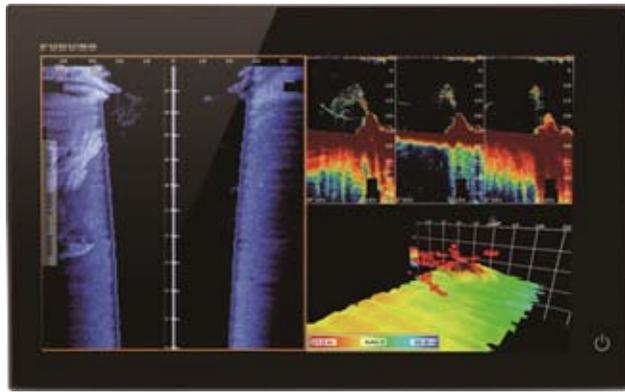


Multi Beam Sonar

Model: **DFF3D**





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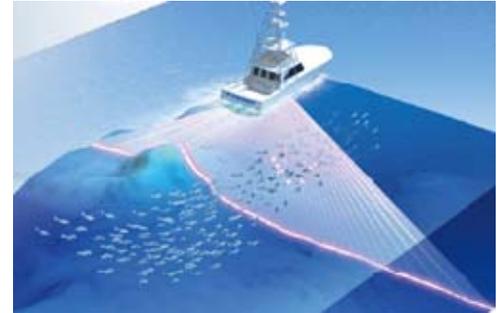
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1. High Power Multi Beam Sonar

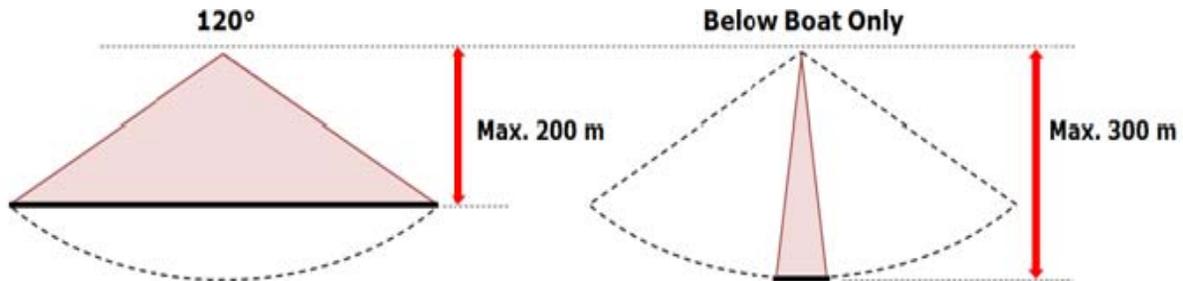
Wide Search

The DFF3D is a Multi Beam Sonar designed for NavNet TZtouch and TZtouch2 series MFDs. The DFF3D transmits multiple beams (41) which enables the DFF3D to cover a wide 120° water column **between port and starboard**. The DFF3D is very effective in analyzing a wide area saving time. The DFF3D picks up targets that otherwise might have been missed with a conventional sounder which only allows for a narrow coverage area.



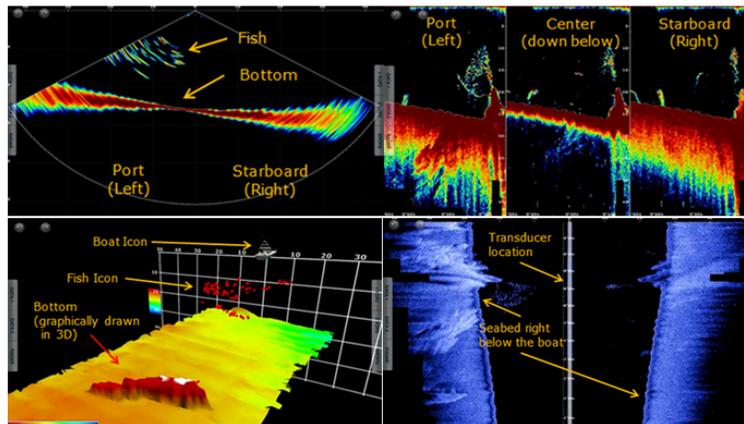
Powerful Performance

The DFF3D offers a deeper detection range than similar product offerings from other companies. When the DFF3D is transmitting in 120°, the maximum detection range is **200m**, port to starboard. If focusing on bottom detection below boat only, the maximum range is approximately **300 m**.



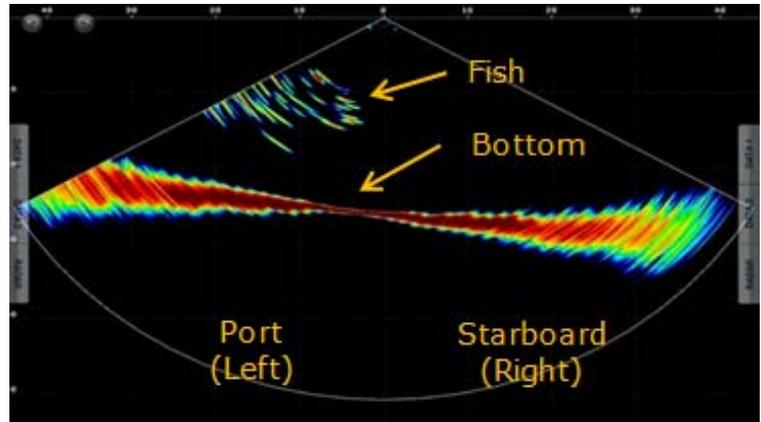
2. Multi Beam Presentation

The DFF3D offers four (4) types of unique presentations: Cross Section, Multi-Sounder, 3D Sounder History, and Side Scan.



2.1. Cross Section

Conventional Fish Finders show echoes, but you cannot see whether the fish is located on the port side, starboard side, or right below. The **Cross Section** screen shows the water under the boat in a 120° range. In the example at right, you can easily see a fish school on the port side of the boat. Think of this mode as an extremely wide A-scope. Just like a conventional A-scope, targets are real time, not historical.

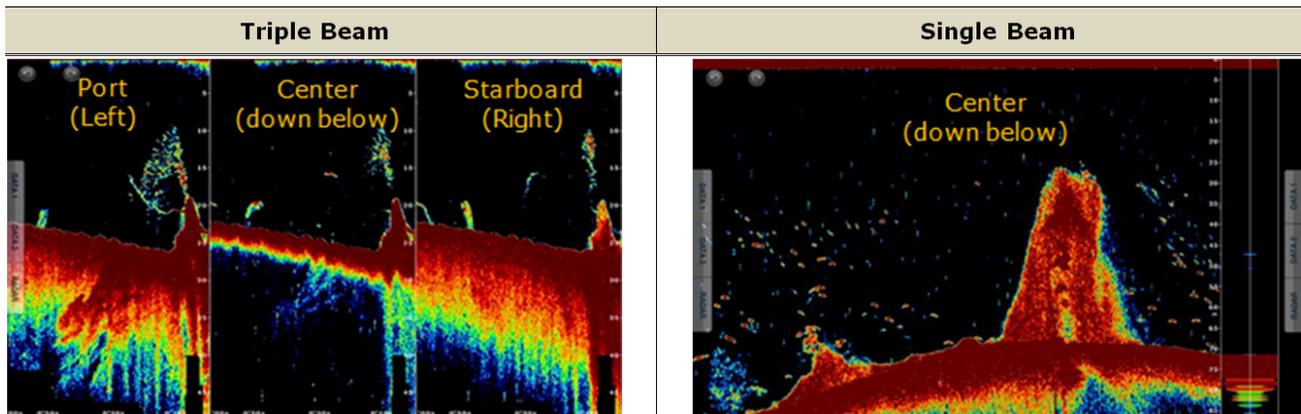


Note:

The Cross Section is available in full and 1/4-split screen modes only, **NOT** in 1/2-split screen.

2.2. Multi-Sounder

The **Multi-Sounder** screen shows **triple beams** for **port (left)**, **center (down)**, and **starboard (right)**. In the following example, the port side has more fish targets than the others. To focus on the center only, the single beam window is also available as a conventional Fish Finder.



Note:

The A-Scope is **NOT** available on the Triple Beam screen.

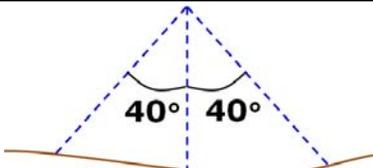
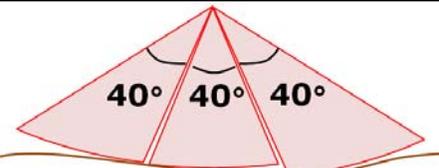
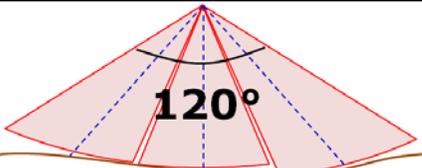
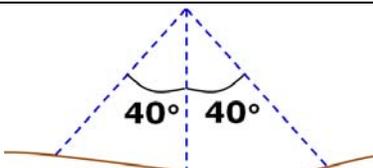
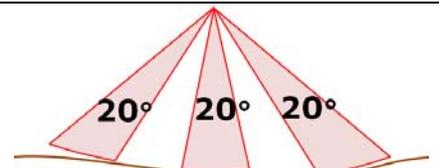
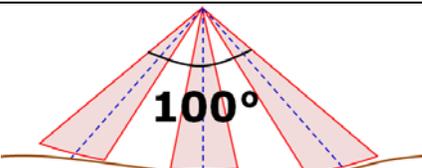
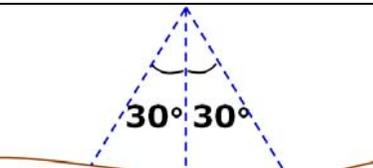
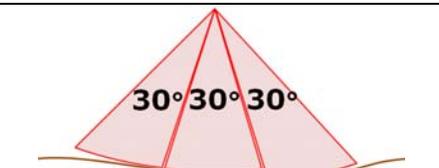
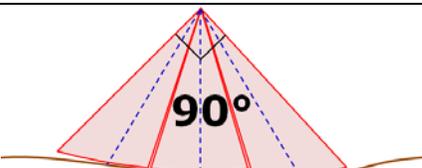
Where does each beam look?

The beam angle of triple beam and the beam width of triple and single beams can be adjusted.

Beam Angle: Selectable from 20/30/40/50°

Beam Width: Selectable from 20/30/40°

The combination of beam angle and beam width settings defines the coverage of search area as shown in the following examples.

Beam Angle	Beam Width	TX Image
		
<p>Example (1) Beam Angle = 40° / Beam Width = 40°</p> <p>The left and right beams are transmitted in the direction of 40° from the center. The central beam is transmitted down below the boat. In this example, beams of 40° are transmitted, for a total of 120° of coverage.</p>		
		
<p>Example (2) Beam Angle = 40° / Beam Width = 20°</p> <p>Beams at a width of 20° are transmitted in the direction of 40° from the center. A total of 100° is covered, but some blank areas are present.</p>		
		
<p>Example (3) Beam Angle = 30° / Beam Width = 30°</p> <p>Beams at a width of 30° are transmitted in the direction of 30° from the center, for a total coverage of 90°.</p>		

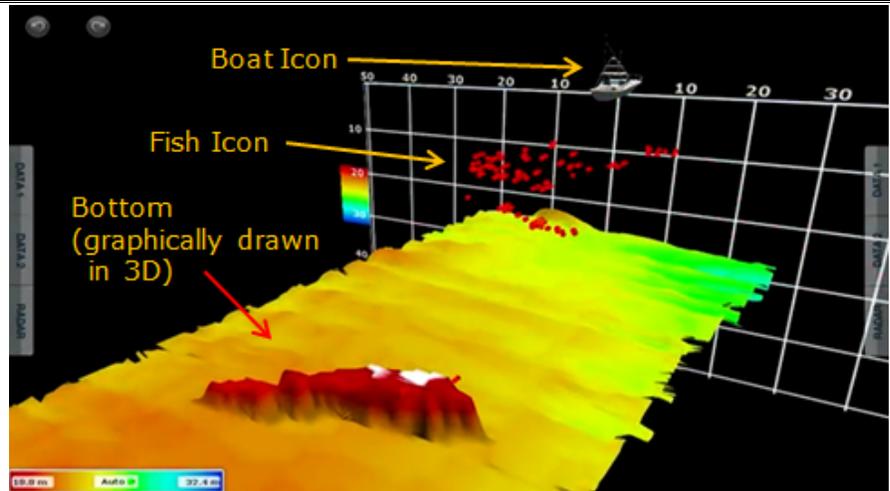
Note:

To adjust the beam angle and width, tap the screen and access [Beam Angle] – [20]/[30]/[40]/[50] and [Beam Width] – [20]/[30]/[40] on the contextual menus.

2.3. 3D Sounder History

The **3D Sounder History** screen shows the bottom shape and fish location in 3D. The view angle can be adjusted by dragging the screen so that you can easily analyze the bottom shape and the location of fish targets.

*Example –
Fish school around a wreck*

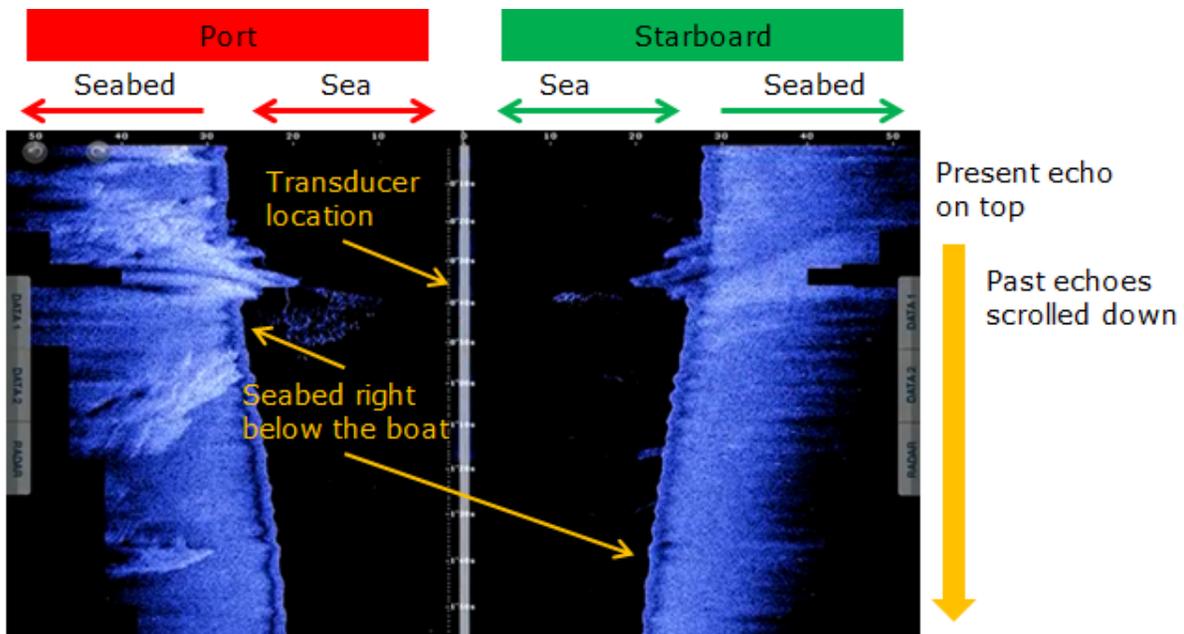


Notes:

- (1) In the 3D Sounder History screen, the bottom image is drawn in a single line at the same picture advance speed regardless of boat heading and speed. When the boat rotates rapidly, the 3D image on the screen may look different from the actual one.
- (2) The 3D Sounder History will automatically be deleted from the screen.
- (3) The 3D Sounder History is available in full and 1/4-split screen modes only, **NOT** in the 1/2-split screen.

2.4. Side Scan

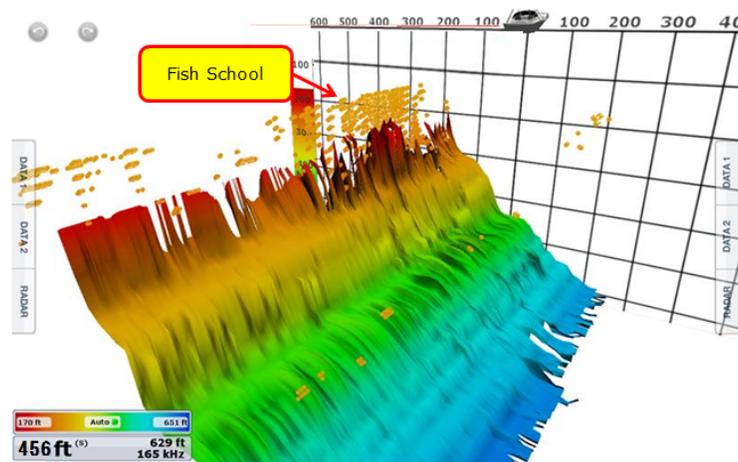
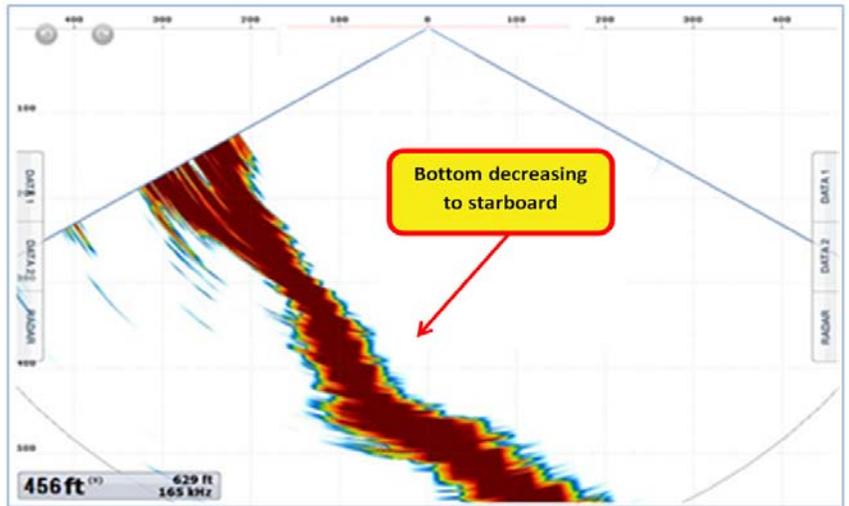
In the **Side Scan** screen, the seabed is drawn at both sides of the screen to focus on port and starboard images. This mode is suitable to analyze detailed bottom structures such as a fish reef.



3. Practical use of the DFF3D Multi Beam Sonar

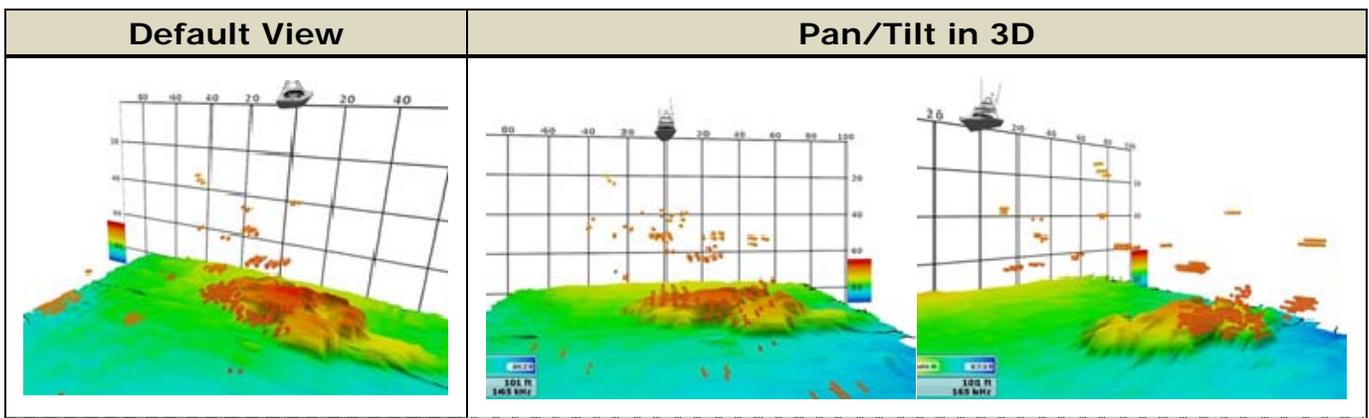
3.1 Analyze Bottom and Fishing Spots in Cross Section and 3D

The **Cross Section** screen is useful to notice a sudden change in the bottom shape. In the example at right, you can notice that the seabed decreases to the starboard side. The Cross Section screen shows only the latest image like an A-Scope. If you see this kind of sudden change in the bottom shape, we recommend that the 3D Sounder History should also be utilized to see how the seabed shape has changed and if fish targets are consistently available.



After changing the screen to **3D Sounder History**, you can see that a big fish school is continuously detected on the declining seabed.

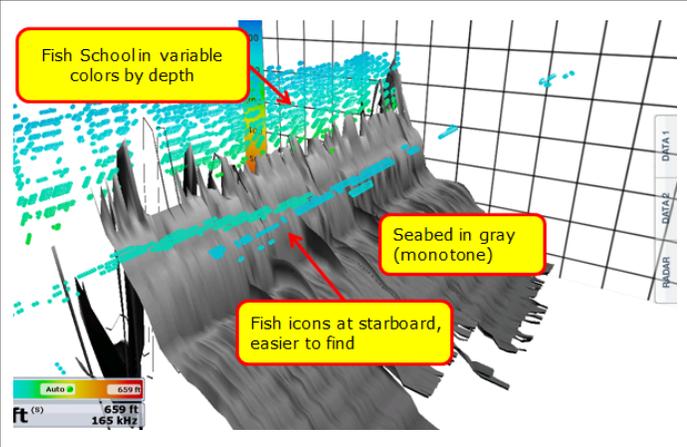
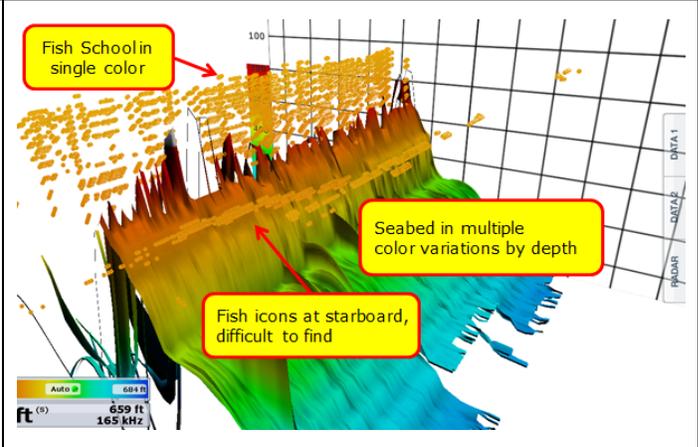
Here is another example to analyze the bottom and fish targets in the 3D Sounder History screen. When looking for targets in the middle layer of the sea, it is effective to analyze the underwater image from different view angles of the 3D screen as shown in the following example.



This example shows a fish reef. By changing the view angles, the layout of fish icons is easily identified.

3.2 Locate Fish by Color Variation

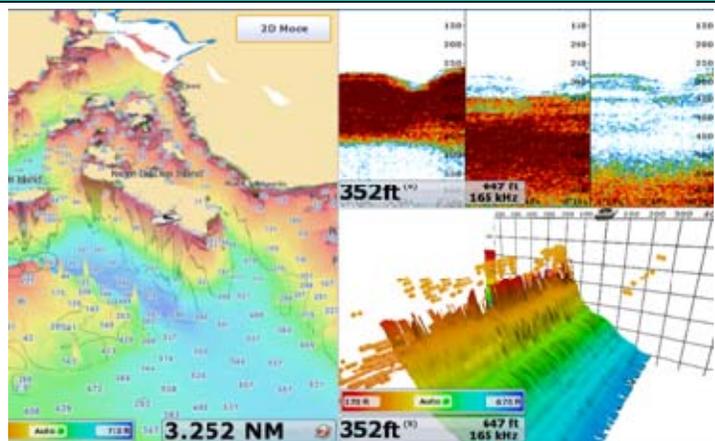
A declining seabed is a good spot for fishing in general. When the bottom image is drawn in 3D on the 3D Sounder History screen, you can identify fish locations and depths more easily. Fish icons can be drawn in variable colors according to the depth of the fish targets. At a steep slope, the declining trend of the seabed is comprehensive even without dynamic color variation. In such a case, tap the screen and select [**Color Mode**] – [**Fish**] from the contextual menus. The seabed presentation will change to simple monochrome, while the fish icons will be highlighted in variable colors depending on depth. This screen is very effective to easily spot the location and depth of fish.

Fish Icons in Multiple Colors	Seabed in Multiple Colors
	
<p>Thanks to 3D graphics, the seabed presentation is comprehensive even when using monochrome color graduation. It is easier to spot the fish location and its depth with colored fish icons by depth. Different from the variable seabed color presentation, the fish targets at the starboard side also stand out.</p>	<p>While the seabed is graphically drawn in variable colors, the fish icons are shown in red-orange. Sometimes, it is difficult to differentiate the fish icons from the seabed and identify the depth of each fish due to similar colors.</p>

3.3 Combine Multiple Screen Modes for Wide Search

Plotter with Triple Beam and 3D Sounder History

The Plotter screen with depth shading helps to display the overall depth trend. With the Triple Beam and 3D Sounder History screens added, you can analyze “up-to-date” bottom conditions and spot fish targets. Points entered on the DFF3D screen at the fish echo or fish icon immediately appear on the Plotter screen.

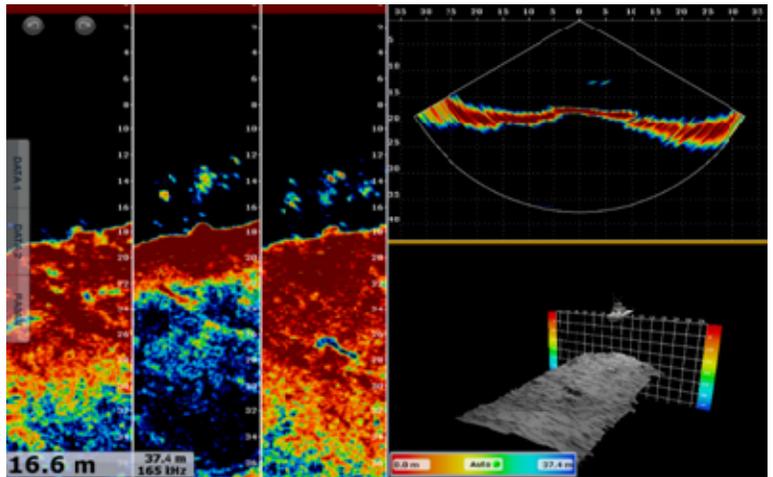


Combination of DFF3D Screens

This example shows a combination of DFF3D screen modes: Triple Beam, Cross Section, and 3D Sounder History. Using several different screens helps with target detection.

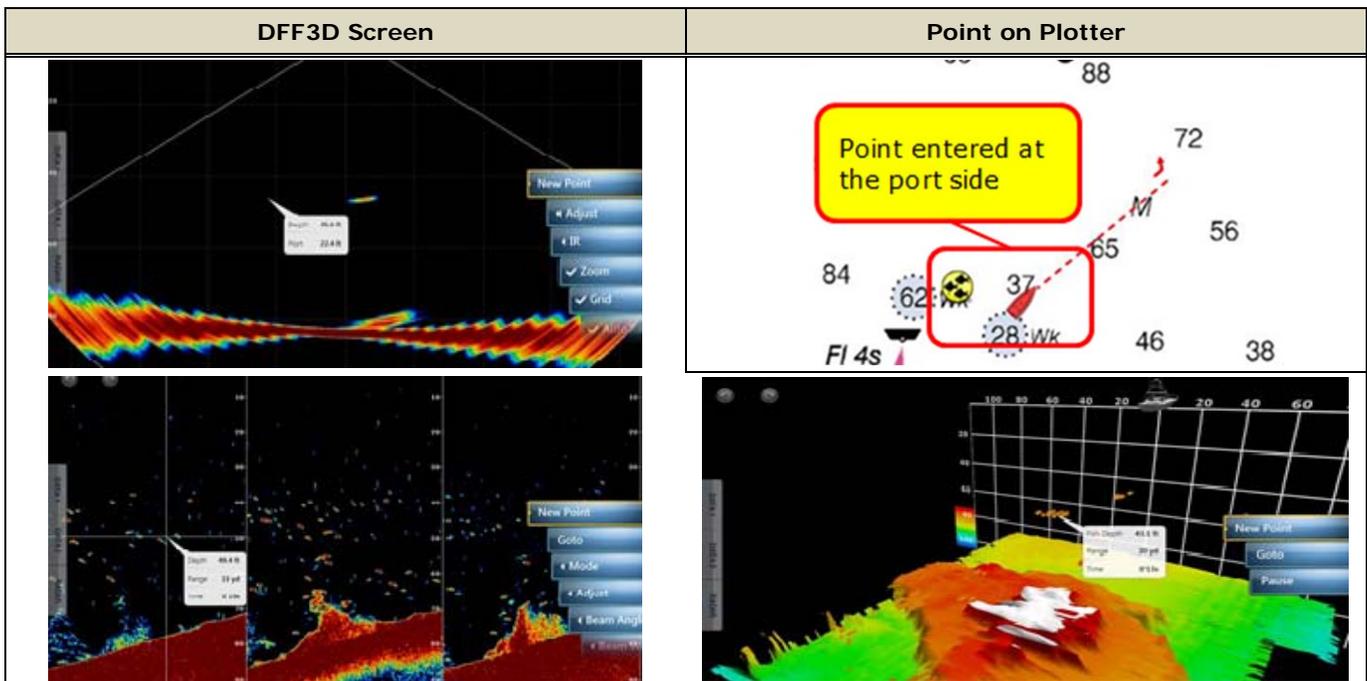
Note:

Range settings are synchronized in each presentation mode.



3.4 Mark Fish Precisely on the plotter screen

With conventional Fish Finders, a point entered from the Fish Finder always appears at “own ship” position on the Plotter screen. With the Cross Section, Triple Beam, Side-Scan, and 3D Sounder History screens of DFF3D, points can be entered exactly where the fish are detected. As an example, a point is entered at the port side of the Cross Section screen, and the point appears at the port side of “own ship” on the Plotter. Exact mark placement makes it easy to come back to the point to take a closer look at the bottom.

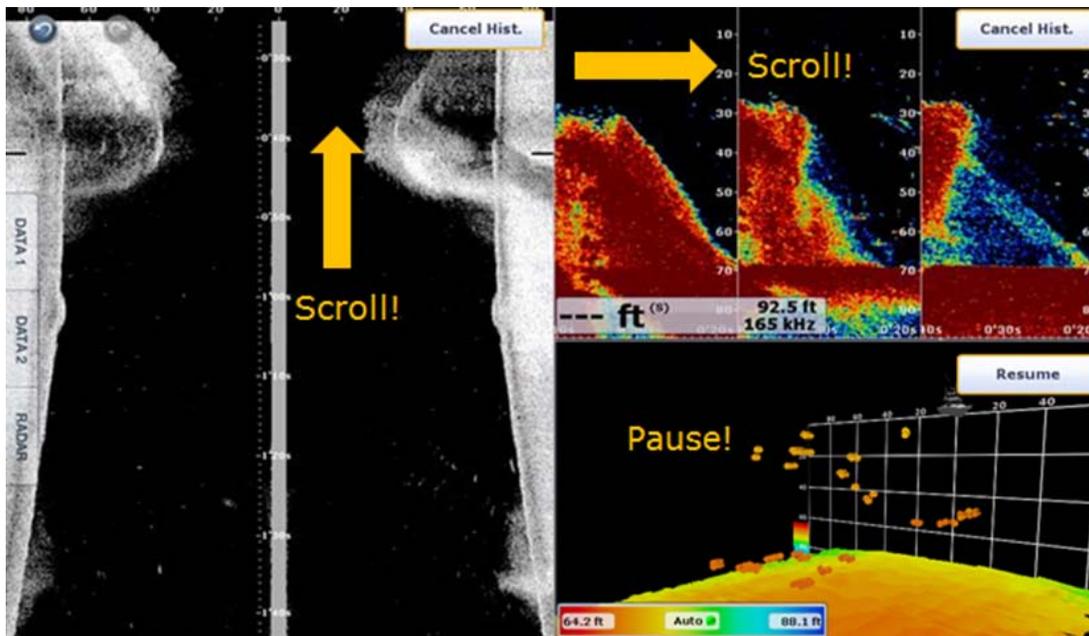


Note:

A **heading input is required** to enter a point from the Cross Section, Triple Beam (port/starboard windows), Side-Scan, or 3D Sounder History screens.

3.5 Scroll and Pause to Review Echoes (History)

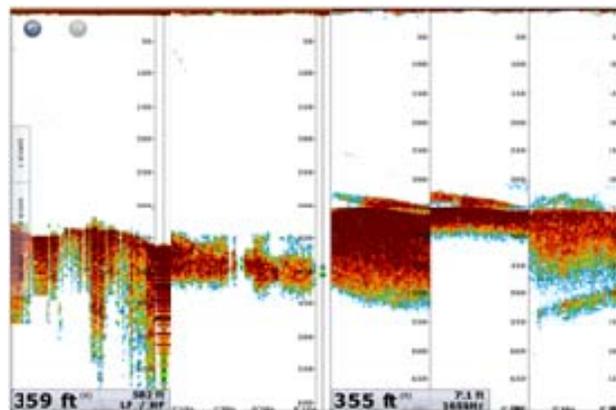
The Side-Scan and Triple Beam screens can be scrolled to review the previous echoes. The 3D Sounder History screen can also be paused and rotated to look closely at the bottom from different angles.



3.6 Cover Deeper Bottom in Combination with a traditional Fish Finder

NavNet TZtouch and TZtouch2 MFDs can network a **maximum of two (2) Fish Finder sensors including the DFF3D**. Example, with the **DFF1-UHD** and **DFF3D** in the same network, the **DFF1-UHD** focuses on the deeper bottom detection in high resolution, while simultaneously the **DFF3D** supports wide area detection in the middle layer.

Example – DFF1 (50/200 kHz) and DFF3D (Triple Beam)



Note:

When the **DFF1-UHD (TruEcho CHIRP™)** and **DFF3D** are transmitted simultaneously, **make sure that the Interference Rejection is set to ON (Auto, Low, Middle, or High) on the DFF3D screen.**

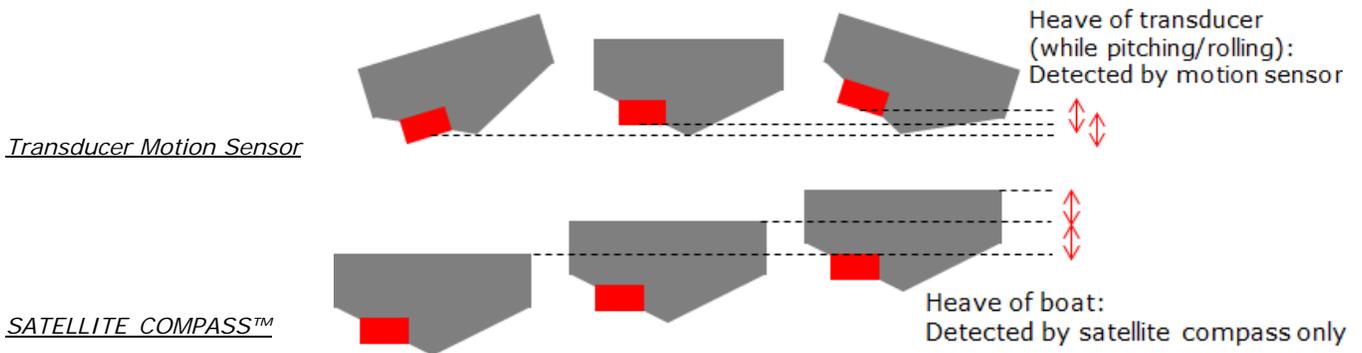
A KP (keying pulse) kit is also available for the **DFF3D**, part # 001-205-780-00

3.7 Stabilized Echoes

The built-in motion sensor compensates for the roll and pitch motion of the transducer to stabilize the echo images on the screen.

Note:

The built-in motion sensor detects the heave of transducer while the transducer surface pitches and rolls with the boat. It does not detect the heave of the boat. To compensate the heaving motion of the boat a satellite compass, such as the SC30 is necessary.



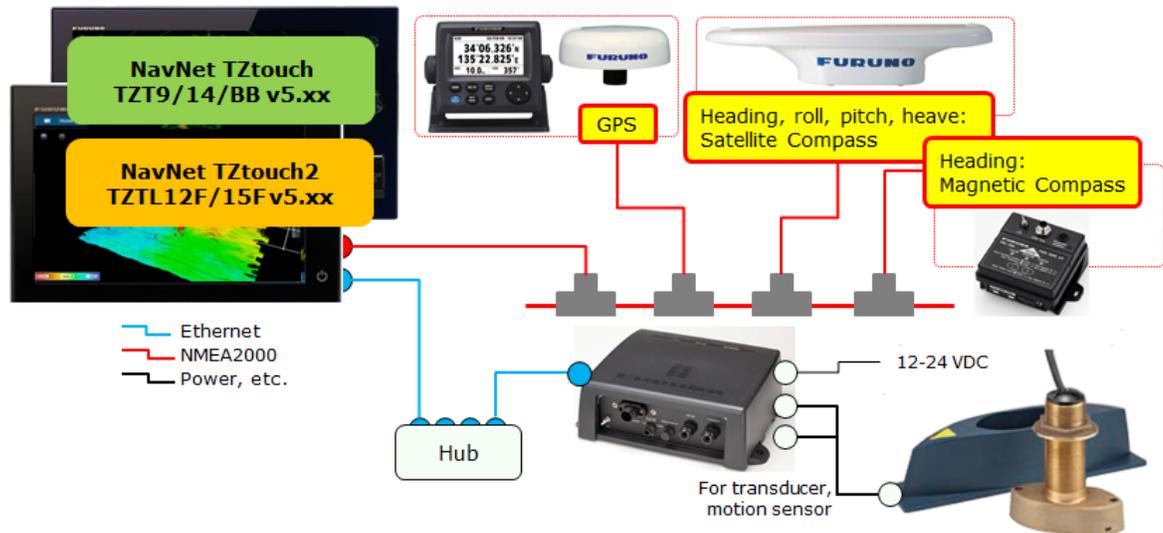
3.8 Notes

The DFF3D does not support the following functions.

- (1) Bottom discrimination
- (2) ACCU-FISH™
- (3) RezBoost™
- (4) TruEcho CHIRP™
- (5) Bottom lock
- (6) Bottom zoom
- (7) Temperature graph overlay

4.1 Creating a DFF3D Package

The following drawing illustrates a basic network that includes the DFF3D.



Notes:

- GPS and heading information is necessary to enter a point from the Cross Section, Triple Beam (left/right sides), 3D Sounder History and Side Scan screens.
- A point can be entered from the single beam and Triple Beam (center screen only) without heading.
- SC30 satellite compass is optional to compensate for boat heaving.

Settings

The location of transducer, motion sensor, and GPS antenna should be entered properly to insure accurate images on the screen. Access [Menu] [Settings] – [Multibeam Sonar] – [Initial Setup] – [Transducer Setup] – [Transducer Setup], [GPS Antenna Position], [Motion Sensor] and enter the appropriate values. These settings are also important for accurately positioned marks to appear on the plotter screen.

4.2 Compatible MFD Displays and Versions

The DFF3D is compatible with the **TZT9/14/BB (NavNet TZtouch)** and **TZTL12F/15F (NavNet TZtouch2)**, it is **NOT compatible with MFD8/12/BB (NavNet 3D)**. Make sure that the displays are updated to be compatible with the DFF3D.

Displays	Versions	Released
NavNet 3D (MFD8/12/BB)	NOT supported	–
NavNet TZtouch (TZT9/14/BB)	v5.01 or later	April 2017
NavNet TZ touch2 (TZTL12/15F)	v5.01 or later	June 2017

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