



Setting up the Towfish Driver for Towed Sonar

By Joe Burnett

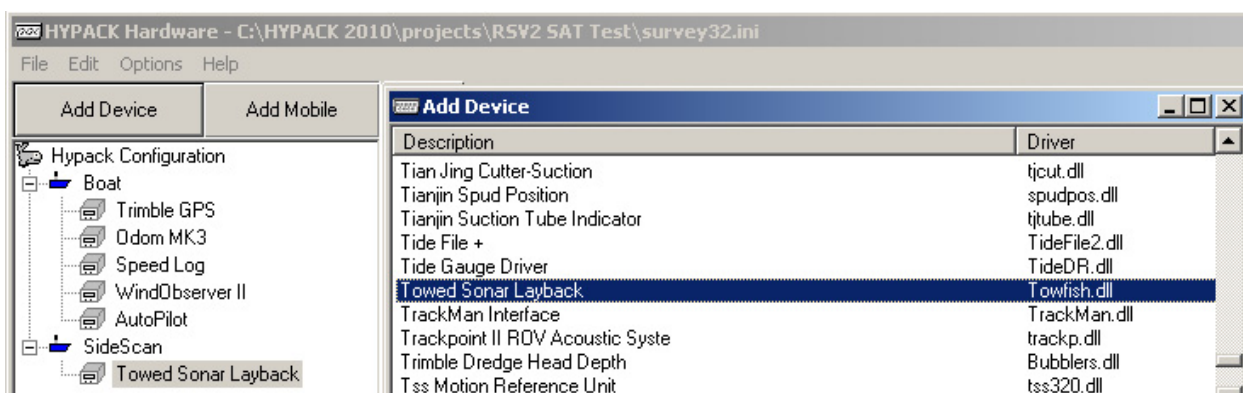
Interfacing your towed sonar with HYPACK® will be taken care of with its own driver. Here we will focus only on the positioning of the towed sonar or “towfish”.

There are a few different ways to position the "towfish" within HYPACK®, but this article concentrates on configuring the Towfish.dll in HYPACK® HARDWARE.

ADDING THE TOWFISH DRIVER TO THE CONFIGURATION

1. Click on “Add Mobile”. You can rename it to the name of your device, such as “Side Scan Towfish” if you choose.
2. Click on “Side Scan Towfish”, then “Add Device”.
3. Select the “Towed Sonar Layback” device, using the **Towfish.dll** driver.

FIGURE 1. Loading the Towfish Driver



CONFIGURING THE TOWFISH DRIVER

SETUP PARAMETERS

Click on the Setup button and set as follows:

CABLE COUNTER VS MANUAL LAYBACK

If a cable counter is to be used, select the sensor from the drop-down list at the top of the setup dialog. If there is no layback, select "Manual Layback". You can also change the **Catenary Factor**, if needed.

OFFSETS

A-Frame Offsets must be measured from the boat reference point (BRP) to the pulley at which the layback or cable out measurements will be started.

NOTE: Measure these offsets, just as you would any other device from the BRP, where the **X-OFFSET** is positive to the starboard side, and the **Y-OFFSET** is positive to the bow or forward of the BRP.

FIGURE 2. Measuring A-Frame Offsets: In this example X-offset = 4.02 and the Y-offset = -11.35

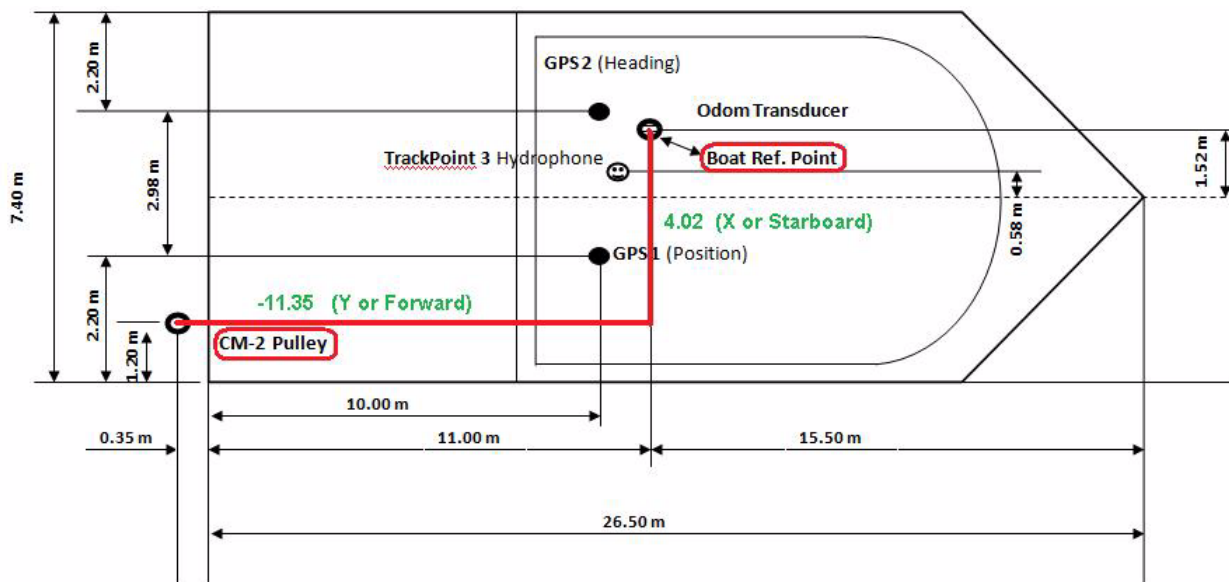
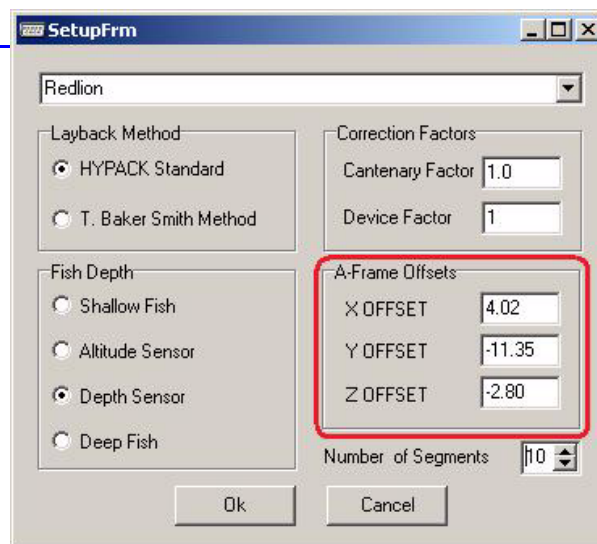


FIGURE 3. Towfish Driver Setup Dialog

In early versions of HYPACK®, the X and Y-offset values had to be inverted before they were entered in the Offsets section of the HARDWARE interface. This method seemed to cause confusion. In order to keep these measurements consistent, the offsets are now entered in the setup dialog and are measured in the same manner as they are for all other devices.

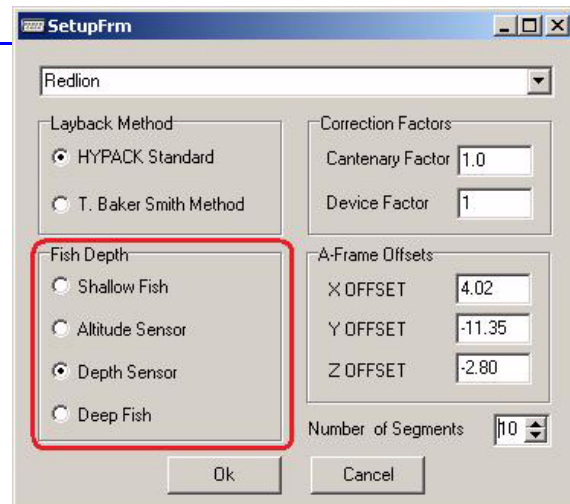


FISH DEPTH

Select the method with which the towfish depth will be calculated.

FIGURE 4. Fish Depth Options

- **Shallow Fish** = Assumes the "towfish" is not very deep, and takes the User Defined Catenary Factor and multiplies it with the Cable out distance to get the Layback distance
- **Altitude Sensor** = The Sonar being towed has a sensor that is measuring its distance from the bottom.
- **Depth Sensor** = The Sonar being towed has a sensor that is measuring its distance from the water surface.
- **Deep Fish** = Assumes the "towfish" is directly below the Sheave because the vessel is running very slow.



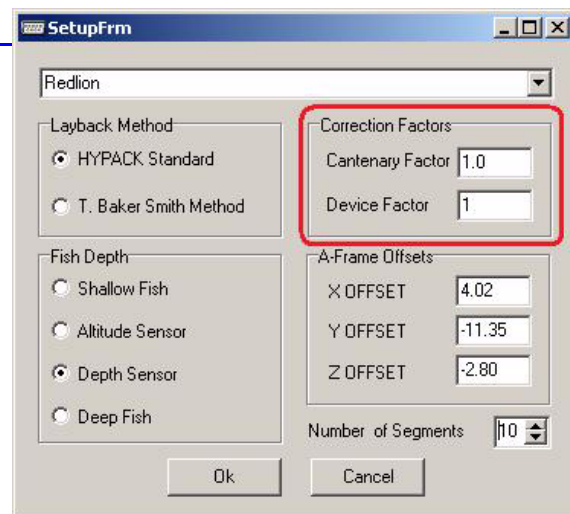
CORRECTION FACTORS

Select the **correction factors** that will be used to determine the "true" layback distance.

FIGURE 5. Correction Factors

Catenary Factor = the curve that the cable assumes when supported at its ends and acted on only by its own weight. This curve will reduce the "actual" cable length to calculate a "truer" horizontal distance.

Device Factor = A multiplier used ONLY for the Redlion and Remontec T Count cable counters



LAYBACK

FIGURE 6. Layback Method

Select the **Layback Method** to be used for calculating the layback distance.

HYPACK® Standard = Will use the correction factors, A-frame offsets, and fish depth information (shown on this screen), in conjunction with the GPS position to calculate the towed sonar's location.

T. Baker Smith Method = Uses an equation created by the T. Baker Smith company to calculate the layback distance based on the values shown in Figure 7. Their equation calculates an "On-the-Fly" catenary factor, and multiplies it with the cable out distance. The cable out distance is based on the counter location and must be selected by the user.

The screenshot shows the 'SetupFrm' dialog box. The 'Layback Method' section is highlighted with a red box. It contains two radio buttons: 'HYPACK Standard' (selected) and 'T. Baker Smith Method'. Other sections visible include 'Correction Factors' with 'Catenary Factor' (1.0) and 'Device Factor' (1), 'Fish Depth' with radio buttons for 'Shallow Fish', 'Altitude Sensor', 'Depth Sensor' (selected), and 'Deep Fish', 'A-Frame Offsets' with 'X OFFSET' (4.02), 'Y OFFSET' (-11.35), and 'Z OFFSET' (-2.80), and 'Number of Segments' (10). 'Ok' and 'Cancel' buttons are at the bottom.

FIGURE 7. When you select the T.Baker Smith layback method, the dialog expands for you to enter the required measurements.

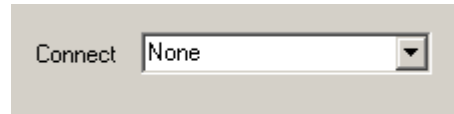
The screenshot shows the 'SetupFrm' dialog box with the 'T. Baker Smith Method' selected. The 'Layback Method' section now shows 'T. Baker Smith Method' as the selected option. The 'Correction Factors' section remains the same. The 'Fish Depth' section remains the same. The 'A-Frame Offsets' section remains the same. The 'Number of Segments' remains 10. A new section, 'T. Baker Smith Values', has been expanded, showing 'GPS to Winch Dist' (0), 'Winch to Sheave Dist' (0), 'Sheave Height' (0), and 'Winch Height' (0). Below this is a 'Counter Location' section with two radio buttons: 'Sheave Pulley' (selected) and 'Winch Drum'. 'Ok' and 'Cancel' buttons are at the bottom.

CONNECT SETTINGS

TABLE 1. Connection Setting Options Depend on Your Layback Calculation Method.

- If a **“Manual Layback”** will be Entered while the Cable is being “spooled” in and out, set the Connection to “None”

FIGURE 8. No Connection

A screenshot of a software interface showing a dropdown menu labeled 'Connect'. The menu is open, and the option 'None' is selected.

- For the **CM-2 Pulley**, set the Connection to “None”

FIGURE 9. No Connection

A screenshot of a software interface showing a dropdown menu labeled 'Connect'. The menu is open, and the option 'None' is selected.

NOTE: The **CM-2 Pulley program** from C-MAX must be running on the desktop, in order for the towfish.dll driver to get the cable out distance from the pulley.

- For All other **Cable Counters**, select the COM port and its corresponding parameters.

FIGURE 10. Configure Serial Port Settings for Cable Counters other than the CM-2

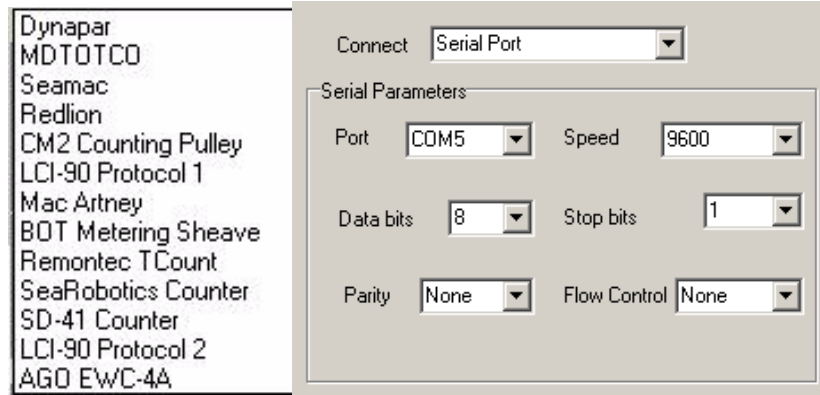
A screenshot of a software interface showing a list of cable counter models on the left and a 'Serial Parameters' dialog box on the right. The list includes: Dynapar, MDTOTCO, Seamac, Redlion, CM2 Counting Pulley, LCI-90 Protocol 1, Mac Artney, BOT Metering Sheave, Remontec TCount, SeaRobotics Counter, SD-41 Counter, LCI-90 Protocol 2, and AGO EWC-4A. The 'Serial Parameters' dialog box has a 'Connect' dropdown set to 'Serial Port'. Below it, the 'Serial Parameters' section contains: 'Port' set to 'COM5', 'Speed' set to '9600', 'Data bits' set to '8', 'Stop bits' set to '1', 'Parity' set to 'None', and 'Flow Control' set to 'None'.

FIGURE 11. View of Towed Sonar Layback (Towfish.dll) in Survey Program.

