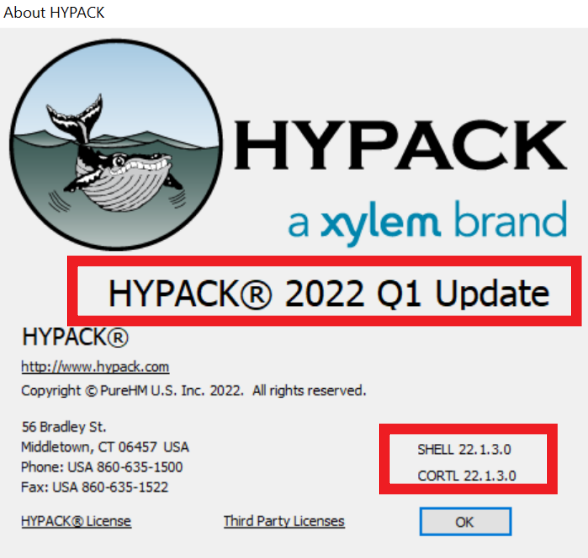
HYPACK 2022 Q1 Release Notes

BY CAROLINE LIU

HYPACK Interface (SHELL)

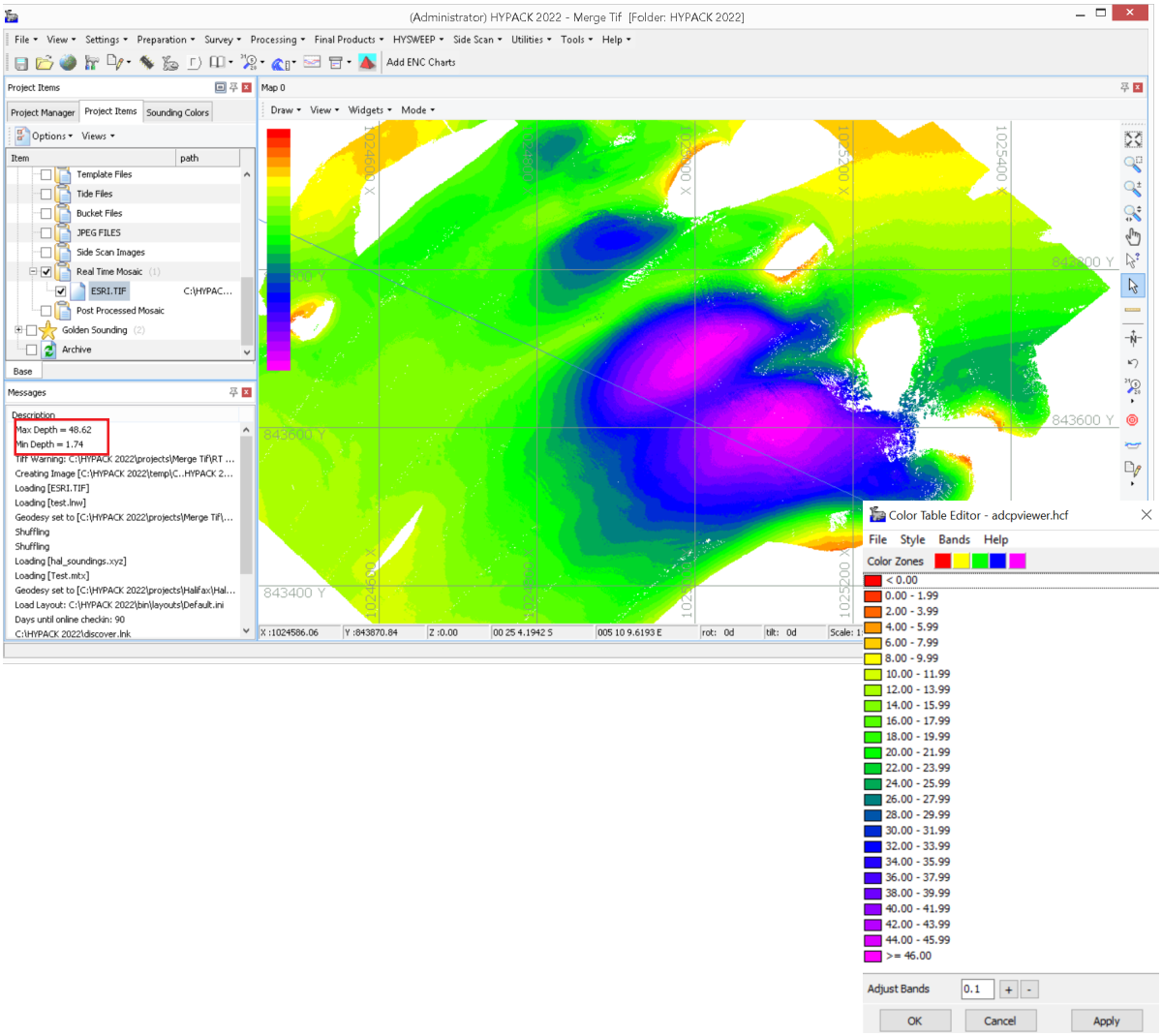
- **The HYPACK Quarterly Update information has been added to Help --> About**.



- **The Shell now detects and displays Esri TIF files using HYPACK color tables.** In an Esri TIF file, each pixel of data is a depth value instead of an RGB value. HYPACK® displays the Esri TIF by converting each depth value to a color based on the active color table selected by the user. After loading, the Messages window will display the minimum and maximum depths in the file, which you can use to help in setting up a color table.

  To display an Esri TIF file:
  1. **Add the TIF file to your project**. From the Project Items list, right click Background Files --> Add File --> TIF Files --> Select your file and [Open] the Esri TIF. The file will be added under Background Files.
  2. **Enable the Esri TIF file** by checking the check box next to the file name.
  3. **Center the Esri TIF in your window** by right clicking the file name --> Zoom Extents.
  4. **Open the Messages window to view the minimum and maximum depths** by clicking View --> Messages.
  5. **Set a color table to display the depths** by clicking on the Sounding Colors tab --> click [Select Color Table]. Click Edit to bring up the Color Table Editor, which shows the depth values that each color corresponds to.

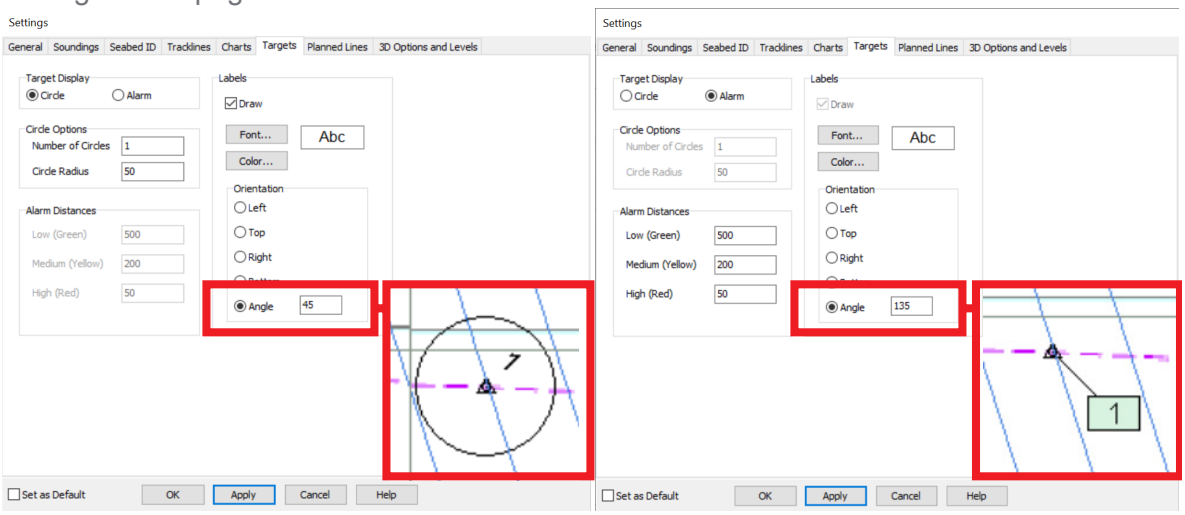
In the following example, the depths of this TIF file range from 1.74 m to 48.62 m, which is well-represented by the range of color bands available in the adcpviewer.hcf color table. Depending on the dataset, you may need to try out other color tables or create your own to accurately represent your data.



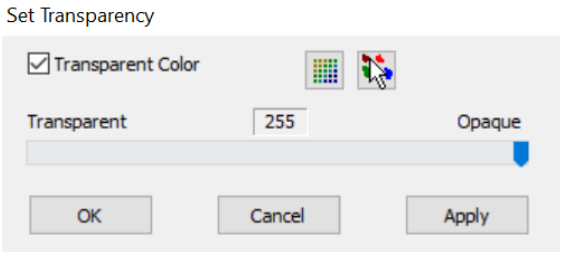
- **Users can now set the orientation of target text labels from the Targets tab in the Settings window**. The label can be positioned left, right, above, or below the target symbol, or the user can set a specific angle between 0 and 360 degrees, where 0 degrees is directly above the target. These options are available for both Circle and Alarm targets. Set the rotation and position of target labels from Settings --> Settings and click the Targets tab.

  The examples below show how target labels are oriented at a user-defined angle for Circle and Alarm target displays. Note that the label text for circle targets is rotated radially around the target, whereas the text remains upright for alarm targets. For circle targets, select any of the preset orientations (Left, Top, Right, Bottom) to display the

target text upright.



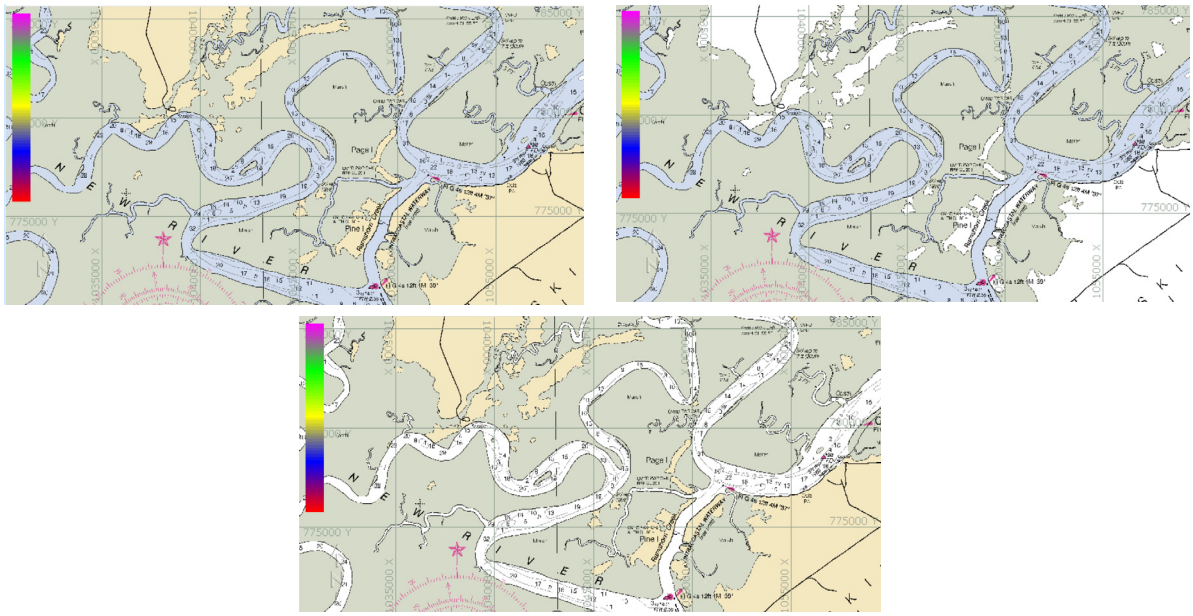
- **Users can now set a transparent chart color by using an eye dropper tool and clicking on the chart**. This new tool is called “Select Transparent Color by Clicking in Map Window”. To select a specific chart color as the transparent color, from the Project Items list right click on the background chart, matrix file, or border file, and click “Transparency” to open the Set Transparency window. Make sure the “Transparent Color” box is checked, and that the Transparent/Opaque bar is pulled all the way to the right to Opaque. Click “Select Transparent Color by Clicking in Map Window”, and click on the colored region on the map that you want to set to transparent. Click [Apply] or [OK] to apply your changes.



Only one color is transparent at a time: For instance on a map, if you first selected the brown color of the land then selected the blue color of the water, the brown will reappear as opaque while the blue regions will become transparent. While the box next to Transparent Color is checked, the selected color will be transparent. Uncheck Transparent Color to display the original chart without affecting the transparency status of the selected color.

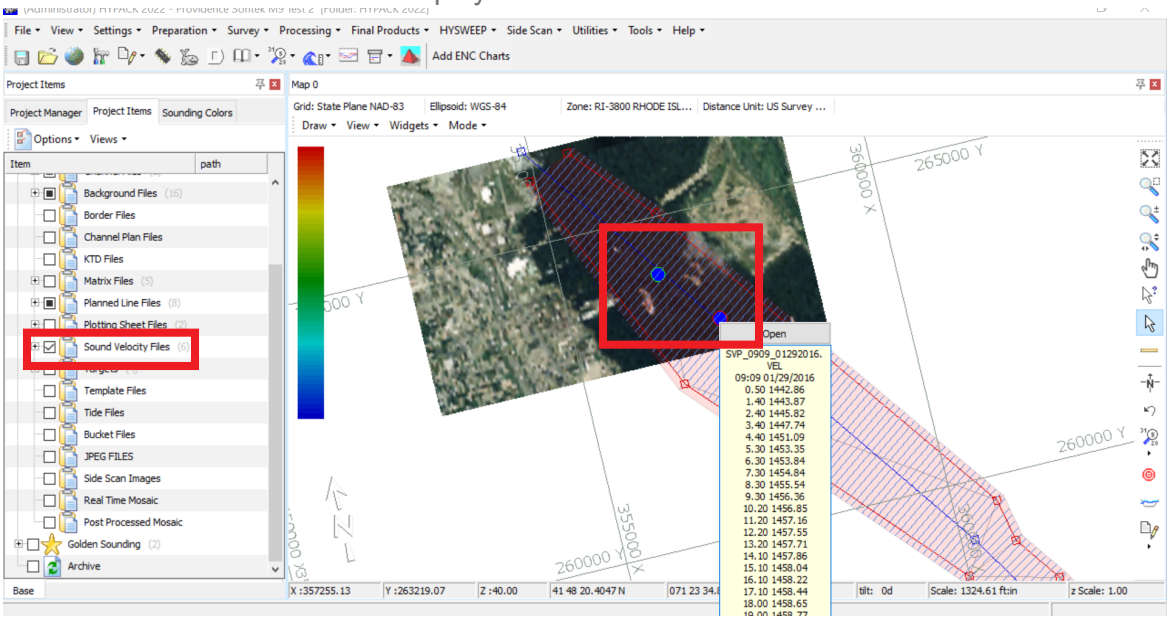
To deselect the selected transparent color, click “Select Transparent Color by Clicking in Map Window” and click on the region with the color you want to be opaque again. Click [Apply] or [OK] to finish deselecting the color and have that color revert back to no transparency.

No Transparency (Left), Colors Corresponding to Land (Right) and Water (Bottom Set as Transparent

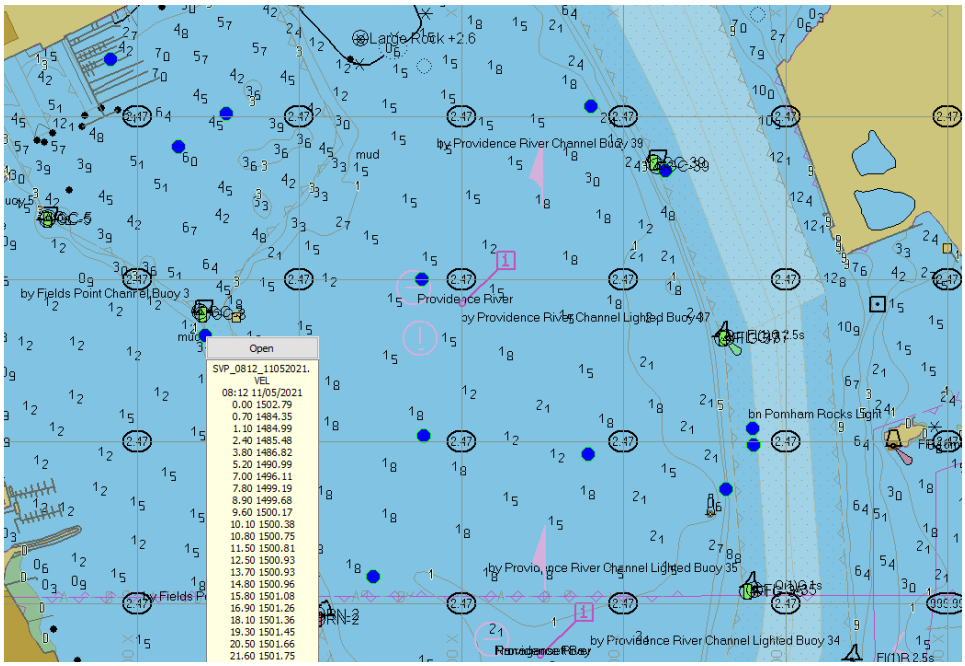


- **Sound Velocity Correction (*.vel) files containing location data are now marked in the map window as blue circles**. Make sure to check “Sound Velocity Files” in the Project Items list on the left to display their locations. Mousing over a displayed file outlines the blue circle in red, informing the user they may click on it. Clicking on the circle opens a window showing the file name, time and date, and a list of the depth/sound velocity entries. An [Open] button also appears at the top of the window. Click [Open] to open the selected *.vel file in the Sound Velocity Editor.

  In the following example, the top image shows two *.vel files marked on the map. Notice that the selected *.vel file is displayed as a blue circle outlined in red.



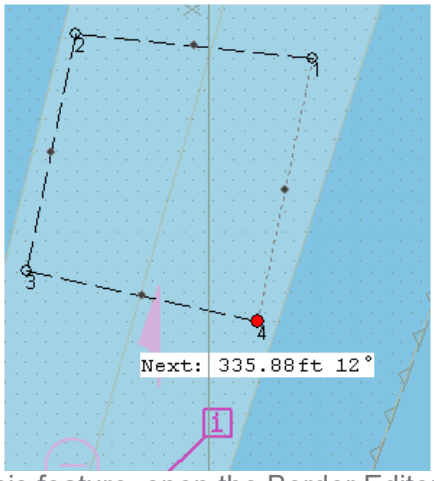
The next image shows a map from an example project with multiple *.vel files marked in the window.

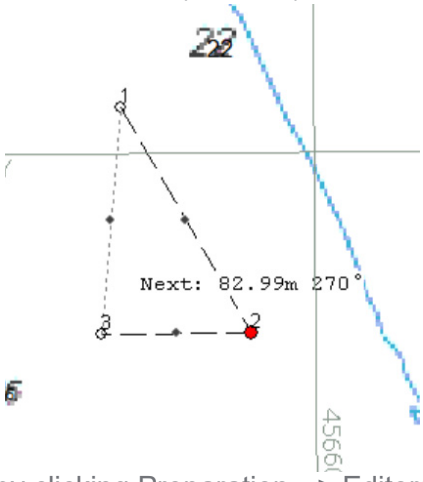


- **The Border Editor now displays the distance and angle relative to the next border point when dragging a point on the map window**. The “next border point” is determined by numerical order, with point #1 as the next point for the very last point in the series. The angle is measured with the next point as the origin, where 0 degrees is located below the next point and the angle increases clockwise.

  In the example on the left, point #4 is located 335.88 ft and 12 degrees relative to border point #1. Since point #4 is the last point in this border, point #1 is its next border point.

  In the example on the right, point #2 is being repositioned. Point #2 is currently located 82.99 m and 270 degrees relative to its next border point (point #3).

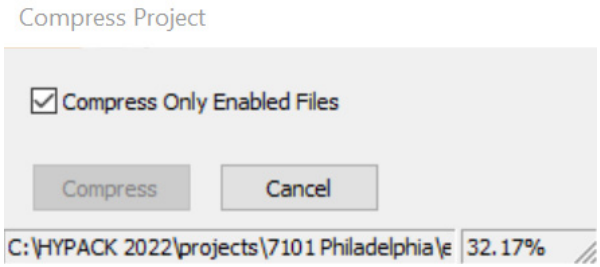




To see this feature, open the Border Editor by clicking Preparation --> Editors --> Border Editor, then click the Cursor icon to set points by clicking in the map window. The distance and angle will appear as you hold and drag a new or existing point.

- **The Compress Project window has been simplified.** The list of item types and check boxes has been removed, and **users will now need to check/uncheck items from the Project Items list in the Shell to designate which files are enabled**. Users can easily interact with the Project Items list while this window is open.

  The Compress project window now only has the “Compress Only Enabled Files” option. If it is checked, only checked (enabled) files in the Project Items list will be saved to the zip file. If this option is unchecked, all project and externally referenced files will be compressed.



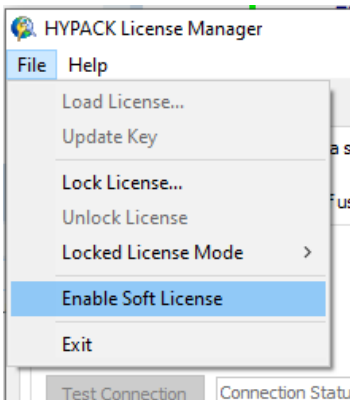
  To compress a project:
  1. Click File --> Compress Project.
  2. In the Project Items list, check the files types or individual files that you want to save, then check “Compress Only Enabled Files”.
  Otherwise, leave the box unchecked to save all project files.
  3. Click [Compress], navigate to the folder you want to save your zip file, give your zip file a name, then click [Save]. The status bar of the Compress Project window will display the path and percent of the project saved. Once finished, you will receive a “Compression Complete” notification.

- **Externally referenced files (which are files outside the current project folder) are now included when compressing a project.** The zip file will preserve the original folder structure that each externally referenced file is saved under. For example, if a referenced file was saved to the Desktop, the referenced file will be saved to the zip file under a folder structure of Users\<Username>\Desktop.

  Externally referenced files will not be included in the compression if “Compress Only Enabled Files” is checked while the referenced files are unchecked in the Project Items list.

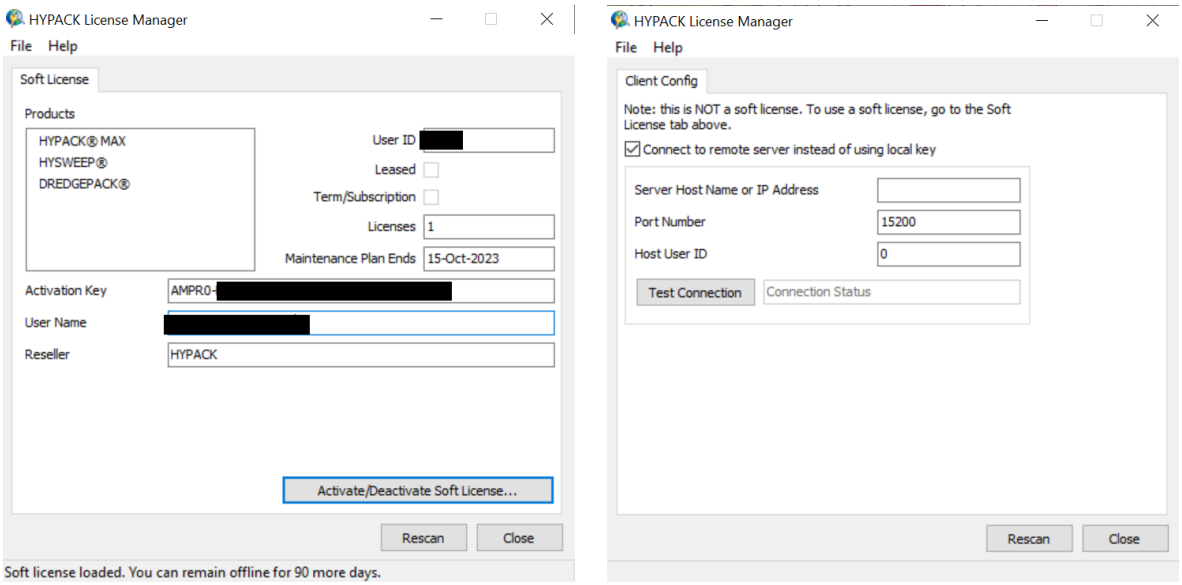
SOFT LICENSES

- **Users can now choose to enable or disable loading their list of soft licenses**. This is useful for any users who have experienced security issues with our soft licensing, which we are working to address. To disable (or enable) soft licenses, go to Settings --> License Manager, then click File --> Enable Soft License.



  When “Enable Soft License” is checked, the Soft License tab is shown along with information related to the license when

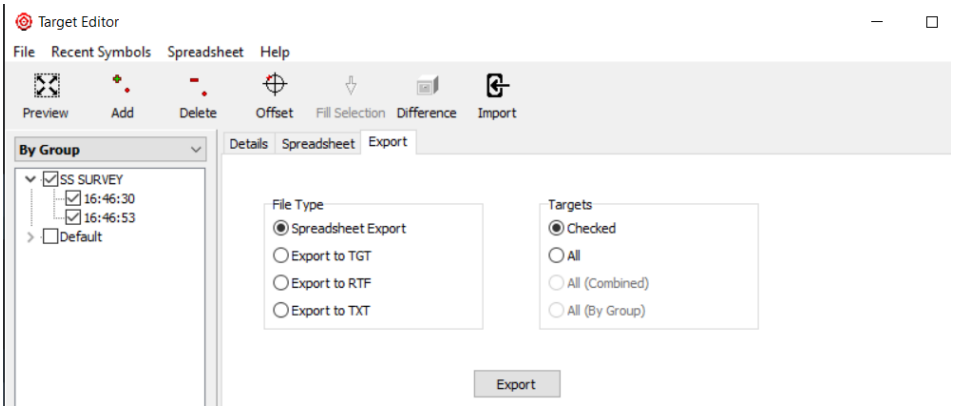
the License Manager is opened (Left). When Enable Soft License is unchecked, the License Manager window displays Client Config tab (Right).



PREPARATION

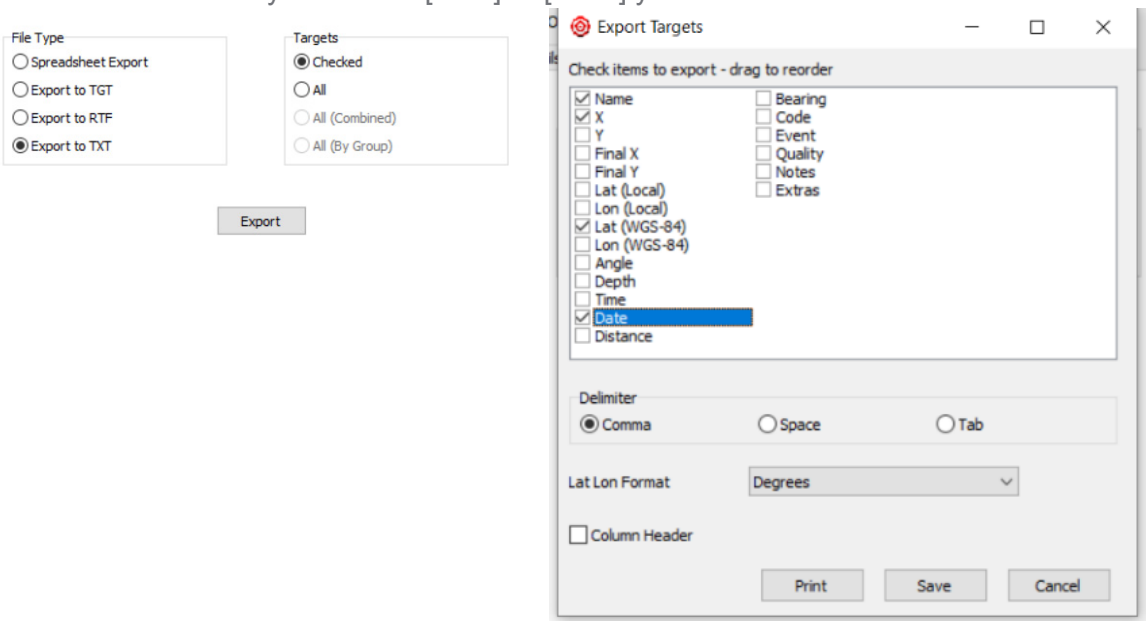
TARGET EDITOR

- **The Target Editor has received an updated appearance: The Export tab has been added, which allows users to select which targets to export to a designated file type.**



- **TXT files can now also be exported directly from the Target Editor by selecting "Export to TXT".** If you want to save the targets checked in the tree on the left of the editor, select "Checked" under Targets, otherwise select "All" to save all targets. Once you click [Export], the Export Targets window will appear. From here, check the variables that you would like to save, the type of separator in between each variable, the Latitude and Longitude format, and whether to include a column header listing each variable type. You

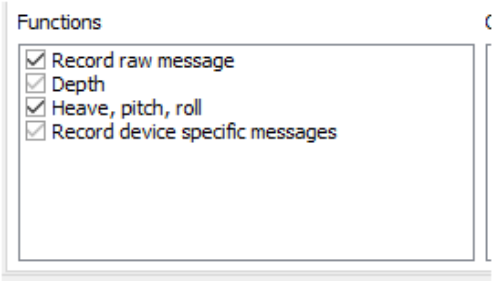
can select whether you want to [Print] or [Save] your TXT document.



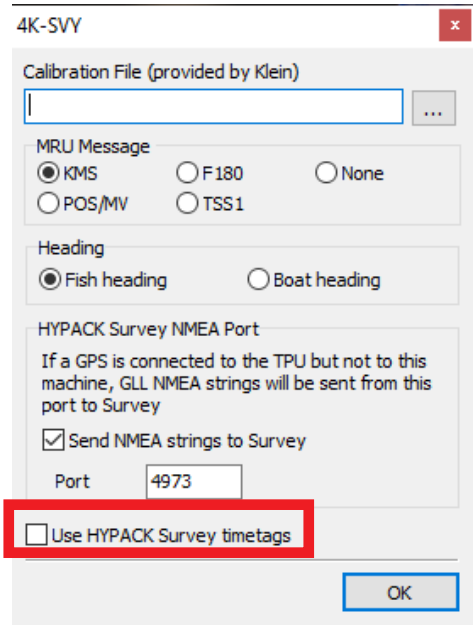
You can access the Target Editor from the Shell by clicking Preparation --> Editors --> Target Editor.

HYPACK HARDWARE

- **Required device functions are automatically disabled and users can no longer deselect them**. This prevents the user from accidentally turning off these settings, resulting in missing data.
  This update currently applies to the following drivers: magnet.dll. In the example image below, users cannot uncheck “Depth” and “Record device specific messages” for the Magnetometer Interface.

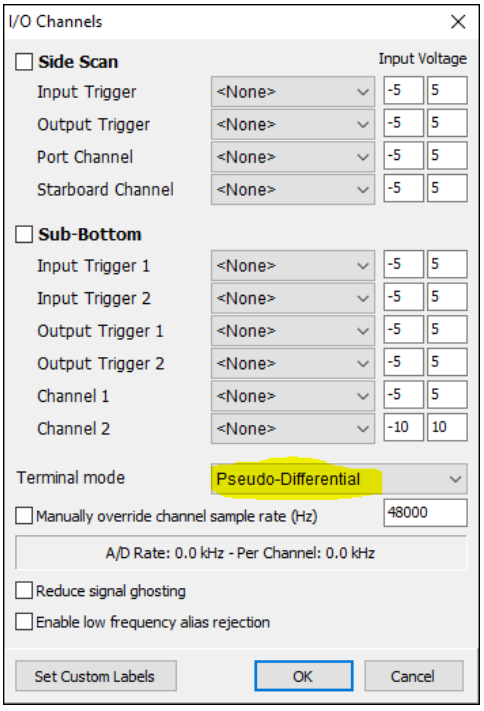


- **Users now have the option to "Use HYPACK Survey timetags" for Klein devices in Hardware.** By selecting this option, the Klein device will use the time Survey is synced to (ie: Veritime, ZDA, 1PPS) instead of the sonar's timetags.

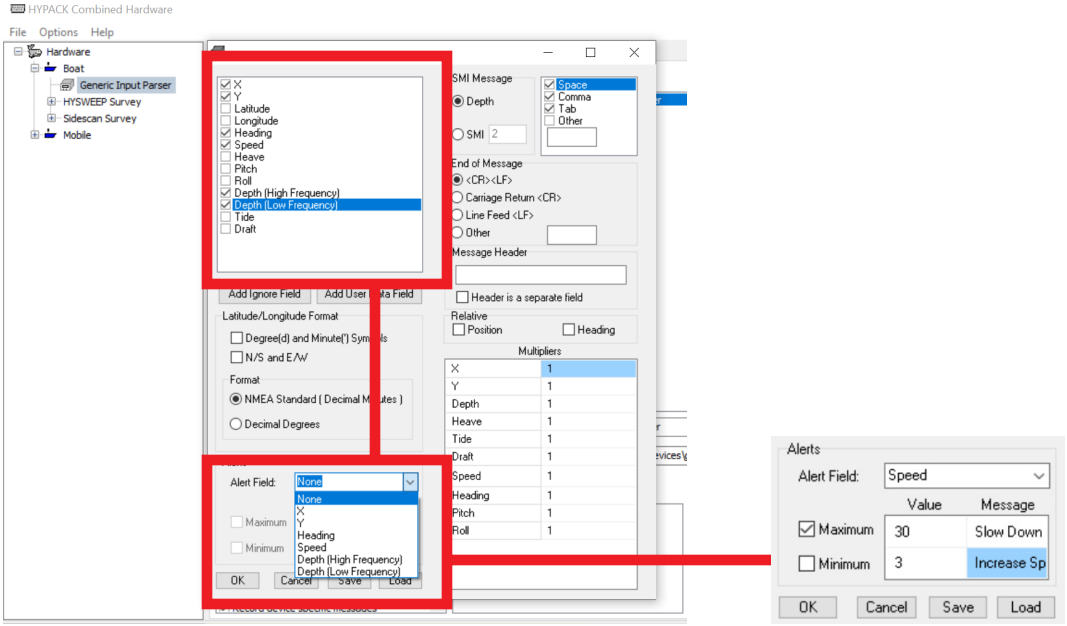


Driver Updates

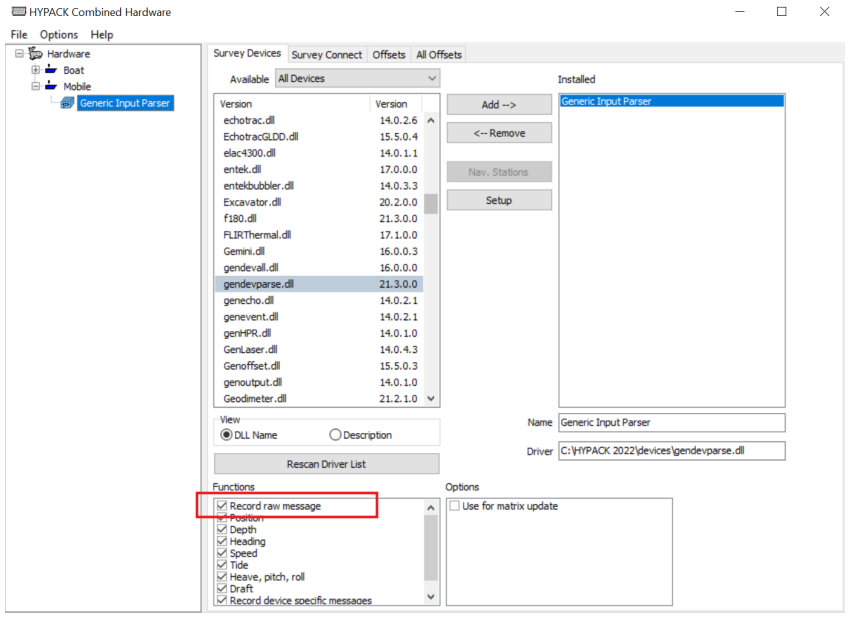
- **Subbot.dll**: **Added the new Terminal Mode option "Pseudo-Differential"** to the I/O Channels window in the Analog Monitor. To select this mode, after adding Subbot.dll in the HYPACK® Hardware setup, open HYPACK® SURVEY --> click [I/O Channels] in the Analog Monitor window --> Select Pseudo-Differential from the Terminal Mode drop down menu --> click [OK].



- **Gendevparse.dll: Added the Alert Field dropdown, which users can use to select a field to set an alert to.** Only the enabled values from the Field List will be available in the Alert Field dropdown. After selecting the field, users can enter the maximum and minimum values to set as triggers for the alerts along with corresponding messages to be displayed in the Survey window. Enabling or disabling alerts can be controlled by the corresponding checkboxes.
  You can open this window by double clicking “Generic Input Parser” from the Hardware tree on the left.



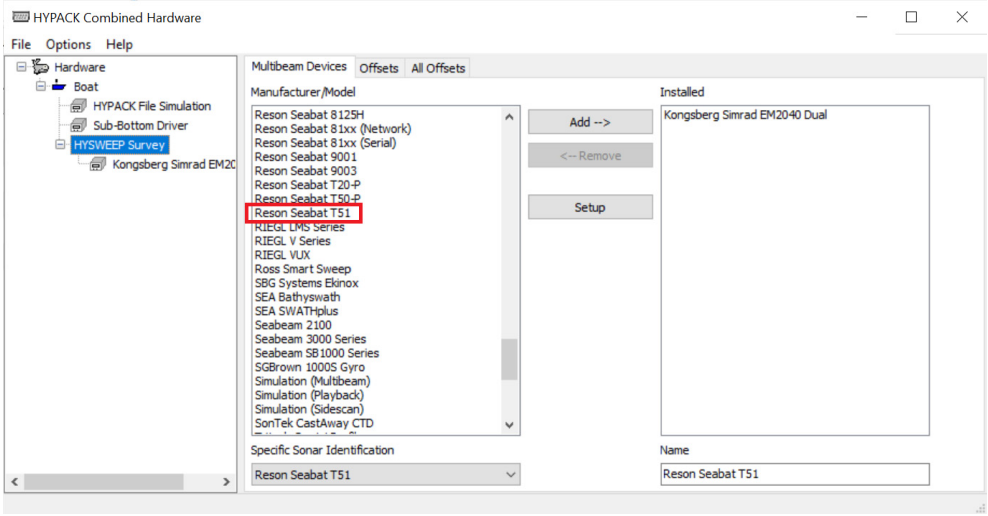
We also **added the "Record Raw Message" function to the Generic Input Parser (gendevparse.dll)**. When enabled, a MSG tag field is written to the *.raw file with device number, timetag (in seconds past midnight), and parsed data.



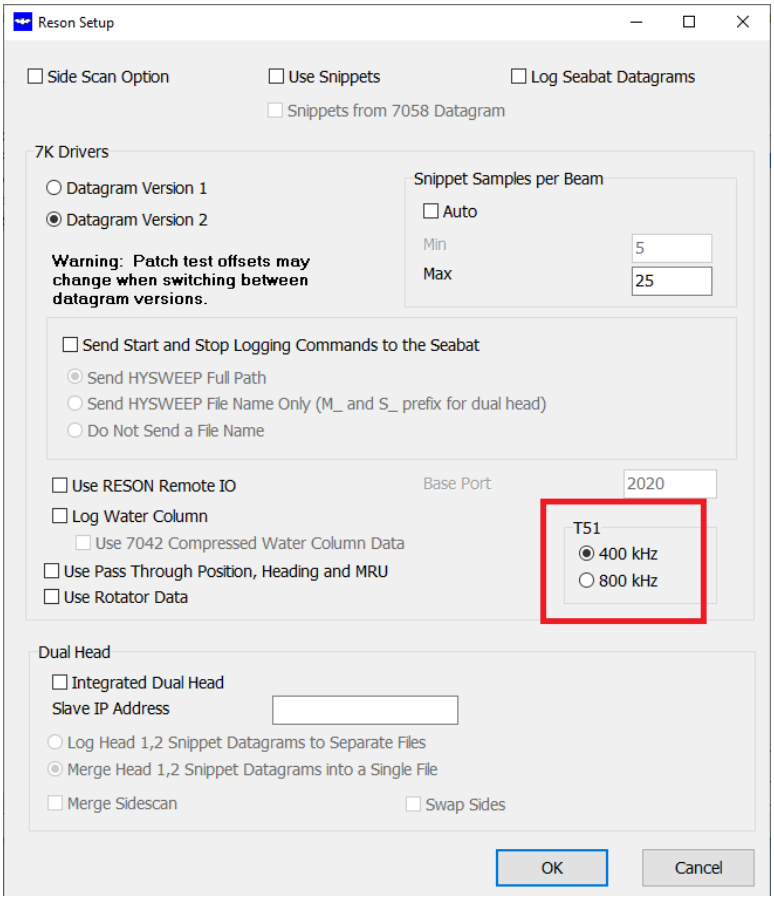

```
GYR 3 33874.227 999.000
UDT 2 33875.181 1.23
POS 1 33874.189 689718.388 4607161.693
MSG 1 33874.189 $XY 689718.388 4607161.693 22.2 3.33 4.44 5.55 6.66 7.77 8.88 9.99 1.23 1.11
GYR 1 33874.189 22.200
HCP 1 33875.184 4.440 6.660 5.550
```

HYSWEEP HARDWARE

- **Added the Teledyne Reson SeaBat T51 driver to HYSWEEP® Hardware.**



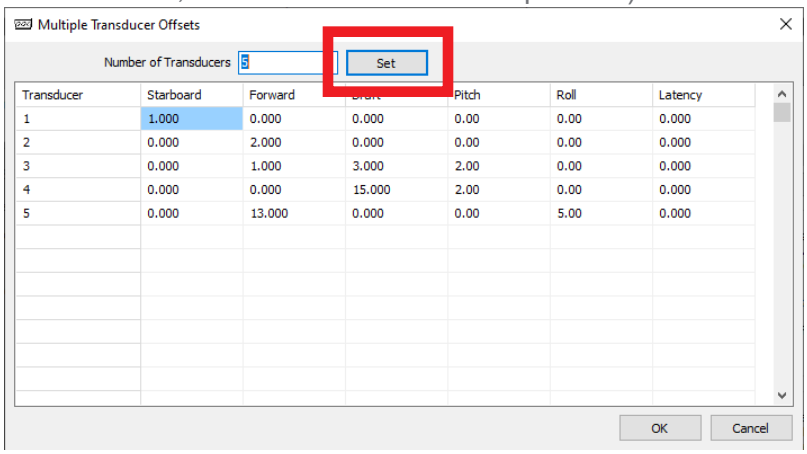
Note that the sonar frequency for the T51 must be selected in the HYPACK® Hardware Setup while the survey is not running. Users can choose between 400 or 800 kHz. To open the Reson Setup window, select the Reson Seabat T51 --> Click [Add-->] --> Click [Setup].



- **Bug Fix - Ross Smart Sweep Driver:** Previously, adding multiple transducers from the Offsets tab would return an “Invalid Floating Point Operation” error. This issue has been

fixed, and **transducers with multiple offsets will no longer show this error in the Offsets tab.**

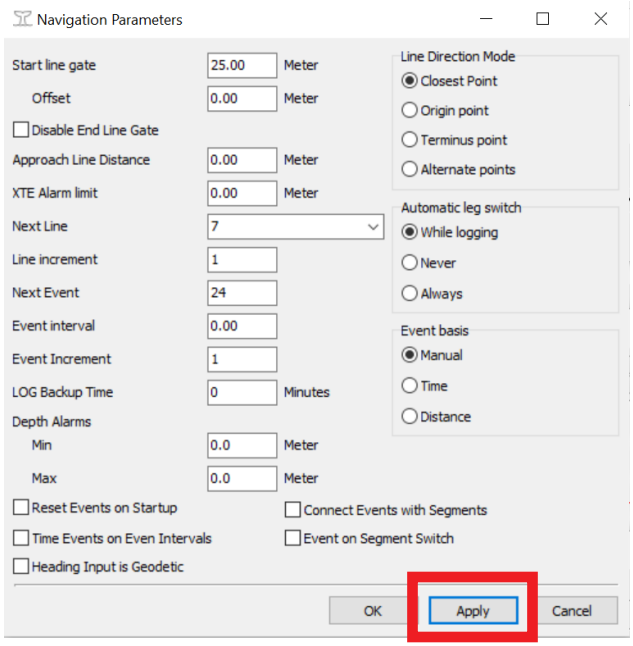
- **Added [Set] button to set number of transducers in the Multiple Transducer Offsets window**. To add multiple transducers, select the device in the HYPACK Hardware window --> Click the Offsets tab --> Click [Multiple Transducers] (this button is enabled only for certain hardware, ex: the Ross Smart Sweep Driver).



DATA ACQUISITION

SURVEY

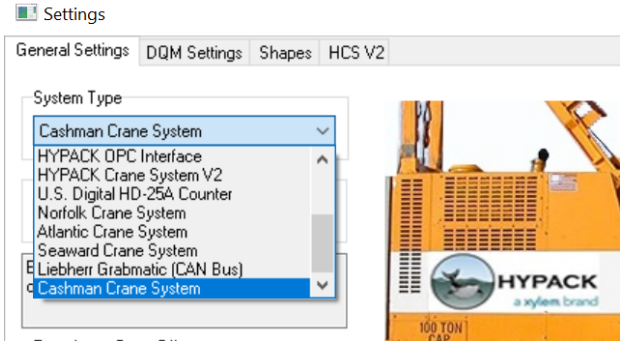
- **The [Apply] button has been added to the Navigation Parameters dialog**. [Apply] applies any changes made by the user and keeps the dialog open and ready for further modifications to be made.



DREDGEPACK

DRIVER UPDATES

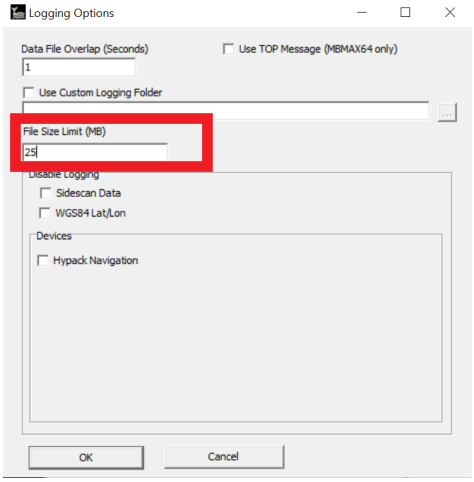
- **DQM Mechanical Driver (DQM_Mechanical.dll):**
  - > **Added the Cashman Crane System option**. This option works the same as the HYPACK Crane System V2, however users can set the bucket depth to 0 at any boom angle for a Cashman crane system.

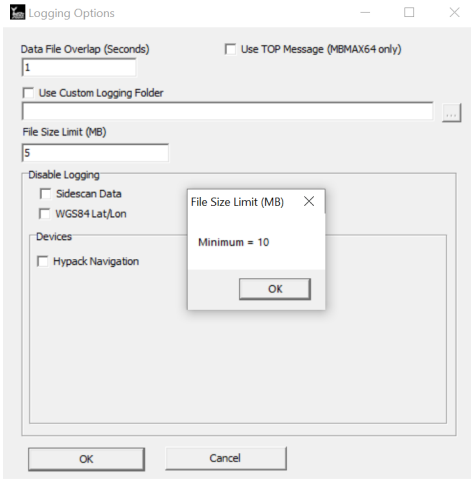


  - > **DREDGEPACK® now retains the cable/wire count after closing and reopening the program**.

HYSWEEP® SURVEY

- **Added File Size Limit (MB) field** to the Logging Options window (File --> Logging Options).





  - > **Use it to set the maximum allowed file size when logging data**. This value must be at least 10 MB. A reminder about the 10 MB file size minimum will be displayed if the value entered is less than 10 MB, and the program will also automatically change the value to 10 MB.
  - > While logging, once the maximum file size limit has been reached, the program automatically restarts logging in a new file.
  - > Note that actual HSX files will be slightly larger than the entered file size limit because HYSWEEP® SURVEY ends logging a couple of seconds after the limit has been reached.

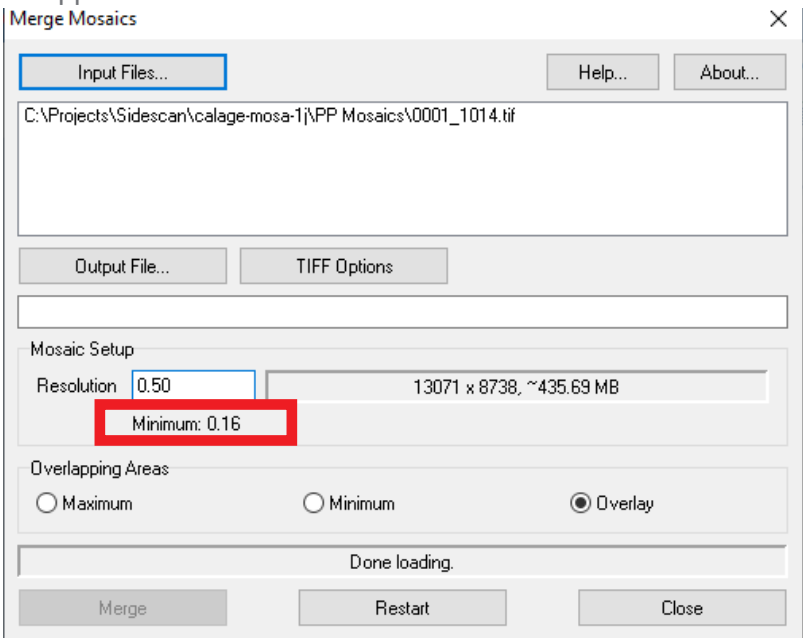
> Enter 0 if you do not want to limit the logging file size.

- **Enabled Start and Stop Logging commands for NORBIT devices** from HYSWEEP® SURVEY.

POST-PROCESSING

SIDE SCAN MERGE MOSAICS

- **The minimum supported resolution is now displayed below the Resolution box** in the Merge Mosaics window. Users must enter a resolution that is equal to or higher than the minimum supported resolution.



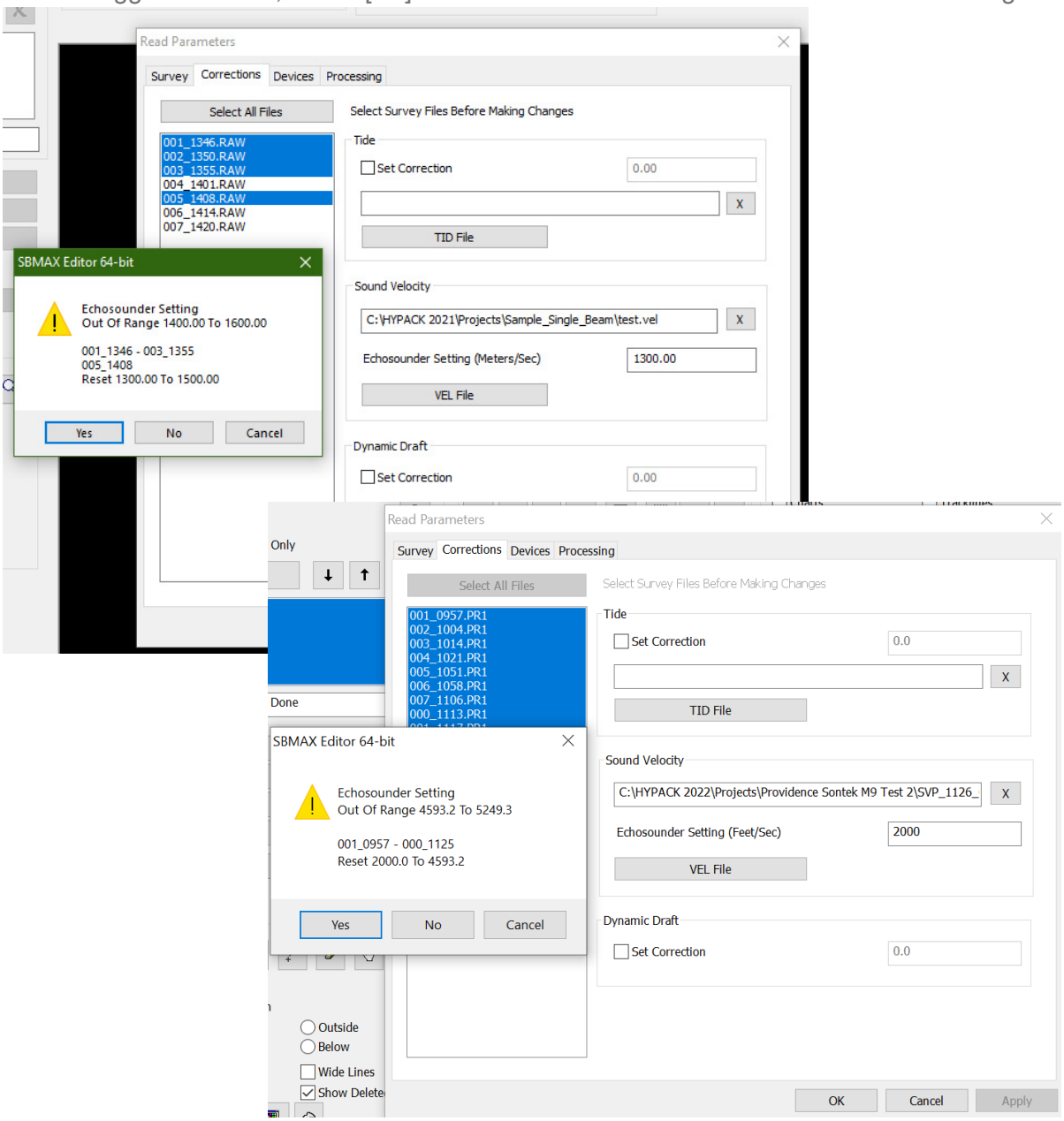
64-BIT SINGLE BEAM EDITOR (SBMAX64)

- **SBMAX64 now reads Teledyne's S7K files**.

- **Bug Fix:** Modified the Read Parameters window so that **changes to the VEL file and Echosounder Setting value are now applied to a loaded Survey.**
  > Note that the Echosounder Setting is only modifiable when a VEL file is loaded.
  > Certain M9 HS2x files already have SVP tags within them. For these VEL files, users will be able to modify the Echosounder Setting value when the Survey is first loaded. After the Survey is loaded, if Read Parameters is opened again or the HS2x file is saved and reopened, the Echosounder Setting will no longer be modifiable. For HS2x files that do not have SVP tags, Echosounder Setting will continue to be modifiable.

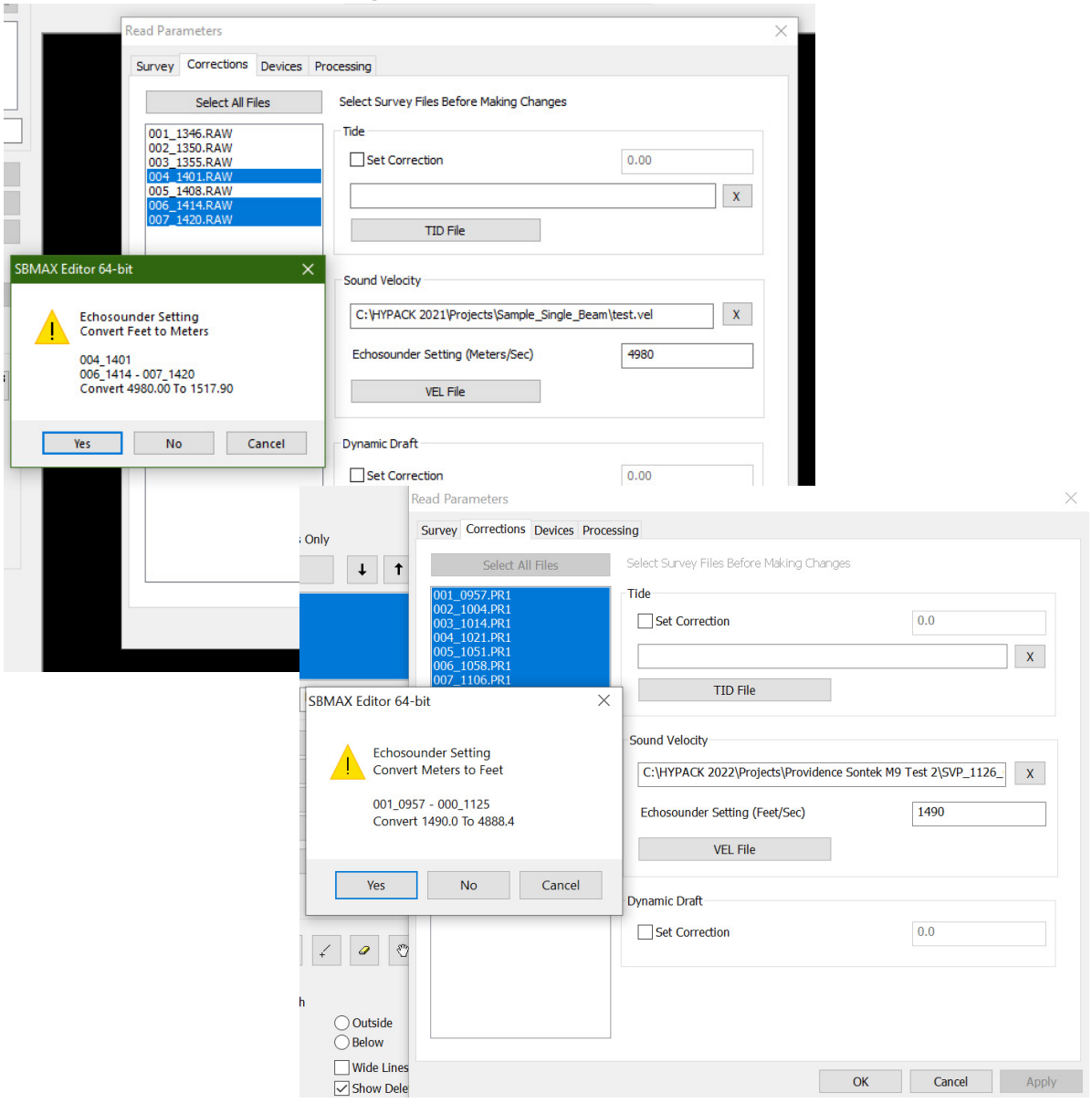
- **Additional error checking messages have been added to the Echosounder Setting:**

> **A dialog will appear if the Echosounder Setting value entered is outside of the 1400 m/s to 1600 m/s range (4593.2 ft/s to 5249.3 ft/s).** Select [Yes] to reset to the suggested value, select [No] to use the value entered in the Echosounder Setting.



> **If user enters a value from 1400 to 1600 in the Echosounder Setting field when units are in ft/s, a dialog will appear asking if the user wants to convert the value from feet to meters.** Similarly, when a value from 4593.2 to 5249.3 is entered when units are in m/s, the dialog will ask if the user wants to convert the value from

meters to ft. Select [Yes] to convert the value, select [No] to use the value entered in the Echosounder Setting.

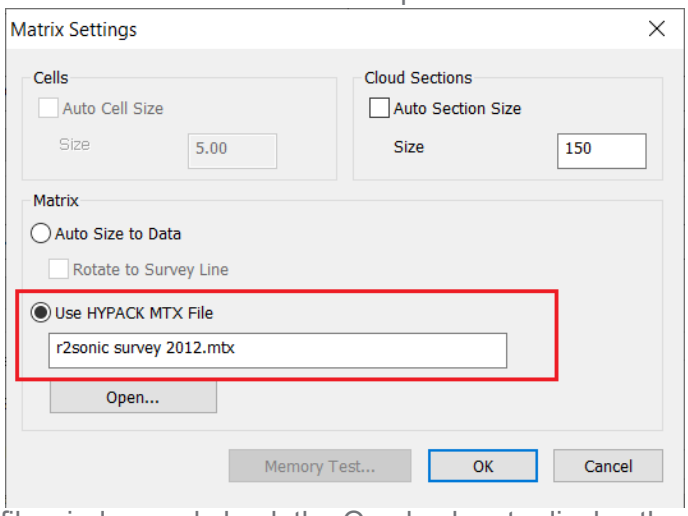


64-BIT HYSWEEP® EDITOR (MBMAX64)

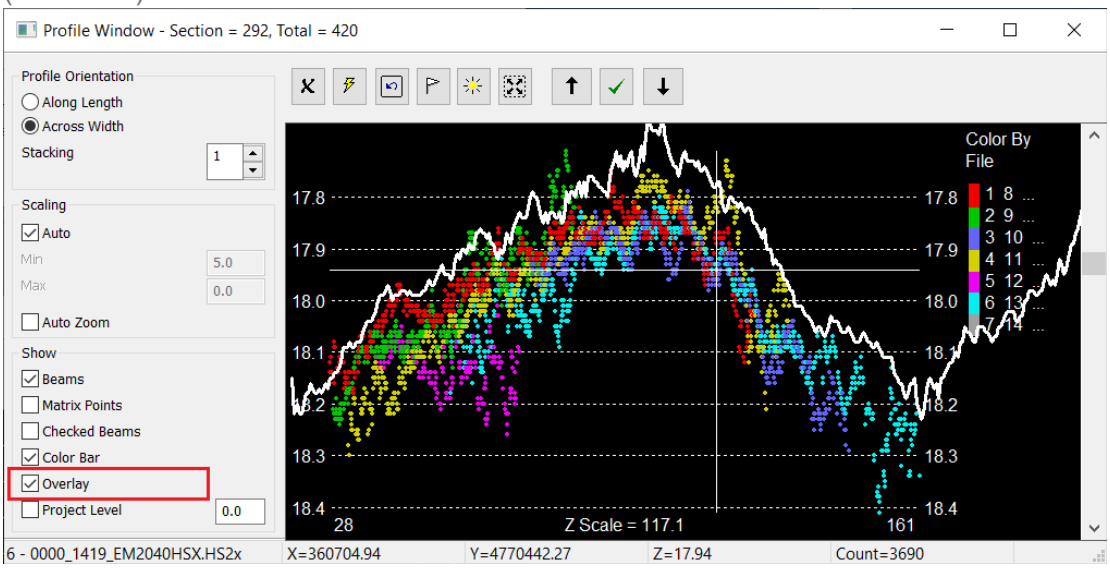
- **MBMAX64 now reads S7K files from Teledyne Reson SeaBat T51**.
- **Users can now use the newly added Overlay check boxes to overlay depths in the Profile and A-B Cross Section Windows if a filled matrix is selected in Read Parameters.** When overlay depths are available, users can check or uncheck the Overlay check box to show or hide them. The overlay depths are displayed as a solid line on top of sounding points.

  To use this new feature:
  1. Select a filled matrix in Read Parameters.

Start by clicking the Read Parameters icon. 
Under the Matrix box in the Survey tab, click [Edit...] to bring up the Matrix Settings window. Select “Use HYPACK MTX File” and open the filled matrix file. Click [OK].

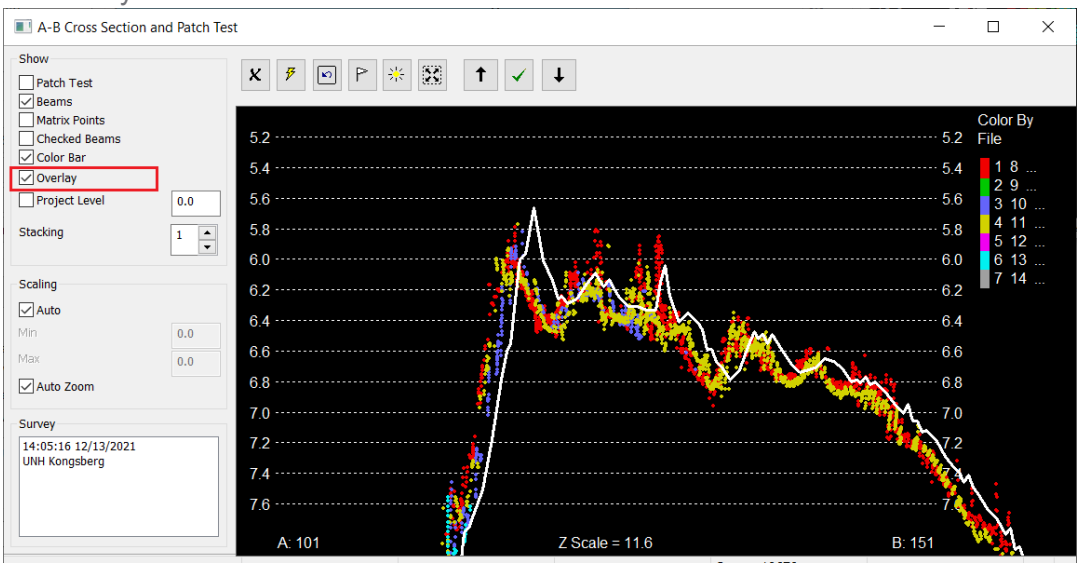


2. Open the Profile window and check the Overlay box to display the overlay depths (white line).



3.The Overlay option is also available in the A-B Cross Section window and displays in a

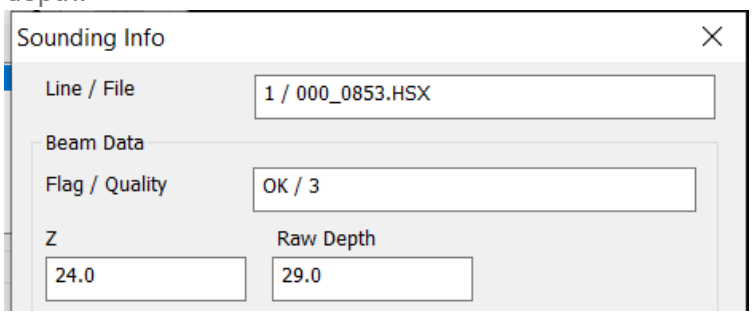
similar way.



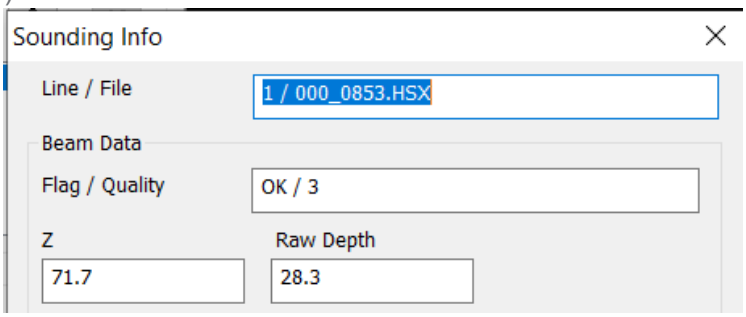
- **Raw Depth is now displayed in the Sounding Info and Sweep Windows**. Raw depth is the corrected depth or elevation value without tide (water level) correction.

  In Depth mode: Raw Depth = Corrected Depth - Tide correction.
  In Elevation mode: Raw Depth = Tide correction - Corrected Depth.

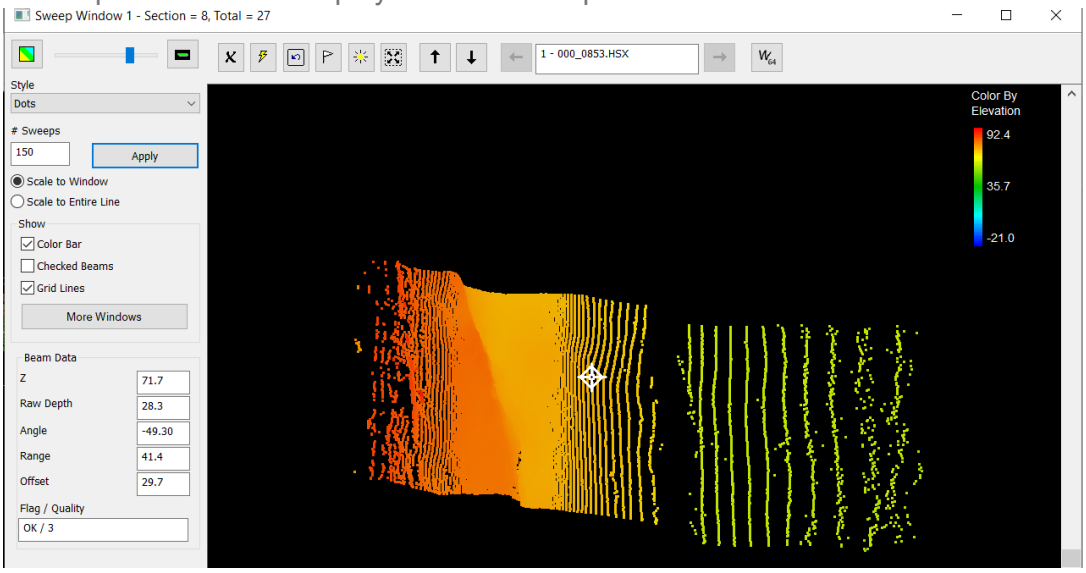
  The following image is an example in Depth Mode with -5' tide correction (+5' tide). Z is the corrected depth.



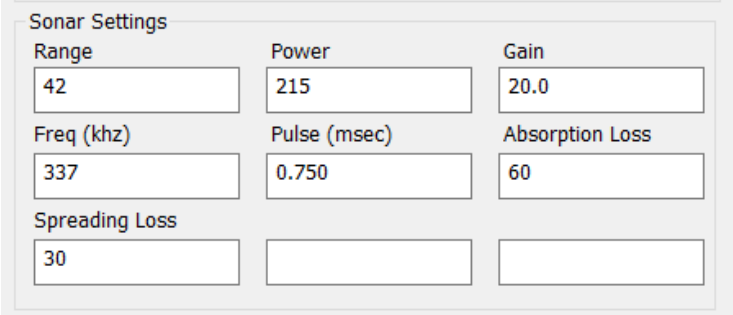
  This image is an example of Elevation Mode with 100' water level correction (also termed tide correction). Z is the corrected elevation.



Raw Depth is now also displayed in the Sweep window.



- **For Reson systems, Absorption Loss and Spreading Loss are now displayed in the Sounding Info window under Sonar Settings**. Note that this requires HSX logging with HYSWEEP 22.1.4 or higher, as previous versions did not log Reson ocean settings.



Feature Detection in the 64-bit HYSWEEP EDITOR

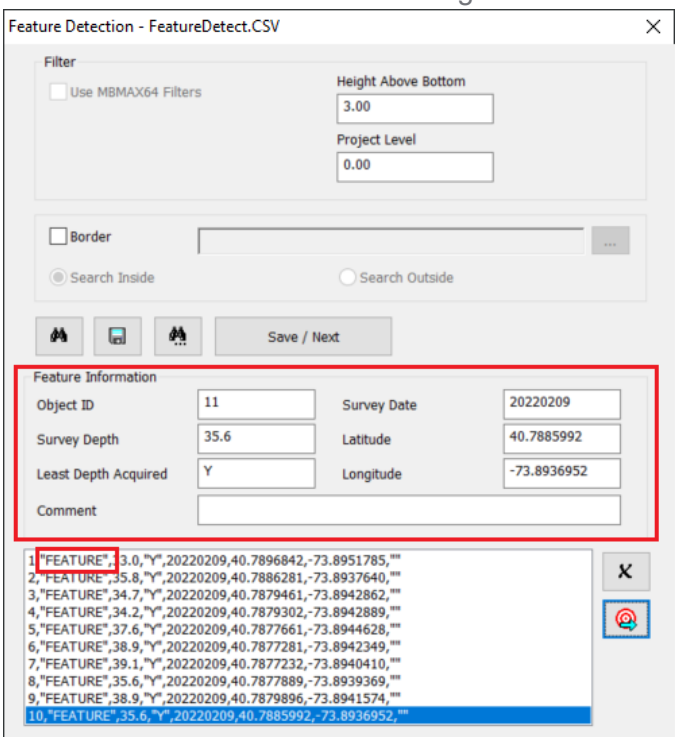
Bug Fixes

- The Save button was enabled before features were detected. No XYZ. This resulted in bogus detections being saved. **The Save button is now enabled after the first feature is detected**.
- The Export Targets button was disabled when Feature Detection is first started. Now **the Export Targets button is enabled once the first feature is saved.**

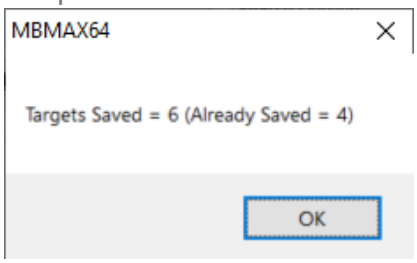
Improvements

- The Feature Information section has been reorganized to read easier.

- **Detections are now classified as "FEATURE"** instead of "OBSTRUCTION". Obstruction didn't make sense for detections below grade or outside the channel.



- **Export to Targets now shows how many targets are saved and how many are skipped.** Export is skipped for detections already saved as targets (using a 1 meter distance check), this avoids duplicates.



UTILITIES

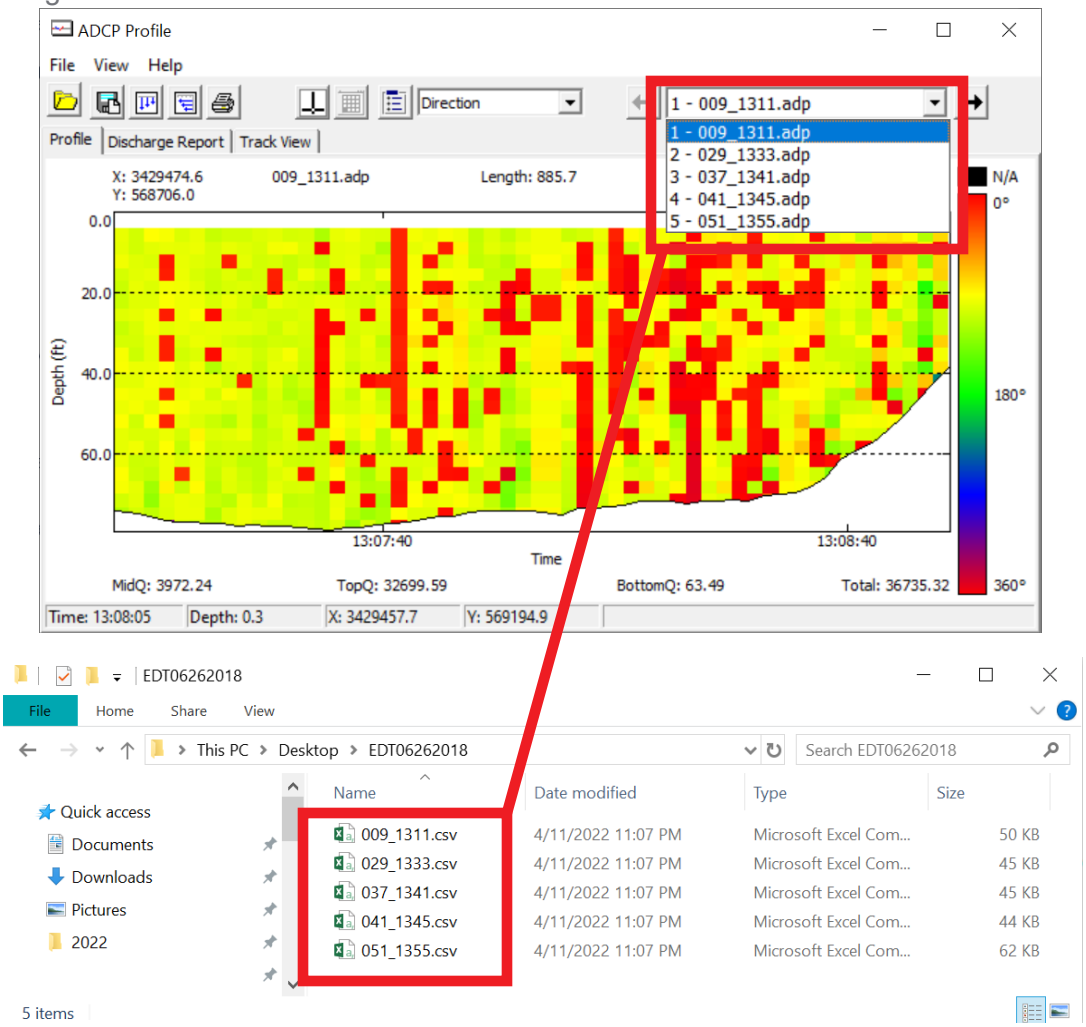
ADCP PROFILE

- **If multiple cross sections/profiles are loaded in the ADCP Profile window, the "Save to CSV" function now automatically saves all profiles to individual *.csv files**. Users no longer need to save each individual profile one by one.

  To save the loaded ADCP profile(s), click File --> Save to CSV --> Navigate to the folder you want to save your file(s) --> Click [Select Folder]. Each *.csv file is created using the name of its corresponding *.adp file.

  In the following example, after selecting "Save to CSV" and the folder EDT06262018, the

five profiles loaded in the ADCP Profile window are all automatically saved to the designated folder.

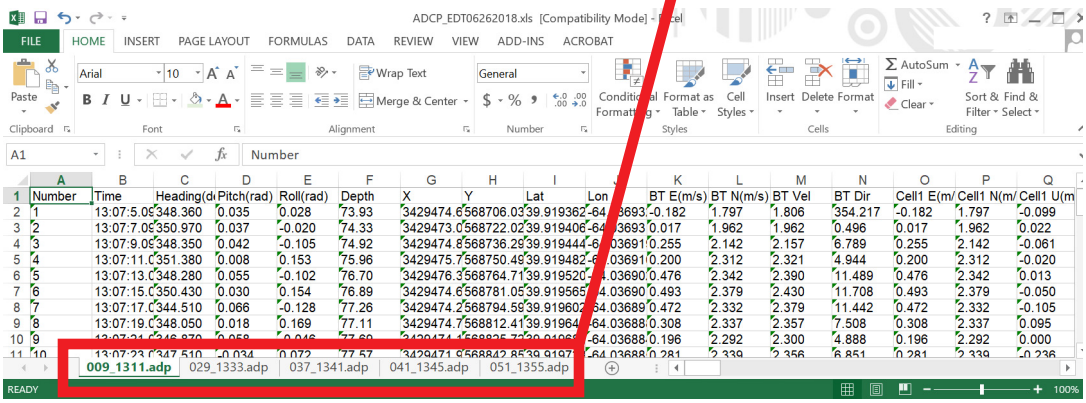


- **Similarly, if multiple cross sections/profiles are loaded in the ADCP Profile window, the "Save to Excel" function now automatically saves all profiles to a single *.xls file with one profile per sheet/tab.**

  To save the loaded ADCP profile(s) to an *.xls file, click File --> Save to Excel --> Navigate to the folder you want to save your file(s) --> Type in a file name --> Click [Save]. The *.xls file will be created, and each sheet in the file will be named after its corresponding *.adp file.

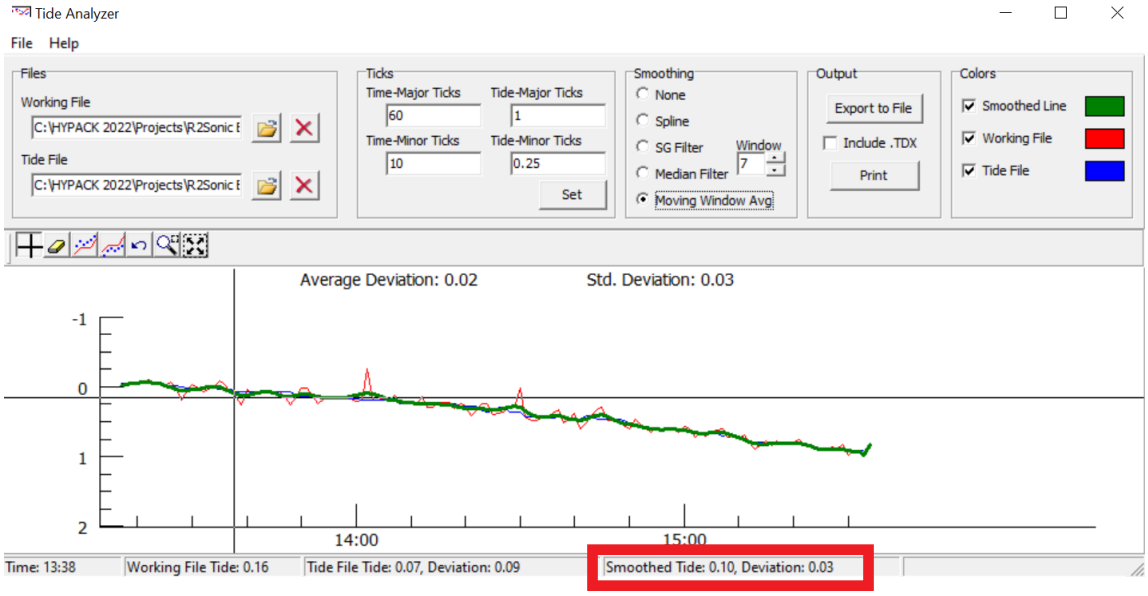
  In the following example, after selecting "Save to Excel" and naming the file

ADCP_EDT06262018.xls, the five profiles loaded in the ADCP Profile window are all saved in the *.xls file with one sheet per profile.



TIDE ANALYZER

- **Added the Smoothed Tide value and its Deviation to the Status Bar of the Tide Analyzer window.** The Deviation is calculated as the Smoothed Tide value minus Tide File Tide value.



Bug Fixes:

- **The popup descriptions for the Delete Above Line and Delete Below Line icons now display correctly** and are no longer swapped.
- Fixed an issue with zooming in when the data doesn't start at midnight.

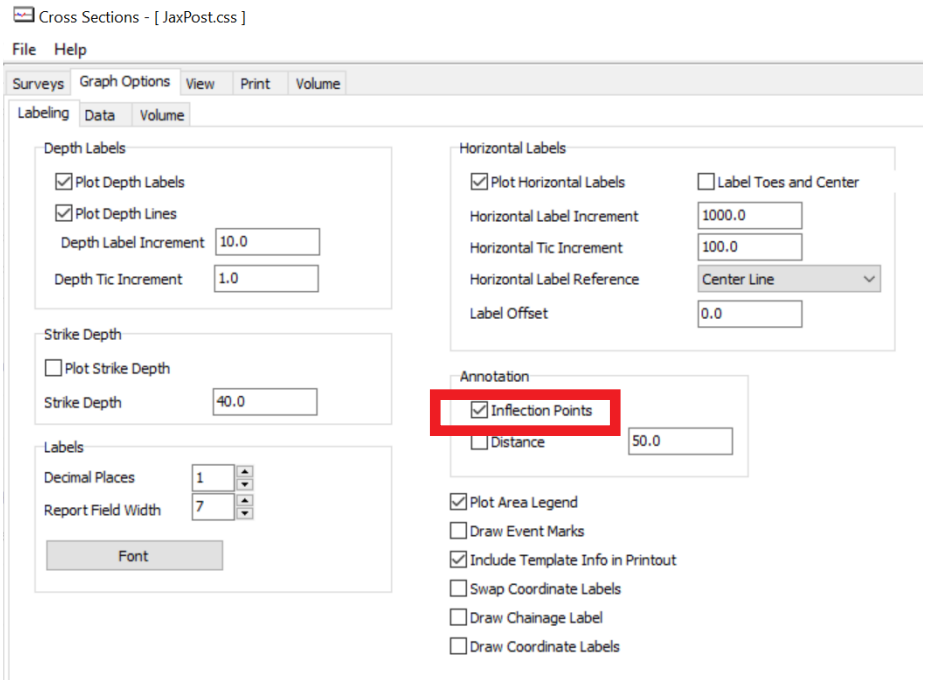
CROSS SECTIONS AND VOLUMES

JACKSONVILLE POST-DREDGE METHOD

- **Users can now display a box cut overlay in the Jacksonville Post-dredge method.** Box cut extents are drawn as dashed lines

The dashed lines represent the box cuts in the following image, where the left box cut is set to 50 and the right is set to 10.

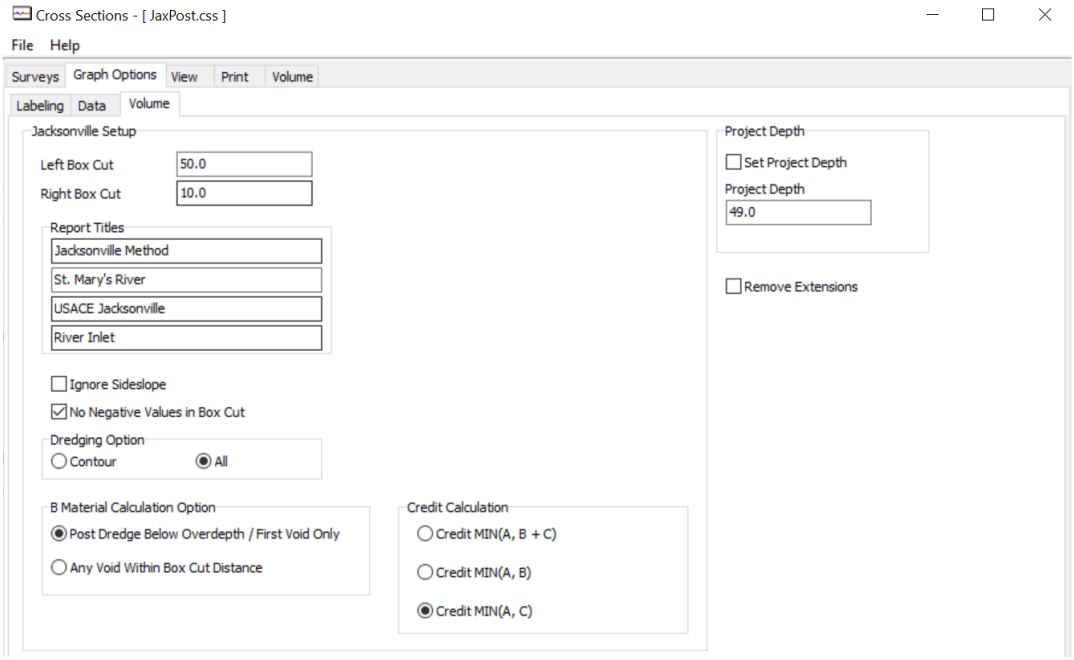
> To add the box cut overlay, go to Graph Options tab --> Labeling tab --> in the Annotation section, check “Inflection Points”.



Also make sure to check the appropriate Volume settings:

- If B Material Calculation Option is “Post Dredge Below Overdepth / First Void Only”, no lines are drawn for B but the fill is displayed
- If “Ignore Sideslope” is checked, no lines or fills are drawn.
- If the selected Credit Calculation uses B, the lines for B are drawn and B fill is displayed.

- If the selected Credit Calculation uses C, the lines for C are drawn and C fill is displayed.

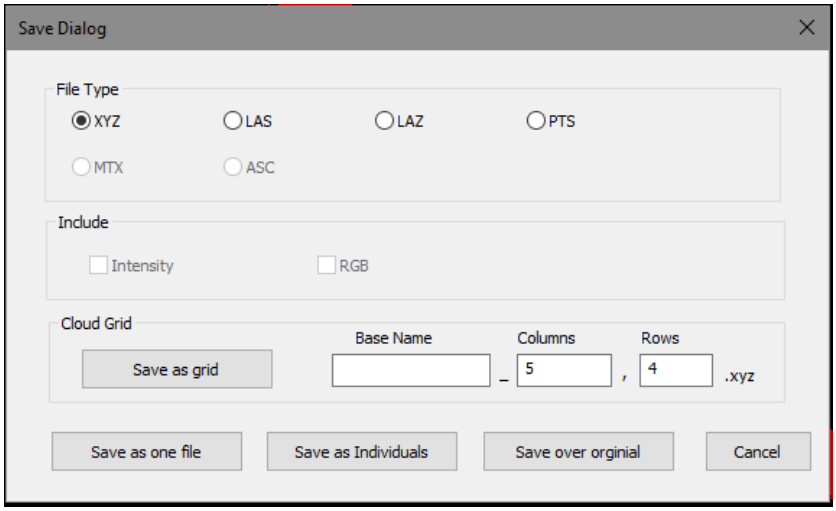


Bug Fixes:

- The Jacksonville Post-dredge method now correctly **fills in the X1 Right area** on the graph.
- **Min(A,C) no longer displays B area** and no longer shows B volumes in report.
- **Updated Fill Color icons** to properly display selected colors

CLOUD

- **Save, Save As, and Save to XYZ are now replaced by a new Save Dialog in HYPACK CLOUD that collates these three save options**. Just click the Save File icon to bring up the Save Dialog window. From this new dialog, you can select the file type (XYZ, LAS, LAZ, PTS, MTX, or ASC), choose whether to include intensity or RGB coloring, and save your data as a single file, individual files, or save with the original file's name.



- **The New Save Dialog supports saving RGB and Intensity to an XYZ file when the CLOUD grid is used**.
- **Added the new Target View dialog in CLOUD, which displays all targets and targets group in a tree view.** Users can toggle them on or off, and select how the targets are drawn by right clicking on them.