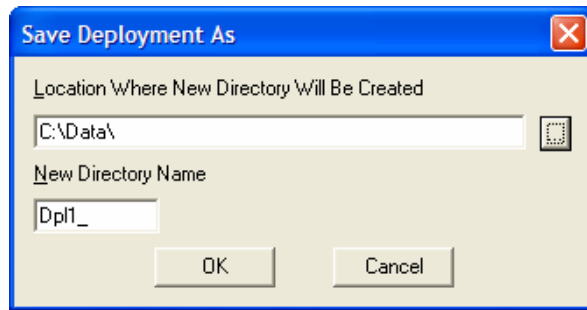
Figure 5.   Save the Deployment File

3.2   Opening Deployment Files

To open a deployment file, on the **File** menu, click **Open**. On the **Files of Type** box, select **Deployments** (*****.dpl) (see Figure 6). Select the deployment file to open and click **Open**.
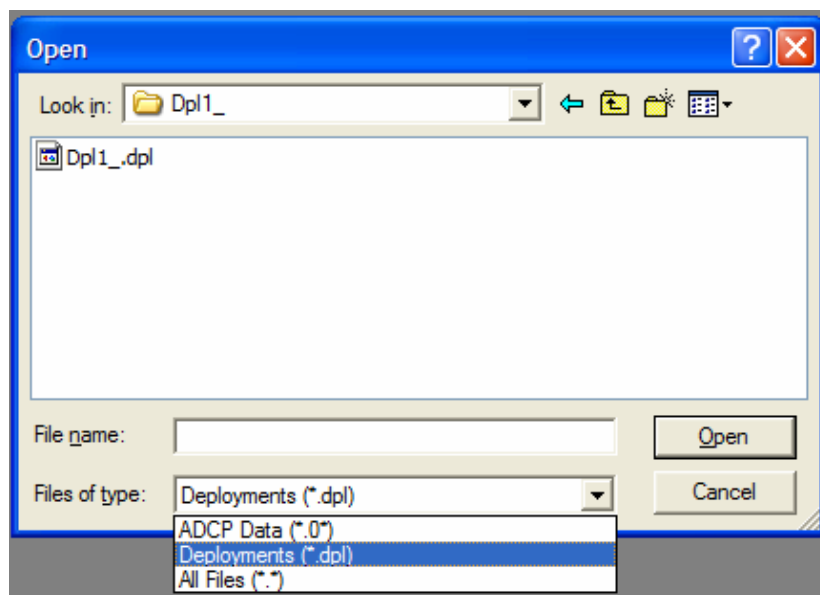
Figure 6.   Opening a Deployment File

To see what steps have been completed using the Deployment Wizard, click the **Functions** menu. A check mark will be next to each completed item. In the example shown in Figure 7, page 9, the Planning step has been completed.
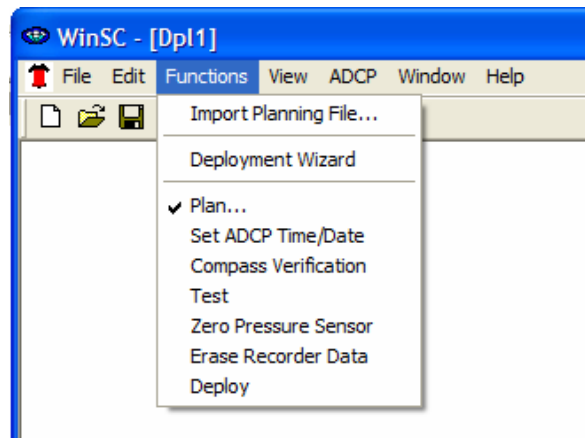
Figure 7.   Deployment Wizard Check List

3.3   Importing a Command File

If you have a command file created from other deployments or software, you can import it into *WinSC*. The command file must be ASCII text only. Any line that is a comment must start with a semi-colon (;).

a. On the **Functions** menu, click **Import Planning File**.

b. *WinSC* will search for any command files created using *PlanADCP* (*.txt, *.cmd, and *.whp).

c. Select the file and click **Open**.
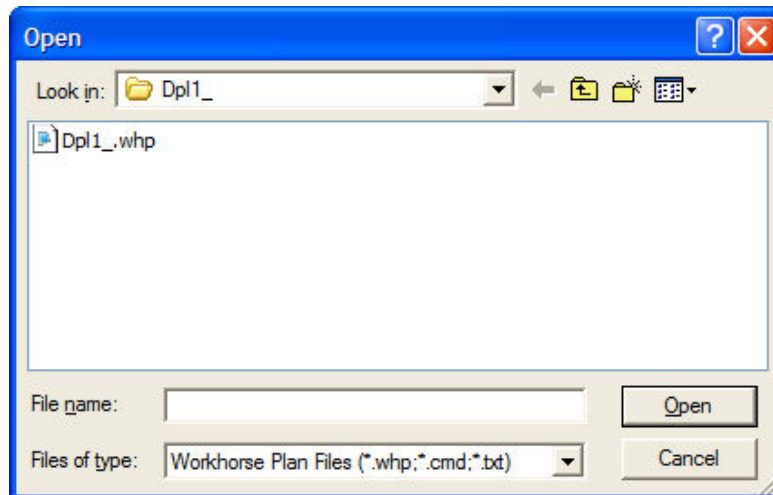
Figure 8.   Importing a Command File

3.4 File Naming Conventions

The *WinSC* software gives you a complete record of information that might help you understand your data. To help you associate these files with your data, they use the same deployment name. Be careful not to lose these files!

> **NOTE.** Choose and use Deployment Names carefully: they help you identify and organize all the data and log files associated with each deployment.

Raw Data files produced by *WinSC* have the following filename format: DeployName000.nnn

Where:

DeployName   is a user-entered name for the deployment (Must be EXACTLY five characters)

000   is the deployment number (changes with each stop/restart),

nnn   is the recorder card number, which is incremented when the recorder card is full (.000 = card one, .001 = card two)

The file extensions have the following meaning:

DeployName.WHP WorkHorse command file created by *Plan*.

DeployName.SCL Deployment log file created by *WinSC*. This file contains all of the commands sent to the WorkHorse (from *.WHP) and the WorkHorse's system information before deployment.

DeployName.DPL Binary deployment status file. This file keeps track of which steps were completed when using the deployment wizard.

3.5   Deployment Wizard

There are seven steps the deployment wizard helps lead you through; Planning, Setting the ADCP's clock, Compass Verification, Pre-Deployment Tests, and sending/verifying the commands to the ADCP. TRDI highly recommends using the wizard each time you deploy the ADCP. The deployment wizard will start whenever a new deployment file is created. To use the deployment wizard, do the following.

a. Connect and power up the WorkHorse as shown in the appropriate
    ADCP User's Guide.

b. Start *WinSC*.

c. Start the Deployment Wizard by doing *one* of the following.

    - At the **Welcome** screen, click **Configure an ADCP for a New Deployment**. Click **OK**.

    - Click **File**, **New Deployment** (the deployment wizard will start automatically).

    - If you are working on an open deployment file (*.dpl), on the **Functions** menu, click **Deployment Wizard**.

> **NOTE.** Choose and use Deployment Names (*.dpl) carefully: they help you identify and organize all the data and log files associated with each deployment.

d. The first step is planning. When you click **Next**, the program *PlanADCP* will start. For more information on *PlanADCP*, see "PlanADCP," page 20. If you want to skip this step, check the **Skip** box, or click **Next** to begin using *Plan*.
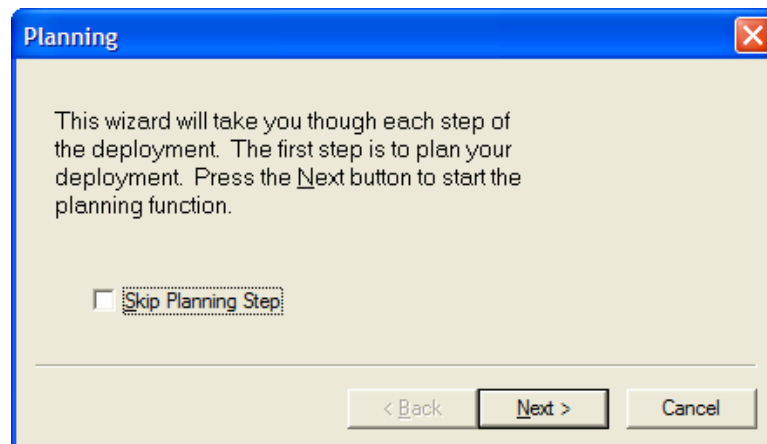
Figure 9.   Deployment Wizard - Planning

e. The second step will set the ADCP's clock to the computer's time and date using the TS-command. For more information on the TS-command, see the WorkHorse Commands and Output Data Format Guide. If you want to skip this step, check the **Skip** box or click **Next** to begin setting the clock.
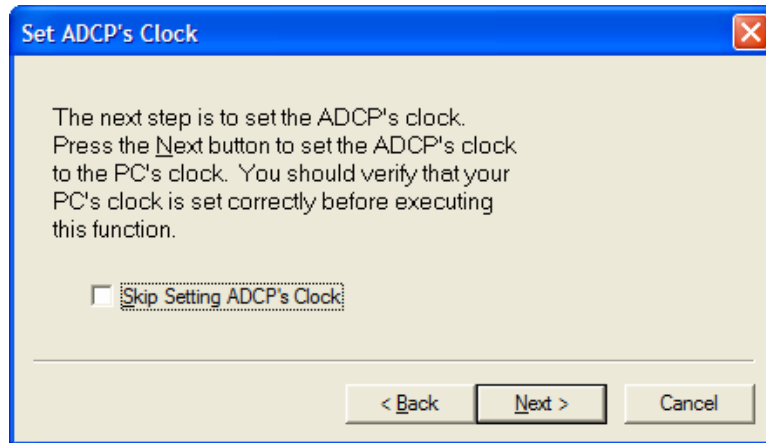
Figure 10. Deployment Wizard – Setting the Clock

f. The third step will verify the compass using the AX-command. For more information on the AX-command, see the WorkHorse Commands and Output Data Format Guide. If you want to skip this step, check the **Skip** box or click **Next** to begin verifying the compass.
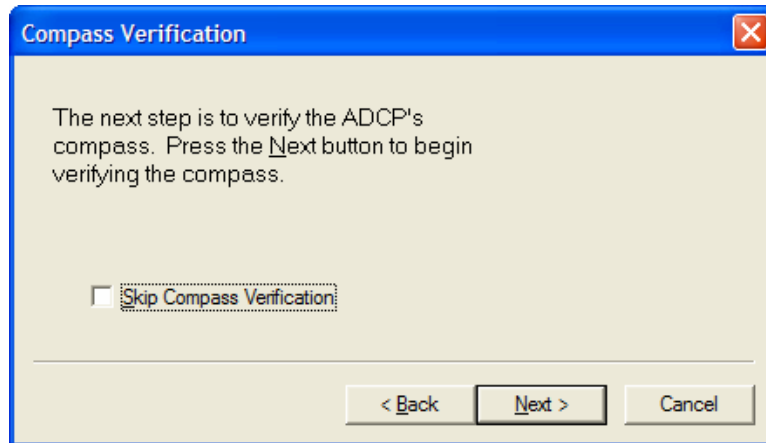
Figure 11. Deployment Wizard – Compass Verification

g. The fourth step will run the pre-deployment tests Deploy?, System?, TS?, PS0, PA, PC2, RS, and PC1-commands. For more information on these commands, see the WorkHorse Commands and Output Data Format Guide. If you want to skip this step, check the **Skip** box or click **Next** to begin the pre-deployment tests.
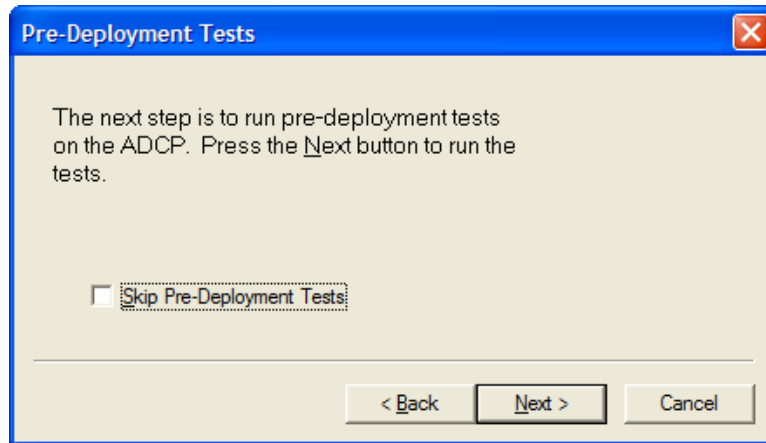

Figure 12.   Deployment Wizard – Test the ADCP

h. The fifth step will zero the pressure sensor using the AZ-command. For more information on the AZ-command, see the WorkHorse Commands and Output Data Format Guide. If you want to skip this step, check the **Skip** box or click **Next** to zero the pressure sensor.
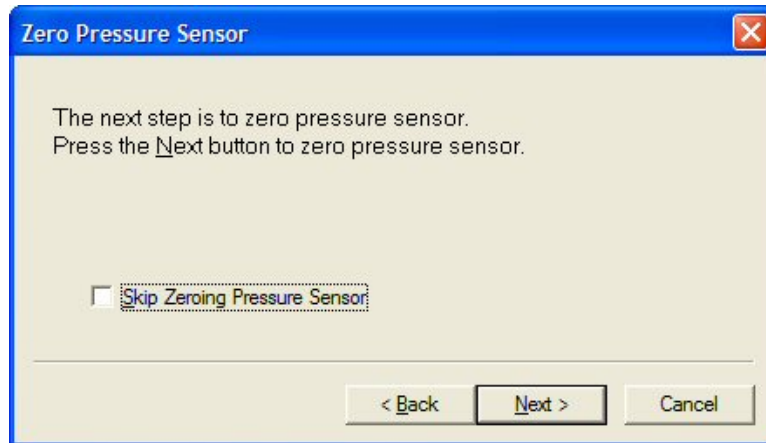
Figure 13.   Deployment Wizard – Zero the Pressure Sensor

i. The sixth step will erase the recorder using the RE-command. For more information on the RE-command, see the WorkHorse Commands and Output Data Format Guide. If you want to skip this step, check the **Skip** box or click **Next** to erase the recorder.
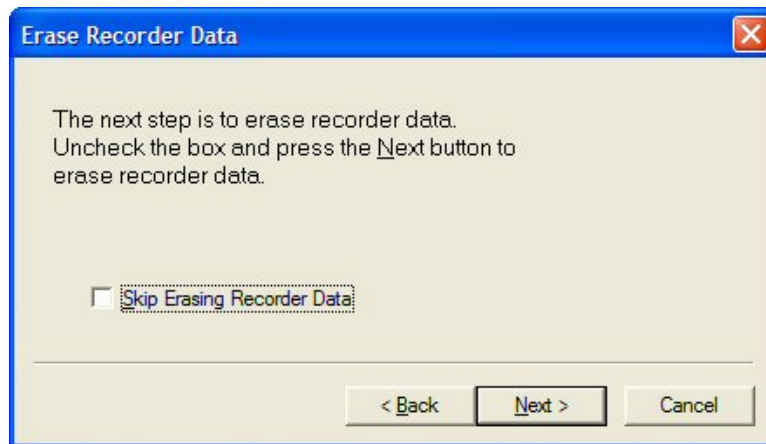
Figure 14.   Deployment Wizard – Erase the Recorder

j. The seventh and final step in the Deployment Wizard will send the commands from the command file to the ADCP. Click **Next** to send the commands. When the commands have been sent to the ADCP, you should see a message "*You have successfully deployed the ADCP*." Click **OK**.

> **NOTE.** If you have not saved the deployment file, you will be prompted to name the deployment. Choose and use Deployment Names carefully: they help you identify and organize all the data and log files associated with each deployment.

Figure 15.   Deployment Wizard – Send the Commands

3.6   Self-Contained ADCP Deployments

Use the appropriate ADCP User's Guide to verify the ADCP is sealed and ready for deployment. Use the **Deployment Wizard** or on the **Functions** menu, click **Deploy**. The deployment commands will be sent to the ADCP.

Before deploying the ADCP, scroll through the deployment log file and look for error messages. Correct as needed and re-send the commands. Once the commands have been sent to the ADCP, proceed as follows.

a. Disconnect the I/O cable and install the dummy plug on the ADCP's end-cap.

CAUTION

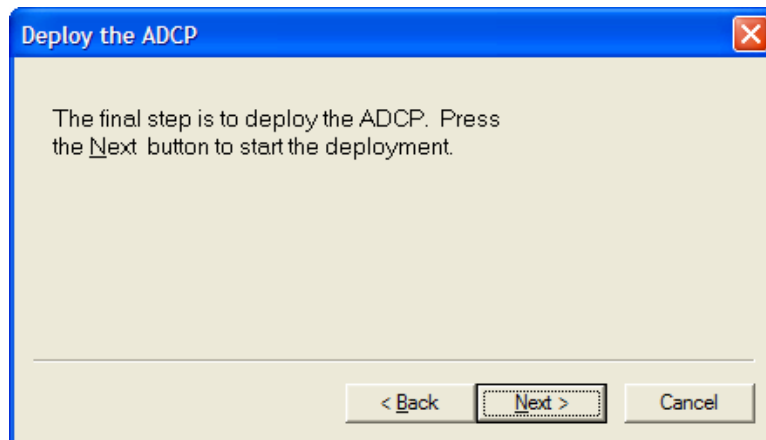Do not send a break, any other command, or run any other programs once the commands have been sent to the ADCP or your commands will be over-written.

Disconnect the I/O cable before turning off power to the computer. Some computers may send a break signal out the serial ports when shutting down.

---

b. Deploy the ADCP.

4   Terminal Window

The terminal window is used to send commands to the ADCP and view ADCP responses to *WinSC* functions.

4.1   Test the ADCP

Use the following steps to test the ADCP.

a. Connect and power up the ADCP as shown in the appropriate ADCP User's Guide.

b. Start *WinSC.*

c. To test the ADCP do *one* of the following.

- At the **Welcome** screen, click **Test an ADCP**. Click **OK**. This will run the pre-deployment tests Deploy?, System?, TS?, PS0, PA, PC2, RS, and PC1 (see the WorkHorse Commands and Output Data Format guide for details on the test printouts). The results of the tests will be printed to the screen and saved to the log file (*.scl).

- On the **File** menu, click **Test ADCP**. This will open an ADCP Terminal window and run the pre-deployment tests.

4.2   Send Commands to the ADCP

Use the terminal screen to send any command to the ADCP.

a. Setup communications with the ADCP.

b. On the **File** menu, click **Terminal**.

c. On the terminal window's menu, click **File**, **Break** to wakeup the ADCP (the **END** key will also send a break). For every break sent, you should see the wakeup message.

d. At the **">"** prompt, type the name of the command to be run.

For example;

```
>CR1
[Parameters set to FACTORY defaults]
```

5   Recorder Functions

WinSC has the capability to check the status, recover data, and erase the recorder.

5.1   Check the Recorder Status

The recorder status function lists the files stored on the recorder in the form of a DOS directory listing. Each PC card is listed as a separate drive.

a. Connect and power up the WorkHorse.

b. Start *WinSC*.

c. On the **File** menu, click **Recorder Status**. You should see a message similar to the following.

```
[BREAK Wakeup A]

WorkHorse Broadband ADCP Version x.xx
RD Instruments (c) 1996-2005
All rights reserved.
>RR
Recorder Directory:
Volume serial number for device #0 is 0000-010f

  _RDI_000 000          105284 01-01-00   0:02:02a r  a [    2]
  _RDI_001 000           83844 01-01-00   0:09:26a r  a [   54]
  _RDI_002 000           72052 01-01-00   0:01:00a r  a [   95]
  _RDI_003 000          216772 01-01-00   0:12:34a r  a [  131]

  _RDI_004 000           17916 12-31-99  11:59:20p r  a [  237]
  _RDI_005 000           71516 01-01-00   0:01:00a r  a [  246]
  _RDI_006 000           72052 01-01-00   0:01:00a r  a [  281]
  _RDI_007 000           72052 01-01-00   0:01:00a r  a [  317]
  _RDI_008 000           72588 01-01-00   0:01:00a r  a [  353]
  _RDI_009 000           72588 01-01-00   0:01:02a r  a [  389]
  _RDI_010 000           72052 02-29-00   0:01:00a r  a [  425]
  _RDI_011 000           40960 03-01-00   2:08:00a r  a [  461]

  DPL1_000 000            8268 10-01-98  11:25:38a r  a [  481]
  MINE_000 000            8268 10-01-98  11:43:12a r  a [  486]
```

```
   MINE_001 000              8268 10-01-98  11:48:54a r  a [  491]

  Bytes used on device #0 = 994480
Total capacity   =   41760768 bytes
Total bytes used =     994480 bytes in 15 files
Total bytes free =   40749056 bytes

>CZ

Powering Down
```

5.2   Recover Data

Once you have recovered the WorkHorse, you should refer to the Mainte-nance guide for instructions on cleaning the ADCP exterior. Once the ADCP is clean, use *WinSC* to recover the data. *WinSC* reads the data from the WorkHorse's PC Card recorder and transfers the data to the computer's hard disk. You will be prompted for a directory name on the computer's hard drive where the data will be written. When data recovery is finished, your data files will be in sequential order (i.e., *000.000, *000.001 etc.).

a. Connect and power up the WorkHorse.

b. Start *WinSC*.

c. At the **Welcome Screen** select **Recover Data from an ADCP's Re-corder** or from the **File** menu, select **Recover Recorder Data**.

d. Select the directory where the data will be written.

> **NOTE.** WinSC will increase the baud rate set in the **Com Settings** window (see "Changing the Communication Settings," page 6) to 115200 BAUD to reduce the download time.
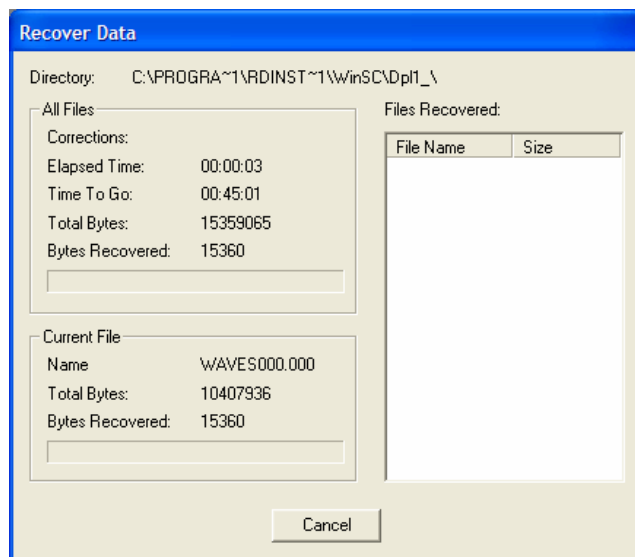

Figure 16.   Recover Data Screen

5.3   Erase the Recorder

Once all data has been recovered, the recorder can be erased. *Once erased, the data is not recoverable.*

a. Connect and power up the WorkHorse.

b. Start *WinSC*.

c. Recover the data (see "Recover Data," page 17). Once erased, the data is not recoverable.

d. On the **File** menu, click **Erase Recorder Data**.

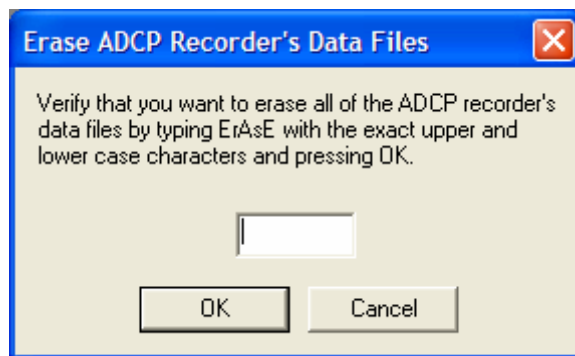e. Type **ErAsE** (you must use the exact upper and lower case characters).

f. Click **OK**.

Figure 17.   Erase the Recorder

⚠	**CAUTION.** Data is not recoverable after erasing.

## 6   View Recorded Data

WinSC may be used to view data.

a. Recover the data.

b. On the **File** menu, click **Open**.

c. On the **Files of Type** box, select **ADCP Data** (*.0*).

d. Select the file and click **Open**. The data file will display all of the ensembles.

Viewing Options.

- To select a subsection of the data file, use the **View** menu, **Ensemble Selection**. To quickly select a section, hold the **Control** key while dragging the mouse over the area to be selected.

- To increase the contrast of the contoured plot, click inside the window to select it, then use the **View** menu **Contoured** button.

- To change the colors of the plot or other plot controls, click inside the window to select it, then use the **View** menu, **Properties**.

- To select the range of a contoured plot, click inside the window to select it, then use the **View** menu **Ranges** button.

- To increase the size of a window, click inside the window to select it, and then use the **Windows** menu **Maximize Pane** button. To view only the velocity windows, use the **Windows** menu **Maximize Velocity Panes** button. To return to viewing all windows, use the **Windows** menu **All Panes** button. To customize the size of a window, use the **Windows** menu **Split** button.
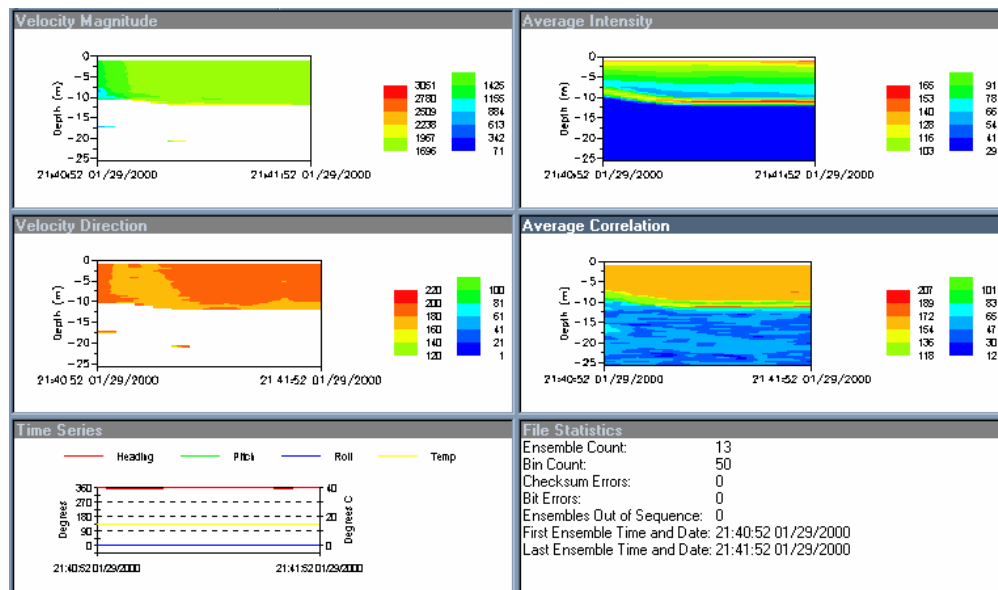
Figure 18.   Viewing Data with WinSC

7   PlanADCP

PlanADCP lets you enter known or "best-guess" values for the various ADCP profiling parameters and shows predictions of expected results. This lets you play "what if?" with the input parameters to evaluate trade-offs you may have to make with regard to standard deviation, profiling range, and timing.

PlanADCP saves the profiling parameters, predicted consequences, and any notes you make in a command file. The file is intended to configure an ADCP or NEMO for a deployment. It is also a record of the configuration you chose.

> **NOTE.** For more information about ADCP commands, see the WorkHorse Commands and Output Data Format Guide.
>
> For more information about NEMO commands, see the NEMO Waves Processing Module Operation Manual.

PlanADCP does not send the command file to the ADCP or NEMO. This is done by other Teledyne RD Instruments software such as *WinSC* or *BBTalk*. Consequently, *PlanADCP* can be run at your desk without an ADCP present.

We strongly encourage you to develop your command files using the program *PlanADCP*. Using *PlanADCP* allows you to set the command values and see the result of your choices before deploying the ADCP. *PlanADCP* also adds some commands to ensure the ADCP is properly configured.
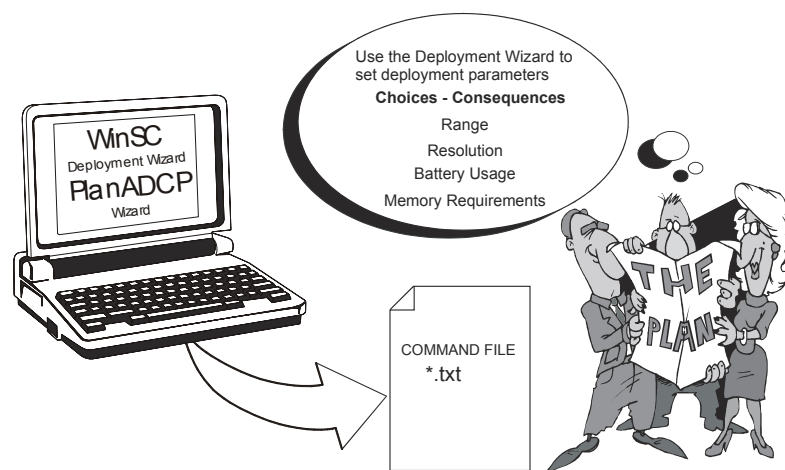

Figure 19.   Using PlanADCP to Create a Command File

> **NOTE.** *PlanADCP* is launched through *WinSC*. Alternatively, you can run *PlanADCP* as a stand-alone module.

7.1 Starting PlanADCP

WinSC's deployment wizard calls *PlanADCP* when the planning step is started (see "Deployment Wizard," page 11). *PlanADCP* can also be started from within *WinSC* by creating or opening a deployment file, then clicking **Functions**, **Plan**.

To start *PlanADCP* as a stand-alone module, in Windows, click **Start**, **Programs**, **RD Instruments**, **PlanADCP** (default location – use your installation settings if different). *PlanADCP* will start and if this is the first time *PlanADCP* is run, it will automatically start the wizard. The next time it is run, it will automatically open the last command file saved.

7.2 Using the PlanADCP Wizard

All new configurations start with the wizard. The wizard guides you through questions about what kind of ADCP you have, the environment, and how you want to use it.

After completing the wizard, you can look at the parameters and/or edit them and see the consequences change. When you are satisfied, you can save the changes to update the command file. As you edit settings, *PlanADCP* reviews your changes.

7.2.1 Error Messages

If you enter an illegal value, *PlanADCP* displays a flashing red error message and blanks the consequences. For example, some ADCPs support 128 depth cells, others support 255. If you sent a command file that specified too many depth cells to an ADCP, the ADCP would reject the illegal command. To prevent this, *PlanADCP* displays this error message if you choose too many depth cells.

ERROR: The # of depth cells is invalid or out of range. Valid range is 1 to 255.

7.2.2 Warnings and Cautions

PlanADCP also displays warnings and cautions when a parameter is not advisable or is noteworthy. For example, the length of a deployment may be limited by the number of battery packs in the ADCP. You can enter a longer deployment length, but if you do, *PlanADCP* displays this message.

CAUTION: Not enough battery packs for the deployment.

Some messages do not indicate a problem. For example, the **Basic** view may show this message after the wizard creates a typical waves deployment.

ADVANCED settings changed.

This indicates that some settings have been changed away from the default values, and these settings cannot be edited on the **Basic** view. If you click on the **Advanced** button, the message disappears. Clicking on the toolbar's exclamation point button shows more.

- Waves Gauge feature has to be installed in Workhorse to use selected option.
- Advanced settings have been changed.

This is a reminder that you must have the right features installed in your ADCP to use this deployment.

> **NOTE.** You must correct errors before you can save the configuration to a command file. You can save a deployment when a warning or caution is present.
>
> *PlanADCP* does not display all warnings and cautions in the views. To see the list, click the **Warnings and Cautions** button on the toolbar (the exclamation point).

7.3 Creating a Command File

To create a command file, do the following steps.

a. Start *PlanADCP*. If this is the first time *PlanADCP* is run, it will automatically start the wizard. The next time it is run, it will automatically open the last command file saved. To begin the wizard, select **File**, **New**.

b. Select the type of ADCP you want to create a command file for. Click **Next**.
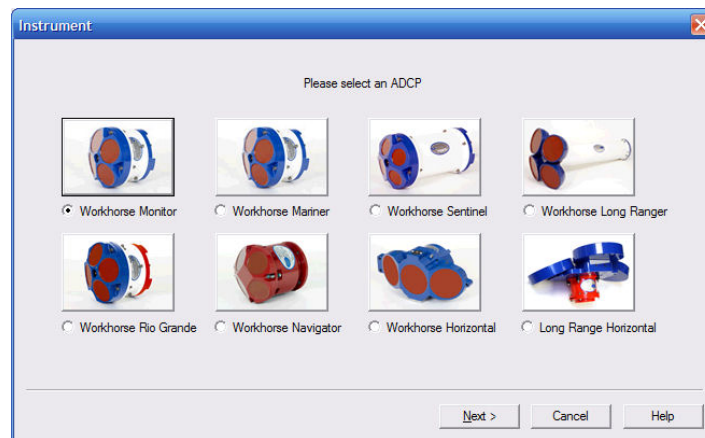

Figure 20.   Select the ADCP Type

> **NOTE.** WorkHorse Quartermaster 150kHz ADCPs should select either the Monitor or Sentinel ADCP.

c. Select the frequency of your ADCP. The default settings and consequences are based upon the ADCP frequency. Click **Next**.
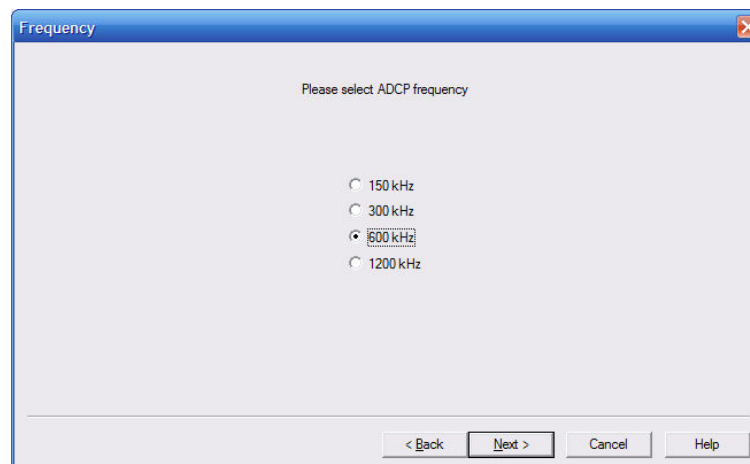

Figure 21.   Select the Frequency

d. Select if the ADCP has internal batteries. If you select **Yes**, then enter the number of battery packs you are going to use. Click **Next**.
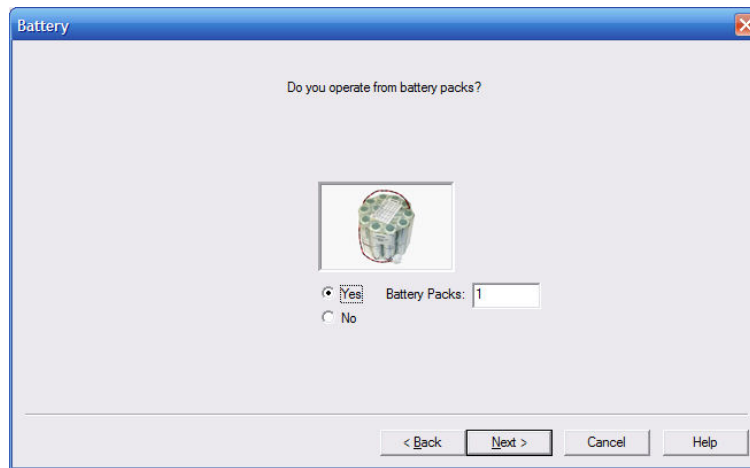

Figure 22.   Select if the ADCP is Using Batteries

e. Select **Ocean/Near Shore** or **River/Lake** to set the salinity. Water salinity affects the maximum range. Salt water is typically 35 ppt, fresh water is 0 ppt. Click **Next**.
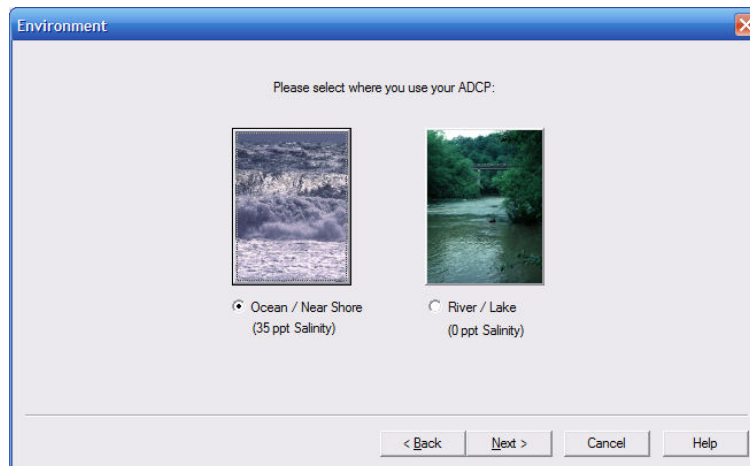

Figure 23.   Select the Salinity

f. Select the type of deployment – **Lowered ADCP**, **Waves Gauge**, **Moored (No Bottom Track)** or **Moving (Bottom Track Required)**. Click **Next**.

- If **Lowered ADCP** is selected (and your ADCP has that feature installed), then the LADCP commands will be added to the command file.

- If **Waves Gauge** is selected (and your ADCP has that feature installed), then the Waves commands will be added to the command file.

- If **Moving (Bottom Track Required)** is selected (and your ADCP has that feature installed), then the Bottom Track commands will be added to the command file.

- If **Moored (No Bottom Track)** is selected, then no special commands will be added to the command file.

> **NOTE.** Lowered ADCP, Wave Gauge, and Bottom Track are feature upgrades for WorkHorse Monitor and Sentinel ADCPs (see the WorkHorse Commands and Output Data Format guide). Bottom Track is not available for Long Ranger ADCPs.
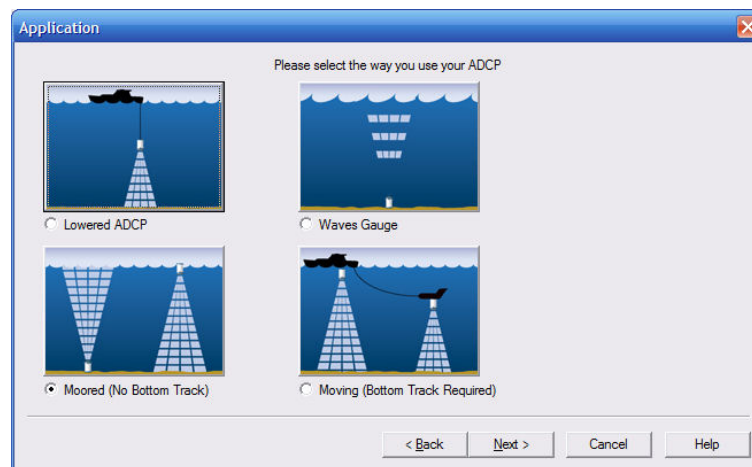

Figure 24.   Deployment Type

g. Select the depth range you wish to measure. The maximum depth range is dependent on the ADCP frequency, water salinity, water temperature, and the depth of the ADCP. Click **Next**.
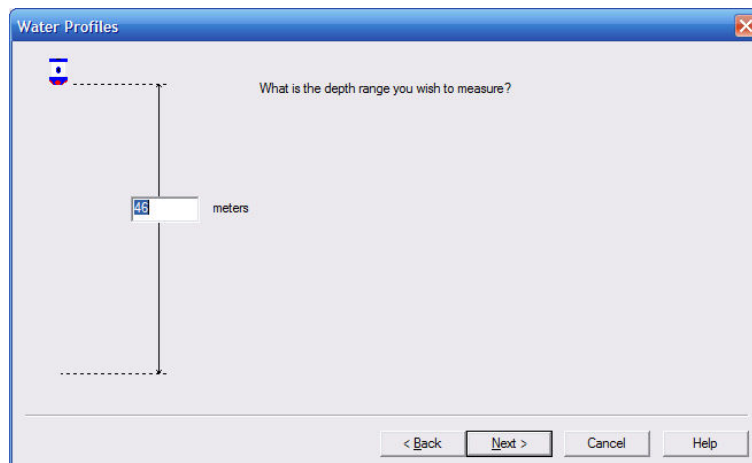

Figure 25.   Depth Range

h. Set the depth cell (bin) size. Adjust the depth cell (bin) size as necessary to get at least 10 depth cells (bins). A larger depth cell (bin) size decreases the standard deviation, but shallow water situations may need to use small depth cells (bins) to get more data points.

PlanADCP will set the number of depth cells (bins) so that the consequence *last depth cell (bin) range* is approximately 10% greater than the depth range set in the previous step. Click **Next**.
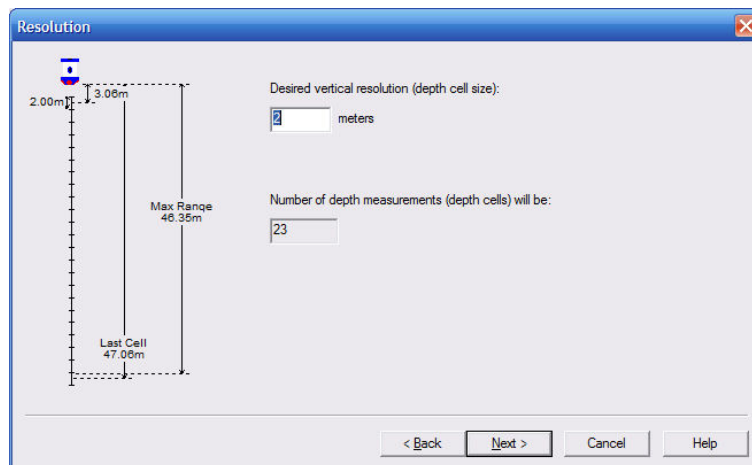

Figure 26.   Depth Cell Size

i. Select where to store the data. Data can be stored internally, sent out the serial port, or both. If you selected **Internally**, enter the amount of memory installed. Click **Next**.

- WorkHorse Sentinel ADCPs have 16-MB (standard) storage on the internal PC card recorder. This can be upgraded to 2 GB by installing two 1-GB cards.

- WorkHorse real-time deployments usually store data on the computer's hard drive, but can have up to 2 GB on the internal PC card recorder for back-up use.
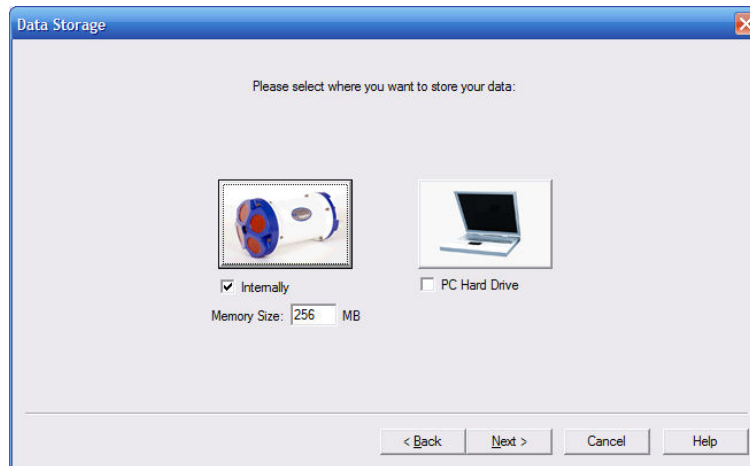

Figure 27.   Data Storage

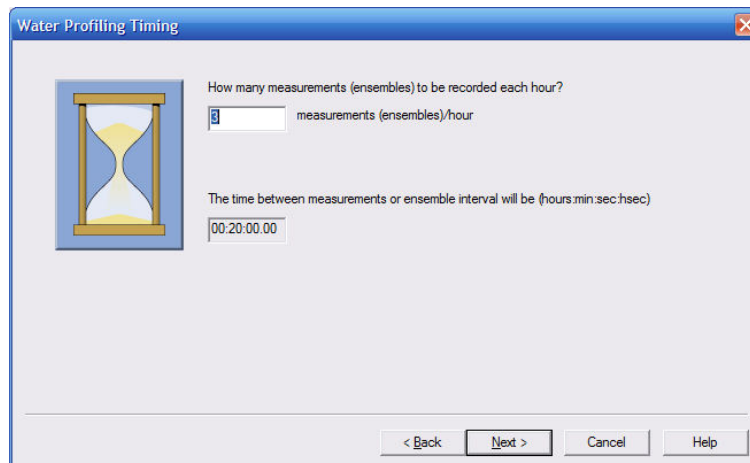j. Select how many ensembles per hour you want to record. Click **Next**.

Figure 28.   Ensemble Time

k. Enter the expected duration of the WorkHorse deployment from the time of the first water profiling ping (either immediately or first ping date/time). This duration *does not* produce a command to instruct the WorkHorse to stop data collection; it is for estimating consequences only. This duration is used to estimate the following *consequences*:
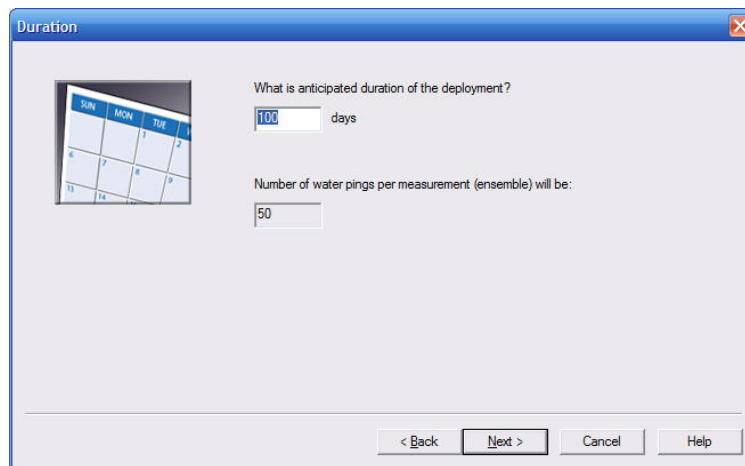
- Battery usage.

- Ensembles.

- Storage required.

Figure 29.   Deployment Length

l. The wizard is now finished. Click **Finish**.
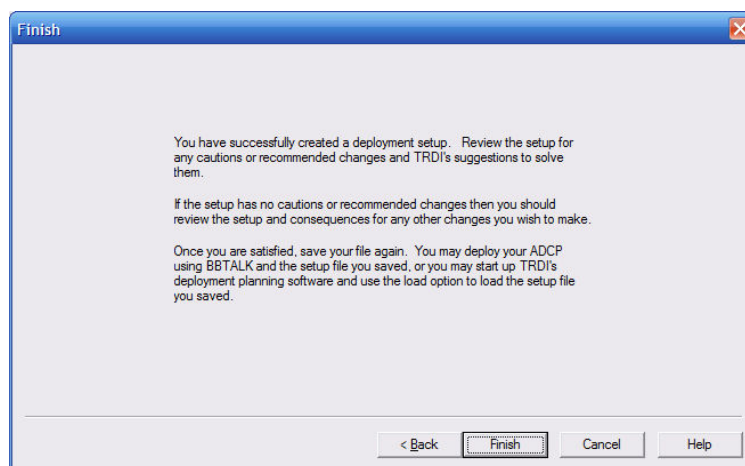

Figure 30.   Finished (Stand-Alone Message Shown)

NOTE. The message in the **Finish** screen is slightly different based on whether or not *PlanADCP* was run from *WinSC* or as a stand-alone program.

m. Name the command file and click **Save** to save the command file. *PlanADCP* will automatically add the extension *.txt to the file.
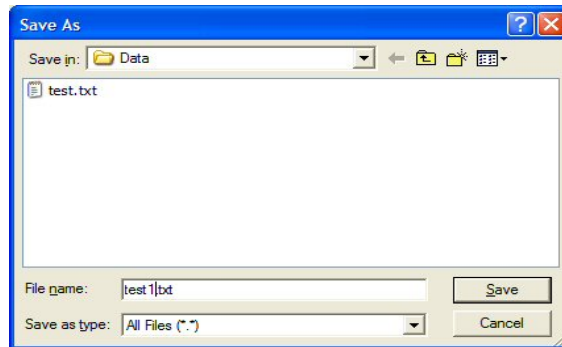

Figure 31.   Save the Command File

> **NOTE.** When *PlanADCP* is "called" from *WinSC*, the **Save** dialog will not appear. Click **BacktoSC** when you are done editing the command file to return to *WinSC* (see Figure 32). *PlanADCP* will pass the setup information to *WinSC*. In *WinSC*, save the deployment file (see "Saving Deployment Files," page 7).
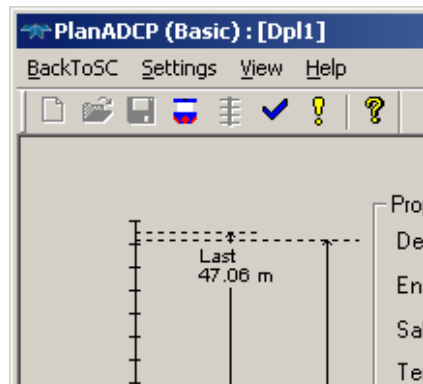

Figure 32.   Back to WinSC

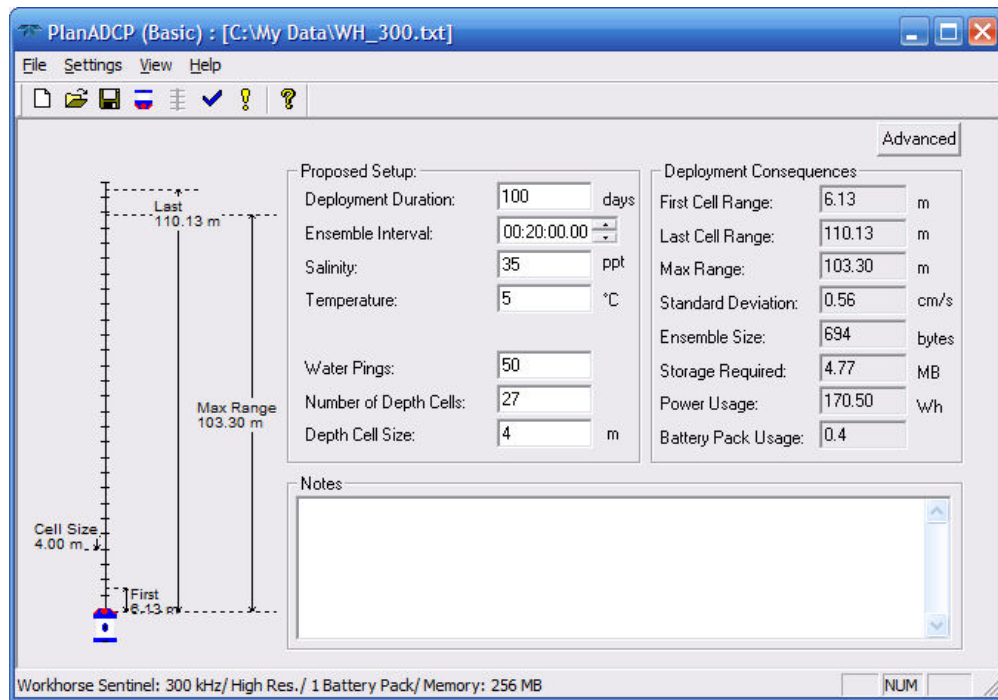n. The *PlanADCP* (Basic) Screen opens using the settings you selected with the wizard (see Figure 33, page 30).

Figure 33.   Basic Screen (No Bottom Track)

> **NOTE.** The Basic screen reflects all of your input during the wizard and is the minimal setup you need to use to collect good data.

o. Review the following consequences.

- *First Cell Range* – The range from the transducer face to the middle of the first depth cell (bin). The depth cell (bin) size and the WF (blank) command in the command file primarily affect where it is located.

- *Last Cell Range* – The last depth cell range is determined from the number of depth cells (bins), depth cell size, and first depth cell range.

- *Max Range* – The maximum profiling range is dependent on the ADCP frequency, water salinity, water temperature, and the depth of the ADCP.

- *Standard Deviation* – Shows the expected standard deviation of the velocity data stored in each ensemble being collected by the ADCP. Most users will want to minimize this value so that they obtain the best data possible (i.e. data containing the least amount of noise). Standard deviation is dependent on depth cell (bin) size, the number of pings in an ensemble, the water mode, and the ambiguity velocity.

- *Ensemble Size* – Shows the size in bytes of the each ensemble that is either transmitted or recorded by the WorkHorse ADCP.

- *Storage Required* – Shows the amount of storage space required in megabytes (MB) to record the data generated by the Work-Horse over the duration of the deployment. This value should be compared to the free space available on the internal WorkHorse PC card recorder and/or free space on the Computer logging the data transmitted to the serial interface. Free space on the Work-Horse internal recorder can be determined by using the RS or RF command. To convert MB to bytes, multiply the number by 1,048,576 (1024*1024).

- *Battery Usage* – When **Battery Packs** is selected in the Wizard or the **Basic Hardware Settings** screen, the **Battery Usage** will reflect how many battery packs are required. *PlanADCP* uses 450 watt-hours per battery of capacity to determine the battery usage.

  When **Power Supply** is selected in the Wizard or the **Basic Hardware Settings** screen**,** the **Battery Usage** will reflect how many watt-hours are needed for the deployment.

> **NOTE.** The WorkHorse ADCP uses alkaline battery packs designed by Teledyne RD Instruments. Our battery packs are rated to 450 watt-hours from 0 to 40 degrees C.
>
> If you are using your own battery packs, then select **Power Supply** on the **Basic Hardware Settings** screen to see how many watt-hours are needed for the deployment (see "Basic Hardware Setting," page 33).

p. Move the cursor to the **Notes** section. Use the area to include notes about the command file or deployment.

q. If you make any changes to the input parameters, resave the file. On the **File** menu, click **Save** to save the command file.

7.4   Create a NEMO Waves Command File

The procedure for creating a command file for a NEMO waves deployment is much the same as for other deployments. The most important difference is that you must choose a Waves Gauge deployment in the wizard, and then specify NEMO.

a. Open the wizard.

b. Select a **Monitor** or **Sentinel** ADCP.

c. Select **300**, **600**, or **1200** kHz.

d. Choose at least 1 battery pack.

e. Choose **Ocean** / **Near Shore**.

f. Select **Waves Gauge**. When the NEMO picture appears, select **NEMO** too.
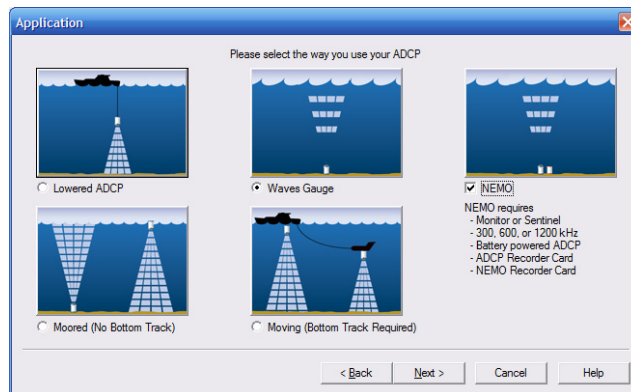
g. Continue through the wizard.

> **NOTE.** When using a NEMO Wave Processing Module and an ADCP to collect waves data, you send the command file to the NEMO Waves Processing Module, and then the NEMO unit configures the ADCP. The Expert view shows this.

> **CAUTION.** *WinSC* can not be used to deploy a NEMO Wave Processing Module. *PlanADCP* generates some necessary *BBTalk* commands (<breaks>, <wait> etc.) in the Nemo configuration file, which the terminal in *WinSC* does not know how to interpret. See the NEMO Wave Processing Module Operation Manual for details on how to deploy the unit.

7.5 Making Changes to the Command File

The **Basic** screen is visible first when using the wizard or when you load an existing file. The **Basic** screen reflects all of your input during the wizard and is the minimal setup you need to use to collect good data.

The **Advanced** screen allows you to set system settings that are specific to your deployment site. Setting items in this screen incorrectly can bias your data, however, these things can be corrected easily in post processing.

The **Expert** screen allows you to view the commands. Editing or adding commands to the command file may not be reflected in the consequences. Therefore, we strongly recommend that you do not change or add any commands unless you are fully familiar with the impact of those changes.

> **CAUTION.** Editing or adding commands to the command file will allow you to set items that if set incorrectly can cause your data to be bad and uncorrectable even in post processing.

7.6   Basic Hardware Setting

On the **Settings** menu, click **Hardware Settings**. From the B**asic Hard-ware Settings** screen, you can change the ADCP type, frequency, power management, data storage, and what Output/Features are used.

Figure 34.   Basic Hardware Setting Screen

7.7   Advanced Command File Editing

On the *PlanADCP* (Basic) Screen (see Figure 33, page 30), click the **Advanced** button to bring up the **Advanced** setting screen.

Figure 35.   PlanADCP Advanced Screen (with Bottom Track On)

> **CAUTION.** The **Advanced** screen allows you to set system settings that are specific to your deployment site. Setting items in this screen incorrectly can bias your data, however, these things can be corrected easily in post processing.

Environmental Setup

- **Transducer Depth –** The ADCP uses depth in its speed of sound calculations. Some ADCPs may be equipped with an internal pressure sensor. If a pressure sensor is not available, then the ADCP will use this manual depth setting.

- **Salinity –** Fresh water is 0ppt and salt water is typically 35ppt. Salinity is used to calculate the speed of sound. The speed of sound is used by the ADCP to scale the velocity data properly. If you use 0ppt when you deployed in 35ppt water, then your data will have a 3% velocity estimate error.

- **Magnetic Variation** – The WorkHorse ADCP uses a flux-gate compass that measures magnetic north. You must set the mag-

netic offset in order to obtain true north referenced velocity data directions.

- **Temperature** – Temperature is the largest effect on the speed of sound calculation. Enter the average temperature the WorkHorse ADCP itself will see over its entire deployment. This temperature will also be used to calculate the maximum range of the system as temperature also affects the absorption of the sound in the water.

Deployment Timing Setup

- **Duration** – Enter the expected duration of the WorkHorse deployment. This duration *does not* produce a command to instruct the WorkHorse to stop data collection; it is for estimating consequences only.

- **Ensemble Interval** – This sets the (minimum) interval over which the WorkHorse will collect and average the pings per ensemble and record data.

- **Ping Interval** – Selecting the **Auto** box will evenly space the pings throughout the ensemble. Un-checking the **Auto** box allows you to manually enter the time between pings. As an example, you can manually set this time to squeeze all of the pings together at the beginning of your ensemble instead of spacing them evenly over your entire ensemble. To make the ADCP ping as fast as possible, un-check the **Auto** box and check the **Min TP** button. Please note that most users use the automatic function.

- **Ping Immediately After Deployment** – Select whether to start the deployment immediately or delayed. Uncheck the box and entering a date and time in this field enables a delay from the start of a deployment to the first water profiling ping. When enabled, the WorkHorse will begin collecting velocity data at the date and time specified by the first ping date and time. The WorkHorse will sleep from the time the commands are sent to the WorkHorse until the first ping date and time.

> **NOTE.** Use *WinSC* or *BBTalk* (see the RDI Tools User's Guide) to make sure the ADCP date and time are set to the computer's time (see "Deployment Wizard," page 11).

Profiling Setup

- **Pings Per Ensemble** – Adjust the number of pings to get the desired Standard Deviation. The pings are uniformly time-spaced over the ensemble interval if **Auto** is selected in the **Ping Inter-**

val box. To increase the expected accuracy of the velocity measurement (reduce the Standard Deviation), you can increase either pings per ensemble, depth cell (bin) size or both.

- **Number of Depth Cells** – Sets how many depth cells (bins) are used. You should always have enough depth cells to collect data over the profiling range you desire. The **Max Range** field provides the maximum range the system will profile. The **Last Cell Range** field provides the last range that you have setup the system to collect. To increase the **Last Cell Range** enter more depth cells or increase the depth cell size.

> **NOTE.** RD Instruments recommends setting the number of depth cells so that you collect 10% more range than the **Max Range** field indicates. Collecting more than this typically does not provide you any more velocity data.

- **Depth Cell Size** – Set the depth cell (bins) size.

- **Mode** – Sets the Water Mode. For more information on Water Modes, see the WorkHorse Commands and Output Data Format guide.

Bottom Tracking Setup – (Only visible if Bottom Track is selected)

- **Pings Per Ensemble** – Sets the number of Bottom Track pings.

- **Nominal Range** – Sets the maximum tracking depth in Bottom-Track mode.

- **Mode** – Sets the Bottom Track mode. For more information on Bottom Track Modes, see the WorkHorse Commands and Output Data Format guide.

Waves Setup – (Only visible if Waves Gauge is selected)

- **Burst Duration** – Sets the period of time the ADCP will ping at a high ping rate ("burst"), wait for a set period of time, and then repeat the process.

- **Time Between Bursts** – Sets the time between bursts.

- **Collect Motion Data (Moored)** – Select this option if you want to collect extra sensor (Pitch and Roll) data.
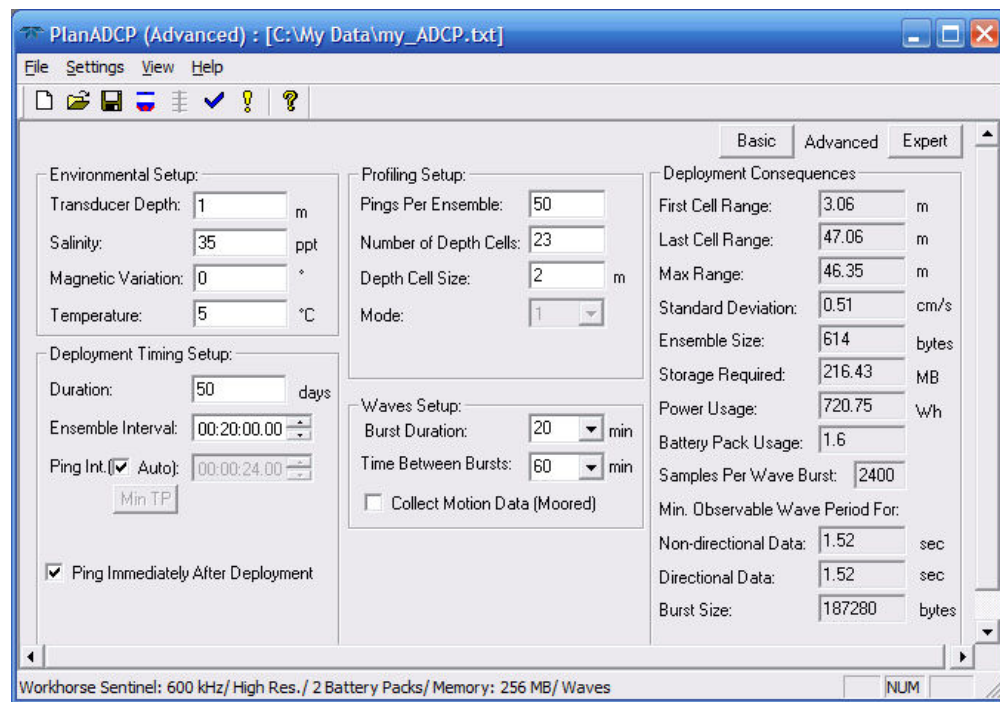
Figure 36.   PlanADCP Advanced Screen (with Waves Gauge On)

7.8   Advanced Hardware Settings

The hardware settings screen is used to tell *PlanADCP* which features are installed in the ADCP. When features are selected, *PlanADCP* will make other modes and setting available in the advanced menu.

While in the **Advanced Settings** screen, on the **Settings** menu, click **Hardware Settings**. From the **Advanced Hardware Settings** screen, you can change the ADCP type, frequency, power management, data storage, Mode, and whether or not Bottom Track is output. If you are going to use **High Resolution Water Modes**, **High Rate Pinging Mode**, or **Shallow Bottom Mode** (and your ADCP has that feature installed) check the appropriate box.

It is recommended to set the **LADCP** and **Wave Gauge** features through the Wizard (**File**, **New** menu selection). If **LADCP** is checked, select if you want the command file to be for the **Master** or **Slave** ADCP.

Select the **Processing Bandwidth (BW)**. The **Narrow BW** (Long Range) mode allows the ADCP to profile farther, but the standard deviation is increased by as much as 2.5 times.

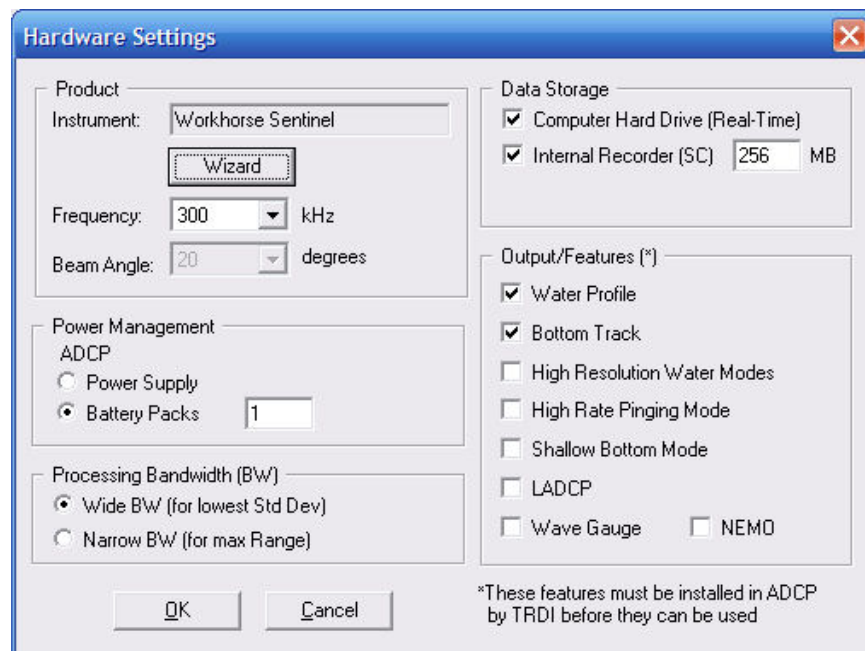For Long Ranger ADCPs, select the **Power** mode. This sets the transmit power to **High** or **Low**.

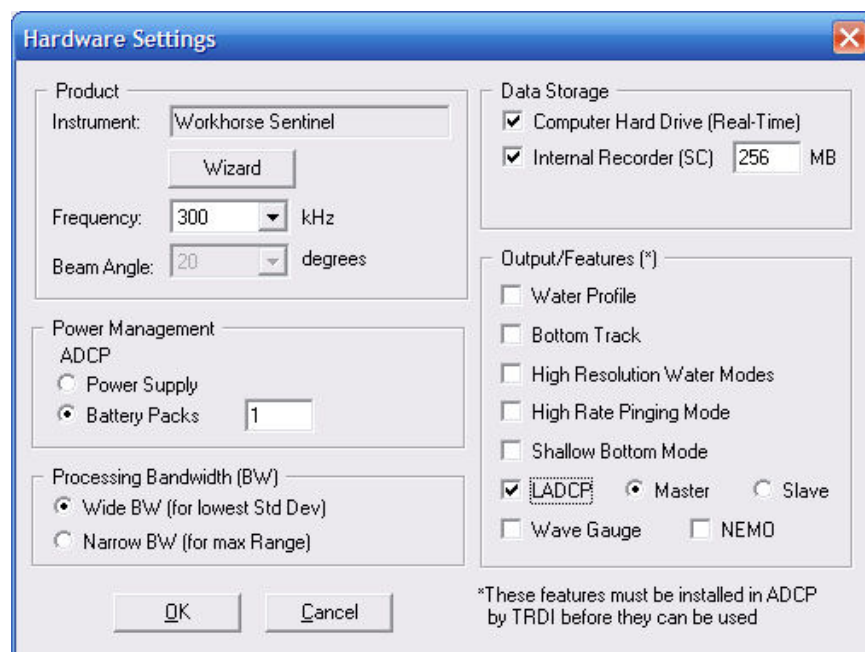**Figure 37.   Advanced Hardware Settings Screen**

Figure 38.   Advanced Hardware Settings Screen with Lowered ADCP

7.9   Expert Screen

To view the Expert screen, click the **Expert** button while on the advanced screen. The Expert screen allows you to view the commands. If you are an expert user you can change or add commands. To return to the advanced screen, click the **Advanced** button.

> ⚠ **CAUTION.** If you are an expert user you can change or add commands. Be aware that some special commands could affect power consumption or other parameters. PlanADCP will **not** make adjustments to the consequences.
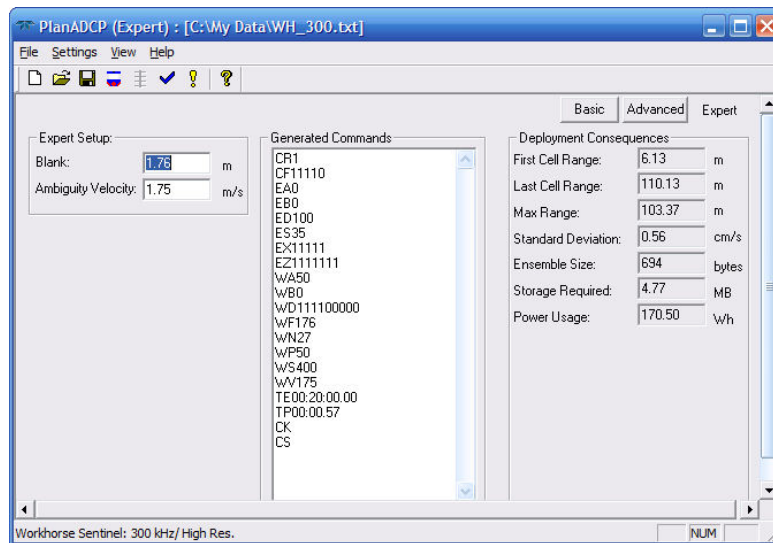

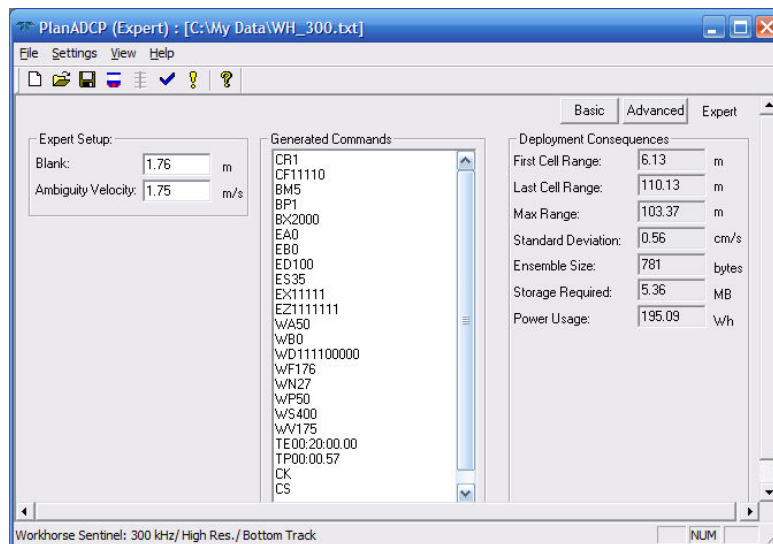**Figure 39.   PlanADCP Expert Screen (no Bottom Track)**

Figure 40.   PlanADCP Expert Screen (with Bottom Track On)
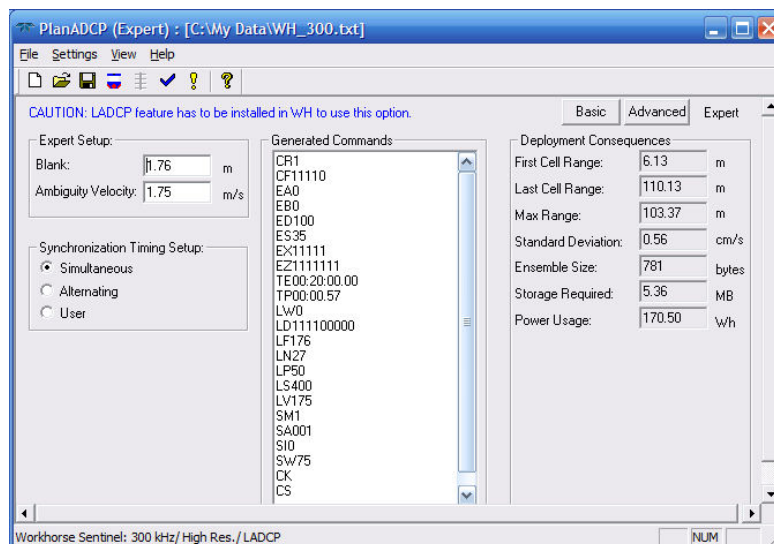
Figure 41.   PlanADCP Expert Screen (with Lowered ADCP)

7.10   NEMO Cell Settings

The **Cell Settings** button on the toolbar and the **Settings**, **Cell** menu items are only available for a NEMO waves gauge deployment.

The **Set** button chooses the **Profile Setup** and **NEMO Current Output** settings appropriate for the **Transducer Depth**.

If you choose illegal settings, an error message will be displayed. If this happens, you must either correct the error or close the **NEMO Depth Cell Setup** screen with the **Cancel** button. Clicking **OK** updates the configuration, but does not save the changes to a command file. To save changes to the command file, use the **File** menu and click **Save**.
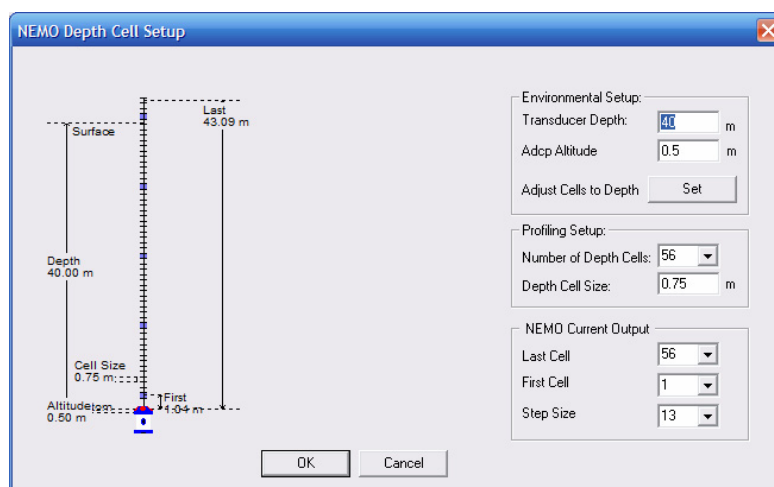

Figure 42.   NEMO Depth Cell Setup

7.11 Manually Editing a Command File

To manually edit the command file in *Notepad®*, do the following.

a. On the **File** menu, click **Edit**.

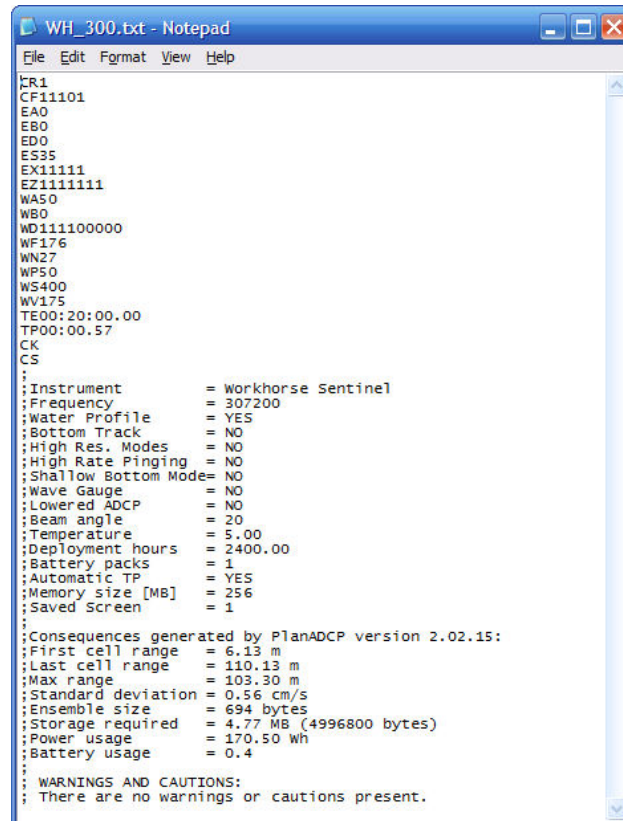b. Select the command file and click the **Edit** button.

Figure 43.   Edit a Command File

c. Make changes to the command file as needed.

d. In *Notepad*, on the **File** menu, click **Save**. Exit *Notepad* to return to *PlanADCP*.

> **NOTE.** Editing or adding commands to the command file may not be reflected in the consequences. Therefore, we strongly recommend that you do not change or add any commands unless you are fully familiar with the impact of those changes.

> **CAUTION.** Editing or adding commands to the command file will allow you to set items that if set incorrectly can cause your data to be bad and uncorrectable even in post processing. **Read the cautions in "Using Direct Commands to Deploy your ADCP," page 44 before continuing.**

7.12 Sample Printout of a Command File

Once you have entered all of your choices using *PlanADCP* and saved the file, you can view the command file using the Expert screen or on the **File** menu, select **Edit** (see "Manually Editing a Command File," page 41 and "Using Direct Commands to Deploy your ADCP," page 44). Lines beginning with a semicolon (;) are comments. The sample command file shown below is for a 300kHz Sentinel WorkHorse without Bottom Track and using the default settings for all screens.

```
CR1
CF11101
EA0
EB0
ED0
ES35
EX11111
EZ1111111
WA50
WB0
WD111100000
WF176
WN27
WP50
WS400
WV175
TE00:20:00.00
TP00:00.57
CK
CS
;
;Instrument         = Workhorse Sentinel
;Frequency          = 307200
;Water Profile      = YES
;Bottom Track       = NO
;High Res. Modes    = NO
;High Rate Pinging  = NO
;Shallow Bottom Mode= NO
;Wave Gauge         = NO
;Lowered ADCP       = NO
;Beam angle         = 20
;Temperature        = 5.00
;Deployment hours   = 2400.00
;Battery packs      = 1
;Automatic TP       = YES
;Memory size [MB]   = 256
;Saved Screen       = 1
;
;Consequences generated by PlanADCP version 2.02.15:
;First cell range   = 6.13 m
;Last cell range    = 110.13 m
;Max range          = 103.30 m
;Standard deviation = 0.56 cm/s
;Ensemble size      = 694 bytes
;Storage required   = 4.77 MB (4996800 bytes)
;Power usage        = 170.50 Wh
;Battery usage      = 0.4
;
; WARNINGS AND CAUTIONS:
; There are no warnings or cautions present.
```

The commands shown in Table 2 explain each command set or added by *PlanADCP*. These commands directly affect the range of the ADCP, standard deviation (accuracy) of the data, and battery usage. Table 2 explains the commands used in the sample command file for a 300kHz Sentinel WorkHorse without Bottom Track.

Table 2:   Command File Created Using PlanADCP

Command	Choices	Description
CR1	Sets factory defaults	This is the first command sent to the ADCP to place it in a "known" state.
CF11101	Flow control	Record data internally on the PC card recorder.
EA0	Heading alignment	Use beam-3 as the heading alignment.
EB0	Heading bias	Magnetic variation.
ED0	Transducer depth	Manually set depth of the transducer. If a pressure sensor is installed, the ED-command will be used only if the depth sensor fails.
ES35	Salinity	Salinity of water is set to 35 (saltwater).
EX11111	Coordinate transformations	Sets Earth coordinates, use tilts, allow 3-beam solutions, and allow depth cell (bin) mapping to ON.
EZ1111111	Sensor source	Calculate speed of sound from readings, use pressure sensor (if installed), internal compass, internal tilt sensor, and transducer temperature sensor.
WA50	False Target Threshold	The ADCP uses the WA-command to screen water-track data for false targets (usually fish).
WB0	Bandwidth Control	Sets profiling bandwidth (sampling rate) to Wide.
WD111 100 000	Data out	Sets the ADCP to collect velocity, correlation magnitude, echo intensity, and percent-good data. Status data is not used.
WF0176	Blank after transmit	Moves the location of the first depth cell 176 cm away from the transducer head.
WN27	Number of depth cells	Number of depth cell (bin)s is set to 27.
WP45	Number of pings	Number of pings is set to 45
WS400	Depth cell size	Depth cell (bin) size is set to 4 meters.
WV170	Ambiguity velocity	Sets the maximum relative horizontal velocity between water-current speed and WorkHorse speed to 170 cm/s.
TE00:20:00.00	Time per ensemble	Ensemble interval is set to 20 minutes.
TP00:00.57	Time between pings	Plan automatically sets the time between pings to spread the pings evenly throughout the ensemble.
CK	Keep parameters as user defaults	If power is lost and then restored, all commands will be restored as last sent. Sent right before the CS-command.
CS	Start pinging	Last command sent to begin collecting data.

7.13　Using Direct Commands to Deploy your ADCP

TRDI recommends that you use our software programs *WinSC*, *VmDas*, or *WinRiver*, etc. as your primary method of deployment. If this is not possible in your deployment then we ***strongly recommend*** that the commands shown in Table 3 be the ***minimum*** commands you send to the instrument.

⚠	**CAUTION.** TRDI does not recommend the use of direct commands as your primary way of deploying ADCPs as **any incorrect command setting can have severe consequences to your data collection**.
	See the WorkHorse Commands and Output Data Format Guide for information on each command setting.

Table 3:　　ADCP Minimum Required Commands for Deployments

| Command	Description
CR1	This command will set your ADCP to a known factory default setting and **must be your first command**
CFxxxxx	This command will set your ADCP collection mode; binary, recorder, etc.
EAxxxxx	This command will set your magnetic compass offset for true north
EDxxx	This command will set your ADCP depth
ESxx	This command will set your ADCP's expected salinity
EXxxxxx	This command will set your ADCP's coordinate system; earth, beam, etc.
EZxxxxxxx	This command will set what sensors will be used by your ADCP; heading, pitch, roll, temp, etc.
WNxx	This command will set the number of depth cells to collect
WPxx	This command will set the number of pings to average
WSxxxx	This command will set the depth cell size to use
TExxxxxxxx	This command will set the time between ensembles
TPxxxxxx	This command will set the time between pings
CK	This command will save your setup to the internal RAM and **must be your second to last command**
CS	This command will start your deployment and **must be your last command**

| ⚠	**CAUTION.** Although these are our recommended minimum commands, **they may not be the only commands you need for your deployment to be successful!**

📝	**NOTE.** Your deployment may require additional commands and these commands can be sent any time after the CR1 command but must before the CK command.

8   Tutorial - Collecting Self-Contained Data

WinSC works as a shell program to launch the *PlanADCP* program. *PlanADCP* is designed to create a command file that will be used to set up a WH150 ADCP for collecting data. In this example we will start *WinSC*, use *PlanADCP* to develop the command file, and then go back to the *WinSC* program to continue with the testing, deployment, and recovery of data.
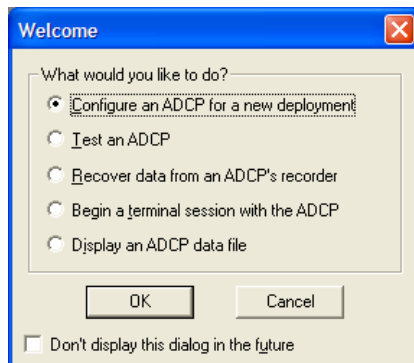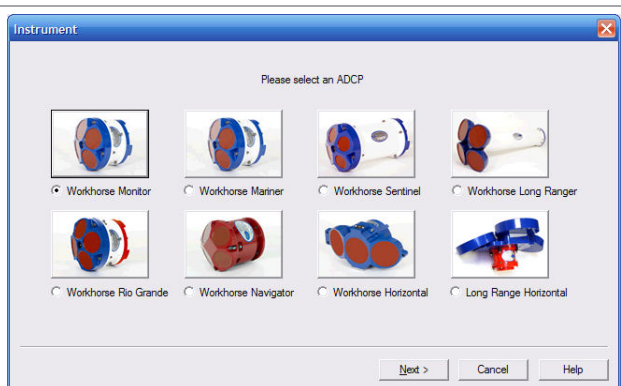

Start *WinSC*. Select **Configure an ADCP for a new deployment** and click **OK**.
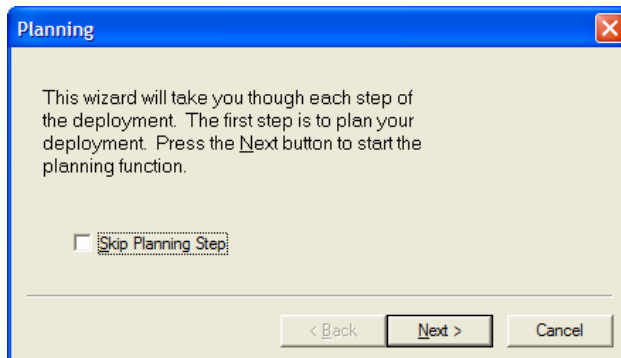
Planning

The first step of the deployment wizard will start *PlanADCP*.
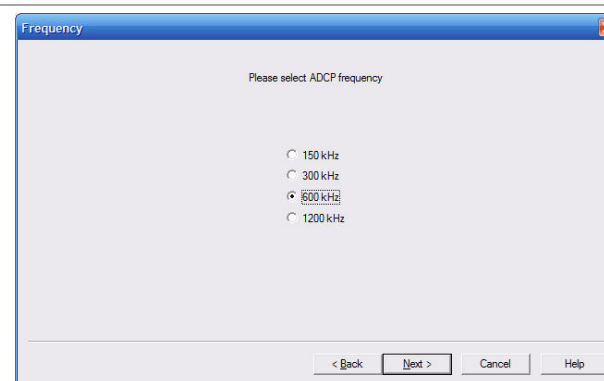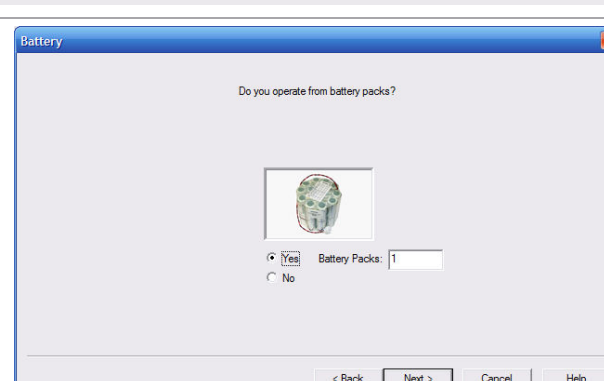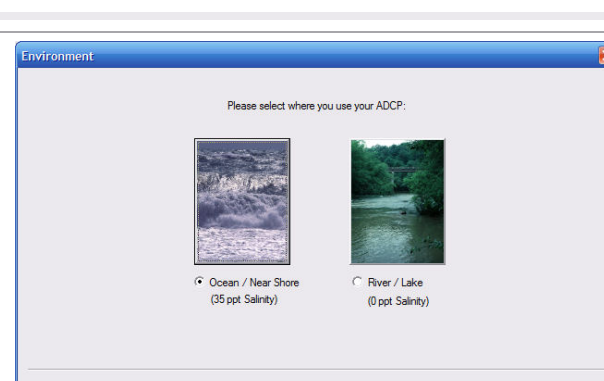
Click **Next** to continue.

Instrument

Select the type of ADCP you want to create a command file for.

Click **Next** to continue.

Frequency

Select the frequency of your ADCP. The default settings and consequences are based upon the ADCP frequency.

Click **Next** to continue.

Battery

Select if the ADCP has internal batteries. If you select **Yes**, then enter the number of battery packs you are going to use.

Click **Next** to continue.

Environment

Select **Ocean/Near Shore** or **River/Lake** to set the salinity. Water salinity affects the maximum range. Salt water is typically 35 ppt, fresh water is 0 ppt.

Click **Next** to continue.

Application

Select **Moored (No Bottom Track)** for a self-contained deployment.

Click **Next** to continue.

Water Profiles

Select the depth range you wish to measure. The maximum depth range is dependent on the ADCP frequency, water salinity, water temperature, and the depth of the ADCP.
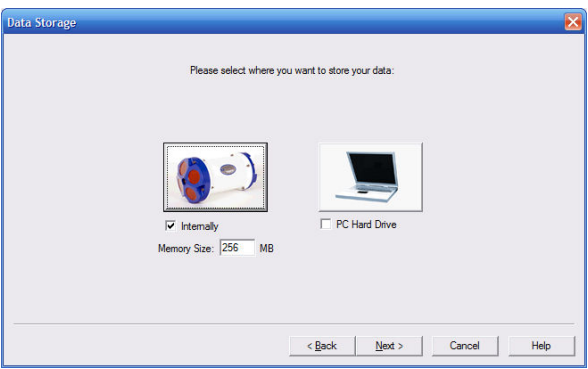
Click **Next** to continue.

Resolution

Set the depth cell (bin) size. Adjust the depth cell (bin) size as necessary to get at least 10 depth cells (bins). A larger depth cell (bin) size decreases the standard deviation, but shallow water situations may need to use small depth cells (bins) to get more data points.

PlanADCP will set the number of depth cells (bins) so that the consequence *last depth cell (bin) range* is approximately 10% greater than the depth range set in the previous step.

Click **Next** to continue.

Data Storage

Select where to store the data. Data can be stored internally, sent out the serial port, or both. If you selected **Internally**, enter the amount of memory installed.

Click **Next** to continue.

Water Profiling Timing

Select how many ensembles per hour you want to record.

Click **Next** to continue.

Duration

Enter the expected duration of the ADCP deployment from the time of the first water profiling ping (either immediately or first ping date/time). This duration *does not* produce a command to instruct the ADCP to stop data collection; it is for estimating consequences only. This duration is used to estimate the following *consequences*:

- Battery usage
- Ensembles
- Storage required

Click **Next** to continue.

The wizard is now finished.

Click **Finish**.

The *PlanADCP* (Basic) Screen opens using the settings you selected with the wizard. Review the consequences (see the WinSC and PlanADCP User's Guide for details).

On the *PlanADCP* (Basic) Screen click the **Advanced** button to bring up the **Advanced** setting screen.

Advanced Screen

Uncheck the **Ping Immediately After Deployment** box and enter a **Date** and **Time** you want the ADCP to begin pinging.

Start sample intervals on the minute by using a delayed start up. Instead of having your 10-minute sample intervals start at 12:36:47, delay startup a few minutes to have samples start at 13:00:00.
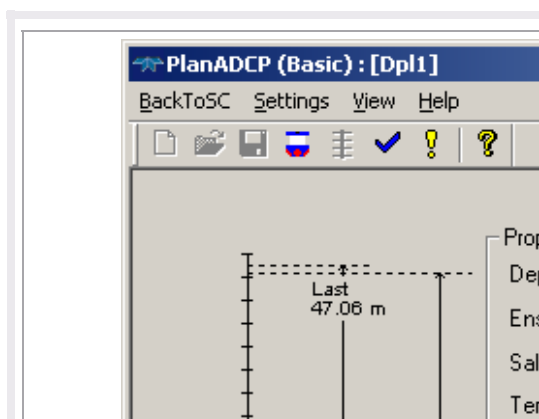
Setup Advanced Screen

On the *PlanADCP* (Advanced) Screen click the **Expert** button to bring up the **Expert** setting screen.

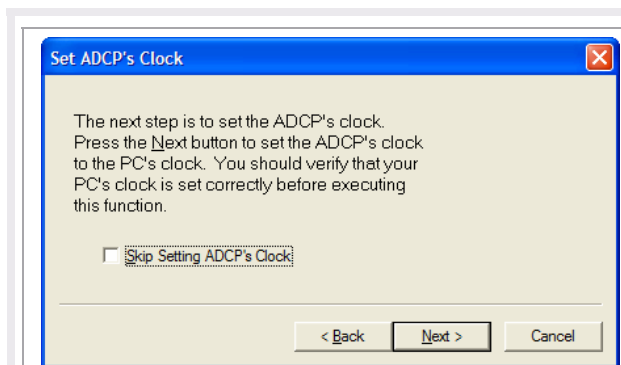You can view the commands that will be sent to the ADCP.

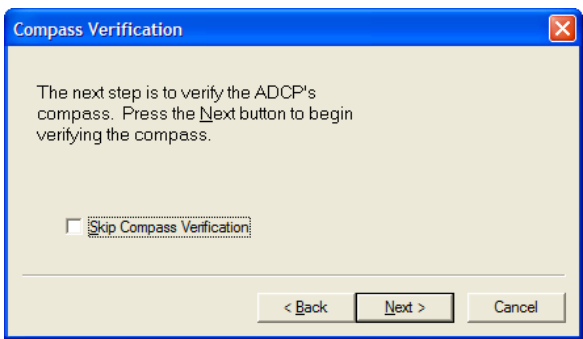**Back to WinSC**

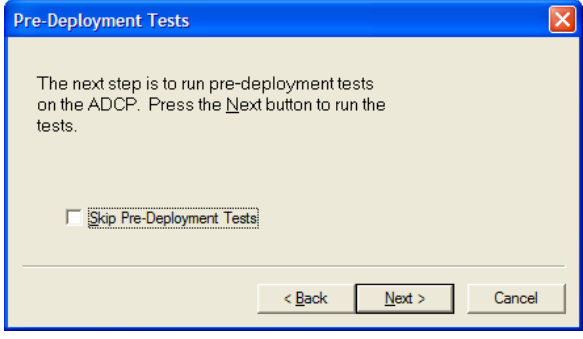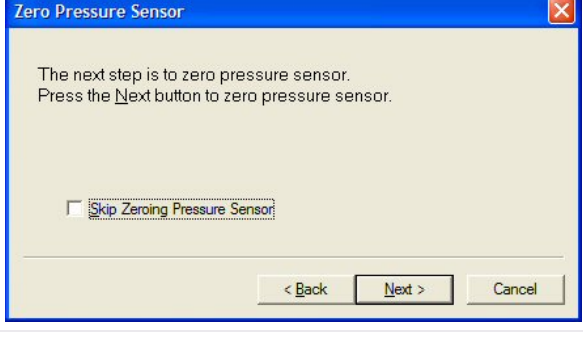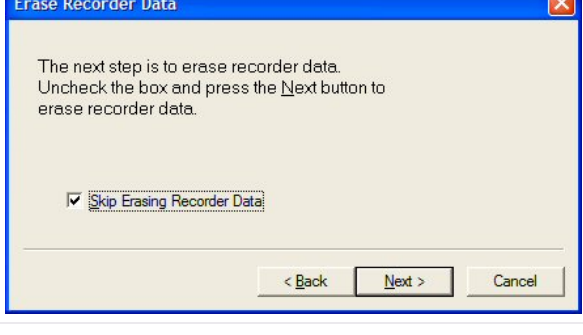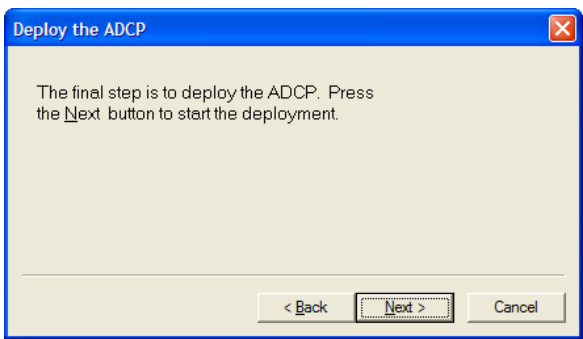Click the **BackToSC** menu to return to *WinSC*.

NOTE. At this point, the ADCP should be prepared for deployment, using battery power, and sealed.

The second step will set the ADCP's clock to the computer's time and date using the TS-command.

Click **Next** to continue.

Compass Verification

The next step is to verify the ADCP's compass. Press the Next button to begin verifying the compass.

☐ Skip Compass Verification

< Back | Next > | Cancel

The third step will verify the compass using the AX-command.

Note: If the internal batteries were replaced, this step will only *verify* the compass; you must *align* the compass prior to using the *WinSC* wizard.

Click **Next** to continue.

Pre-Deployment Tests

The next step is to run pre-deployment tests on the ADCP. Press the Next button to run the tests.

☐ Skip Pre-Deployment Tests

< Back | Next > | Cancel

The fourth step will run the pre-deployment tests Deploy?, System?, TS?, PS0, PA, PC2, RS, and PC1-commands.

Click **Next** to continue.

Zero Pressure Sensor

The next step is to zero pressure sensor. Press the Next button to zero pressure sensor.

☐ Skip Zeroing Pressure Sensor

< Back | Next > | Cancel

The fifth step will zero the pressure sensor using the AZ-command.

Click **Next** to continue.

Erase Recorder Data

The next step is to erase recorder data. Uncheck the box and press the Next button to erase recorder data.

☑ Skip Erasing Recorder Data

< Back | Next > | Cancel

The sixth step will erase the recorder using the RE-command. Uncheck the **Skip Erasing Recorder Data** box if you want to erase the data.

CAUTION: Once erased, the data is not recoverable.
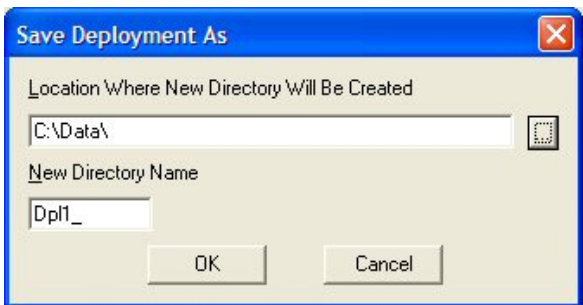
Click **Next** to continue.

The seventh and final step in the Deployment Wizard will send the commands from the command file to the ADCP.

Click **Next** to send the commands. When the commands have been sent to the ADCP, you should see a message "*You have successfully deployed the ADCP*."

Click **OK**.

NOTE. The ADCP <u>must</u> be powered with the batteries, sealed, and ready to deploy before you click **Next**.

Save Deployment File

If you have not already saved the deployment file, you will be prompted to name the deployment. Choose and use Deployment Names carefully: they help you identify and organize all the data and log files associated with each deployment.

Review the Log File

The command file and deployment log file will be saved when the deployment file is saved. For example, if you save the deployment file as *Dpl1_.dpl*, then the command file will be saved as *Dpl1_.whp* and the log file will be saved as *Dpl1_.scl*.

Before deploying the ADCP, scroll through the deployment log file and look for error messages. Correct as needed and re-send the commands.

Photo courtesy of J. Bornhoeft.

Deploy and Recover the ADCP

Once the commands have been sent to the ADCP, proceed as follows.

- Disconnect the I/O cable and install the dummy plug on the ADCP's end-cap.

- Deploy the ADCP.

CAUTION. Do not send a break, any other command, or run any other programs once the commands have been sent to the ADCP or your commands will be over-written.

Disconnect the I/O cable before turning off power to the computer. Some computers may send a break signal out the serial ports when shutting down.
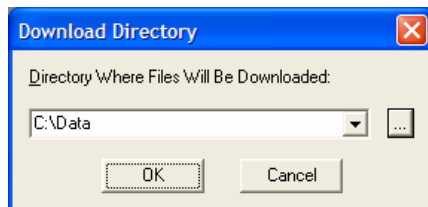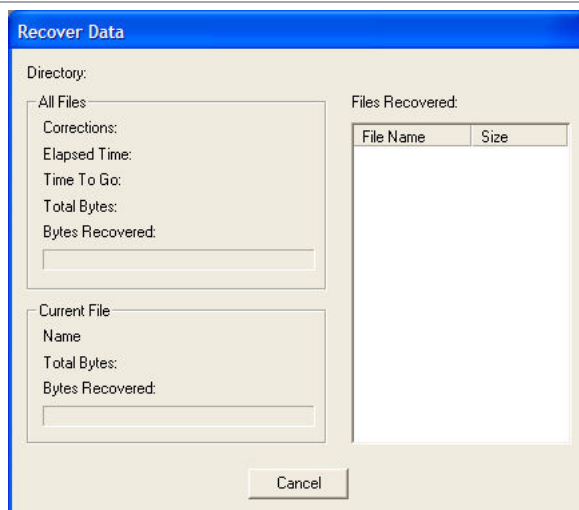
8.1   Tutorial - Recover Data with WinSC
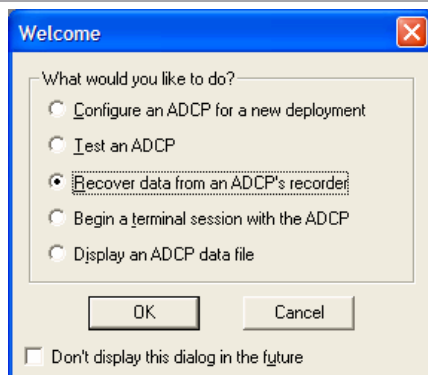
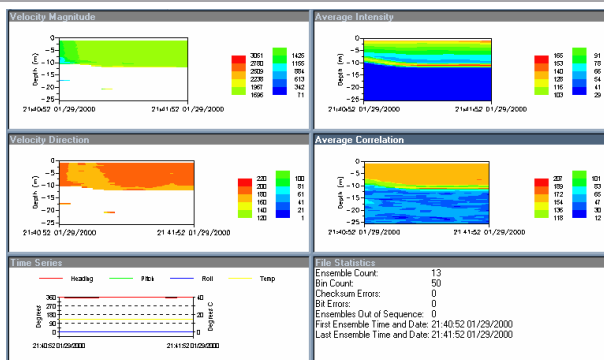|	
	Connect and power up the ADCP.
	Start *WinSC*.
	At the **Welcome Screen** select **Recover Data from an ADCP's Recorder** or from the **File** menu, select **Recover Recorder Data**.

	Select the directory where the data will be written.

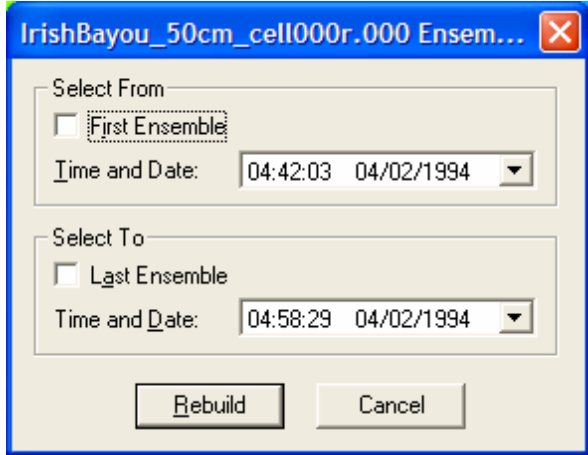|	
	WinSC will increase the baud rate set in the **Com Settings** window to 115200 BAUD to reduce the download time.

8.2   Tutorial - View Data with WinSC

On the **File** menu, click **Open**.

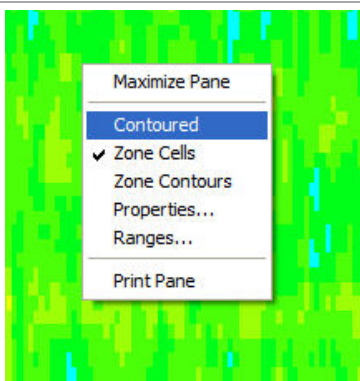On the **Files of Type** box, select **ADCP Data** (*.0*).

Select the file and click **Open**.

The data file will display all of the ensembles.

To select a subsection of the data file, use the **View** menu, **Ensemble Selection**.

To quickly select a section, hold the **Control** key while dragging the mouse over the area to be selected.

Display Controls.

Right-click inside any window to bring up the display menu.

To increase the size of a window, click **Maximize Pane** button.

To increase the contrast of the contoured plot, select **Contoured**.

You can increase the contrast between cells and contours by using the **Zone Cells** or **Zone Contours**.

To change the colors of the plot or other plot controls, click **Properties**.

To select the range of a contoured plot, click **Ranges**.

9 Software History

WinSC Software History

Version 1.28

- Changed name of the software from *SC* to *WinSC*

- Maximized child frame on startup.

- Fixed the following problem: when message "Press any key to start taking data..." or "Press any key to continue" appears in the document window when the "Function Executing" modal dialog window is displayed, then pressing the <ENTER> key actually aborts the operation. The new "Continue" button is added that passes enter key to document window.

Version 1.29

- Fixed problem with displaying graphics.

- Fixed problem with COM ports > COM9. They were not shown in the list of the available ports.

- Fixed problem with slow updates of terminal window.

- Change icon to show four beams.

- Added the AZ command in the wizard to zero the pressure sensor.

- Added step in the wizard to erase memory.

- Added warning if the recorder is not empty when starting deployment.

- Added warning if files already exist in download directory.

PlanADCP Software History

Version 2.01 - Initial Release.

Version 2.02

- Added ability to enter blank in expert menu.

- Added mode 12 sub-pings options.

- Added ability to enter ambiguity velocity in expert menu.

- Added feature list to Advanced Settings Menu.

- Fixed problem with reading TF command properly.

- Fixed problem with maximum profiling range for Long Ranger.

- Fixed problem with low / high power setting: range would not change.

- Added LADCP support.

- Add ability to view all the warnings and cautions.

- Fixed problem with restoring battery packs information from file.

- Added planning options for various WH Horizontal ADCPs.

- Added "Advanced" button in Basic Hardware Settings.

- Added "Back" button in last page of the Wizard.

- Added Waves support.

- Added ability to edit commands in Expert View.

- Added decoding of CL command and implementing it in the model.

- Changed voltage for Rio Grande to 12 V.

- Added display of the hardware settings to the status bar.

- Changed default mode 1 ambiguity velocity from 170 to 175 cm/s.

- Generate CL command for Workhorse Horizontal systems.

- Change the display format for the first ping time to 24-hour standard.

Version 2.03

- Added NEMO support

- Added 150 kHz support

- Corrected calculations for new urethane in the transducers

- Corrected approximations in the deployment consequences

- Improved ping time/ ensemble time calculations and warnings

- Updated images, text, and the corporate name

- Changed to HTML help system

- Fixed page order when stepping backward through the wizard

- Fixed various data entry and behavior issues

Version 2.04

- Improved the accuracy of the model.

- Corrected defaults and limits.

- Fixed handling of expert commands.

<u>NOTES</u>

<u>NOTES</u>