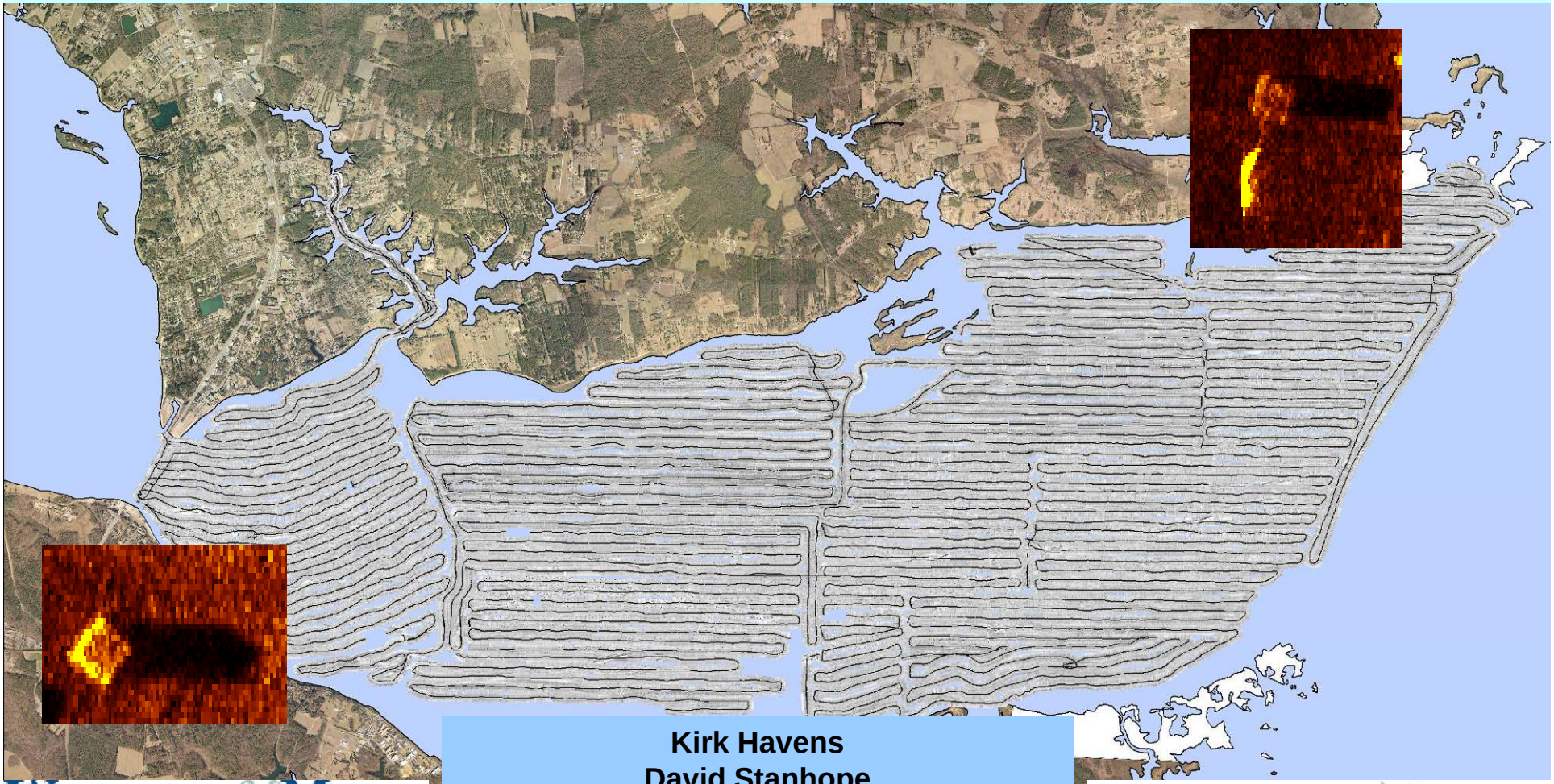
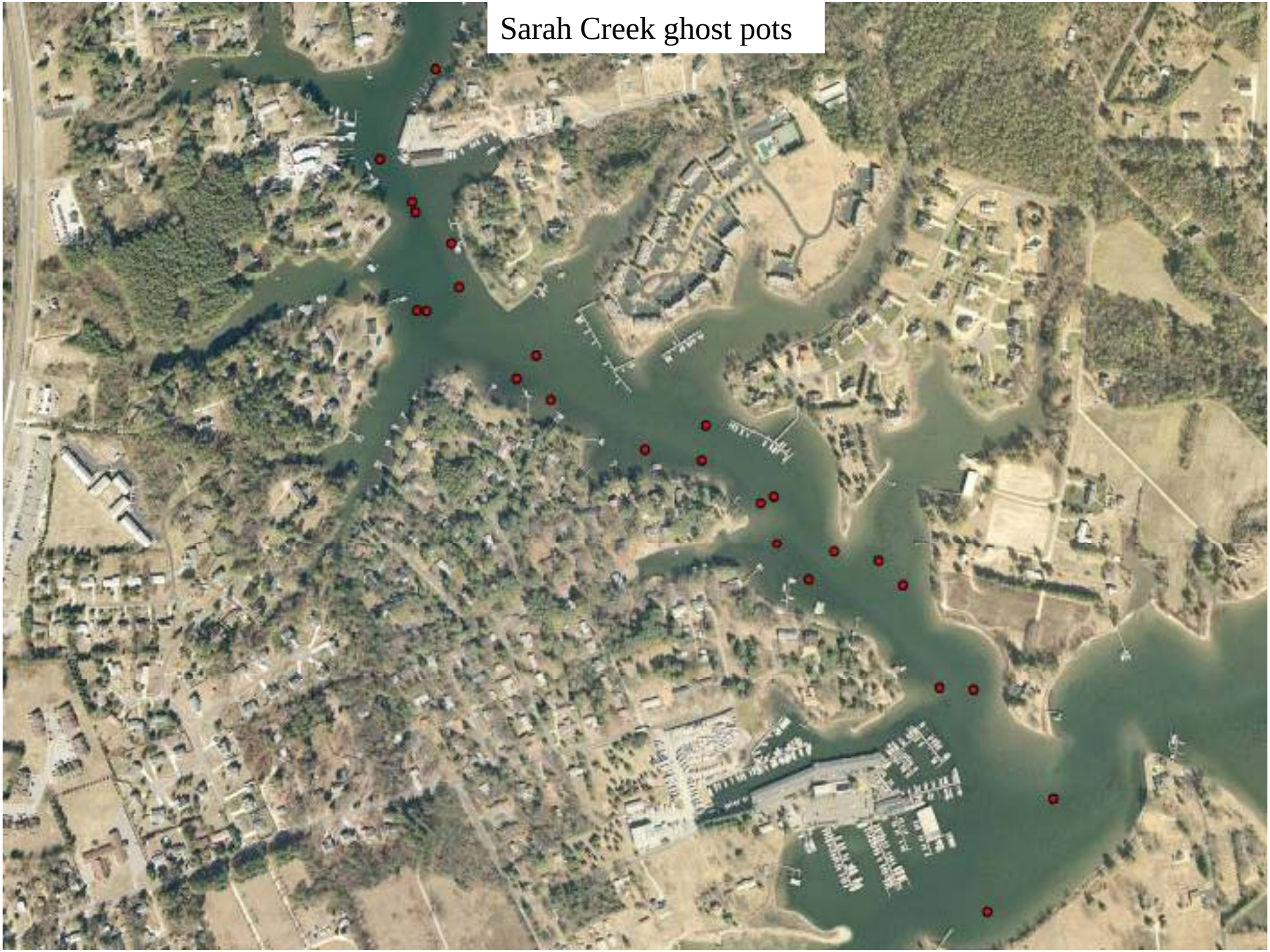
Marine Debris Removal



Kirk Havens
David Stanhope
Kory Angstadt
Center for Coastal Resources Management
Virginia Institute of Marine Science

WILLIAM & MARY
VIMS
VIRGINIA INSTITUTE OF MARINE SCIENCE
SCHOOL OF MARINE SCIENCE

Center for Coastal Resources Management
Virginia Institute of Marine Science


Sarah Creek ghost pots


Ghost pots removed January/February 2006

Derelict traps identified and removed:

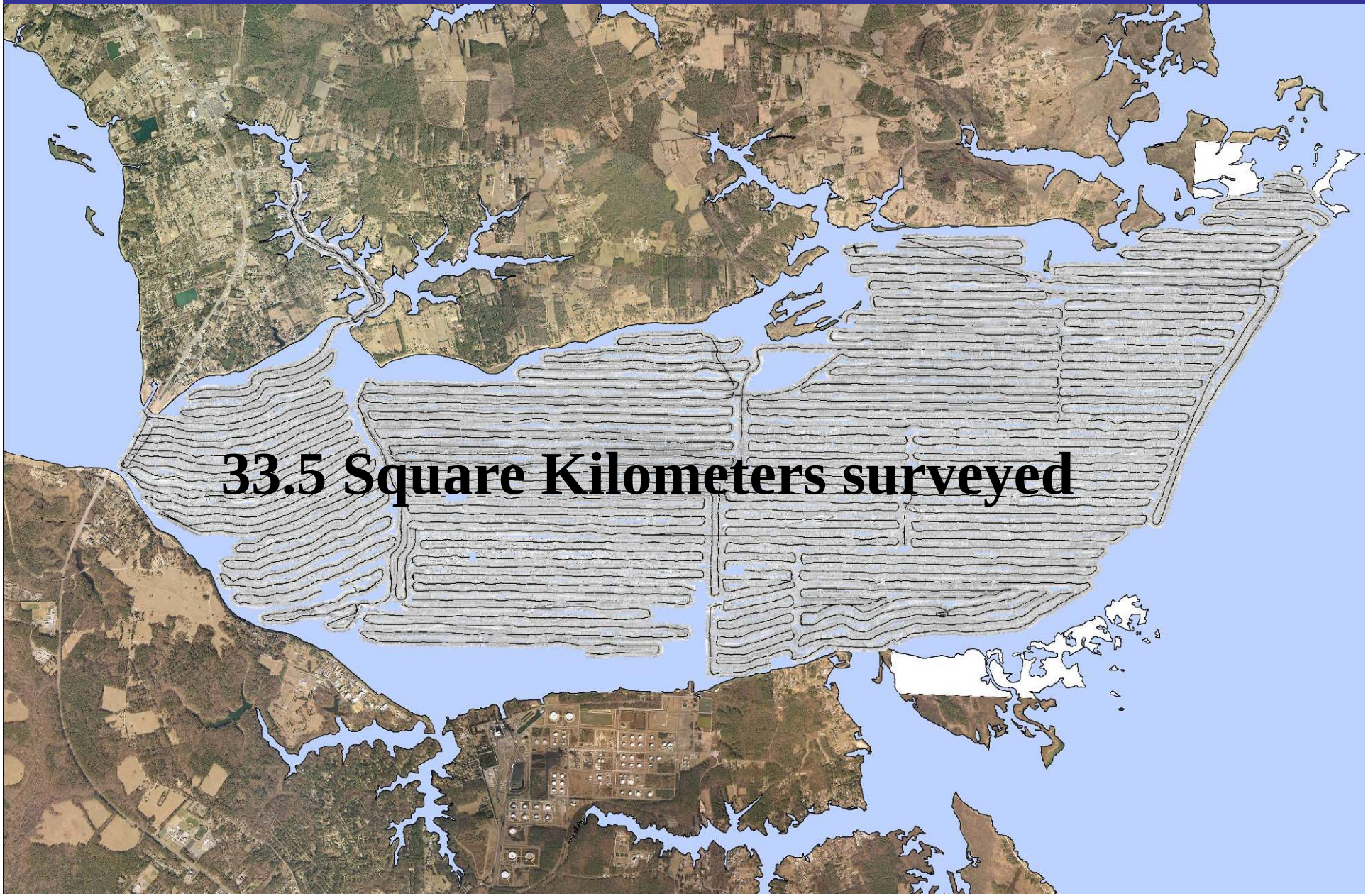
2005 16 derelict traps

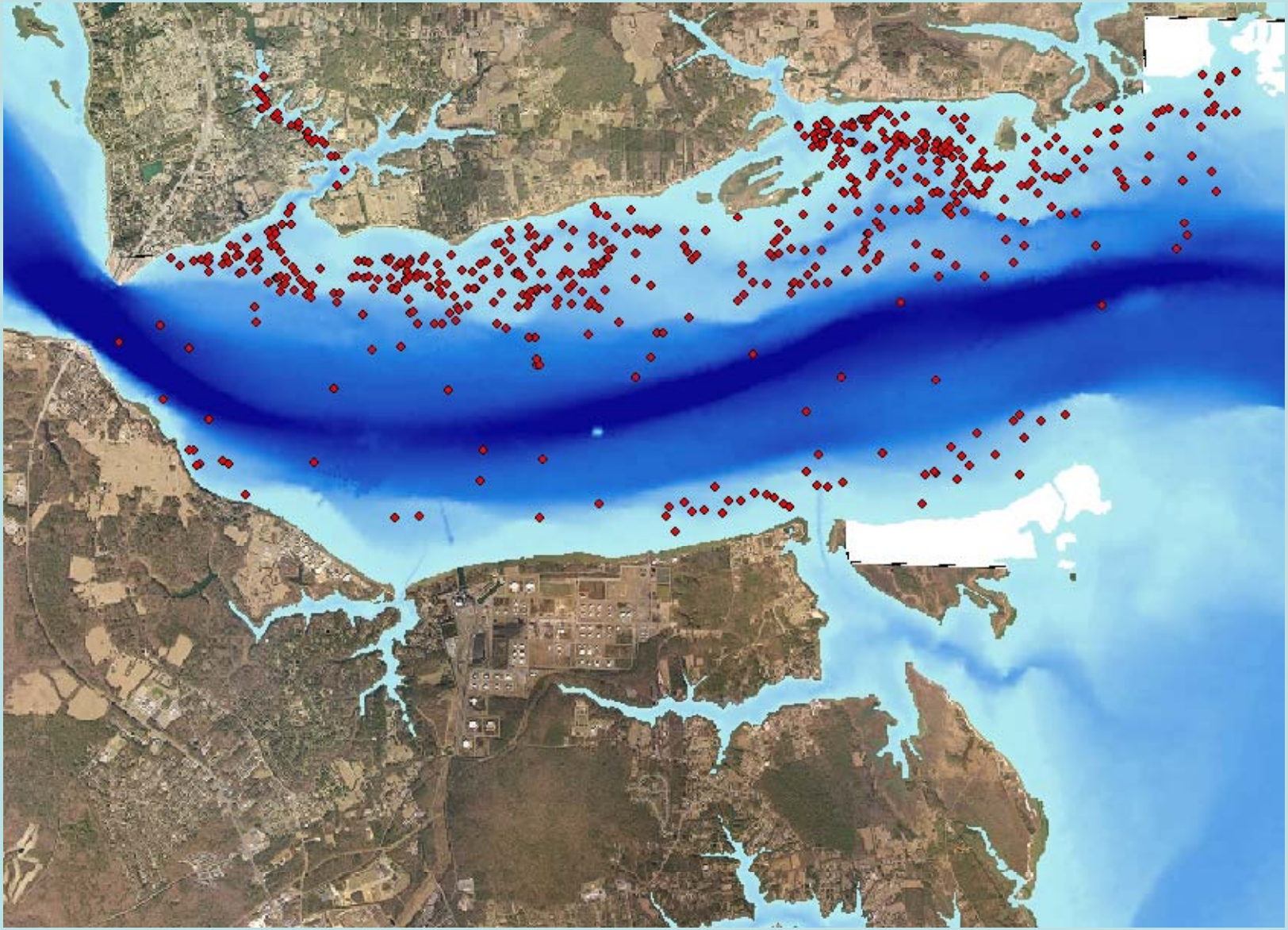
2006 12 derelict traps

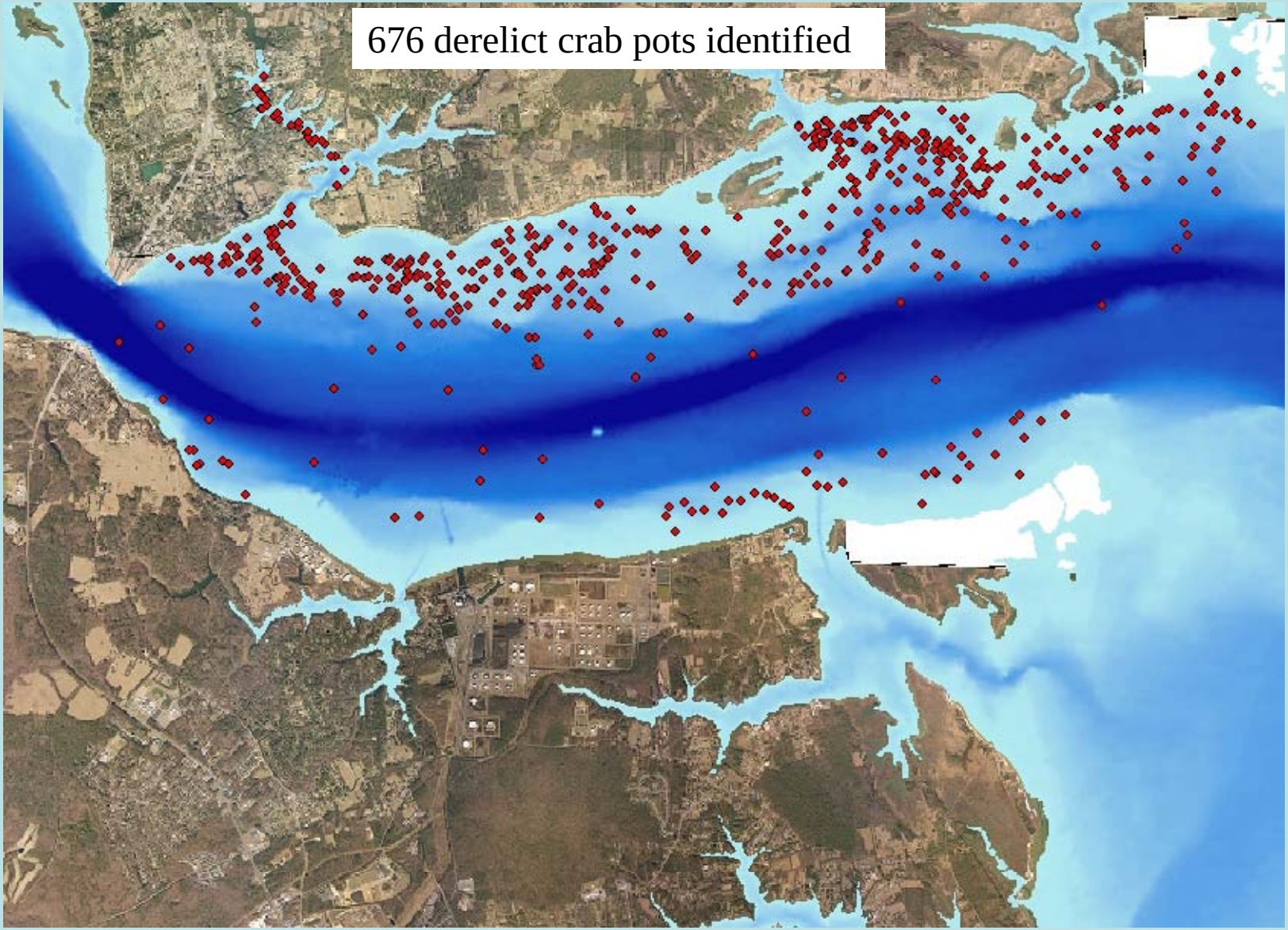
2007 11 derelict traps

Trap loss rate approx. 20 – 30% per year

York River Marine Debris Survey-
Jan/Feb 2006 (Off-season)






676 derelict crab pots identified


225
VIMS

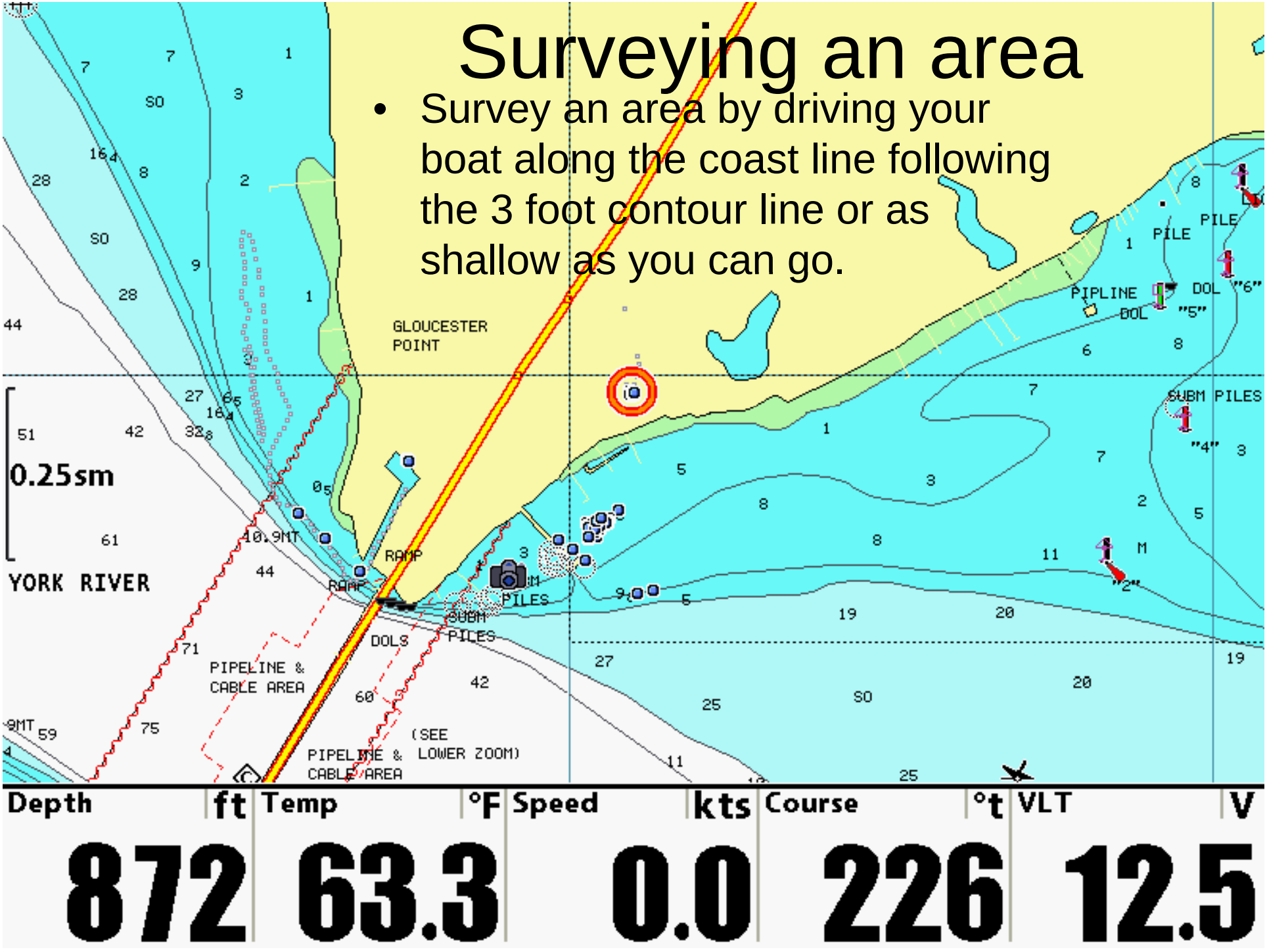
Overview

- Scanning methods
- Side scan images of debris
- Humminbird Unit
- Debris retrieval and disposal
- Catch data sheets

Scanning methods

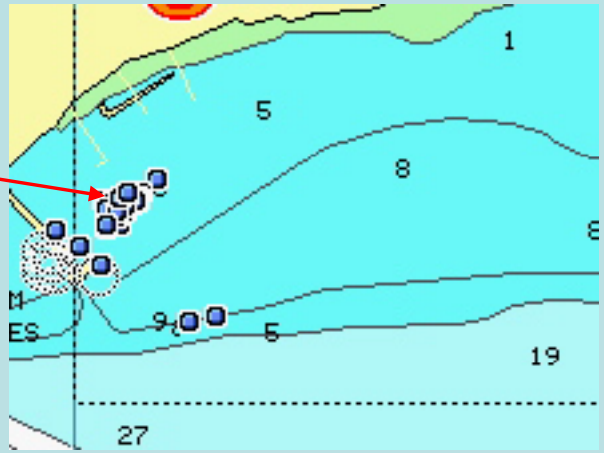
Surveying an area

- Survey an area by driving your boat along the coast line following the 3 foot contour line or as shallow as you can go.



Surveying an area

- Use the cursor on the Humminbird to mark debris seen on the bottom

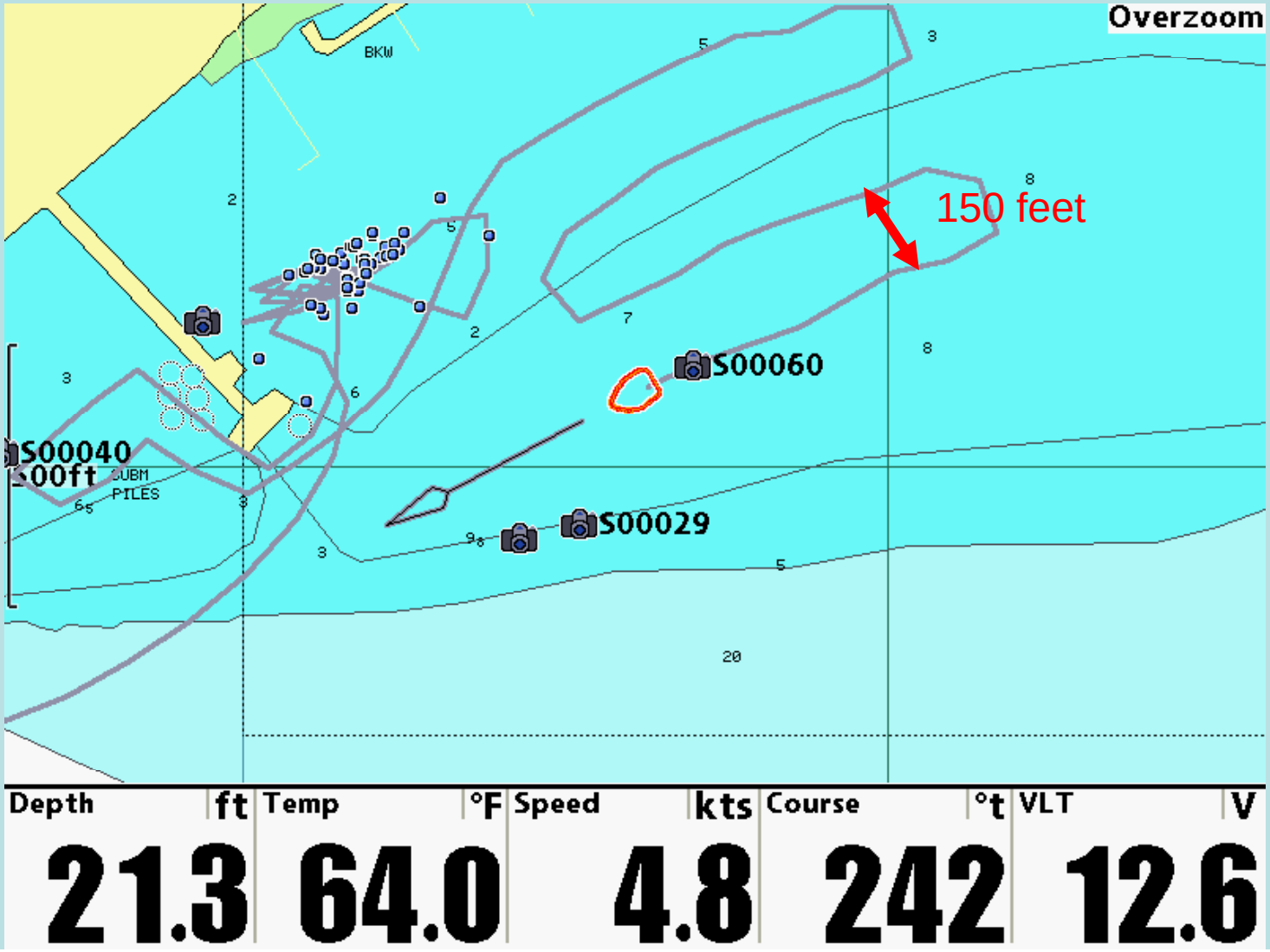


- This will save the lat. Long. of the unknown object.

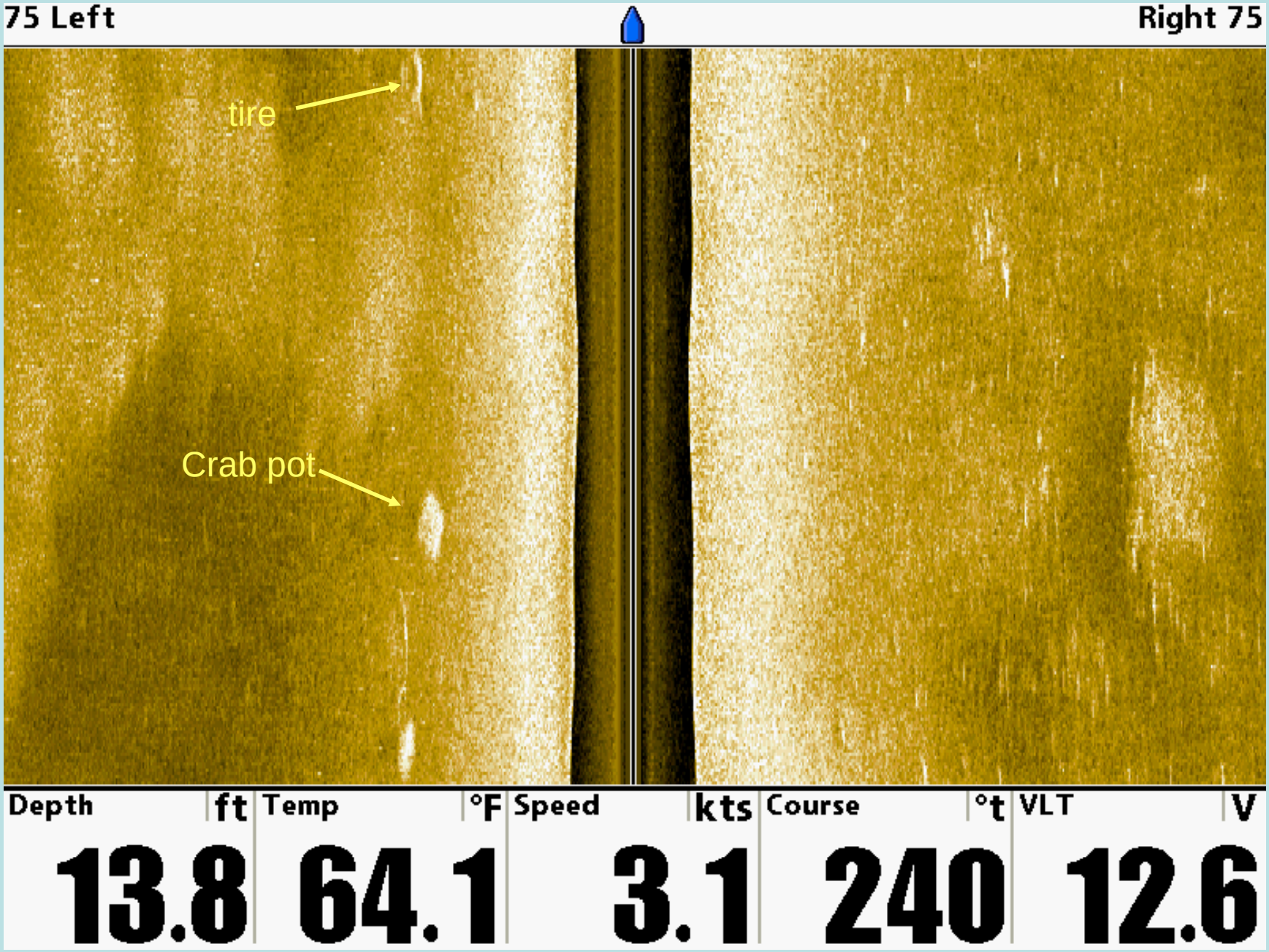
- You can later use the “goto” feature to return to the object for retrieval

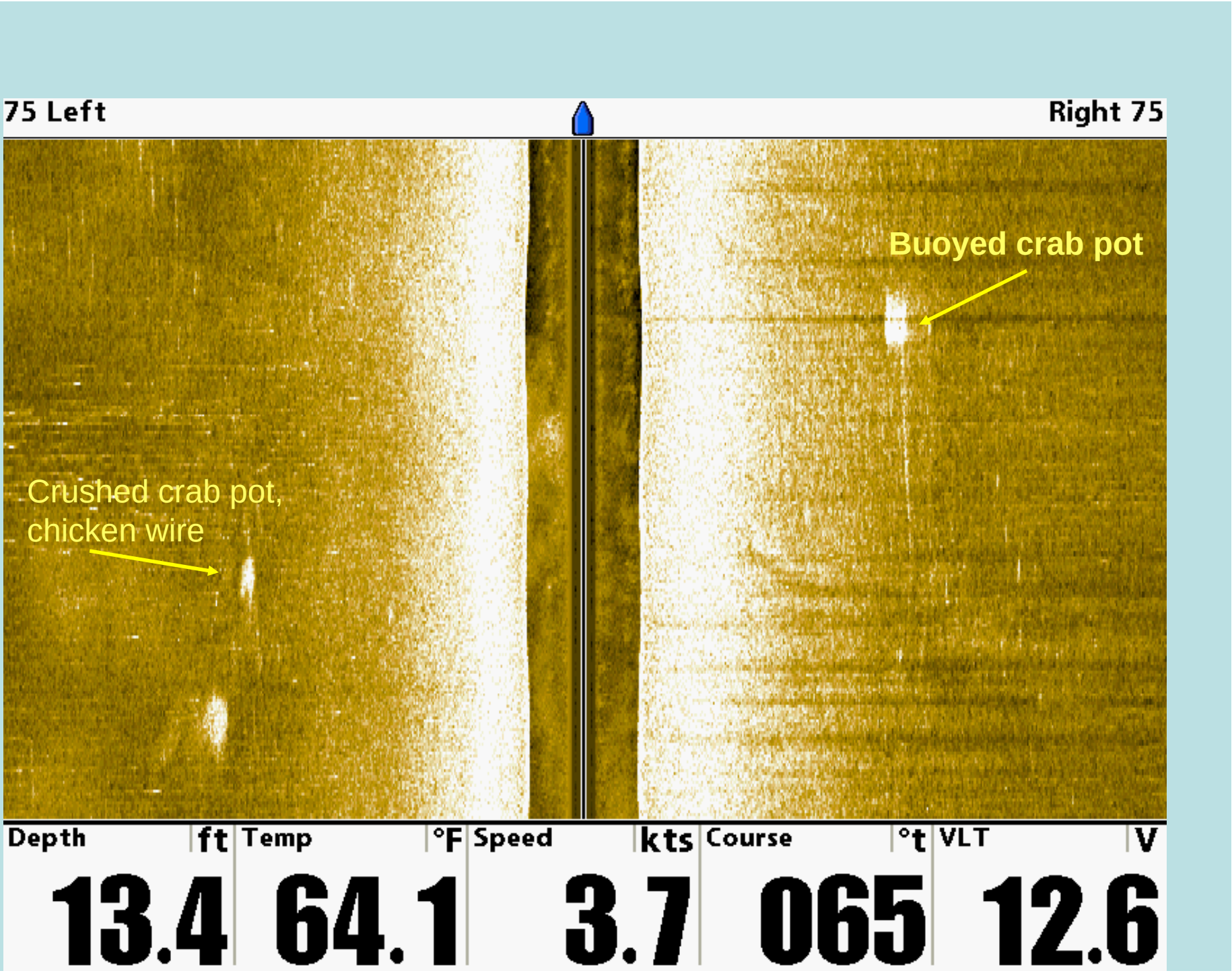
Track lines

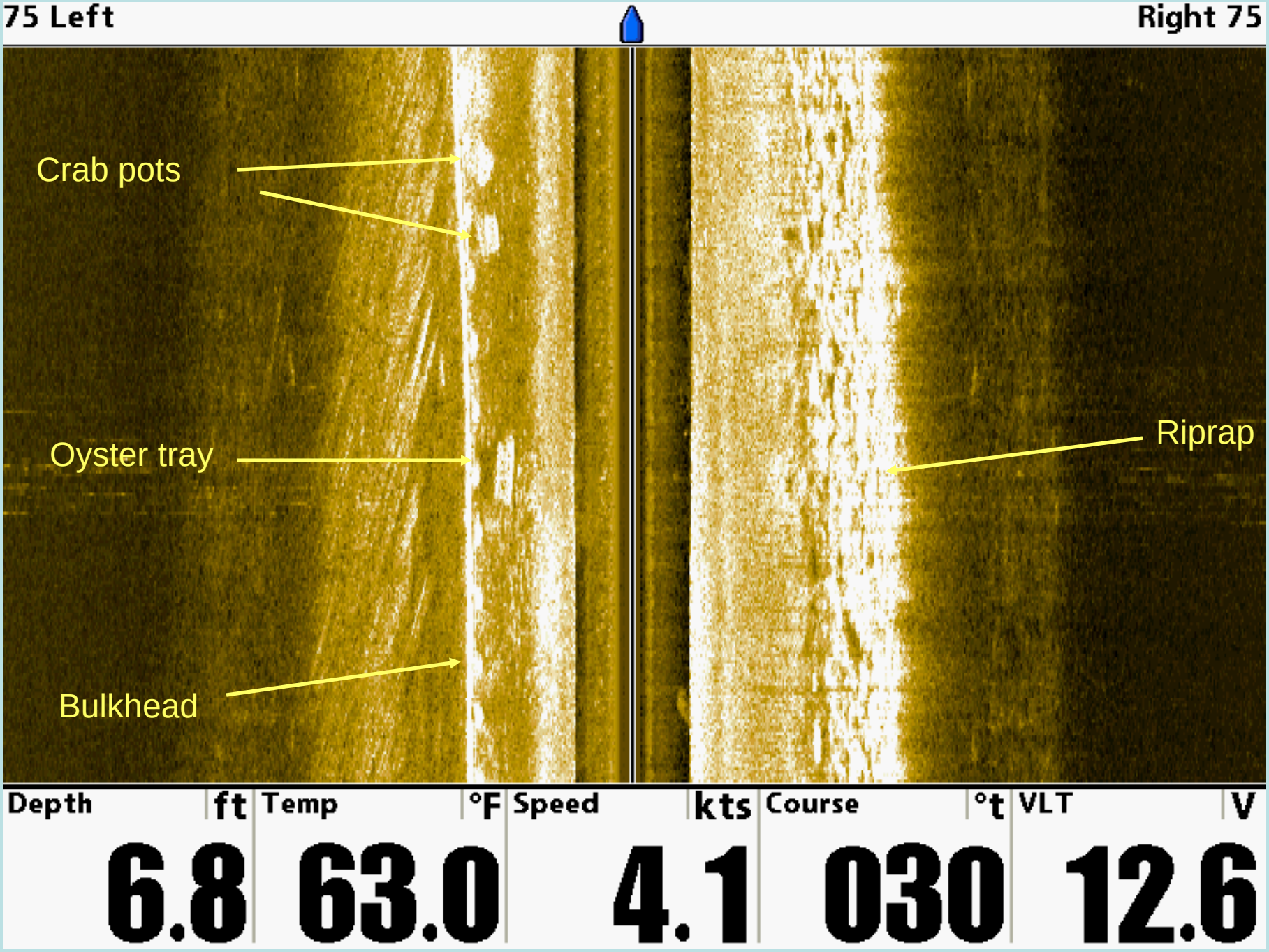
Your track lines for your survey area will look like this

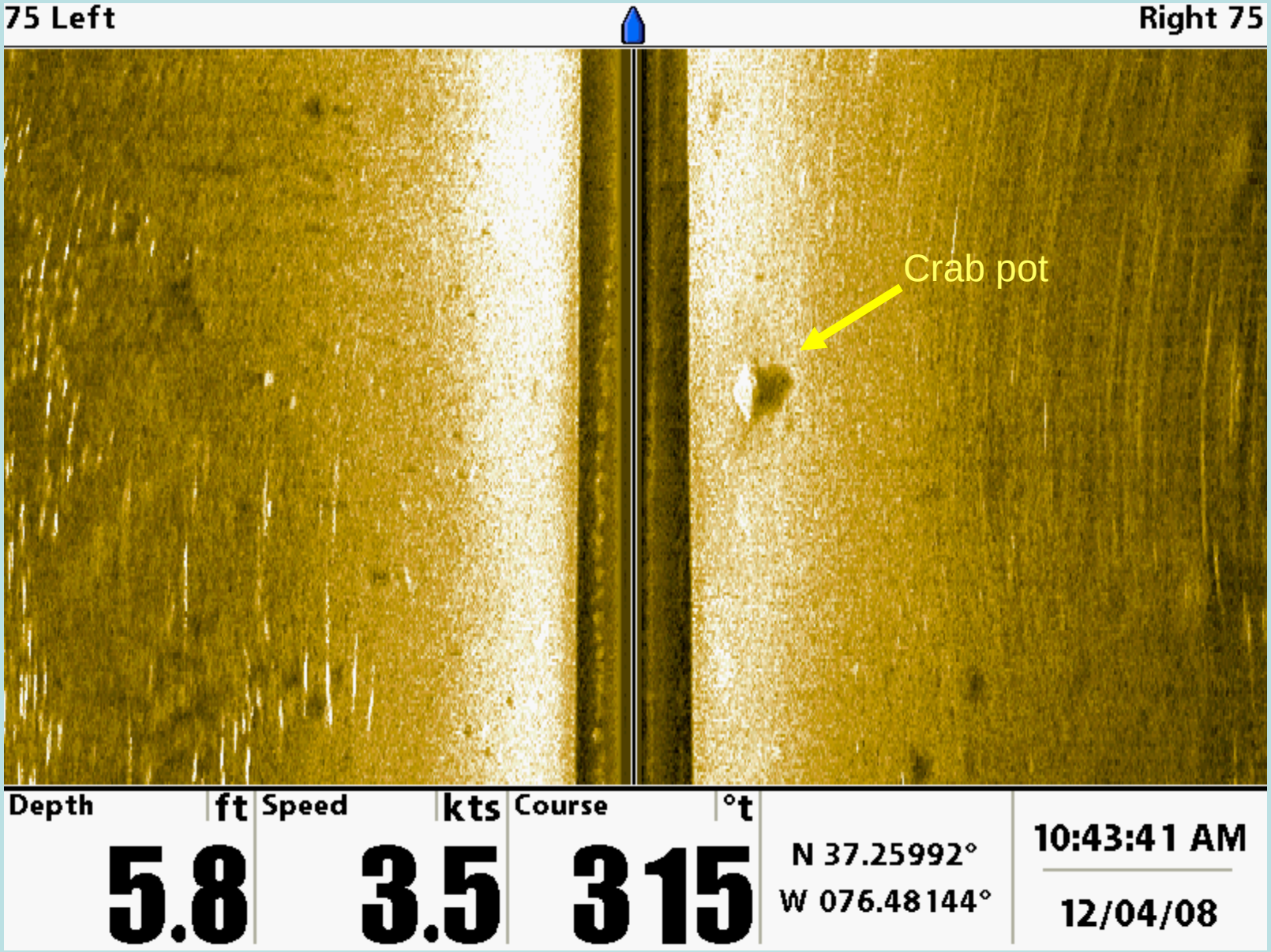


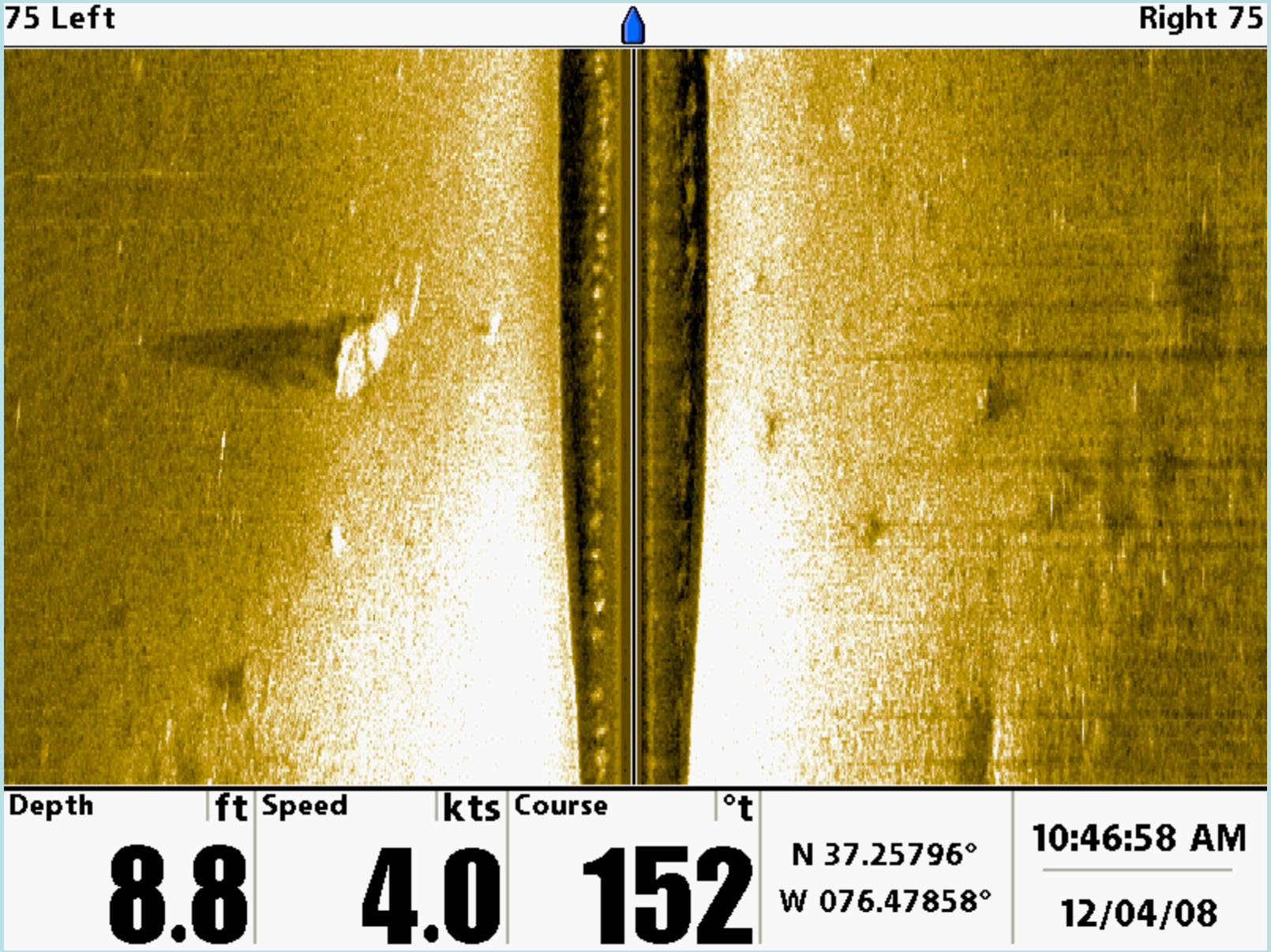
Side scanning images

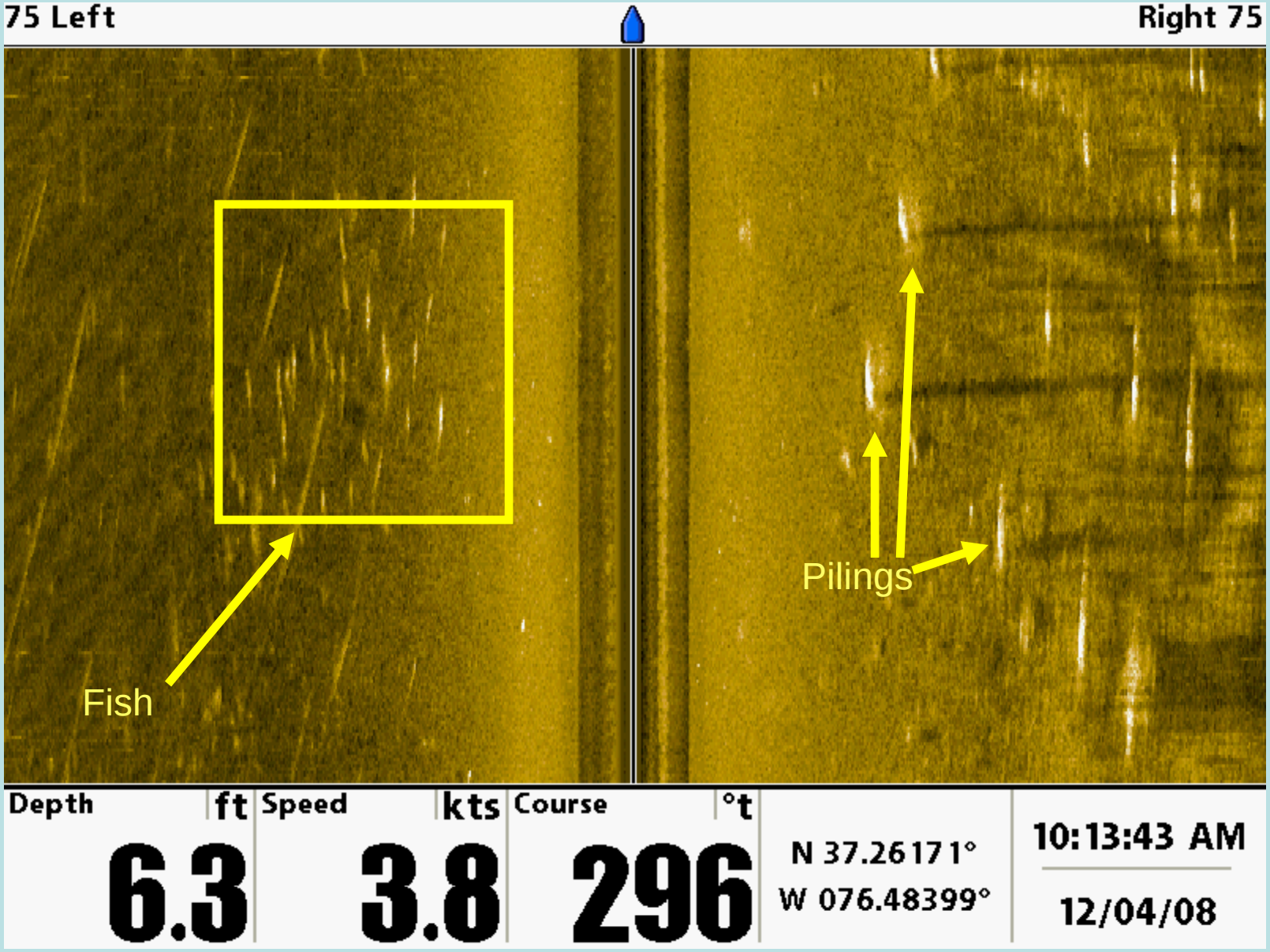

75 Left
Right 75
tire
Crab pot
Depth ft
13.8
Temp °F
64.1
Speed kts
3.1
Course °t
240
VLT V
12.6


75 Left
Right 75
Buoyed crab pot
Crushed crab pot,
chicken wire
Depth ft
13.4
Temp °F
64.1
Speed kts
3.7
Course °t
065
VLT V
12.6


75 Left
Right 75
Crab pots
Oyster tray
Bulkhead
Riprap
Depth ft
6.8
Temp °F
63.0
Speed kts
4.1
Course °t
030
VLT V
12.6


75 Left
Right 75
Crab pot
Depth
ft
Speed
kts
Course
°t
5.8
3.5
315
N 37.25992°
W 076.48144°
10:43:41 AM
12/04/08


75 Left
Right 75
Depth
ft
8.8
Speed
kts
4.0
Course
°t
152
N 37.25796°
W 076.47858°
10:46:58 AM
12/04/08


75 Left
Right 75
Fish
Pilings
Depth
ft
6.3
Speed
kts
3.8
Course
°t
296
N 37.26171°
W 076.48399°
10:13:43 AM
12/04/08

Seagrass Maps

We are providing you a map of seagrass areas that are considered to be sensitive within your scanning area.

1. Do not attempt to retrieve material in areas of known submerged aquatic vegetation (SAV). Maps Provided.

2. When retrieving material if grapping device pulls up any submerged aquatic vegetation, cease attempts in that area.

3. Do not attempt retrieval in areas where vessel prop will disturb bottom.

Whales

Photo: NOAA Photo Library

- All vessels participating must maintain a lookout for whales and reduce speeds to 10 knots or less should a whale be sighted.

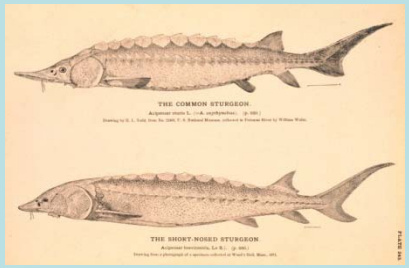
- All scanning should be done at 4 knots

- No grappling may occur if a whale is in the vicinity of the project vessel.

- All grappling should be done at speeds less than one knot.

- All whale sightings should be recorded in the debris removal data report and be reported to NMFS.

Other Species



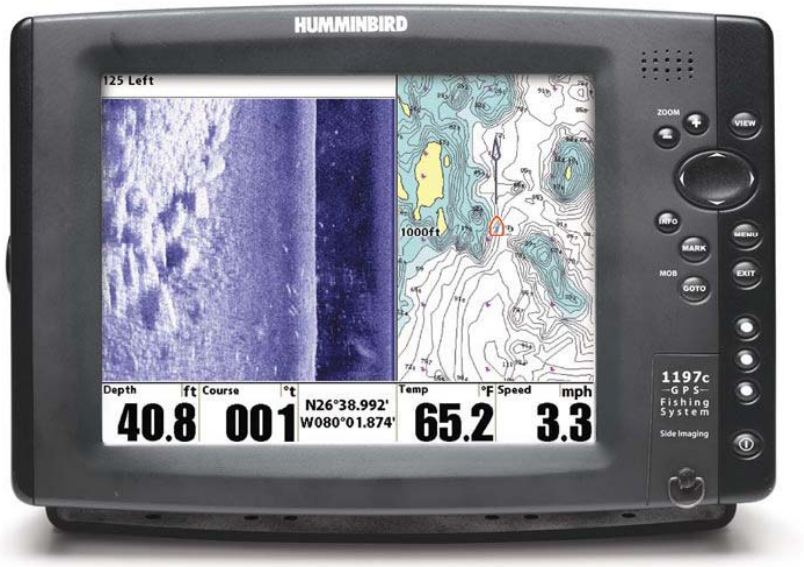
Photos: NOAA Photo Library

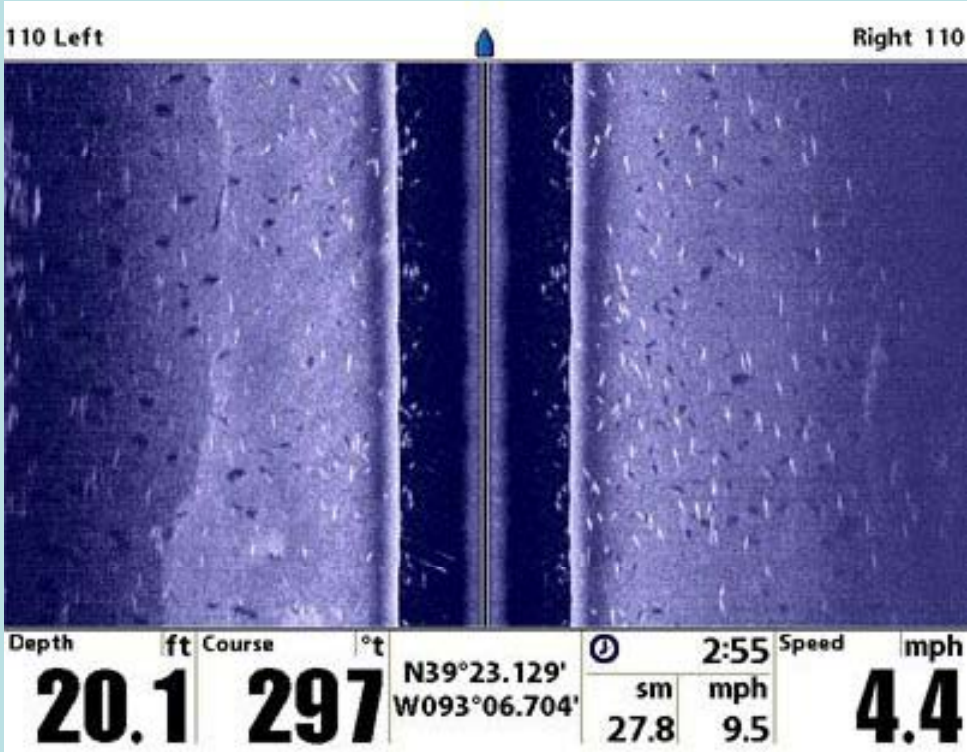
- In the event that any of the following species are observed entrapped in a crab trap or other marine debris, that information must be reported to NMFS within 24 hours of the interaction: loggerhead, Kemp's Ridley, green or leatherback sea turtle; Atlantic sturgeon; or shortnose sturgeon.

- Accompanying the report should be a digital photograph and a complete description of the condition of the animal.

- If possible, watermen should contact NMFS from the scene to discuss disposition of the animal. Reports may be filed by FAX (978-281-9394) or by e-mail (julie.crocker@noaa.gov). The 24-hour NMFS Stranding & Entanglement Hotline can be reached at 978-281-9351.

Humminbird 1197 Side Imaging Unit





Humminbird Settings

- Single beam set to 200 kHz
- Side scan set to 455 kHz
- Swath width set to 75 feet each side

- The unit can hold 3000 way points.
- We will down load the way points.

Retrieval of Marine Debris

- Once the debris has been marked and a Lat. Long. has been saved. You can use the “goto feature on the Humminbird to drive to the exact spot and use the grappling device to retrieve the object.


Grappling Device

Designed to ride above the bottom with only the hooks dragging through the sediment.

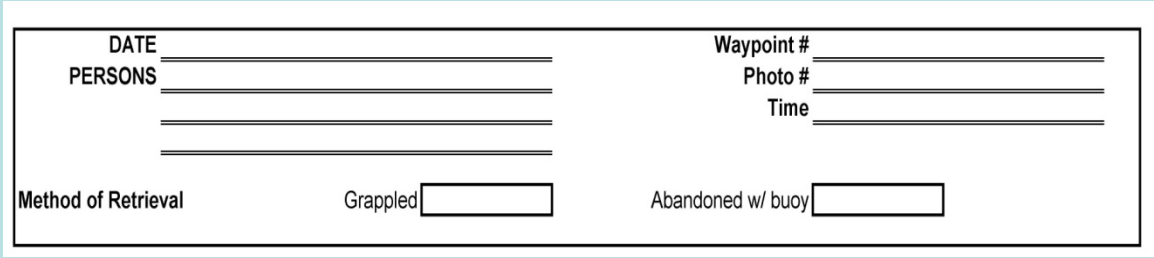
Removal and Disposal of Marine Debris

- Go to waypoint marking the unknown object
- Drag the grappling device through the area
- Record contents
- Dispose at dump or recycle if able

Data sheets

Describes the type and condition of the debris

- **How the debris was retrieved**
  - **Grappled**
  - **Abandoned pot with a buoy**
- Condition of debris
  - Good – Still able to fish
  - Bad – not able to fish
- Species caught
  - Crab
    - Sex, keeper, sponge
  - Fish
    - Species
  - Other (turtle, muskrat…)



Retrieval methods

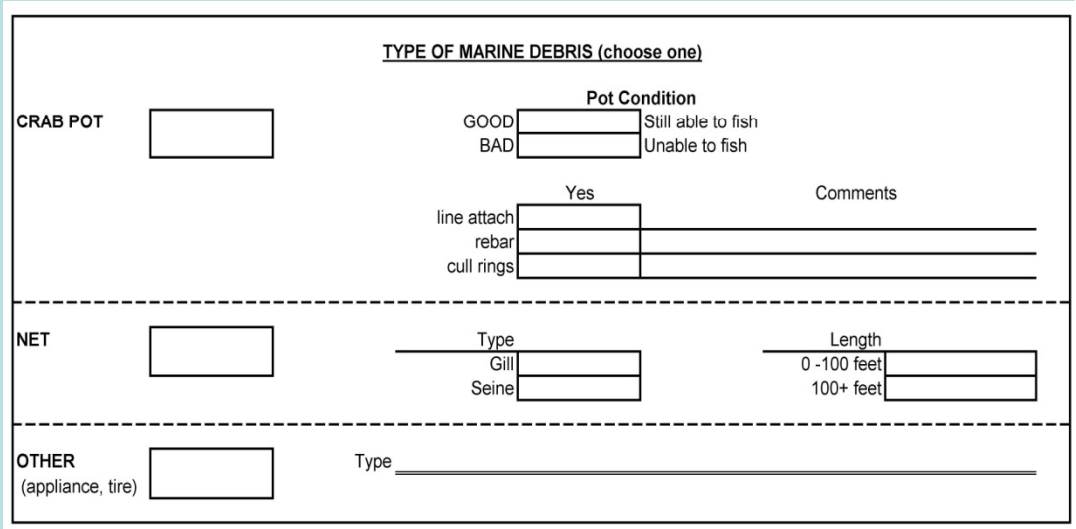
Grappling

Abandoned Pots

Data sheets

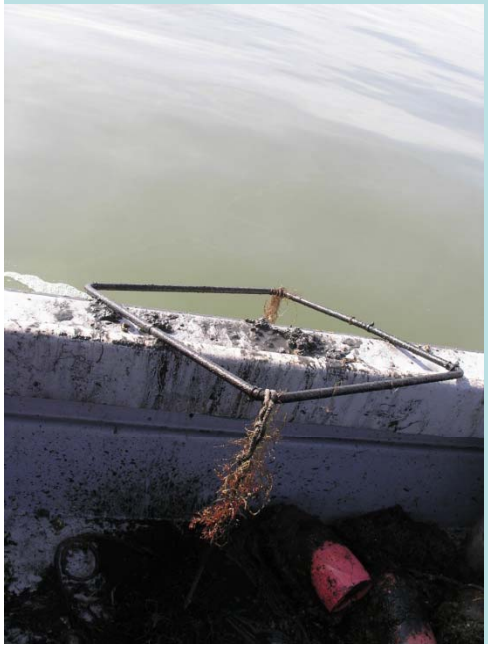
Describes the type and condition of the debris

- **How the debris was retrieved**
  - **Grappled**
  - **Abandoned pot with a buoy**
- **Condition of debris**
  - **Good – Still able to fish**
  - **Bad – not able to fish**
- Species caught
  - Crab
    - Sex, keeper, sponge
  - Fish
    - Species
  - Other (turtle, muskrat…)

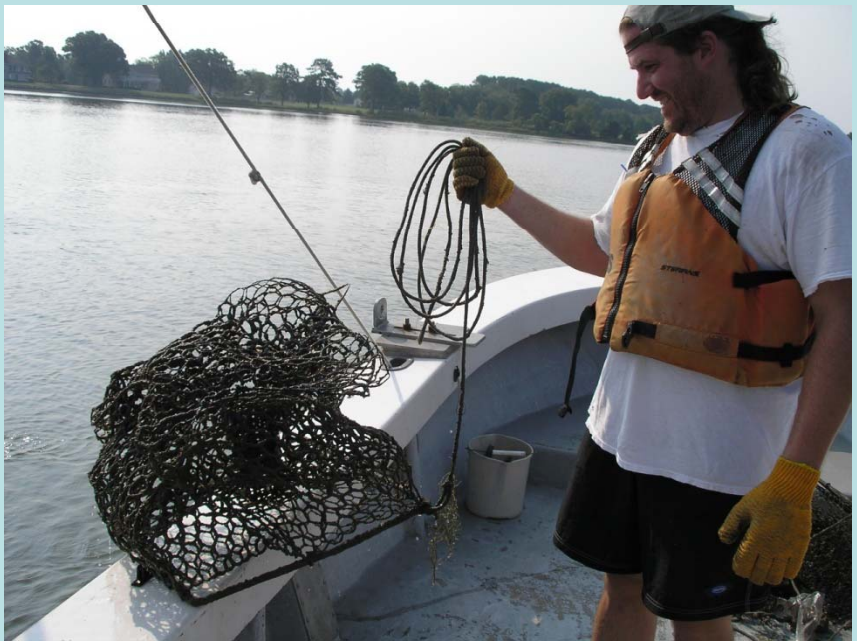


Condition of Crab Pots

Good



Bad



Data sheets

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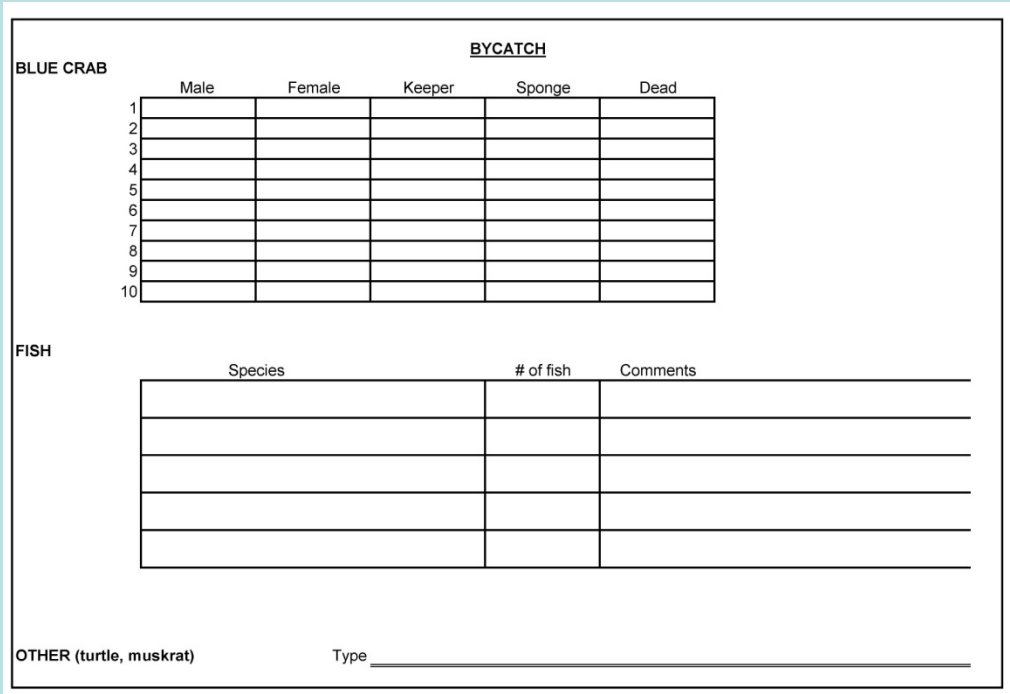
  - **Grappled**
  - **Abandoned pot with a buoy**
- **Condition of debris**
  - **Good – Still able to fish**
  - **Bad – not able to fish**
- **Species caught**
  - **Crab**
    - **Sex, keeper, sponge**
  - **Fish**
    - **Species**
  - **Other (turtle, muskrat…)**



BYCATCH

BLUE CRAB

	Male	Female	Keeper	Sponge	Dead
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

FISH

Species	# of fish	Comments

OTHER (turtle, muskrat) Type _____

Removable Transducer Mount

- 2 inch Aluminum channel stock or square stock
- GPS should be mounted directly above the transducer and above any interference
- Transducer should not be mounted within any prop wash

The Prop Method

Not a good way to pick up pots

Instruction for on the vessel use of the HUMMINBIRD

Marking Debris

•Turn on HUMMINBIRD
•press “exit“ key
•press quick key #1, must be in side view mode to mark debris
•when you see a debris push the cursor so the bulls eye is over the object and push the “**mark**” key
•you must push exit to get back to the side view screen

At the end of the day to save all data

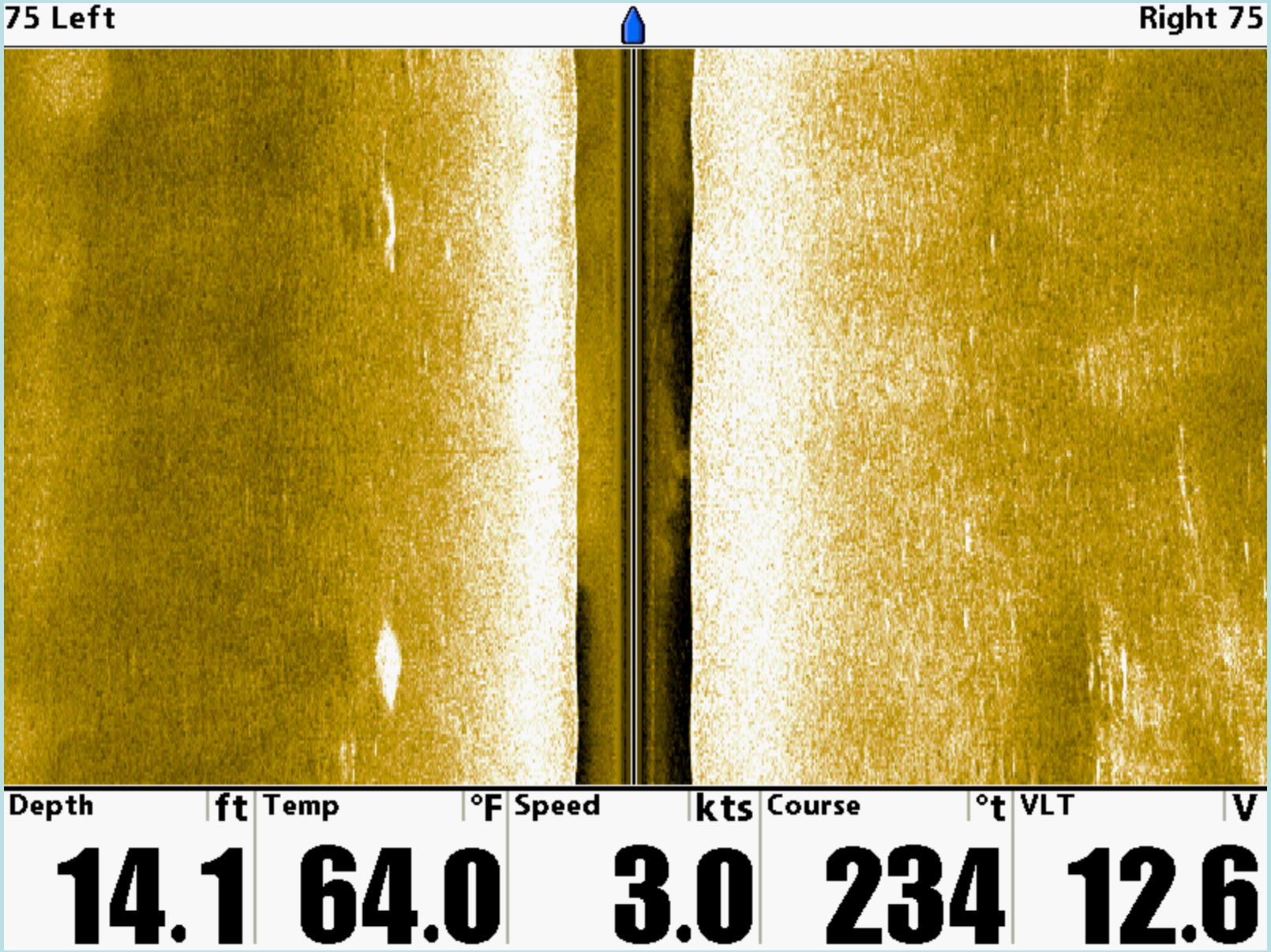
•Push the “**menu**” key twice
•scroll across to the “**NAV**” tab
•scroll down to “**current track**”
•scroll across to “**save**”
•scroll to the right to save and confirm
•After saving scroll down to “**clear**” and scroll to the right to confirm
•push the “**exit**” button three times to return to the side view screen
•hold down the **power** key for two seconds to turn off the HUMMINBIRD

All your way points are automatically saved to the SD card

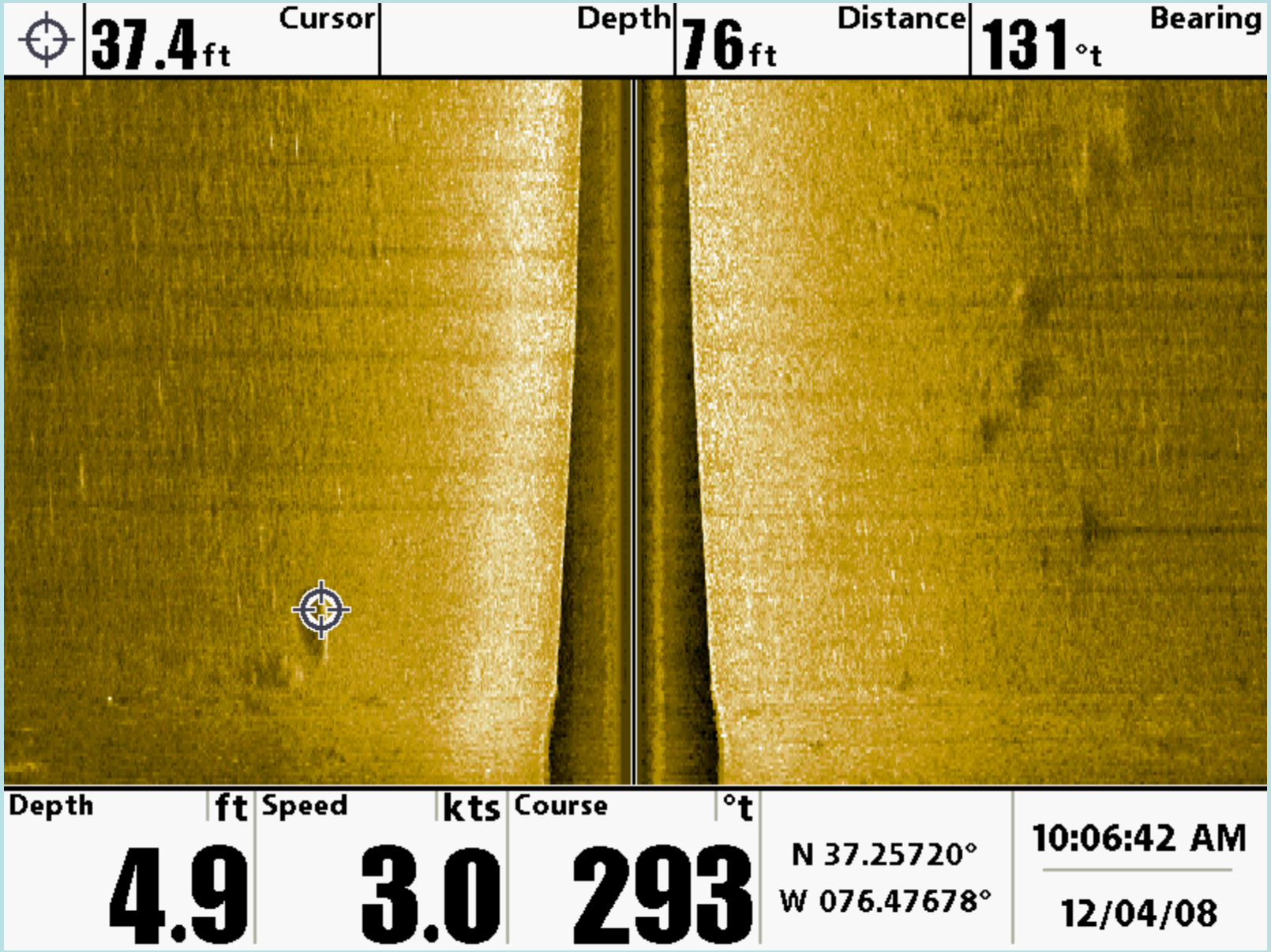

ZOOM
VIEW
INFO
MENU
MARK
MOB
EXIT
GOTO
1197c
GPS
Fishing
System
Side Imaging


ZOOM
VIEW
INFO
MENU
MARK
EXIT
MOB
GOTO
1197c
GPS
Fishing
System
Side Imaging


ZOOM
VIEW
INFO
MENU
MARK
MOB
EXIT
GOTO
1197c
GPS
Fishing
System
Side Imaging

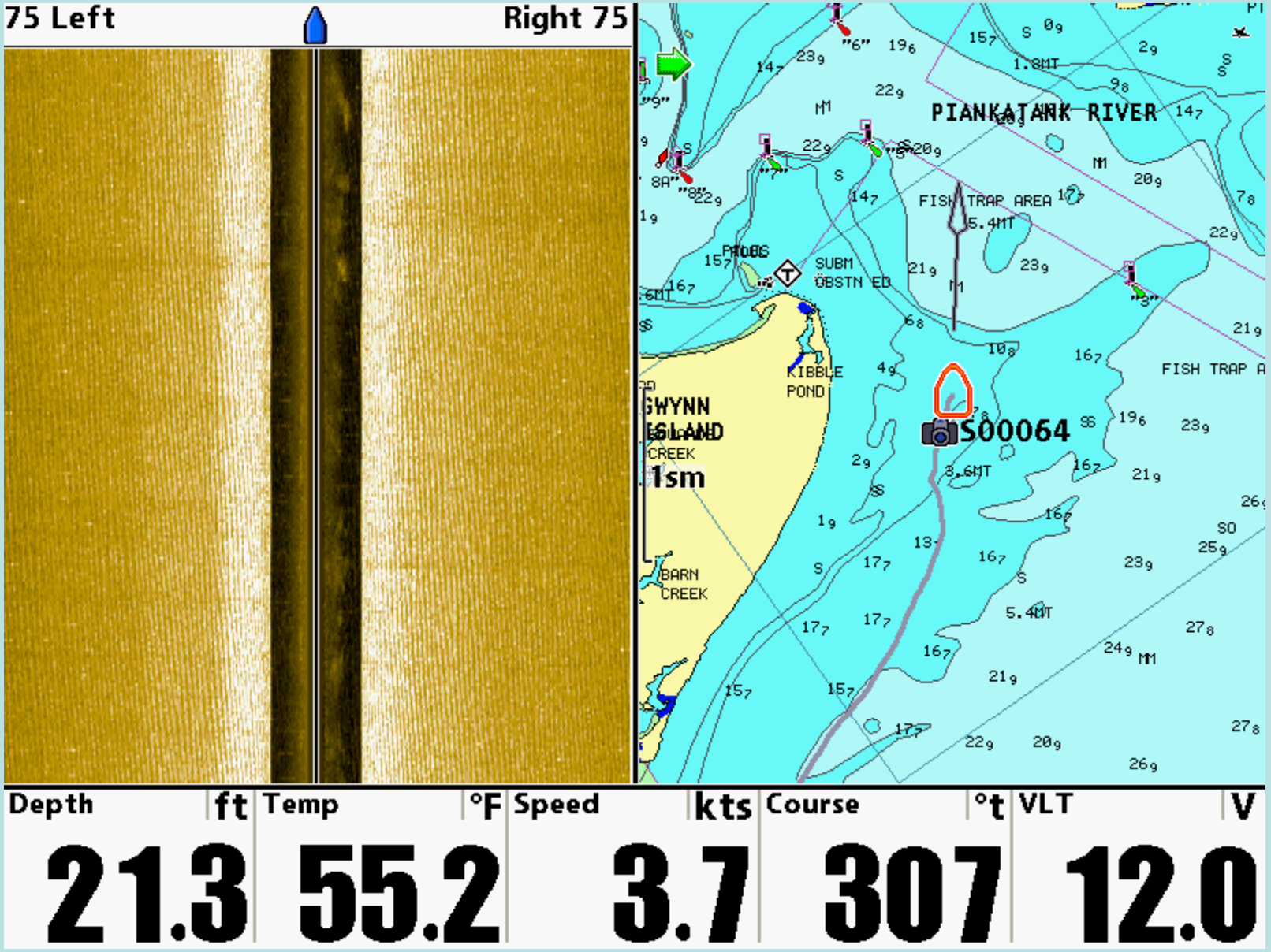

75 Left
Right 75
Depth
ft
Temp
°F
Speed
kts
Course
°t
VLT
V
14.1
64.0
3.0
234
12.6

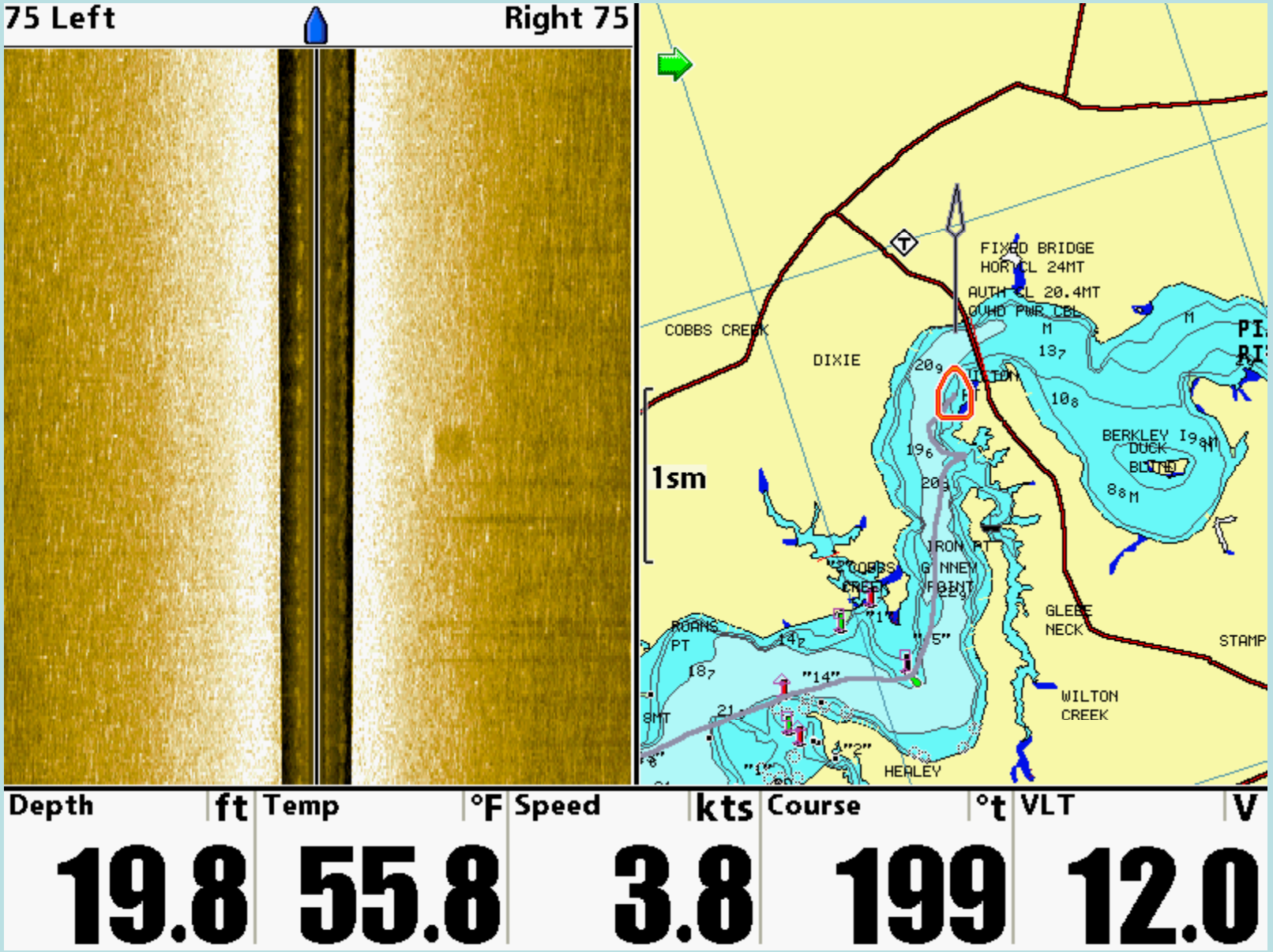

ZOOM
VIEW
INFO
MENU
MARK
MOB
EXIT
GOTO
1197c
GPS
Fishing
System
Side Imaging


37.4 ft
Cursor
Depth
76 ft
Distance
131 °t
Bearing
Depth
ft
4.9
Speed
kts
3.0
Course
°t
293
N 37.25720°
W 076.47678°
10:06:42 AM
12/04/08


ZOOM
VIEW
INFO
MARK
MENU
MOB
EXIT
GOTO
1197c
GPS
Fishing
System
Side Imaging


ZOOM
VIEW
INFO
MENU
MARK
MOB
EXIT
GOTO
1197c
GPS
Fishing
System
Side Imaging


75 Left
Right 75
PIANKATANK RIVER
FISH TRAP AREA
5.4MT
SUBM
OBSTN ED
KIBBLE
POND
S00064
3.6MT
1sm
BARN
CREEK
Depth ft
21.3
Temp °F
55.2
Speed kts
3.7
Course °t
307
VLT V
12.0


75 Left
Right 75
FIXED BRIDGE
HOR CL 24MT
AUTH CL 20.4MT
COBBS CREEK
DIXIE
BERKLEY
DUCK
1sm
IRON PT
GLEBE
NECK
STAMP
WILTON
CREEK
HERLEY
Depth
ft
19.8
Temp
°F
55.8
Speed
kts
3.8
Course
°t
199
VLT
V
12.0