Using the SonTek RS5 in HYPACK
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As of the latest 2024 release of HYPACK®, you can now survey with the SonTek RS5 ADCP.

You can use the SonTek RS5 ADCP to perform bathymetric surveys, as well as collect discharge data of smaller rivers and areas where it is not possible to run larger boats.

Bluetooth is integrated within the RS5 and has a 100m range, allowing you to use it with HYPACK® SURVEY at a decent distance.

HARDWARE SETUP

In the HYPACK Combined Hardware window, we recommend you add the SonTek RS5 driver and set up the device on a secondary vessel with the GPS on the main vessel. This will allow you to use the DVL in case of sky obstructions. You will need to check to see what comport the Bluetooth adapter for the device is. You can do this in your computer's device manager or with ComQuery in Hardware, checking it before and after you plug it in. That port is all you need to select in the serial parameters. Similar to the SonTek M9, the other settings are handled automatically. In the Settings dialog for the SonTek RS5, you can set the Salinity, UDP GPS Port, and the Magnetic Declination. Salinity is used to correct the real time sound velocity measurement. The GPS port is used for the connection setup of the GPS Driver.

The Magnetic Declination adjustment is used for real-time internal calculations for flow and DVL, as well as used to create a $HDT message to the GPS driver. The heading that is recorded by HYPACK® SURVEY for the RS5 is not affected by this. However, the GPS driver, if connected, can record this corrected heading. You can use a fixed declination or a real time calculated declination. If possible, you should use the fixed value. The calculated declination is determined using the time, GPS elevation, latitude, and longitude from a connected GPS.
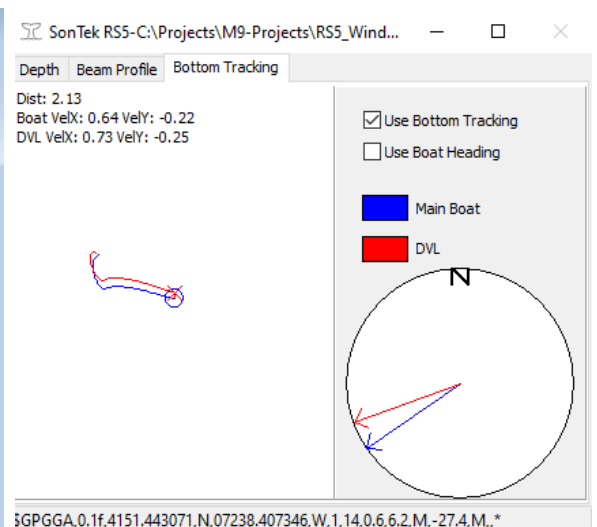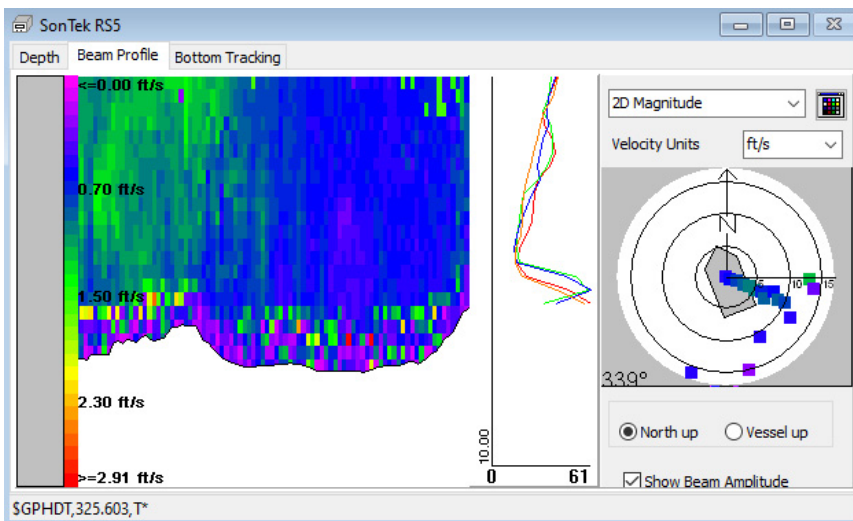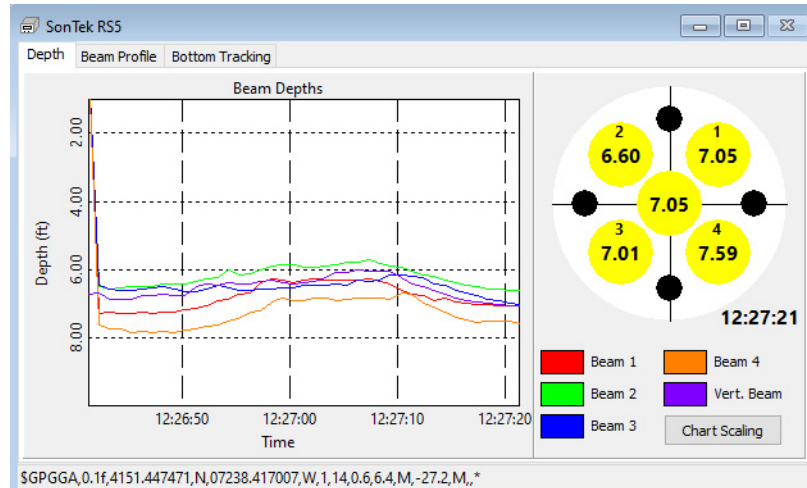
SURVEYING

Before surveying, it is strongly recommended you make planned lines in the HYPACK Shell, or on the fly in HYPACK® SURVEY since when examining your velocity profiles later, it will make matching them up much easier. Once you are surveying, you can monitor the device with a dialog similar to the SonTek M9's display. There are three tabs for depth, beam profile, and


bottom tracking. The Depth tab shows the five beams as well as a time tag from the most recent reading, a button to change the chart scaling, and the status bar which shows the output to the GPS. The Beam Profile tab displays the profile of the current velocities, along with a color bar on the left and a chart showing the beam amplitudes on the right. You can choose the velocities that are shown and the units on the side bar, along with a graph to show the direction of flow in relation to the vessel. The Bottom Tracking tab is used for enabling DVL tracking and watching it as well as switching between the internal compass and an external heading if you have one.

PROCESSING

Once you are done surveying, you can load your files in SBMAX64 to process the bathymetry data. Here you can select the inputs to use for heading - RS5's internal heading or an external heading source - and choose between GPS or DVL positioning. Then, go through your lines to clean up your position and depth data. Finally, you can check the flow vectors in

the Flow Display. After you are satisfied with the bathymetry, you can save the edited data to use in ADCP Profile or bring into other programs like TIN or Sort.
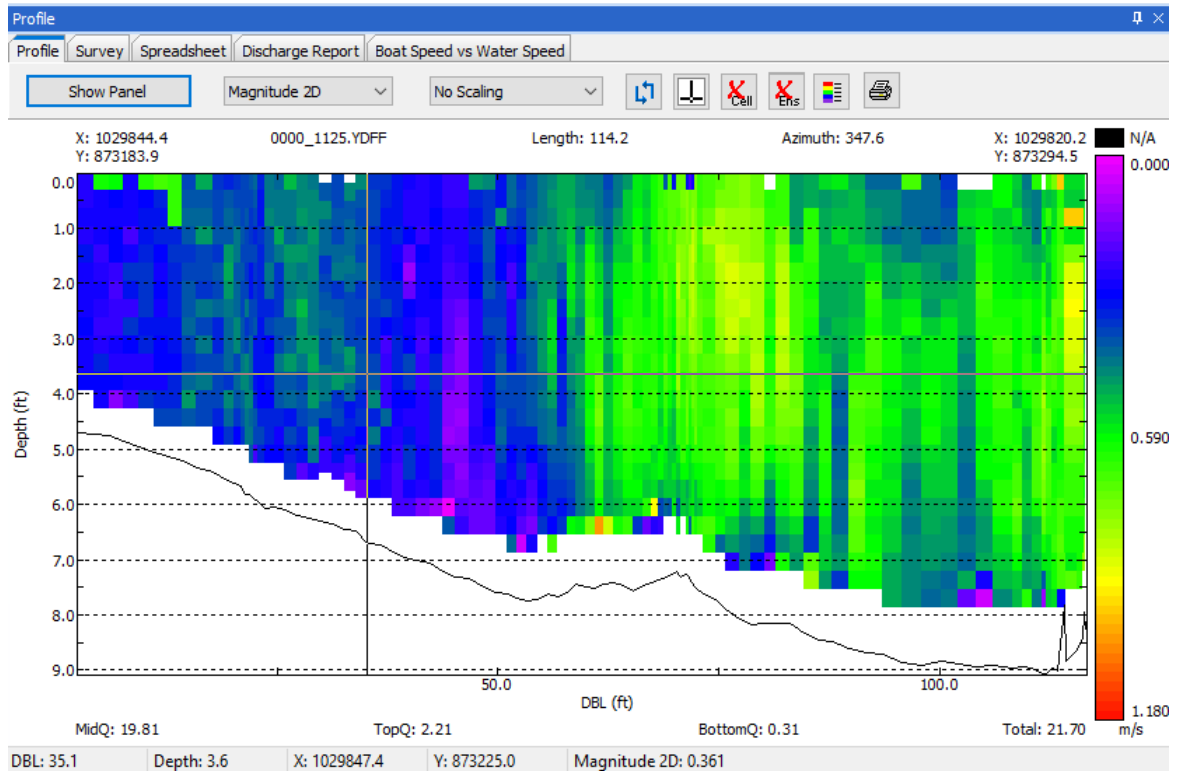
Once in ADCP Profile, you can load this data in to examine the current profiles, apply filters, examine the quality of the data, and view discharges. Additionally, you can use the data to create DXF of the currents. Alternatively, if you want to quickly examine your data while on site, you can load the YDFF files directly from the Raw folder, or if you already have files logged with SonTek's RSQ, you can open those files as well. Examining the raw data is always recommended to prevent unnecessary extra surveys.