



Over DRAFT Protection

By Joe Burnett

I am sorry to say that HYPACK® is NOT giving financial advice (as much as our economy could use some), but rather knowledge on how to avoid double-correcting for your transducer's static draft offset.

PROPER DRAFT CORRECTION

In the September 2010 *Sounding Better* newsletter, Pat Sanders wrote an article demonstrating the importance of static and dynamic drafts, and how we compensate for them in HYPACK®.

In Pat's article, he very clearly stated the locations to enter the static draft adjustment (offset). We do this in either of two places:

- In the echosounder itself (or its software) or
- As a vertical offset in the HYPACK® HARDWARE or HYSWEEP® HARDWARE program, depending upon whether you have a single beam or multibeam echosounder, or both.

FIGURE 1. *Specifying a Vertical Offset to Compensate for the Transducer Draft in HYPACK® HARDWARE*

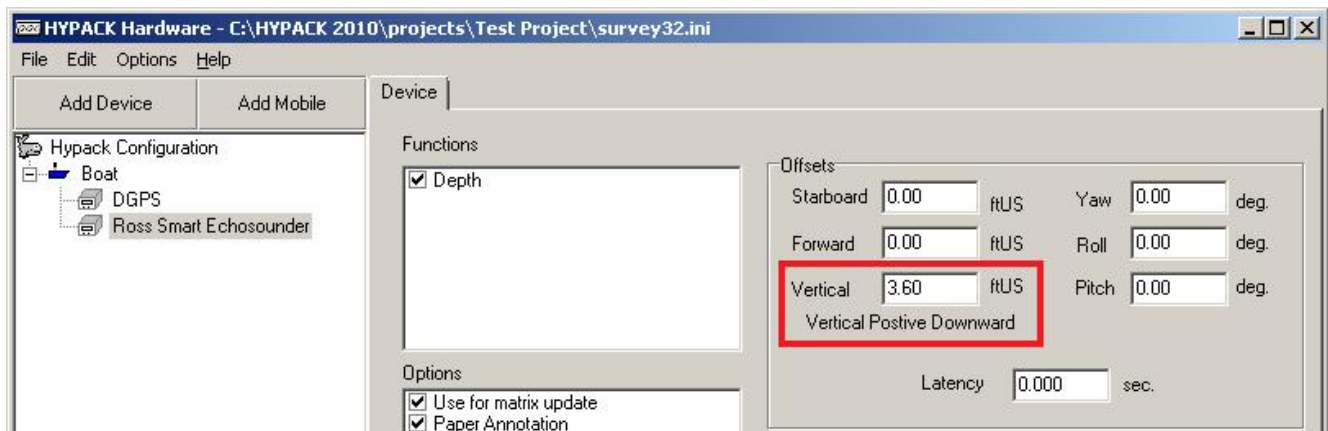
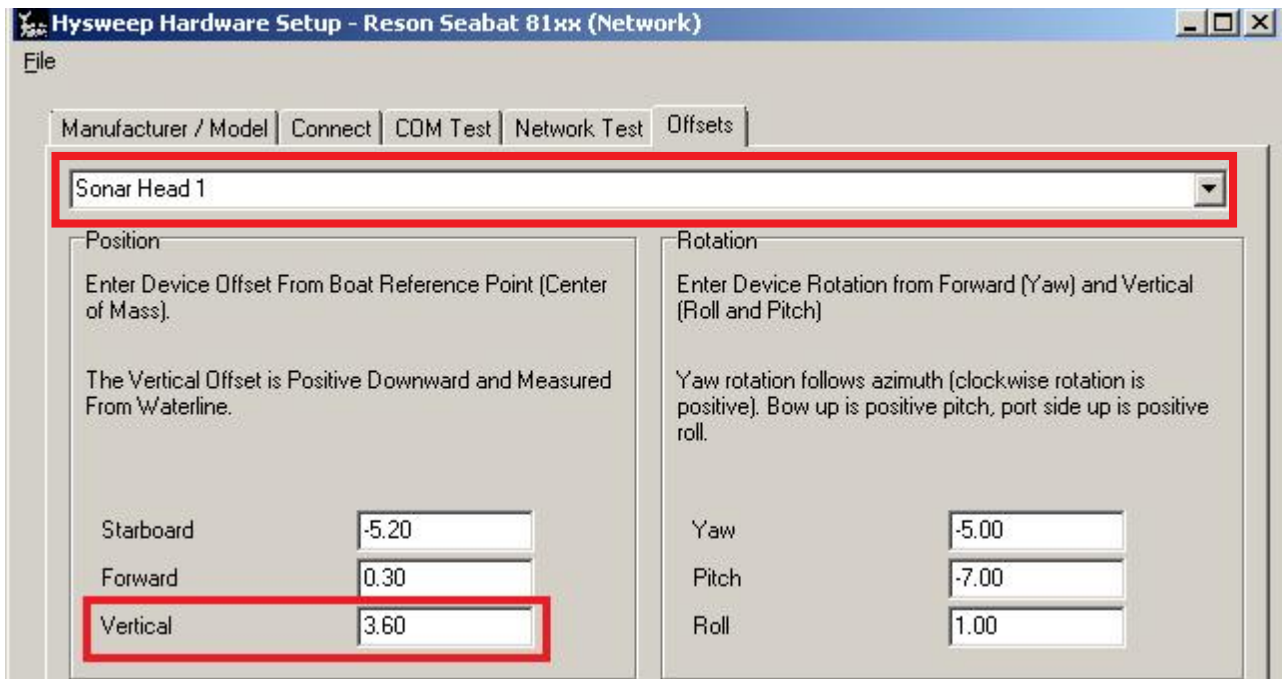


FIGURE 2. Specifying a Vertical Offset to Compensate for the Transducer Draft in HYSWEEP® HARDWARE



Pat also mentioned an important note:

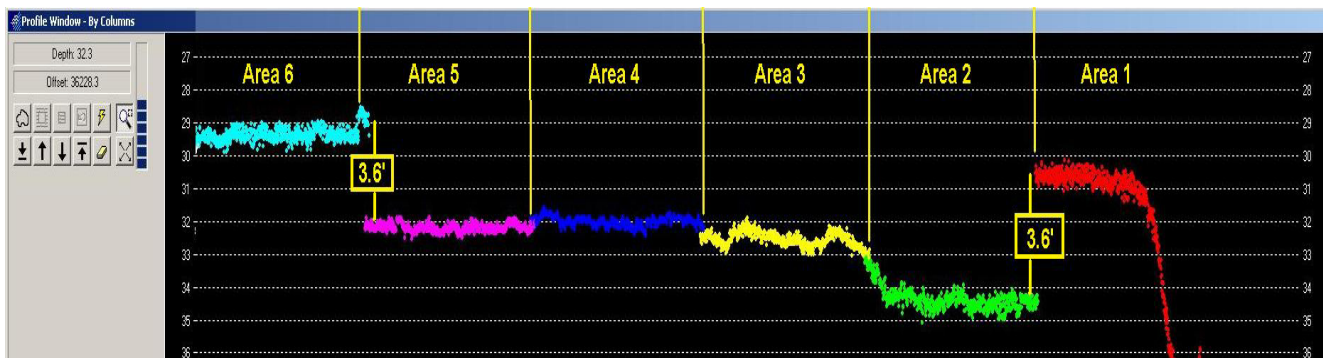
"Important! Do one or the other, but **not both**. Otherwise, you will double-correct for the static draft."

Well, there is a possibility of *triple*-correcting the draft value!

A CASE STUDY

Recently, one of our clients ran into an issue where overlapping data from different data sets did not match vertically. After looking at the data, it appeared that the 'vertical mismatch' was consistent with the value of the static draft offset of the transducer.

FIGURE 3. Profile Window in HYSWEEP® EDITOR: The data in Areas 1 and 6 are misaligned by the amount of the draft correction.

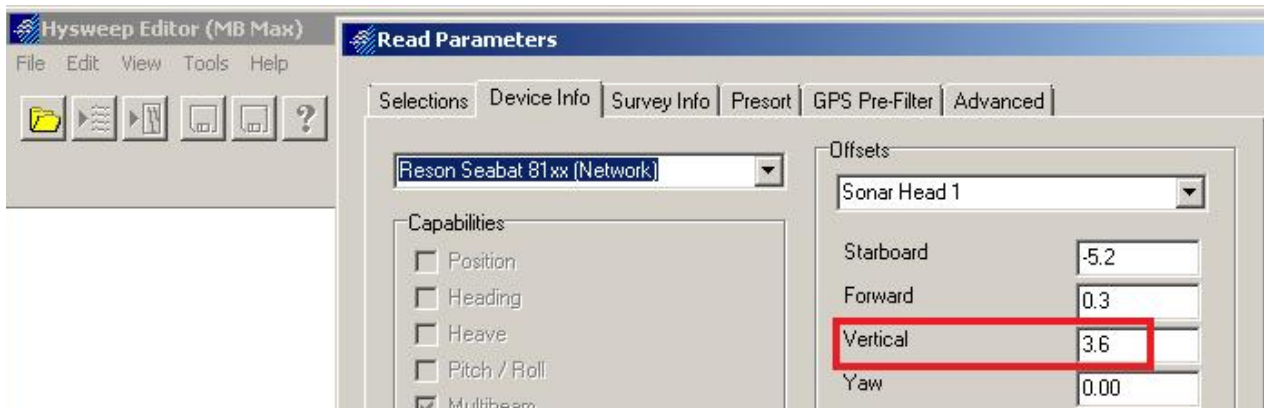


After a few more questions, it sounded as if their offsets were in the right locations, especially the vertical (static draft). I asked them to send in one of the raw files that wasn't matching up and let me take a look at it.

NOTE: In this case, we will be looking at a multibeam file, but this issue pertains to both single beam and multibeam

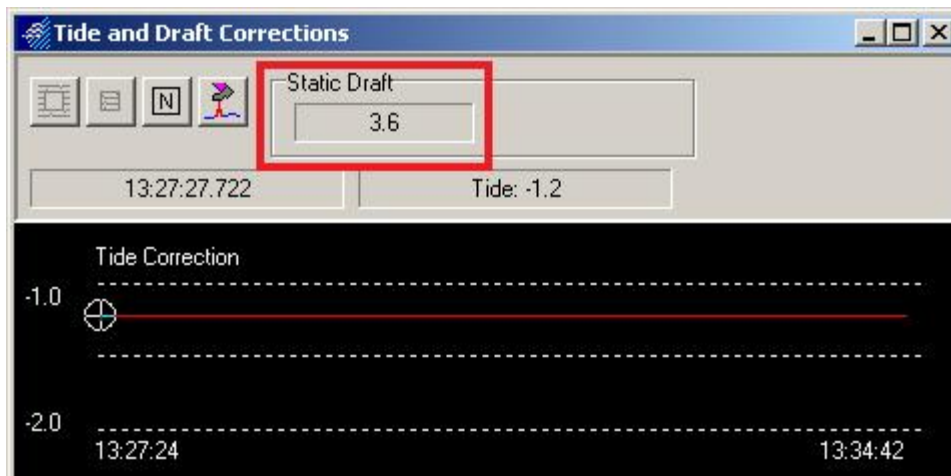
We loaded the HSX file into MBMAX, the HYSWEEP® EDITOR. In the read parameters, we see a vertical offset of 3.6.

FIGURE 4. A Vertical Offset of 3.6 from the Hardware Configuration During Data Collection



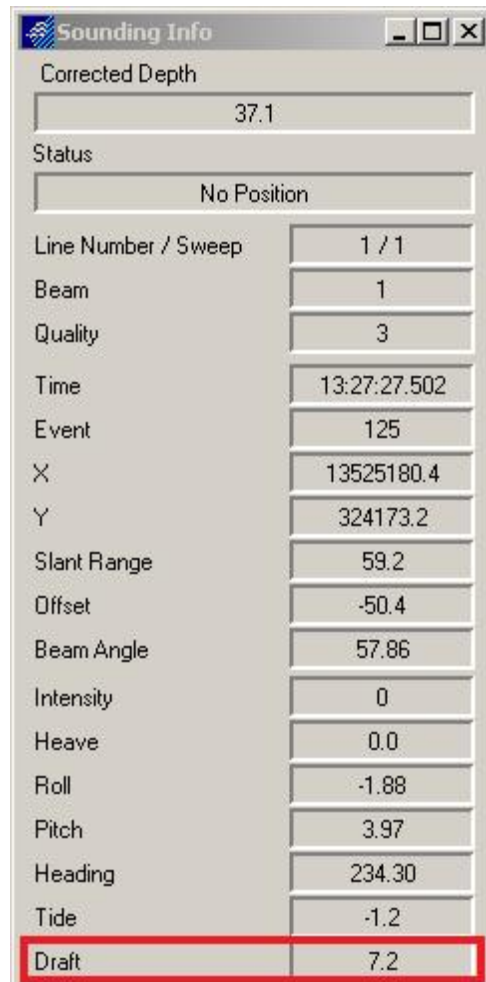
Once in Phase 1, we see 3.6 as the static draft correction.

FIGURE 5. Tide and Draft Corrections Window in MBMax



Converting the raw data to corrected data in Phase 2, we see that *the draft offset no longer equals 3.6'*, but now equals 7.2! How is this possible?

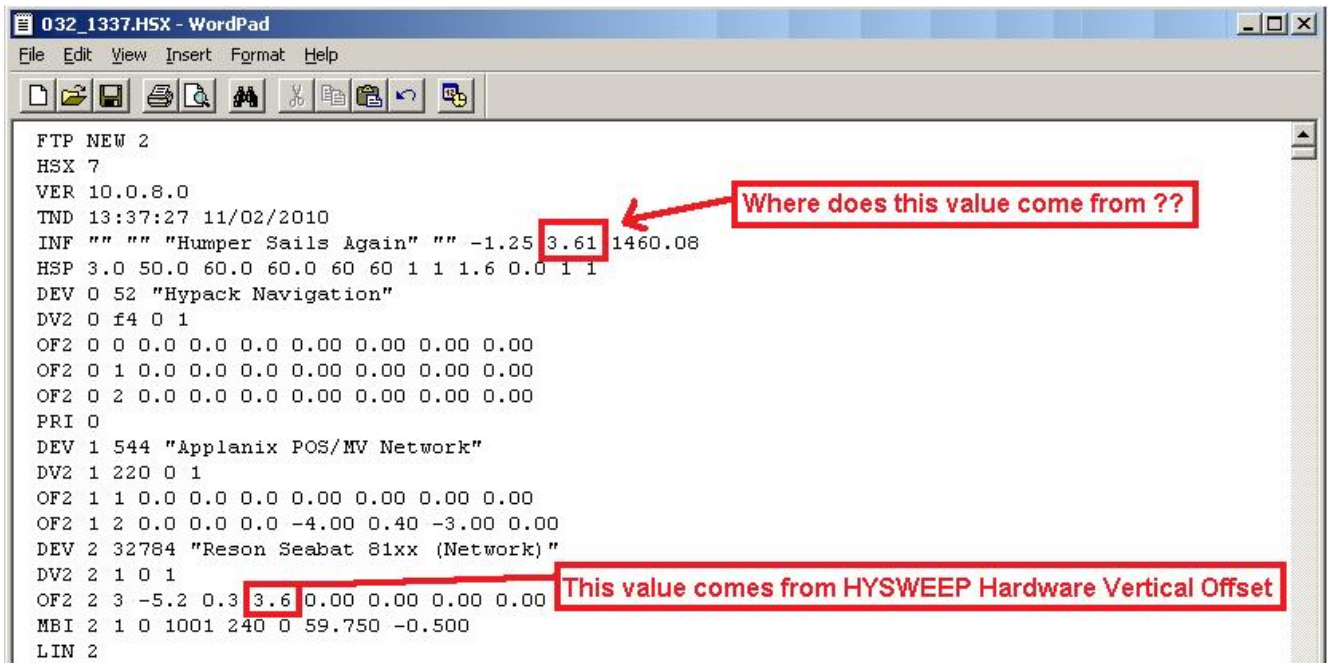
FIGURE 6. Sounding Information in Phase 2 of MBMAX Shows a Draft of 7..2



Sounding Info	
Corrected Depth	37.1
Status	No Position
Line Number / Sweep	1 / 1
Beam	1
Quality	3
Time	13:27:27.502
Event	125
X	13525180.4
Y	324173.2
Slant Range	59.2
Offset	-50.4
Beam Angle	57.86
Intensity	0
Heave	0.0
Roll	-1.88
Pitch	3.97
Heading	234.30
Tide	-1.2
Draft	7.2

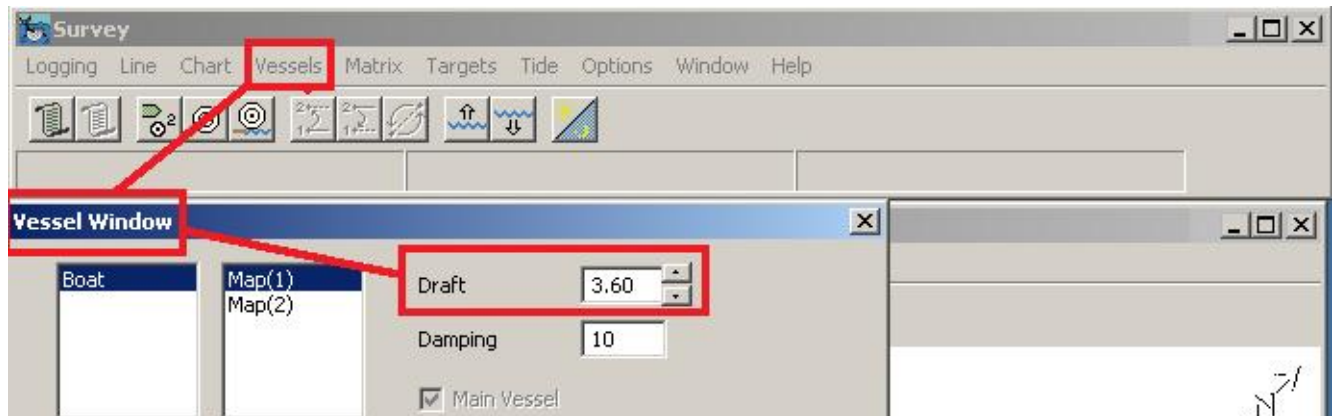
If we open the HSX file in any text editor, we can see the following:

FIGURE 7. Viewing the HSX File in WordPad



The mystery 3.61 value comes from the draft that was set in HYPACK® SURVEY.

FIGURE 8. Manually Setting Dynamic Draft in HYPACK® SURVEY



Pat explained that this draft value was placed here in order that a separate draft value could be entered and changed in real-time in the SURVEY program, for each mobile configured in the HYPACK® HARDWARE program.

BE AWARE!! That if you use this method, it is not easily found during the editing process.

ALSO...

BE AWARE that if you decide to create a New Project while you are in a project that had a draft value 'set' in the SURVEY program, that value will be 'copied' and carried thru into the New Project's *survey32.ini* file.

So, to further expand on Pat's article:

- **If you have a fixed draft value** (it does not change):
 - Enter it as a vertical offset in its respective HARDWARE program.--- OR ---
 - Enter it as a draft value in the echosounder, or its software.--- OR ---- **If you want to be able to modify the draft value, in real-time, during data collection**, to compensate for different speeds or loading conditions, enter the draft value in the SURVEY program, *and omit the static draft* (ie. enter a 0.00 vertical offset in the HARDWARE program and a 0.00 in the echosounder).

Again, we need to reiterate Pat's important note:

IMPORTANT! *Enter the draft offset in only 1 location !!* Otherwise, you could double- or triple-correct for it.

CORRECTING THE ERRONEOUS DATA

The data used to demonstrate this potential error, was completely salvageable. Our user could simply re-load the HS2 edited files from this project back in to the HYSWEEP® EDITOR and set the vertical offset of the multibeam transducer to 0.00. This would now only yield one instance of the 3.6' draft and they would be able to create the correct ASCII XYZ files and have correct overlap with the surrounding areas.