GSD 20 Sounder Module
with GARMIN chartplotters

(GPSMAP 2010C, 2006C, 182C and GSD 20 shown)

owner's
manual
addendum

Preface

Congratulations on choosing one of the most advanced marine navigation systems available! When combined with the GSD 20 Sounder Module, the Garmin GPSMAP 182/182C/232/2006/2006C/2010/2010C utilizes the proven performance of Garmin GPS, full featured mapping and sonar performance to create an unsurpassed marine navigation system.

This addendum covers the new sonar functions of the Garmin GPSMAP Chartplotters when used with the GSD 20. The first section deals with the GPSMAP 2006/2010 series and the second section, the GPSMAP 182/182C/232 series. To get the most out of your new system, take the time to go through this operator's addendum and learn the operating procedures for your unit. **Refer to your Garmin GPSMAP Chartplotters Owner's Manual and Quick Reference Guide for all other unit operating instructions.**

Software Versions

The GSD 20 is designed to work with software version 4.0 and higher on the GPSMAP 182/232, GPSMAP 2006/2010 and version 5.0 and higher on the GPSMAP 182C. See your owner's manual for instructions on determining the unit's software version. Visit our web site at www.garmin.com/support/download.jsp for software updates (excluding map data) or contact Product Support at the number on the right side of this page)

Software License Agreement

BY USING THE GPSMAP Chartplotter and GSD 20, YOU AGREE TO BE BOUND BY THE TERMS AND CONDITIONS OF THE FOLLOWING SOFTWARE LICENSE AGREEMENT. PLEASE READ THIS AGREEMENT CAREFULLY.

Garmin grants you a limited license to use the software embedded in this device (the "Software") in binary executable form in the normal operation of the product. Title, ownership rights and intellectual property rights in and to the Software remain in Garmin.

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Product Support

Garmin's Product Support Department can be reached Monday-Friday 8am to 5pm Central Standard Time.

By phone at— 1-800-800-1020 or (913)397-8200 (select marine equipment option)

Online at— http://www.garmin.com/contactUs/techSupport.html

Check the Garmin Web Site (www.garmin.com) for links to Product Support and Product FAQ's

Powering On the System- GPSMAP 2006/2010

This section covers the additional sonar options for the GPSMAP 2006/2010 series only.

When you power up your GPSMAP 2006/2010, the GSD 20 and GPS 17N receiver automatically powers on. A welcome page appears, showing all devices that are attached. It may take up to one minute to display the antenna information. In the lower right of the window, read and acknowledge important information regarding the proper use of the unit. After reading the welcome, press the **ENTER/MARK** key if you agree.

Next you may see (depending how quickly the unit acquires a position fix) the GPS Info window which provides a visual reference of satellite acquisition, GPS receiver status, and accuracy.

Let's take a look at the Main Display Pages as they come from the factory. There are six pages: the Map Page, Sonar Page (only if GSD 20 attached), Compass Page, Numbers Page, Highway Page and the Active Route Page. When the unit is turned on the first Main Page displayed is the Map Page.

To scroll through the Main Display Pages:

1. Press the **PAGE** key. Each time the **PAGE** key is pressed the GPSMAP Chartplotter displays the next Main Page.

2. The **QUIT** key acts like the **PAGE** key in reverse. Each time the **QUIT** key is pressed, the next Main Page is displayed in a reverse sequence.

This addendum covers only the new Sonar and Map Page functions provided by the GSD 20. For additional operating instructions, see the GPSMAP Chartplotter Owner's Manual and Quick Start Guide.

Welcome Page

PAGE

PAGE

Map Page   *Sonar Page*   *Compass Page*   *Numbers Page*   *Highway Page*   *Active Route Page*

QUIT

QUIT
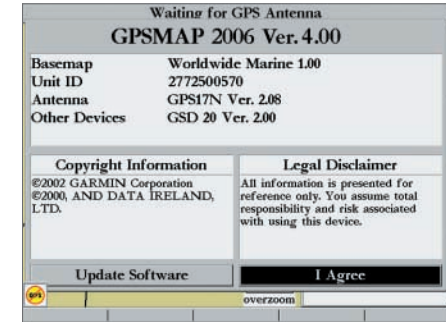
Map Page with split sonar display.

Map Page with split sonar display and data fields. 'Set Up Page' options showing.

Map Page Options

Many features of the GPSMAP 2006/2010 are **SOFT KEY** driven. Each of the main pages have **SOFT KEY** options, allowing you to custom tailor the corresponding page to your preferences and/or select special features that specifically relate to that page. The data window, located at the right of the Map and Sonar pages, provides a user-selectable layout of various types of useful data or sonar information. Each data field may be configured to display any one of several data options. The data window layout may also be changed to display additional data fields and change the actual size of the data displayed.

The GPSMAP 2006/2010 Map Page **SOFT KEYS** provide access to functions and features relating to the Map Page and the layout options.

The available **SOFT KEY** options are Measure, Full Map/Show Data, Set Up Page, Set Up Map, and Declutter On/Off?. Following are details on using only the Sonar related options. Reference your main Owner's Manual for details on the other options
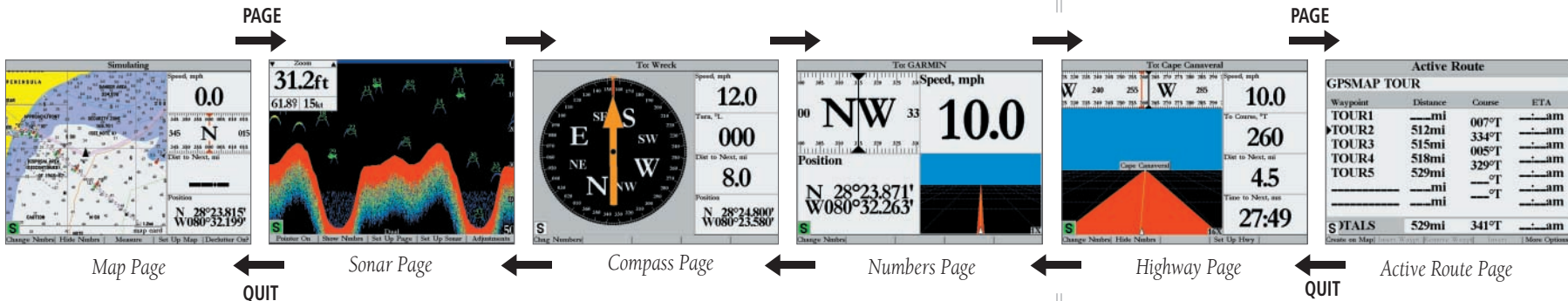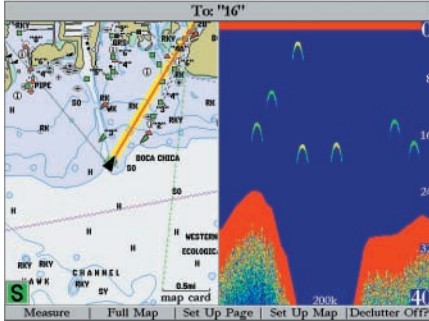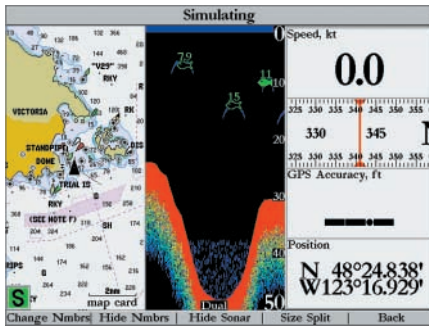
To select a SOFT KEY option:

1. Press the **SOFT KEY** below the desired option.

• **Full Map/Show Data —** toggles between a full screen map or a map with sonar information and/or data fields on the right of the display. This allows for quick viewing of a full screen map without going through the Set Up Page to show/hide the sonar and data fields.

• **Set Up Page —** allows you to adjust the Map Page layout to your preferences, including changing data field numbers, showing/hiding data fields, showing/hiding a sonar display and sizing the map/sonar split. Press the 'BACK' **SOFT KEY** to return to the Map Page. The Set Up Page options are:

Change Nmbrs (Numbers) — allows you to specify the type of data displayed in each data field used on the map display. This option is available from any of the main pages. Two new choices are 'Sonar', which places a smaller version of the Sonar Page in a data field and 'Water Temp. Log', which displays a timeline graph of the transducer's temperature readings. (Refer to pg. 13 for setting up the time duration.) See the Owner's Manual for more details on changing data field numbers.

Hide/Show Nmbrs (Numbers) — toggles between a Map Page without or with data fields on the map display.

Hide/Show Sonar — toggles between a Map Page without or with sonar information on the map display.

Size Split — enables width adjustment of the Map Page sonar split screen. You may adjust the size of the map/sonar split window anywhere from 1/4 to 3/4 width from the right half of the Map Page. You must be showing sonar information to use this option.

To resize the Map Page sonar split screen:

1. From the Map Page split screen, press the 'Set Up Page' then 'Size Split' **SOFT KEYS**.
2. Move the horizontal double-arrow LEFT or RIGHT using the **ARROW KEYPAD** until the desired vertical width line shows, then press **ENTER/MARK** or the 'Accept Resize' **SOFT KEY**. You may also press the '50/50' **SOFT KEY** to equally proportion the map and sonar windows.
3. If you wish to cancel this operation, press **QUIT** or press the 'Cancel Resize' **SOFT KEY**.
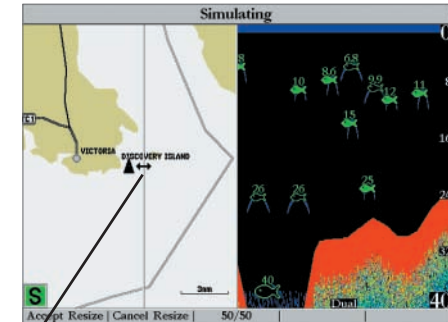
Double arrow   *Adjusting split map/sonar display.*

Data Fields
Simulated Fish Arch (with Fish Symbols On)
Flasher
Whiteline
Bottom
Thermocline
Depth Scale
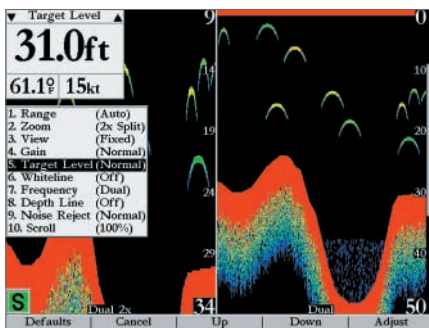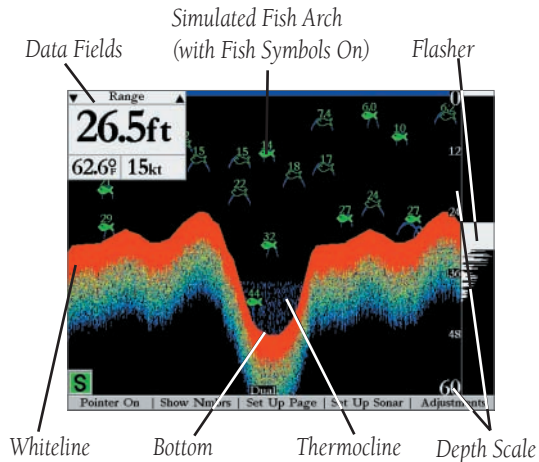
Sonar Page with Adjustment Menu and split screen.

Sonar Page

The Sonar Page is where your GPSMAP 2006/2010 becomes a powerful fishfinder/flasher. If a GSD 20 is not attached, the Sonar Page only appears when the unit is in Simulator Mode. Or if a GSD 20 is attached, but the unit does not detect a transducer, a "Sonar Turned Off" message appears across the Sonar Page. If in Simulator mode, a 'Running Simulator' message appears after 2 minutes of inactivity.

The top left of the screen contains information fields, while the Adjustments selection (see pg. 7) above the fields allows direct access to the settings most commonly changed while using the Sonar Page. The middle of the page contains a right-to-left moving sonar graph image of the water beneath your boat. (Note: Items appear as they pass under your transducer. Those items on the right side of the screen are closer to you than those on the left.) Along the right side of the screen is an adjustable scale which reflects the depth of the area being displayed. You may also show a sonar flasher and color bar on the right side (see pg. 11-12).

The sonar display may also be set to show a split screen view of a zoomed portion of the sonar, split frequencies, bottom lock (display scaled from the bottom up) or a combination of these options. (see pg. 7-8) For example, you may choose to show dual frequency at a 2X zoom (Dual 2X) on one half and normal range dual frequency (Dual) returns on the other half. The current display mode is displayed at the bottom of each sonar display.

On color models, the sonar returns are shown as red (strongest), then oranges (strong), yellows (medium), greens (weaker) and blues (weakest). On grayscale models, stronger returns appear darker and weaker returns lighter. The 'Fish Symbols' option (see page 11) allows you to view the actual sonar data, a fish symbol or a combination of both. 'Fish Symbols' appear as black on grayscale units and green on color models. When the unit is set to 'Dual' (see pg. 11), the appearance of the fish symbols (and simulated arches) changes. Fish symbols from the center of the beam (200kHz) are solid (or narrow arches), but the returns from the edges of the beam (50kHz) are hollow (or wide arches). Simulated fish are displayed as an arch or a fish icon in three different sizes. Actual fish returns may not always appear as perfect arches (like in simulator mode), due to the speed, fish orientation and/ or other conditions. More on understanding the sonar may be found on pages 25-28.

Using the Adjustment Menu

The Adjustment Menu allows direct access to the settings and features most commonly used on the Sonar Page. There are 10 main adjustment options available: Range, Zoom, View, Gain, Target Level, Whiteline, Frequency, Depth Line, Noise Reject and Scroll. All adjustments may be made by using either the **ARROW KEYPAD, SOFT KEYS** or **DATA ENTRY KEYS**. The currently selected option appears in the upper left of the display with up and down arrows on each side of the name.

To change an Adjustment Menu setting:

1. Press the 'Adjustments' **SOFT KEY**, which brings up a numbered list of all options and their current settings. (The adjustment window automatically times out and disappear when idle for 20 seconds.)

2. **SOFT KEY** options appears at the bottom of the display. Highlight the option to change by pressing the 'Up' or 'Down' **SOFT KEY** (or by pressing UP or DOWN on the **ARROW KEYPAD**).

3. To change the highlighted option, press the 'Adjust' **SOFT KEY** (or press **ENTER/MARK**). To easily exit any of the adjustment options, press the 'OK' or 'Cancel' **SOFT KEY** (or press the **QUIT** key).

4. Press the 'Up' or 'Down' **SOFT KEY** (or press UP or DOWN on the **ARROW KEYPAD**) to move the setting bar to the desired percentage (Off, 1-100%), setting or range. Depending on the option selected, additional **SOFT KEY** shortcuts appears for quickly changing to a common setting or to return the setting back to the default position. To accept the new setting, press the 'OK' **SOFT KEY** (or press **ENTER/MARK**).

For users accustomed to other Garmin sonar products, the current adjustment appears in the upper left corner. For fast adjustment from the Sonar Page, press LEFT or RIGHT on the **ARROW KEYPAD** to scroll through the options, then press UP or DOWN on the **ARROW KEYPAD** to immediately change the current option or the **ENTER/MARK** key to review the current setting before making changes. Or if you already know the number of the option you wish to adjust, press the corresponding number on the **DATA ENTRY KEYS**.

For more information on understanding sonar and the display, see pages 25-28.

Adjustment Options

The Adjustment Menu allows direct access to the settings and features most commonly used on the Sonar Page. The available adjustments are:

1. Range — sets the display depth range used for viewing. The unit can be set to automatically track the bottom or set to a user-specified depth range.

2. Zoom — used to quickly select a display zoom scale or to split the display. When a scale other than 'No Zoom' is selected, the Adjustment Menu displays a new selection labeled View or Span. The Zoom function is divided into six display levels:

- **2X Split —** Shows two reduced-size sonar pictures at the same time. The right half of the display screen shows the complete sonar picture at its original scale. The left half shows a portion of the original picture at 1/2 depth scale. (contd.)
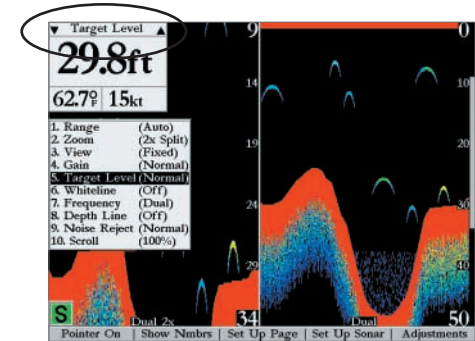
Current Adjustment selection always appears in the upper left corner.
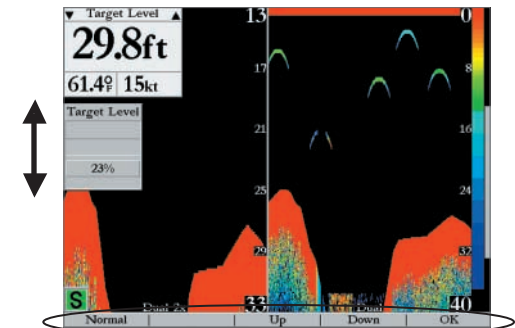
Press the Up or Down SOFT KEY options or Up or Down the ARROW KEYPAD to adjust a selection.

Sonar Page with Dual t Frequency and Bottom Lock.

By default, Zoom or Bottom Lock detail is used for data fields and Map Page splits.

8

- **2X Zoom —** Displays the 2X zoomed picture on the full screen, unless 'Dual Frequency Display' is set to 'Split', then a 50/200kHz split screen shows.
- **4X Split —** Shows two reduced pictures, the right at the original depth scale and the left at 1/4 the original depth scale.
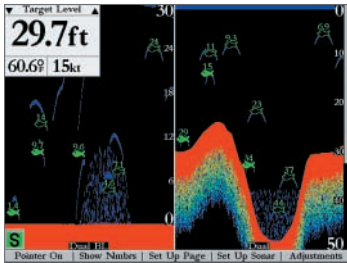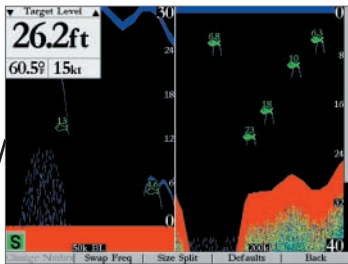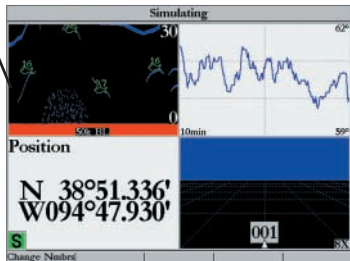- **4X Zoom —** Displays only the 4X zoomed picture on the full screen, unless 'Dual Frequency Display' is set to 'Split', then a 50/200kHz split screen shows.
- **Btm (Bottom) Split —** Shows two reduced pictures, the right at the original depth scale and the left showing sonar returns from the bottom up. All target depths read as a distance from the bottom.
- **Btm (Bottom) Lock —** Displays only the Bottom Lock (returns from the bottom up) picture on the full screen, unless 'Dual Frequency Display' is set to 'Split', then a 50/200kHz split screen shows.

Once activated, the zoomed picture becomes the Sonar Page display. Note: The Zoom function can be deactivated by pressing the OUT key until the 'No Zoom' setting appears.

3. View/Span — available when a Zoom scale other than 'No Zoom' is selected. The 'View' or 'Span' setting is used to change the viewing range of a zoomed display. If the display is 2X or 4X split, only the zoomed portion on the left side of the display is affected by the change. If the display is Bottom Split or Bottom Lock, 'Span' adjusts how far off the bottom the unit displays data.

4. Gain — allows the user to control the sensitivity of the unit's receiver. This provides some flexibility in what is seen on the display. To see more detail, increase the receiver sensitivity by selecting a higher gain percentage. If there is too much detail or if the screen is cluttered, lowering the sensitivity may increase the clarity of the display.

5. Target Level — adjusts which colors/shades are used to display sonar information. A Color Bar (see pg. 11) appears on the right side of the screen as you adjust this setting. A higher percentage results in more strong-signaled colors/shades (see pg. 6) displayed on the sonar graph. A lower percentage results in more weaker-signaled colors/shades (see pg. 6) displayed on the sonar graph. This setting does not increase/decrease the unit Gain.

6. Whiteline — controls how the unit displays information about the bottom type (hard or soft). With the Whiteline 'Off', the bottom return displays as black (red). With Whiteline set at 'Normal' or 1-100%, this option can be used to determine bottom hardness. See page 28 for more detail on this feature.

7. Frequency — allows you to choose a transducer frequency. Frequency refers to the "pitch" of the sound that the transducer sends and receives. You may choose '200kHz', '50kHz' or 'Dual' frequency.

8. Depth Line — adds a horizontal depth line across the display which is used to measure the depth of underwater objects. The depth of the line appears in a box on the right side of the line. Press UP or DOWN on the **ARROW KEYPAD** to control the position of the line on the graph.

9. Noise Reject — helps filter unwanted noise from the graph. The 'Noise Reject' tool can be turned 'Off', set to 'Normal' (automatically adjusts for optimum viewing) or to a fixed 1-100% setting. When setting the Noise Reject tool: the HIGHER the noise rejection setting, the unit is more likely to NOT show fish or structure.

10. Scroll — adjusts the rate that the graph scrolls from right to left. If you are sitting still or the graph is moving too fast, slowing the scroll rate or pausing it can be beneficial.

Sonar Page Options

The GPSMAP 2006/2010's Sonar Page features **SOFT KEYS** that provide access to additional functions, set up and layout/data field options.

To select a SOFT KEY option:

1. Press the **SOFT KEY** below the desired option.

The following options are available:

• **Pointer On/Off —** allows you to reference sonar items and mark underwater waypoints. This makes it easier to find and use an object such as a stump for a future fishing location. When using this feature, the Sonar Page pauses. The pointer does not move off the paused display and cannot show an area that has scrolled off the screen. The depth continues to update while the display is paused, but the unit does not show any new sonar data until the standard Sonar Page is resumed. You may see a discontinuity from where the sonar information stops to where it starts again.

To mark an underwater waypoint:

1. From the Sonar Page, press the 'Pointer On' **SOFT KEY** to pause the screen movement.
2. Use the **ARROW KEYPAD** to move the cursor onto the target (underwater drop off, stump, etc..) you want to mark. A data field appears with the cursor's depth, coordinates, and bearing and distance from your current position.
3. Press **ENTER/MARK**. The New Waypoint page appears with the waypoint's coordinates, default three-digit name, and pointer depth automatically filled in.
4. To change the name, symbol or depth, highlight the appropriate field and press **ENTER/MARK**. Make your changes and press **ENTER/MARK** when done. (contd.)
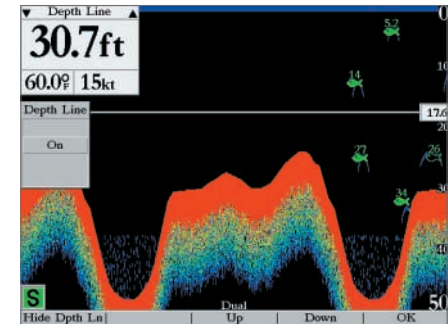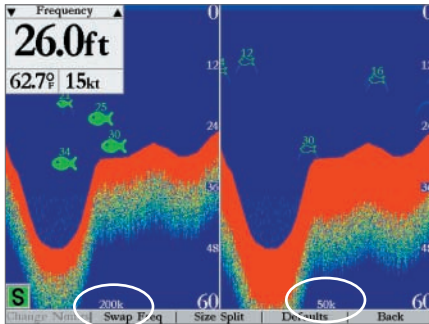
Sonar Page with Depth Line showing.

Pointer

Marking an underwater waypoint

Swap Frequencies. You may only use this option when 'Dual Frequency Display' is set to 'Split' in the Sonar Setup.

'Set Up Sonar' Main Menu Tab

5. When done, move the field highlight back to the 'OK' prompt and press **ENTER/MARK**.
6. To return to the standard Sonar Page, press **QUIT** or press the 'Pointer Off' **SOFT KEY**.

• **Show/Hide Nmbrs (Numbers) —** toggles showing/hiding the data fields on the sonar display.

• **Set Up Page —** allows you to adjust the Sonar Page layout to your preferences, including changing data field numbers, swapping frequencies, restoring defaults and sizing the sonar split. Press the 'Back' **SOFT KEY** to return to the Sonar Page. The Set Up Page options are:

   Change Nmbrs (Numbers) —allows you to specify the type of data displayed in each data field. For detailed instructions on changing the data fields on the Sonar Page, see the Owner's Manual.

   Swap Freq (Frequencies) — when 'Dual Frequency Display' is set to 'Split' in the Sonar Setup, this option toggles showing 200 and 50kHz data in either the left or right split screen. The frequency shown on the left split is used for the Map Page sonar split and data windows showing sonar information.

   Size Split — enables width adjustment of the Sonar Page split screen. This option is only available when a zoom scale other than 'No Zoom' is selected or 'Dual Frequency Display' is set to 'Split' in the Sonar Setup. You may adjust the size of the split window anywhere from 1/4 to 3/4 width from the right half of the Sonar Page.

   To resize the Sonar Page split screen:
   1. From the Sonar Page split screen, press the 'Set Up Page' **SOFT KEY**.
   2. Press the 'Size Split' **SOFT KEY**.
   3. Move the horizontal double-arrow LEFT or RIGHT using the **ARROW KEYPAD** until the desired vertical width line shows, then press **ENTER/MARK** or press the 'Accept Resize' **SOFT KEY**. You may also press the '50/50' **SOFT KEY** to equally proportion the sonar windows.
   4. If you wish to cancel this operation, press **QUIT** or press the 'Cancel Resize' **SOFT KEY**.

   Defaults — restores factory settings to the Set Up Page options only.

• **Set Up Sonar —** contains the unit settings that should not require frequent change. The Sonar setup menu contains settings for Fish Symbols, Water Type, Depth Number, Dual Frequency Display, Scale, Color Bar, Flasher, Keel Offset, Map Split Sonar Detail, Temperature Graph, Background Color (Color Models Only) and Calibration of Water Speed (only if equipped with speed transducer).

To enter the Sonar setup menu, press the 'Set Up Sonar' **SOFT KEY**. You may also press **MENU** once from any screen, then highlight the 'Sonar' tab using the **ARROW KEYPAD**. Press the RIGHT arrow to access the selection fields. Each time the Set Up Menu is accessed, the unit returns to the last edited selection field.

To change a setting on the Sonar tab:
1. Using the **ARROW KEYPAD**, highlight the desired field and press **ENTER/MARK** and the available options appears.
2. Highlight the desired setting and press **ENTER/MARK**.
3. Press **QUIT** to return to the Sonar Page or previous page.

The available Sonar tab options are:

- **Fish Symbols —** allows the user to determine how the graph displays underwater targets and background information. If Fish Symbols are set to 'Off', the unit displays all of the available information about the underwater environment. If a fish symbol is selected, the graph displays only the information related to that symbol. Actual fish returns may not always appear as perfect arches (like in simulator mode), due to the speed, fish orientation and/ or other conditions.

- **Water Type —** since sound waves travel through 'Fresh' and 'Salt' water at different rates, it is necessary to select the 'Water Type' to ensure accurate readings on the unit.

- **Depth Number —** controls the efficiency of the digital depth update rate.' Fast Update' updates quicker and is recommended for low-noise, deeper water (>50 ft.). 'Auto' is best for shallow water or high noise areas, has a slower screen update and is best used if you travel a wide variety of depths.

⚠️ *If the unit is unable to track the bottom for any reason, the digits in the depth window flash on and off to alert the user that the unit is not tracking the bottom.*

- **Dual Frequency Display —** allows you to show 200kHz and 50kHz data either together or split on the display. Choose 'Merge' to show both and 'Split' to separate the 200/50kHz data.

- **Scale —** controls the depth 'Scale' displayed vertically along the right side of the graph. The depth 'Scale' can be configured to display four different ways: as an 'Overlay', in the 'Corners', with 'Basic' or 'No Scale'.

- **Color Bar —** shows a gradient scale of the current Target Level setting (see page 8).

Off *Fish Symbols Off— All available information is displayed.*

Suspended targets display as fish symbols. Background information is also displayed.
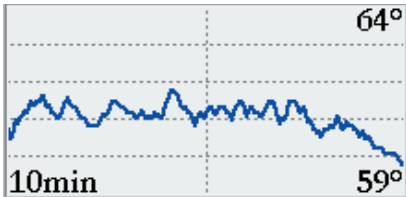
Same as above with the target depth attached.

Suspended targets display as fish symbols. No background information is displayed.

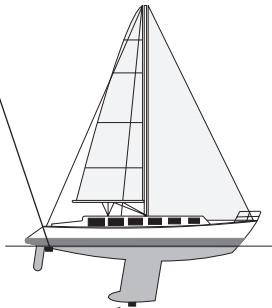*Same as above with target depth attached.*

You may display a Temp Log in a data field to show a plot of the transducer temperature reading over a specified period of time.

Transducer at Surface
Enter (+) positive number to show depth from bottom of keel

Transducer at Bottom of Keel
Enter (-) negative number to show depth from surface

- **Flasher —** with the 'Flasher' active, a graphic Flasher representation is displayed on the far right side of the graph. This graphic Flasher displays structure and bottom returns much the same as a true Flasher. You may find this feature particularly useful when using 'Fish Symbols'.

- **Keel Offset —** allows the user to offset the surface reading for the depth of a keel. This makes it possible to measure depth from the bottom of your keel instead of from the transducer's location. Enter a positive number to offset for a keel. It is also possible to enter a negative number to compensate for a large vessel that may draw several feet of water. The 'Keel Offset' is reflected in the depth reading.

- **Map Split Sonar Detail —** controls Map Page and data field sonar display. 'Full Range'— shows data using 'Range' setting of the Sonar Page, regardless of Zoom or Bottom Lock. 'Maximum Detail'— shows any Zoom or Bottom Lock data from the Sonar Page.

- **Temperature Graph —** toggles On or Off the display of a temperature graph on the Sonar Page.

- **Background Color (Color Models Only) —** allows you to change the background color of the sonar display and map/sonar split. Choices are Black, Blue or White.

- **Calibrate Water Speed (Soft Key) —** *this is only available if you are using a speed-capable transducer/sensor.* Calibration is required to ensure that the Water Speed displayed on your unit is accurate. The unit automatically uses the GPS ground speed, if it is available, for comparison on the calibration. If a GPS ground speed is not available, use either your boat's speedometer reading (not always accurate) or a stopwatch to determine your speed over a certain distance (distance / time = speed). It is recommended that the calibration take place in water having little or no current.

To calibrate the water speed:

1. From the 'Sonar' tab, press the 'Cal Water Spd' **SOFT KEY**.

2. Bring the boat to a cruising speed. Both the top ground and uncalibrated water speeds are shown at the bottom of the calibration window. Note your top speed, then stop the boat and press **ENTER/MARK**.

3. By default, the top ground speed automatically shows in the 'What was your top water speed?' field. If a ground speed is not available, the top uncalibrated water speed is used instead. If the new speed is correct, highlight 'OK' and press **ENTER/MARK**. If you wish to manually enter a calibration, press **ENTER/MARK** on the speed field, enter a new speed and press **ENTER/MARK**.

4. You may also press the **SOFT KEY** labeled 'Use GPS Spd' to default back to ground speed or 'Use No Cal' to use the speed sensor's uncalibrated speed.

⚠ *If the boat is not moving fast enough or the speed sensor is not outputting a speed, a "Boat Is Not Moving Fast Enough To Calibrate" message at the bottom of the display. Check that the speed sensor wheel is moving or safely increase boat speed. If there is a problem with the speed sensor/unit or if a speed senor is not installed, a "Water Speed Sensor Is Not Working" message appears at the bottom of the display. Check connections of speed sensor cables.*

• **Defaults (Soft Key) —** restores Sonar Tab settings to original factory setup.

Main Menu Page

The Main Menu Page provides access to various waypoint, system, navigation and interface management, and setup menus in an easy to use "tab" format. The Main Menu page is available from any page in the GPSMAP 2006/2010's system, and is accessed through the **MENU** key.

Additional sonar related alarms have been added for the GSD 20 to the Alarms Tab and a new Temp (Temperature) tab has been added to allow configuration of the water temperature graph. See the Owner's Manual for additional information on all other Main Menu options and settings.
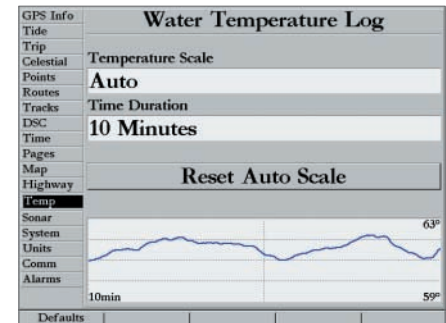
To access the Main Menu Page:

1. Press **MENU** once. The Menu tabs are divided into categories by function.

Temp (Temperature) Tab — displays the water temperature log (if equipped with a temperature transducer/sensor or receiving sonar NMEA input). The graph reads from right to left, so that the most recent temperature measured is displayed on the far right side of the graph. The dotted lines within the graph indicate intervals in the temperature scale and the duration of time. The following settings are available:

• **Temperature Scale —** sets the temperature range (in degrees) for displaying the log. Select 'Auto' to have the unit automatically determine the best range, or select a span of 2, 4, 6, 8 or 10 degrees.

• **Time Duration —** sets how fast or slow the temperature log scrolls; the shorter the time duration, the faster the temperature log scroll. Select a duration from 1 minute to 2.5 hours.

• **Reset Auto Scale —** resets the scale range for the temperature graph. This is useful when the scale spans a large range due to extreme temperature changes. Only shows when Temp Scale is set to 'Auto'.
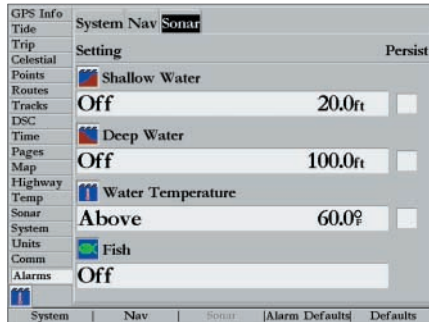

Main Menu Page

Temp (Temperature) Tab

Alarms Tab - Sonar Alarms

Alarm Tab — allows you to define additional sonar alarm settings for Shallow Water, Deep Water, Water Temperature and Fish alerts. If 'Persist' is checked, the alarm continues to display until acknowledged.

- **Shallow Water/Deep Water —** set alarms to sound when you enter an area of specified depth that is too shallow and/or too deep. You must be receiving sonar data for this function to work.
- **Water Temperature —** sets an alarm to sound when the transducers reports a temperature either Above, Below, Inside or Outside of the specified values.
- **Fish —** sets alarm to sound when unit detects a fish of the specified symbol size.

To set an alarm:

1. Use the **ARROW KEYPAD** to highlight the 'Sonar' tab at the top of the display.
2. Use the **ARROW KEYPAD** to highlight the field below the alarm name you wish activate and press **ENTER/MARK**.
3. Change the mode to 'On' and press **ENTER/MARK**.
4. Highlight the next field to the right and press **ENTER/MARK**, then enter the desired settings and press **ENTER/MARK** to finish.
5. If you wish the alarm to display and beep until acknowledged, highlight the 'Persist' box and press **ENTER/MARK** to place a check in the box.

Powering On the System- GPSMAP 182/182C/232

This section covers the additional sonar options for the GPSMAP 182/182C/232 series only. When you power up your GPSMAP unit, the GSD 20 automatically powers on. A welcome page appears, showing all devices that are attached. In the lower right of the window, read and acknowledge important information regarding the proper use of the unit. After reading the welcome, press the **ENTER/MARK** key if you agree.

Next you may see (depending how quickly the unit acquires a position fix) the GPS Info window which provides a visual reference of satellite acquisition, GPS receiver status, and accuracy.

The Map Page is one of six main pages used in the GPSMAP 182/182C/232's system. The six main pages are the Map Page, Sonar Page, Compass Page, Numbers Page, Highway Page, and Active Route Page. All six pages are linked together in a simple chain, which allows you to scroll through the pages in either direction using the **PAGE** and **QUIT** keys.


Map Page   Sonar Page   Compass Page   Numbers Page   Highway Page   Active Route Page
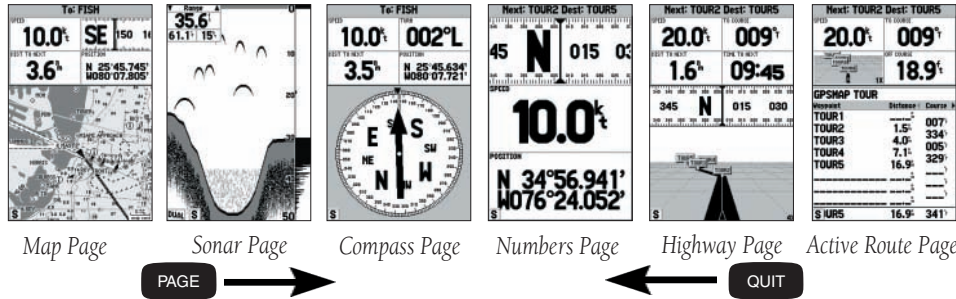
Map Page

The GPSMAP 182/182C/232 Map Page combines digital chartplotting with a user-selectable display of navigation data and a built-in worldwide database. It is also the page you use most to create and edit waypoints and routes.

The map display shows your "boat" as a triangle marker on an electronically generated chart. Geographic names, roads, markers and buoys that are provided by the optional BlueChart or MapSource data are also shown. It also displays your track, routes and nearby waypoints. An on-screen cursor lets you pan to other map areas, determine the range and bearing to a position, and perform various waypoint and route functions.

The data window, located at the top of the page, provides a user-selectable display of various navigation data, including speed over ground, distance to the next navigation point, compass ribbon and current position coordinates. The current map scale setting is located at the bottom right of the page.
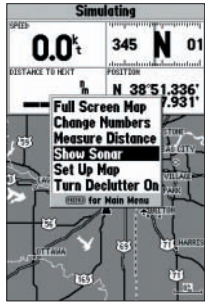
*Map Page Options
(with Numbers shown)*
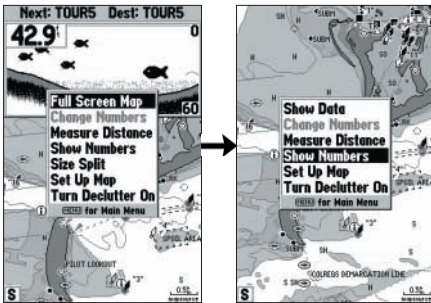
Map Page Options

Many features of the GPSMAP 182/182C/232 are menu driven. Each of the main pages have an options menu, allowing you to custom tailor the corresponding page to your preferences and/or select special features that specifically relate to that page. The data window, located at the top of the main pages provides a user-selectable layout of various types of useful data or sonar information. Each data field may be configured to display any one of several data options. The data window layout may also be changed to display additional data fields and change the actual size of the data displayed.

The GPSMAP 182/182C/232 Map Page provides access to functions and features relating to the Map Page and the layout options.

To display the Map Page options:

1. Press **MENU**.

To select a menu option:

1. Use the **ARROW KEYPAD** to highlight the desired option and press **ENTER/MARK**.

The available options are Full Screen Map/Show Data, Change Numbers, Measure Distance, Show Sonar/Show Numbers, Size Split, Set Up Map and Turn Declutter On/Off. Following are details on using only the Sonar related options. Reference your main Owner's Manual for details on the other options

• **Full Screen Map/Show Data —** toggles between a full screen map or a map with sonar information and/or data fields on the top half of the display. This allows for quick viewing of a full screen map.

• **Show Sonar/Show Numbers —** toggles between a Map Page with Sonar information on the top portion, or a Map Page with data fields on the top of the display.

• **Size Split —** enables height adjustment of the Map Page sonar split screen. You may adjust the size of the map/sonar split window anywhere from 1/3 to 2/3 height from the top of the screen. You must be showing sonar information to use this option.

To resize the Map Page sonar split screen:

1. From the Map Page split screen, press **MENU**.

2. Highlight 'Size Split' and press **ENTER**.

3. Use the **ARROW KEYPAD** to move the vertical double-arrow UP or DOWN until the desired horizontal height line shows, then press **ENTER**.

Sonar Page

The Sonar Page is where your GPSMAP 182/182C/232 becomes a powerful fishfinder/flasher when combined with a GSD 20. If a GSD 20 is not attached, the Sonar Page only appears when the unit is in Simulator Mode. Or if a GSD 20 is attached, but the unit does not detect a transducer, a "Sonar Turned Off" message appears across the Sonar Page. If in Simulator mode, a 'Running Simulator' message appears after 2 minutes of inactivity.
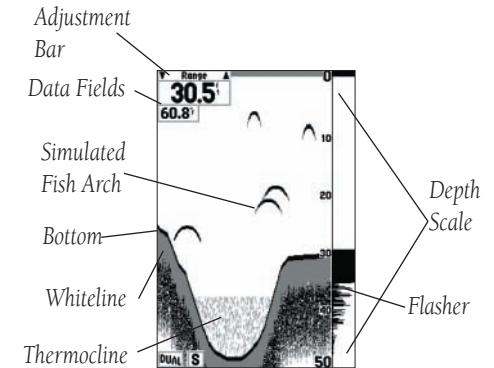
The top left of the screen contains data fields, while the currently selected Adjustment (see pg. 18) option appears in the upper left of the display. The middle of the page contains a right-to-left moving sonar image of the water beneath your boat. (Note: Items appear as they pass under your transducer. Those items on the right side of the screen are closer to you than those on the left.) Along the right side of the screen is an adjustable scale which reflects the depth of the area being displayed.

The sonar display may also be set to show a split screen view of a zoomed portion of the sonar, bottom lock (display scaled from the bottom up) or a combination of these options. (see pg. 18-19) For example, you may choose to show dual frequency at a 2X zoom (Dual 2X) on one half and normal range dual frequency (Dual) returns on the other half. The current display mode is displayed at the bottom of each sonar display.
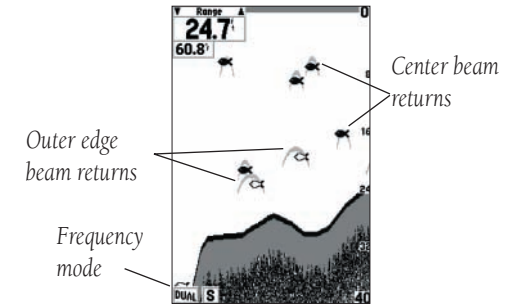
On color models, the sonar returns show as red (strongest), then oranges (strong), yellows (medium), greens (weaker) and blues (weakest). On grayscale models, stronger returns appears darker and weaker returns lighter. The 'Fish Symbols' option (see page 22) allows you to view the actual sonar data, a fish symbol or a combination of both. 'Fish Symbols' appears as black on grayscale units and green on color models. When the unit is set to 'Dual' (see page 20), the appearance of the fish symbols (and simulated arches) changes. Fish symbols from the center of the beam (200kHz) are solid (or narrow arches), but the returns from the edges of the beam (50kHz) are hollow (or wide arches). Simulated fish are displayed as an arch or a fish icon in three different sizes. Actual fish returns may not always appear as perfect arches (like in simulator mode), due to the speed, fish orientation and/ or other conditions.

More on understanding the sonar may be found on pages 25-28.
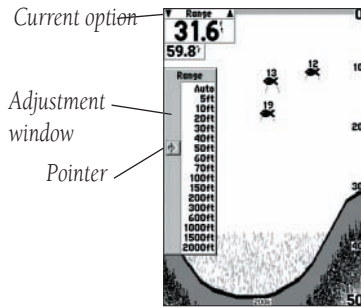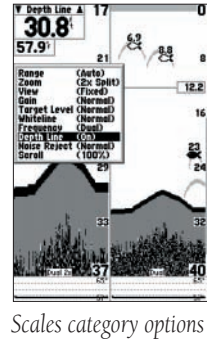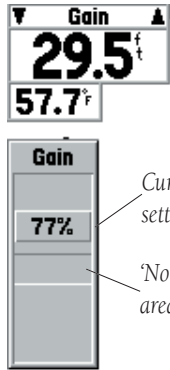
Adjustment Bar
Data Fields
Simulated Fish Arch
Bottom
Whiteline
Thermocline
Depth Scale
Flasher

Sonar Page

Center beam returns
Outer edge beam returns
Frequency mode

Dual frequency returns

Current adjustment setting

'Normal' setting area

Scales category options

Current option

Adjustment window

Pointer

Using the Adjustment Menu

The Adjustment Menu allows direct access to the settings and features most commonly used on the Sonar Page. There are 10 main adjustment options available: Range, Zoom, View, Gain, Target Level, Whiteline, Frequency, Depth Line, Noise Reject and Scroll. All adjustments may be made using the **ARROW KEYPAD** and **ENTER/MARK** key. The currently selected option appears in the upper left of the display with and up and down arrow on each side of the name. There are two ways to access an adjustment option from the Sonar Page:

To change an Adjustment Menu setting:

1. Press the **MENU** key, then highlight 'Adjustments' and press **ENTER/MARK** to bring up a list of all options and their current settings. The adjustment window automatically times out and disappear when idle for 20 seconds. Highlight the desired option to change and press **ENTER/MARK** to bring up the setting bar.

2. With the **ARROW KEYPAD**, move UP or DOWN and place the setting bar at the desired percentage (Off, 1-100%), setting or range. To change a setting to 'Normal' or 'Auto', hold UP or DOWN on the **ARROW KEYPAD** until the setting bar reaches the top or bottom of the scale, release, then press once more in the same direction. When changing the 'Normal' adjustments, an open space appears on the scale to show where the of 'Normal' or default setting would appear. Once set to 'Normal', the setting bar is replaced by the word 'Normal'. You may also press the **MENU** key and highlight the desired shortcut setting to quickly change to commonly used settings/values.)

3. Press **ENTER/MARK** to accept the new setting (or press **QUIT** to cancel) and return to the Sonar Page.

For users accustomed to other Garmin sonar products, the current adjustment appears in the upper left corner. For fast adjustment from the Sonar Page, press LEFT or RIGHT on the **ARROW KEYPAD** to scroll through the options, then press UP or DOWN on the **ARROW KEYPAD** to immediately change the current option or the **ENTER/MARK** key to review the current setting before making changes.

Adjustment Options

The Adjustment Menu allows direct access to the settings and features most commonly used on the Sonar Page. These available adjustments are:

- **Range —** sets the display depth range used for viewing. The unit can be set to automatically track the bottom or set to a user-specified depth range.

- **Zoom —** used to quickly select a display zoom scale or to split the display. When a scale other than 'No Zoom' is selected, the Adjustment Menu displays a new selection labeled View or Span. The Zoom function is divided into six display levels:

2X Split — Shows two reduced-size sonar pictures at the same time. The right half of the display screen shows the complete sonar picture at its original scale. The left half shows a portion of the original picture at 1/2 depth scale.

2X Zoom — Displays the 2X zoomed picture on the full screen and does not show the original scale picture.

4X Split — Shows two reduced pictures, the right at the original depth scale and the left at 1/4 the original depth scale.

4X Zoom — Displays only the 4X zoomed picture on the full screen.

Btm (Bottom) Split — Shows two reduced pictures, the right at the original depth scale and the left showing sonar returns from the bottom up. All target depths read as a distance from the bottom.

Btm (Bottom) Lock — Displays only the Bottom Lock (returns from the bottom up) picture on the full screen.

Once activated, the zoomed picture becomes the Sonar Page display. Note: The Zoom function can be deactivated by pressing the **OUT** key until the 'No Zoom' setting appears.

• **View/Span —** available when a Zoom scale other than 'No Zoom' is selected. The 'View' or 'Span' setting is used to change the viewing range of a zoomed display. If the display is 2X or 4X split, only the zoomed portion on the left side of the display is affected by the change. If the display is Bottom Split or Bottom Lock, 'Span' adjusts how far off the bottom the unit displays data.

• **Gain —** allows the user to control the sensitivity of the unit's receiver. This provides some flexibility in what is seen on the display. To see more detail, increase the receiver sensitivity by selecting a higher gain percentage. If there is too much detail or if the screen is cluttered, lowering the sensitivity may increase the clarity of the display.

• **Target Level —** adjusts which colors/shades are used to display sonar information. A Color Bar (see pg. 22) appears on the right side of the screen as you adjust this setting. A higher percentage results in more strong-signaled colors/shades (see pg. 17) displayed on the sonar graph. A lower percentage results in more weaker-signaled colors/shades (see pg. 17) displayed on the sonar graph. This setting does not increase/decrease the unit Gain.
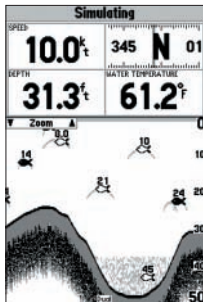

2X Zoom View

Depth Line

Normal View
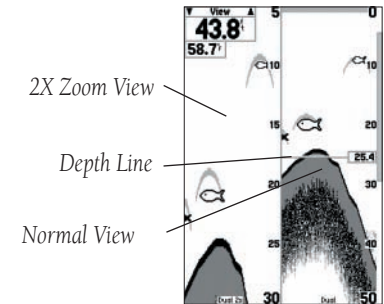
Sonar 2X Split Screen
(shown with Depth Line)

Bar represents area shown on 2X View
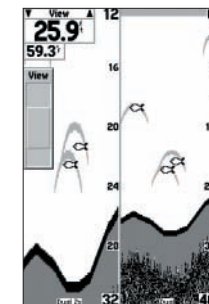
Sonar View Adjustment

Sonar Page Options Menu

Sonar Page With 'Show Numbers'

• **Whiteline —** controls how the unit displays information about the bottom type (hard or soft). With the Whiteline 'Off', the bottom return displays as black (red). With Whiteline set at 'Normal' or 1-100%, this option can be used to determine bottom hardness. See page 28 for more detail on this feature.

• **Frequency —** allows you to choose a transducer frequency. Frequency refers to the "pitch" of the sound that the transducer sends and receives. You may choose '200kHz', '50kHz' or 'Dual' frequency.

• **Depth Line —** adds a horizontal depth line across the display which is used to measure the depth of underwater objects. The depth of the line appears in a box on the right side of the line. Press UP or DOWN on the **ARROW KEYPAD** to control the position of the line on the graph.

• **Noise Reject —** helps filter unwanted noise from the graph. The 'Noise Reject' tool can be turned 'Off', set to 'Normal' (automatically adjusts for optimum viewing) or to a fixed 1-100% setting. When setting the Noise Reject tool: the HIGHER the noise rejection setting, the unit is more likely to NOT show fish or structure.

• **Scroll —** adjusts the rate that the graph scrolls from right to left. If you are sitting still or the graph is moving too fast, slowing the scroll rate or pausing it can be beneficial.

Sonar Page Options

The GPSMAP 182/182C/232 Sonar Page features a menu page that provides access to additional functions and to layout and data field options.

To display the Sonar Page options:

1. Press **MENU**.

To select a menu option:

1. Use the **ARROW KEYPAD** to highlight the desired option and press **ENTER/MARK**.

The following options are available:

• **Adjustments —** allows direct access to the most commonly used sonar settings and features (see pg. 18).

• **Show/Hide Pointer —** allows you to reference sonar items and mark underwater waypoints. This makes it easier to find and use an object such as a stump for a future fishing location. When using this feature, the Sonar Page pauses. The depth continues to update while the display is paused, but the unit does not show any new sonar data until the Sonar Page is unpaused. You may see a discontinuity from where the sonar information stops to where it starts again.

To mark an underwater waypoint:

1. From the Sonar Page, press **MENU**, highlight 'Show Pointer' and press **ENTER/MARK** to pause the screen movement.

2. Use the **ARROW KEYPAD** to move the cursor onto the target (underwater drop off, stump, etc..) you want to mark. A data field appears with the cursor's depth, coordinates, and bearing and distance from your current position.

3. Press **ENTER/MARK**. The New Map Waypoint page appears with the waypoint's coordinates, default three-digit name, and pointer depth automatically filled in.

4. To change the name, symbol or depth, highlight the appropriate field and press **ENTER/MARK**. Make your changes and press **ENTER/MARK** when done.

5. When done, move the field highlight back to the 'OK' prompt and press **ENTER/MARK**.

6. To return to the standard Sonar Page, press **QUIT** or press **MENU**, highlight 'Hide Pointer' and press **ENTER/MARK**.

• **Show/Hide Numbers —** toggles between a Sonar Page without or with configurable data fields on the sonar display.

• **Change Numbers —** allows you to specify the type of data displayed in each data field. For detailed instructions on changing the data fields, see the Chartplotter Owner's Manual.

• **Size Split —** enables width adjustment of the Sonar Page split screen. This option is only available when a zoom scale other than 'No Zoom' is selected. You may adjust the size of the split window anywhere from 1/4 to 3/4 width from the right half of the Sonar Page.

To resize the Sonar Page split screen:

1. From the Sonar Page split screen, press **MENU**.

2. Using the **ARROW KEYPAD**, highlight 'Size Split' and press **ENTER/MARK**.

3. Move the horizontal double-arrow LEFT or RIGHT using the **ARROW KEYPAD** until the desired vertical width line shows, then press **ENTER/MARK**.

4. If you wish to cancel this operation, press **QUIT** or press **MENU**, highlight 'Stop Resizing' and press **ENTER/MARK**.

• **Set Up Sonar —** contains the unit settings that should not require frequent change. The Sonar setup menu contains settings for Fish Symbols, Water Type, Depth Number, Scale, Color Bar, Flasher, Keel Offset, Map Split Sonar Detail, Temperature Graph, Background Color and Calibration of Water Speed. (contd.)
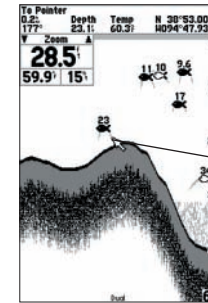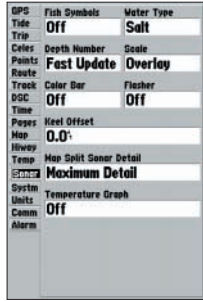
Use the ARROW KEYPAD to point to an underwater target.
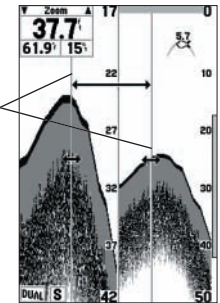
You may resize the split line to the left or right.

Sonar Menu Tab Options

 Fish Symbols Off— All available information is displayed.

 Suspended targets display as fish symbols. Background information is displayed.

 Same as above with the target depth attached.

 Suspended targets display as fish symbols. No background information is displayed.

 Same as above with target depth attached.

To enter the Sonar setup menu, press the **MENU** key from the Sonar Page, highlight 'Set Up Sonar' and press **ENTER/MARK**. You may also press **MENU** twice from any screen, then highlight the 'Sonar' tab using the **ARROW KEYPAD**. Press the RIGHT arrow to access the selection fields. Each time the Setup Menu is accessed, the unit returns to the last edited selection field.

To change a setting on the Sonar tab:
1. Using the **ARROW KEYPAD**, highlight the desired field and press **ENTER/MARK** and the available options appears.
2. Highlight the desired setting and press **ENTER/MARK**.
3. Press **QUIT** to return to the Sonar Page or previous page.

The available Sonar tab options are:

- **Fish Symbols —** allows the user to determine how the graph displays underwater targets and background information. If Fish Symbols are set to 'Off', the unit displays all of the available information about the underwater environment. If a fish symbol is selected, the graph displays only the information related to that symbol. Actual fish returns may not always appear as perfect arches (like in simulator mode), due to the speed, fish orientation and/ or other conditions.

- **Water Type —** since sound waves travel through 'Fresh' and 'Salt' water at different rates it is necessary to select the 'Water Type' to ensure accurate readings on the unit.

- **Depth Number —** controls the efficiency of the digital depth update rate. 'Fast Sonar Update' updates quicker and is recommended for low-noise, deeper water (>50 ft.). 'Auto' is best for shallow water or high noise areas, has a slower screen update and is best used if you travel a wide variety of depths.

⚠ *If the unit is unable to track the bottom for any reason, the digits in the depth window flash on and off to alert the user that the unit is not tracking the bottom.*

- **Scale —** controls the depth 'Scale' displayed vertically along the right side of the graph. The depth 'Scale' can be configured to display four different ways: as an 'Overlay', in the 'Corners', with 'Basic' or 'No Scale'.

- **Color Bar —** shows a gradient scale of the current Target Level setting (see page 20).

- **Flasher —** with the 'Flasher' active, a graphic Flasher representation is displayed on the far right side of the graph. This graphic Flasher displays structure and bottom returns much the same as a true Flasher. You may find this feature particularly useful when using 'Fish Symbols'.

- **Keel Offset—** allows the user to offset the surface reading for the depth of a keel. This makes it possible to measure depth from the bottom of your keel instead of from the transducer's location. Enter a (contd.)
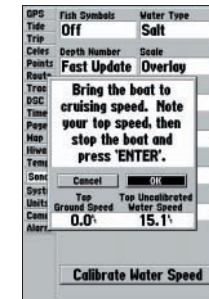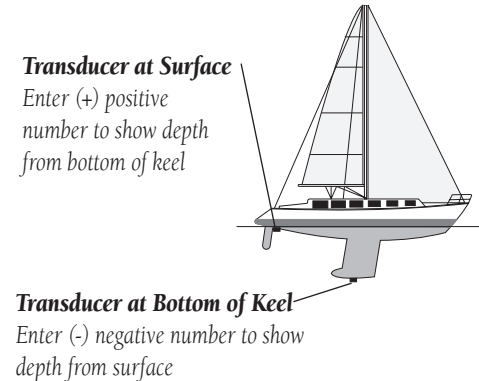
positive number to offset for a keel. It is also possible to enter a negative number to compensate for a large vessel that may draw several feet of water. The 'Keel Offset' is reflected in the depth reading.

- **Temperature Graph —** toggles On or Off the display of a temperature graph on the Sonar Page.

- **Map Split Sonar Detail —** controls Map Page and data field sonar display. 'Full Range'— shows data using 'Range' setting of the Sonar Page, regardless of Zoom or Bottom Lock. 'Maximum Detail'— shows any Zoom or Bottom Lock data from the Sonar Page.

- **Background Color (Color Models Only) —** allows you to change the background color of the sonar display and map/sonar split. Choices are Black, Blue or White.

- **Calibrate Water Speed —** *this is only available if you are using a speed-capable transducer/sensor*. Calibration is required to ensure that the Water Speed displayed on your unit is accurate. The unit automatically uses the GPS ground speed, if it is available, for comparison on the calibration. If a GPS ground speed is not available, use either your boat's speedometer reading (not always accurate) or a stopwatch to determine your speed over a certain distance (distance / time = speed). It is recommended that the calibration take place in water having little or no current.

To calibrate the water speed:

1. From the 'Sonar' tab, use the **ARROW KEYPAD** to highlight 'Calibrate Water Speed' and press **ENTER/MARK**.

2. Bring the boat to a cruising speed. Both the top ground and uncalibrated water speeds is shown at the bottom of the calibration window. Note your top speed, then stop the boat and press **ENTER/MARK**.

3. By default, the top ground speed is automatically shown in the 'What was your top water speed?' field. If a ground speed is not available, the top uncalibrated water speed is used instead. If the new speed is correct, highlight 'OK' and press **ENTER/MARK**. If you wish to manually enter a calibration, press **ENTER/MARK** on the speed field, enter a new speed and press **ENTER/MARK**.

4. You may also press **MENU** from the calibration screen and choose 'Use Top Ground Speed' to default back to ground speed or 'Use No Calibration' to use the speed sensor's uncalibrated speed.
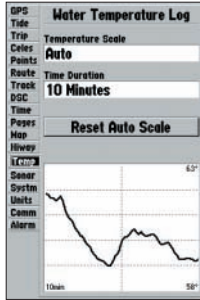
⚠️ *If the boat is not moving fast enough or the speed sensor is not outputting a speed, a "Boat Is Not Moving Fast Enough To Calibrate" message at the bottom of the display. Check that the speed sensor wheel is moving or safely increase boat speed. If there is a problem with the speed sensor/unit or if a speed senor is not installed, a "Water Speed Sensor Is Not Working" message appears at the bottom of the display. Check connections of speed sensor cables.*
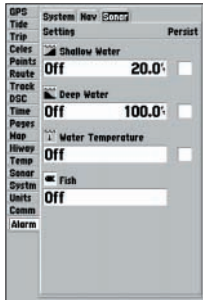
Transducer at Surface
Enter (+) positive number to show depth from bottom of keel

Transducer at Bottom of Keel
Enter (-) negative number to show depth from surface

Calibrating the Speed Sensor

Temp Tab

Sonar Alarms Tab

Main Menu Page

The Main Menu Page provides access to various waypoint, system, navigation and interface management, and setup menus in an easy to use "tab" format. The Main Menu page is available from any page and is accessed through the **MENU** key. Additional sonar related alarms have been added for the GSD 20 to the Alarms Tab and a new Temp (Temperature) tab has been added to allow configuration of the water temperature graph. See the Owner's Manual for additional information on all other Main Menu options and settings.

Temp (Temperature) Tab — displays the water temperature log (if equipped with a temperature transducer/sensor or receiving sonar NMEA input). The graph reads from right to left, so that the most recent temperature measured is displayed on the far right side of the graph. The dotted lines within the graph indicate intervals in the temperature scale and the duration of time. The following settings are available:

- **Temperature Scale —** sets the temperature range (in degrees) for displaying the log. Select 'Auto' to have the unit automatically determine the best range, or select a span of 2, 4, 6, 8 or 10 degrees.

- **Time Duration —** sets how fast or slow the temperature log scrolls; the shorter the time duration, the faster the temperature log scroll. Select a duration from 1 minute to 2.5 hours.

- **Reset Auto Scale —** resets the scale range for the temperature graph. This is useful when the scale spans a large range due to extreme temperature changes. Only shows when Temp Scale is set to 'Auto'.

Alarm Tab — contains setting for the unit's alarms. The Alarm tab is divided into three submenu tabs: System alarms, Nav alarms and Sonar alarms. System and Nav alarms are covered in the main user's manual.

- **Shallow Water/Deep Water —** set alarms to sound when you enter an area of specified depth that is too shallow and/or too deep.

- **Water Temperature —** sets an alarm to sound when the transducer reports a temperature either above, below, inside or outside the specified values.

- **Fish —** sets alarm to sound when unit detects a fish of the specified symbol size.

To set an alarm:

1. Use the **ARROW KEYPAD** to highlight desired submenu tab of the Alarm Tab.
2. Highlight the field below the alarm name you wish activate and press **ENTER/MARK**.
3. Change the mode to the desired setting and press **ENTER/MARK**.
4. Highlight the next field to the right and press **ENTER/MARK**, then enter the desired settings and press **ENTER/MARK** to finish.
5. If you want the alarm to display and beep until acknowledged, highlight the 'Persist' box and press **ENTER/MARK** to place a check mark in the box.

Understanding Sonar

If you are familiar with sonar, and can determine what is on the graph, this section may not be for you. This section is intended to help the novice user gain some understanding of how the GSD 20 Sounder Module operates and how it can help improve their fishing productivity.

To understand what the unit is displaying, it is important to have a general knowledge of how the unit works and how it determines what to display. Briefly described, the unit operates by transmitting sound waves toward the bottom of a lake, stream or seabed in a cone shaped pattern. When a transmitted soundwave strikes an underwater object such as the bottom, a piece of structure, or a fish, sound is reflected back to the transducer. The transducer collects the reflected sound waves and sends the data to the unit to be processed and displayed on the graph. The underwater data is displayed on the graph in the order that it is returned: first returned—first on the graph. The diagram in the sidebar demonstrates this showing an underwater scene as it would be displayed on the graph. Generally speaking, if the only thing between the transducer and the bottom is water, the first strong return comes from the bottom directly below the transducer. The first strong return sets the bottom level. Weaker secondary returns provide the detailed data. Stronger returns display in darker colors, black being the strongest return. In Example 1 (page 26) you can see that the branches and the fish where the strongest secondary returns are indicated in black on the display.

That is brief description of how your GSD 20 Sounder Module operates. Let's take a look at how this data can help you to improve your fishing.
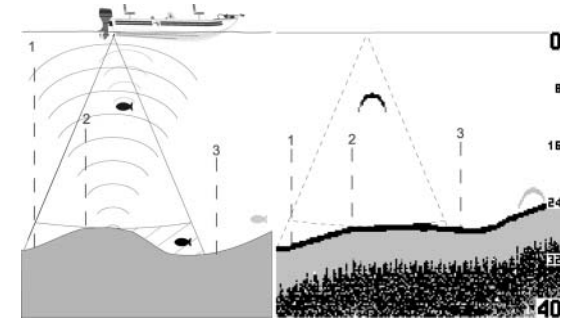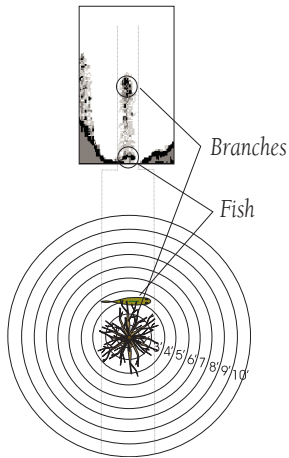
This fish is currently in a dead zone and is not detected by the sonar. The fish is in the coverage area of the transducer, but remember– the first strong return sets the bottom level. The fish is eventually detected when the first strong return sets the bottom level below the fish.
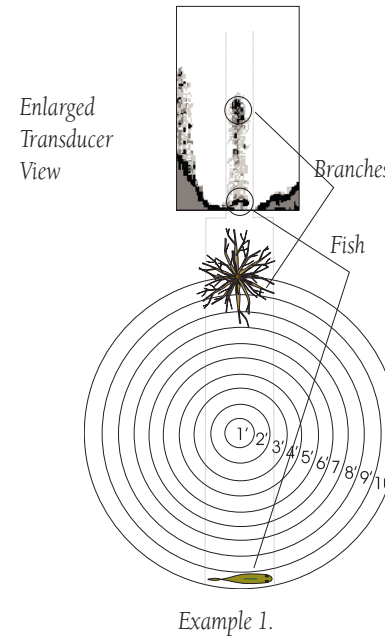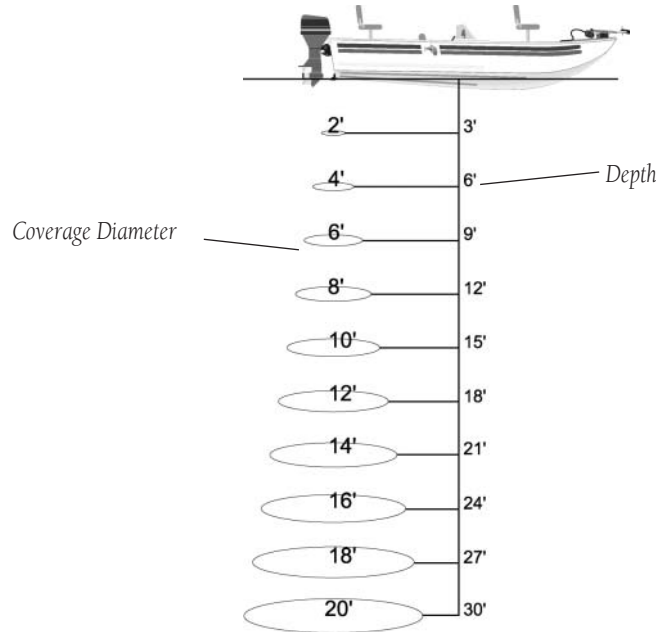
Understanding the Graph

It is important to understand that the unit does not display a 3-D representation of the underwater environment. The unit can display multiple things at the same time, but can not determine where the return originated– only when it was received.

Example 1 provides a look at the underwater world from a top view, and relates that view to what would be displayed on the graph. On the graph it appears the fish and tree are side by side, but when we look at the scene from the top we can see that the fish is several feet from the tree. It is important to remember that the fishfinder can not determine where in the coverage area the tree or fish are, only that the returns were received in the same time frame.

Branches

Fish

Remember that the Fishfinder displays a 2D picture of the underwater environment. The fish and tree could be located anywhere in the coverage area at that time.

Enlarged Transducer View

Branches

Fish

Example 1.

Transducer Coverage

The area covered by the transmitted sound waves is determined by the cone angle of the transducer and the water depth. The wide cone angles associated with low frequencies (40° for 50kHz) provide a large coverage area for finding fish within a coverage width that is approximately 2/3 of the water depth. However, this also means that wide cone angles produce less bottom detail and resolution. As shown in Example 2, the 40° cone angle produces a coverage area of approximately a 20 foot diameter circle at a 30 foot depth. The narrow cone angles associated with the high frequencies (10° for 200kHz) provide better bottom resolution and crisper detail, but cannot show a large coverage area for finding fish. The 10° cone angle provides a coverage width that is approximately 2/10 of the water depth. As shown is Example 3, the 10° cone angle produces a coverage area of approximately a 6 foot diameter circle at a 30-foot depth. The scales to the right and below illustrate how coverage increases as depth increases. Dual frequency mode combines both frequencies to get the best coverage area and contour/depth readings.

Example 2. (40° cone angle)
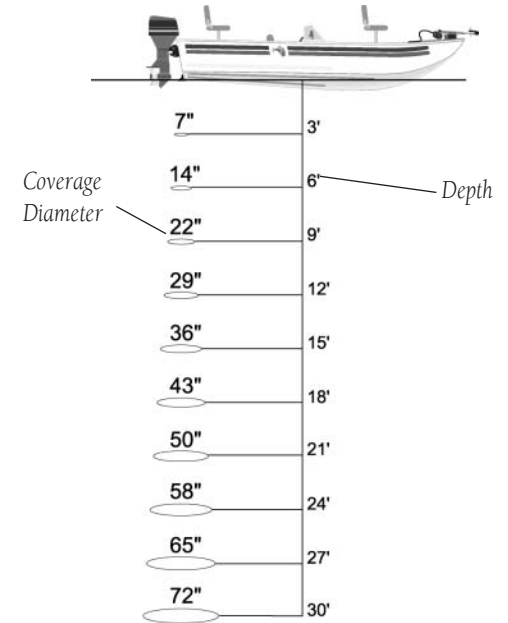
Example 3. (10° cone angle)

Whiteline can also help you to determine the type of bottom structure that is displayed on the graph. By determining the hardness of the structure, you can make a better informed decision on the type of structure.
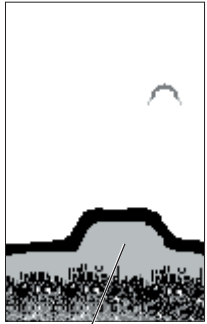

Structure is hard— probably a rock or stump

Structure is soft— probably a mud pile

Whiteline

The GSD 20 Sounder Module can help you to determine if the bottom is hard or soft. When the sonar soundwaves are reflected back by the bottom, a hard bottom returns a stronger signal than a soft bottom. A thin whiteline indicates a softer bottom while a thick whiteline indicates a harder bottom. Normally, A black (red) line is used to show the point where water meets the bottom. This line follows the bottom contour, along with any significant objects lying on the bottom. The unit uses the whiteline function to make this bottom layer information easier to distinguish.
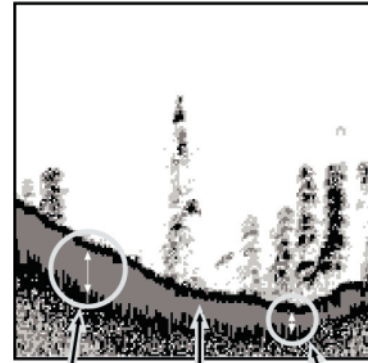

Hard Bottom   Whiteline   Soft Bottom
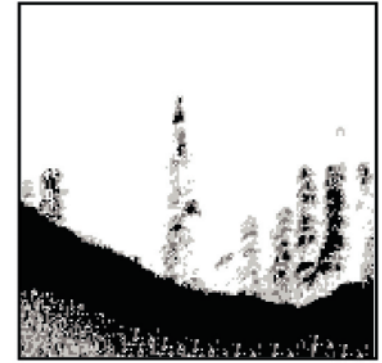
Whiteline Turned Off

With grayscale units, when viewing the display without whiteline active, the bottom return is black. While you can make some determination of the bottom type, the black return makes this more difficult. With the whiteline active, the bottom return appears layered in shades of gray and black and makes determining the bottom type easier and more reliable. With color units, active whiteline helps accentuate where strong signals are located, which make bottom type determination easier. The above example shows the bottom return with and without the whiteline activated.

Thermoclines

One of the unique features offered by Garmin is See-Thru technology. See-Thru technology allows the GSD 20 Sounder Module to "see" through thermoclines and helps locate fish where they live; and fish love the thermocline! A rough definition of a thermocline is a break in water where the water temperature changes faster than the water above it. Thermoclines are shown as the weakest shades/colors (see pg. 6 or 17)

Thermocline
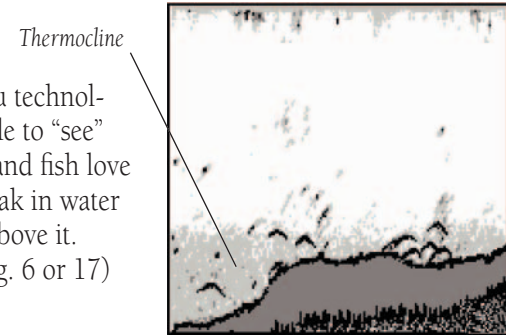
For the latest free software updates (excluding map data) throughout the life of your Garmin products, visit the Garmin web site at www.garmin.com.