



CODEN Survey Boat in HYPACK®

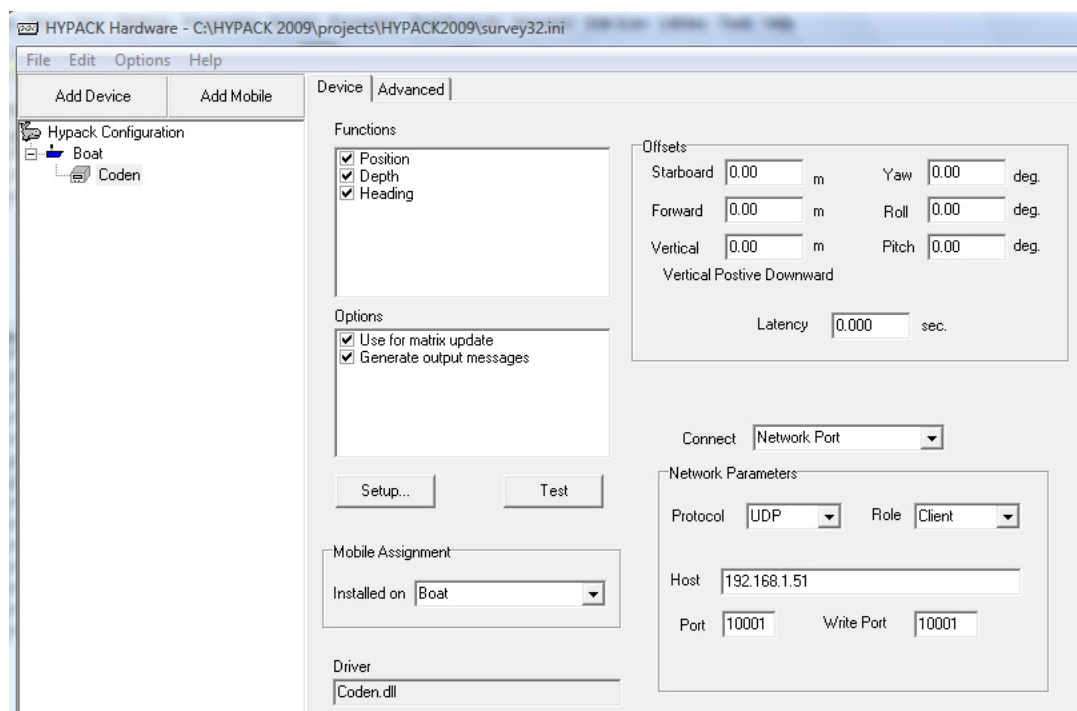
By Jerry Knisley

The Coden Survey Boat is a remotely controlled survey vessel, best suited for shallow and hard-to-reach estuaries in which a standard survey vessel would have difficulty maneuvering. The Coden survey boat is a small ~3 foot vessel that is hand-launched and wirelessly controlled. The controls are sent over a WIFI network that is portable with approximately a 500 meter range. If the vessel encounters a loss of the WIFI command connection, the vessel will perform a return to base point procedure. This procedure uses the onboard GPS to return to the first position stored when the vehicle was turned on.

The Coden Survey Boat has a special driver in HYPACK HARDWARE to enable it to interface to the HYPACK® software. The driver should be included in the HYPACK® 2009 release as a custom driver. To use this driver copy the CODEN.DLL file from the C:\HYPACK 2009\devices\custom folder to the C:\HYPACK 2009\devices directory before starting the HARDWARE program. Once this is accomplished the driver is ready to go.

1. In the HYPACK® software, **create a project and set the Geodetic Parameters.**
2. **In the HYPACK HARDWARE program, configure the Coden Survey Boat.**

FIGURE 1. Screen capture of the HYPACK HARDWARE after the Coden driver has been added and configured.



- **Connection Settings:**

Pay particular attention to the Connection Parameters. The connection is via a network port.

- The Coden Survey Boat comes with a WIFI console that must be connected to the ethernet port on the controlling HYPACK® computer.

- The HYPACK® Computer *must* be set to an address of 192.168.1.50 to communicate with the vehicle.
- **Setup Dialog:**

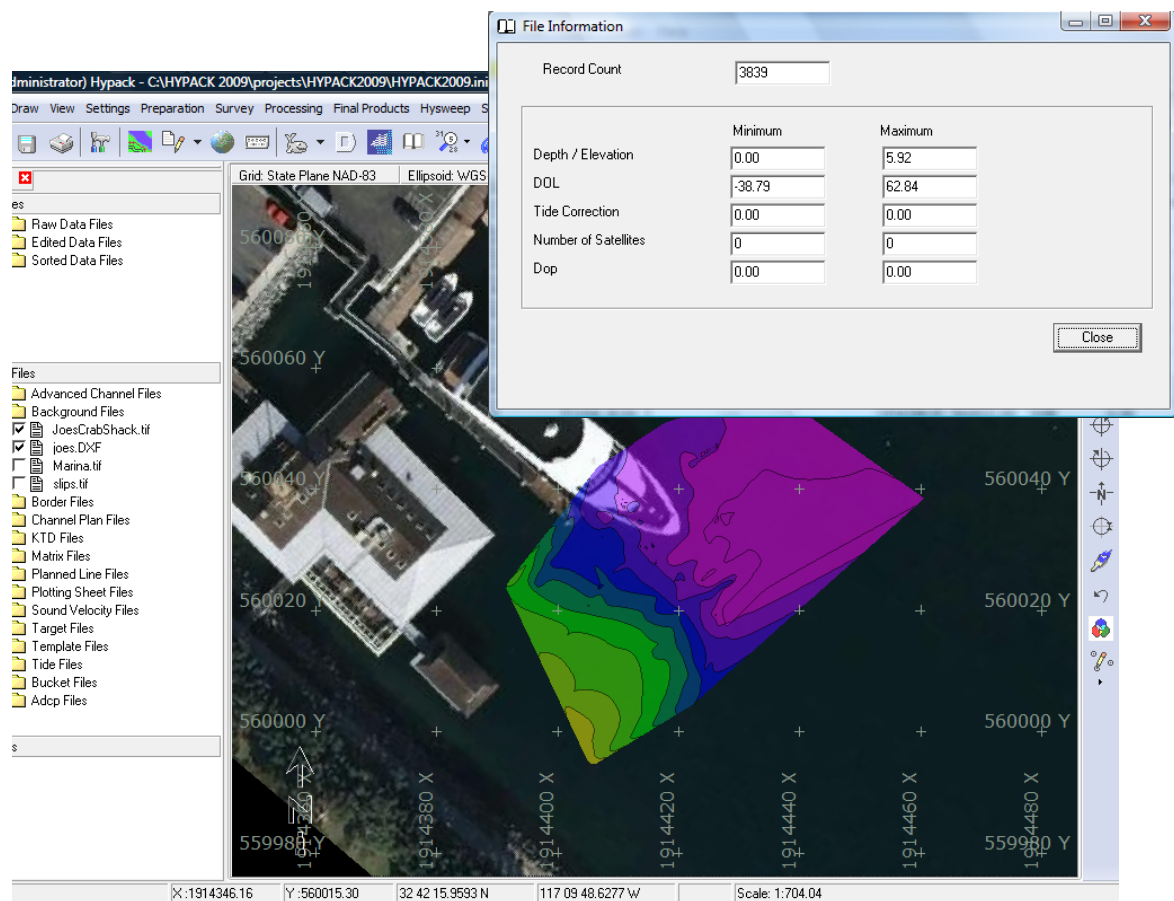
The only parameters to configure are the Minimum, Maximum and Step for the digital graph.

The sonar reports a sounding at 2 hz and the GPS reports a position at 1 hz. In the test configuration, the survey boat was fitted with a 27 degree sonar transducer.

In the current configuration, the only method to control the vehicle is to use the USB Flight Controller, but in the near future automatic line following will be available.

Once the boat is setup in HARDWARE, the surveyor uses the screen, just as they would in any other survey, to collect the data required. The following data sample was collected in HYPACK® during our recent training conference. After roughly 45 minutes the sonar recorded 3839 soundings.

FIGURE 2. Sample data collected with the Coden.dll.



After quickly processing the data in the SINGLE BEAM EDITOR (5 min), the data was converted to a 3D Surface using the TIN MODEL program.

FIGURE 3. Processing your data in the SINGLE BEAM EDITOR

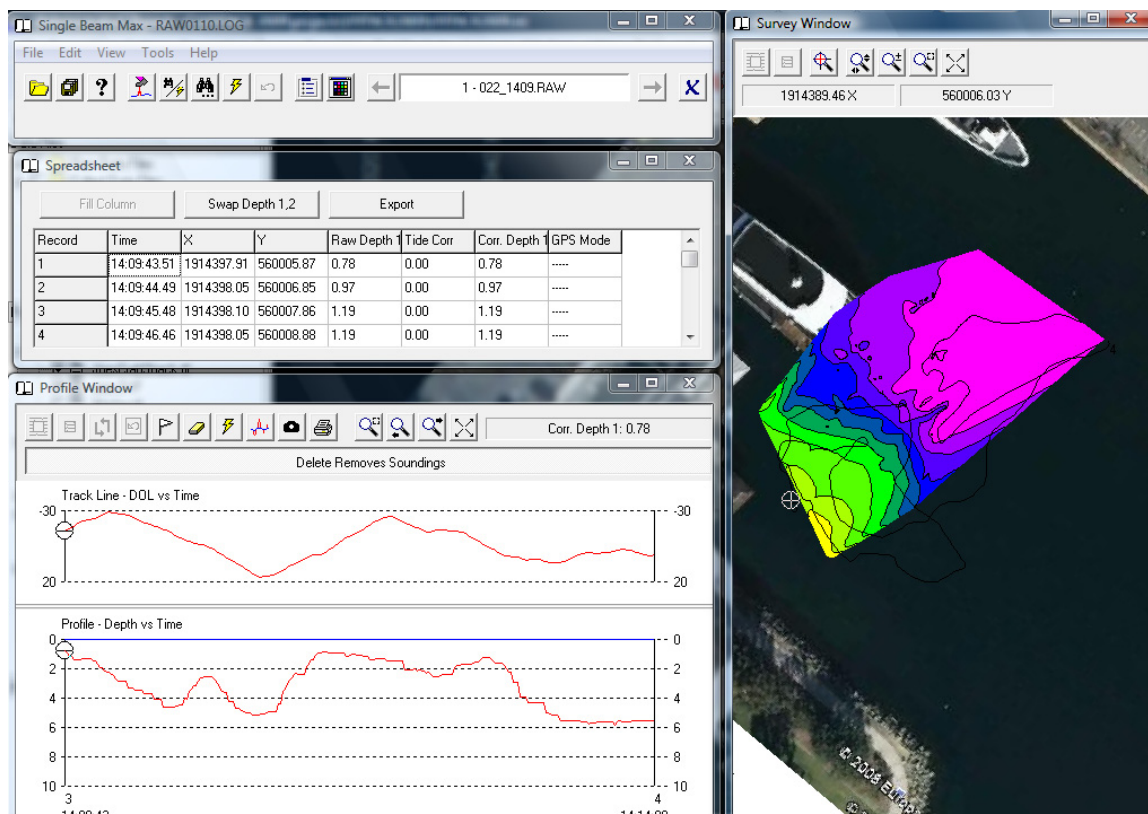


FIGURE 4. TIN MODEL that was used to create the contour lines at Joe's Crab Shack in San Diego.

