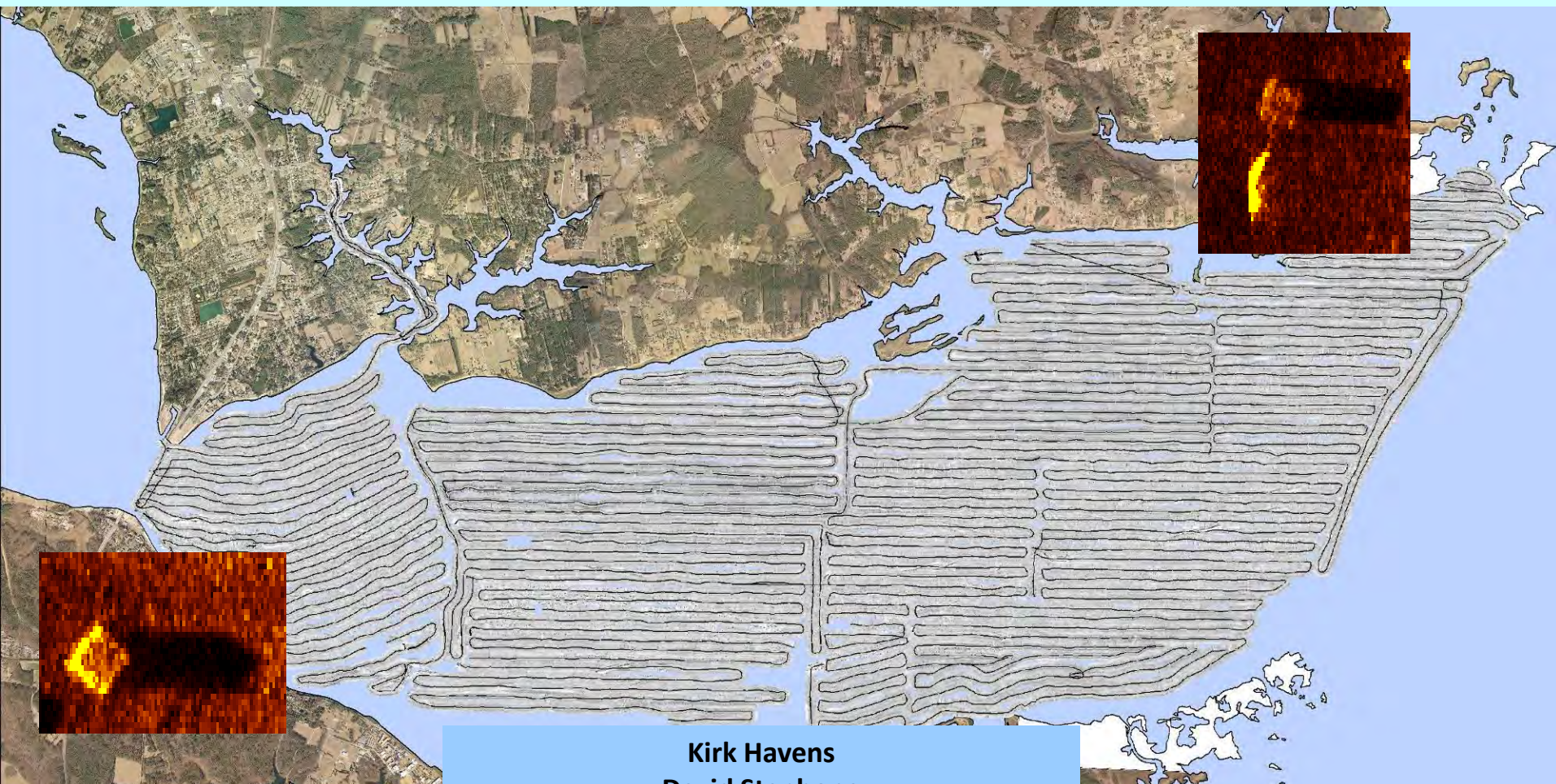


Marine Debris Removal



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



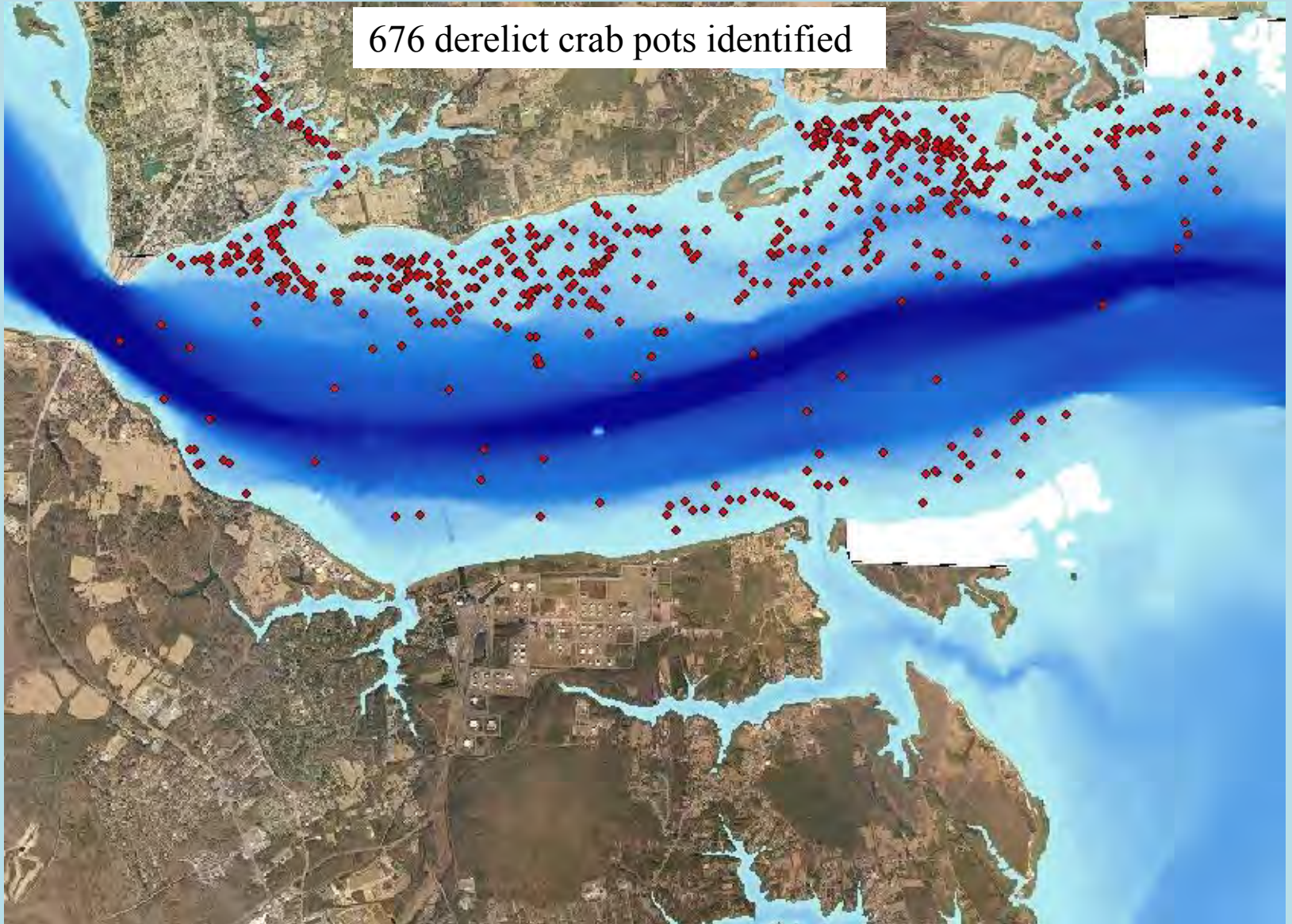
York River Marine Debris Survey- Jan/Feb 2006 (Off-season)

An aerial photograph of the York River estuary in Virginia, showing a complex network of waterways and surrounding land. A dense grid of white lines is overlaid on the water, representing the survey track. The land is a mix of green fields, brown patches, and some industrial structures. The text '33.5 Square Kilometers surveyed' is centered over the survey track.

33.5 Square Kilometers surveyed



676 derelict crab pots identified

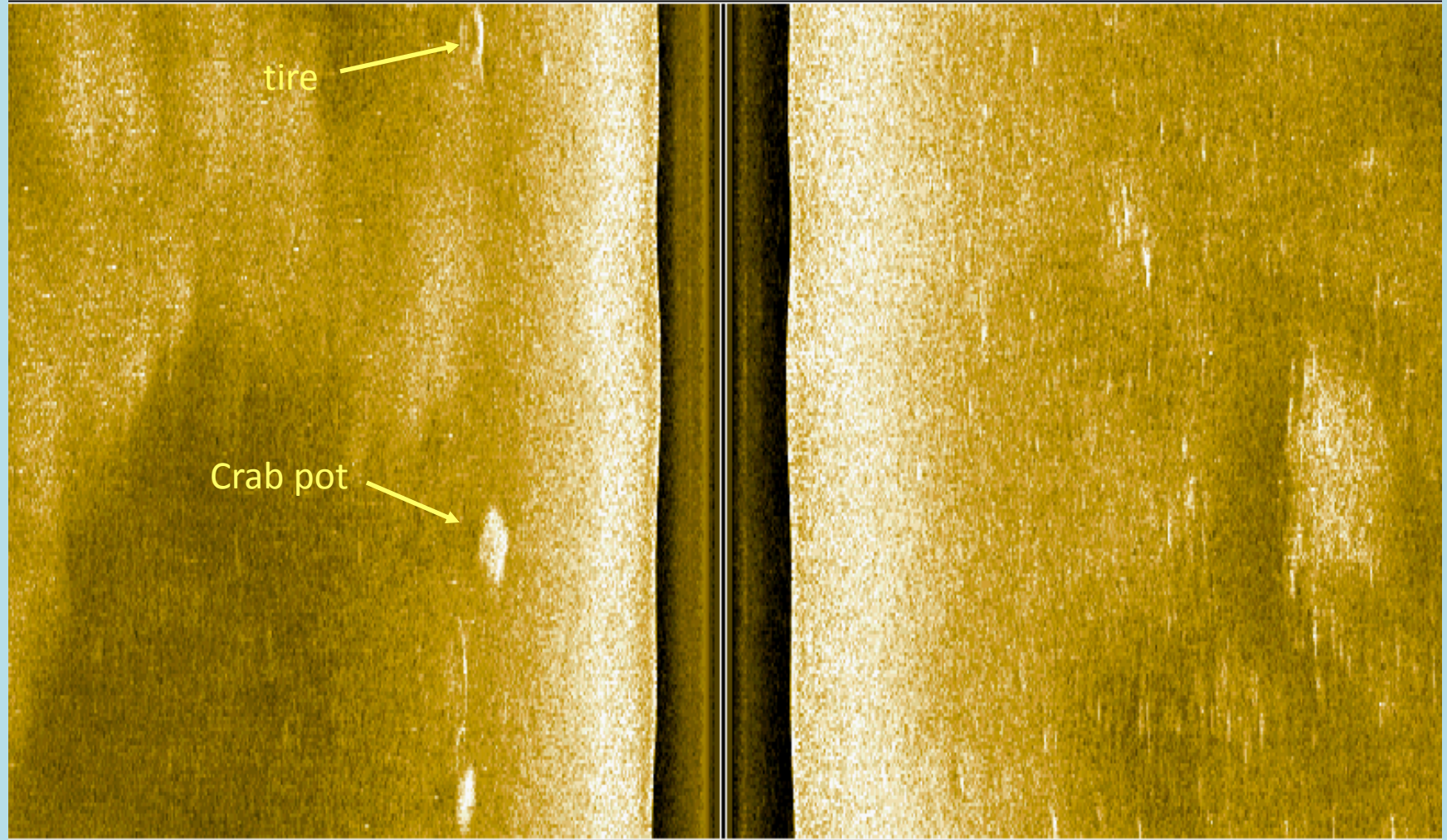


Overview

- Side scan images of debris
- Survey Techniques
- Humminbird Unit
- Debris retrieval and disposal

75 Left

Right 75



Depth	ft	Temp	°F	Speed	kts	Course	°t	VLT	V
13.8		64.1		3.1		240		12.6	



60.1 ft

Cursor

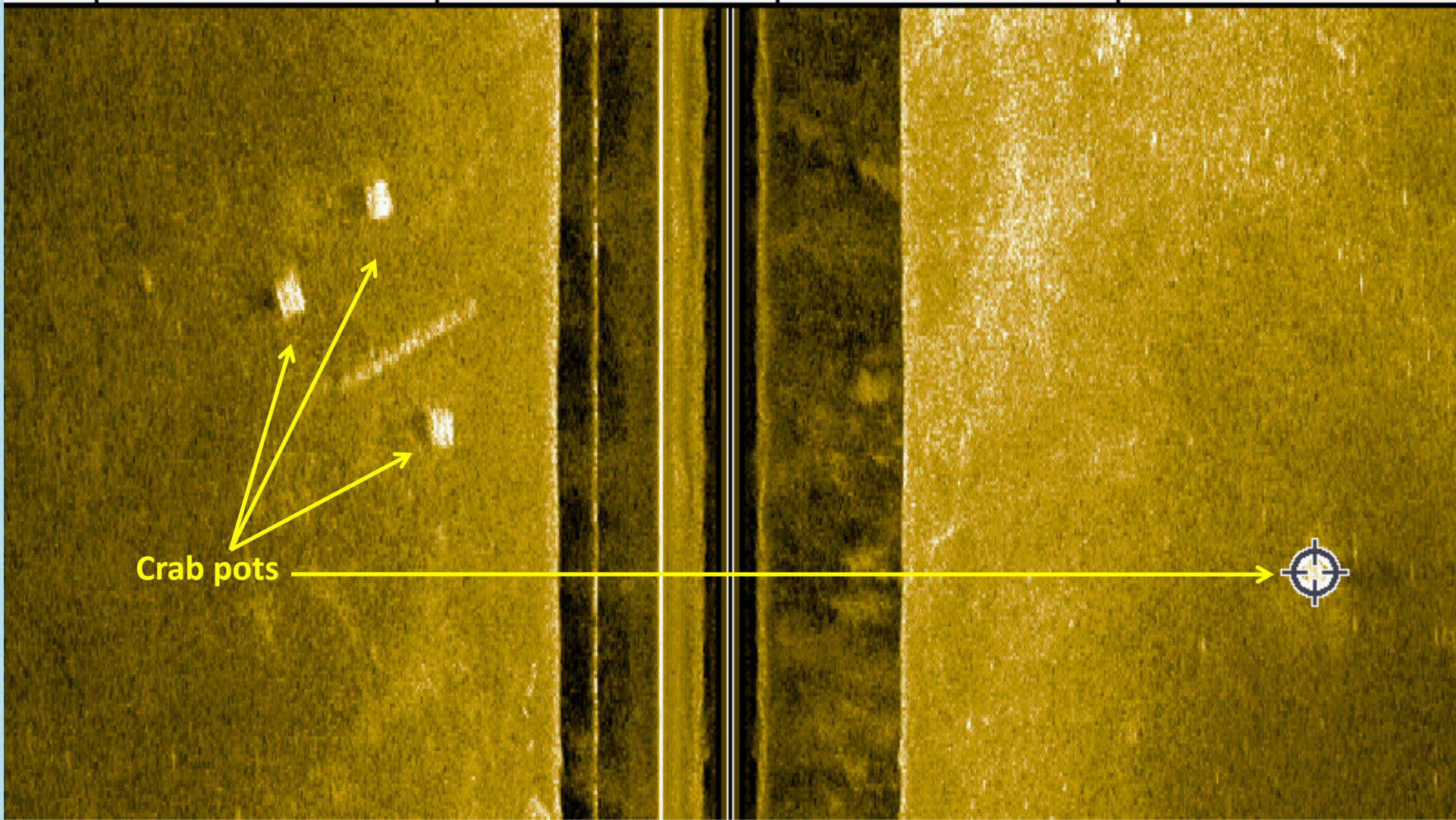
Depth

336 ft

Distance

345 °t

Bearing



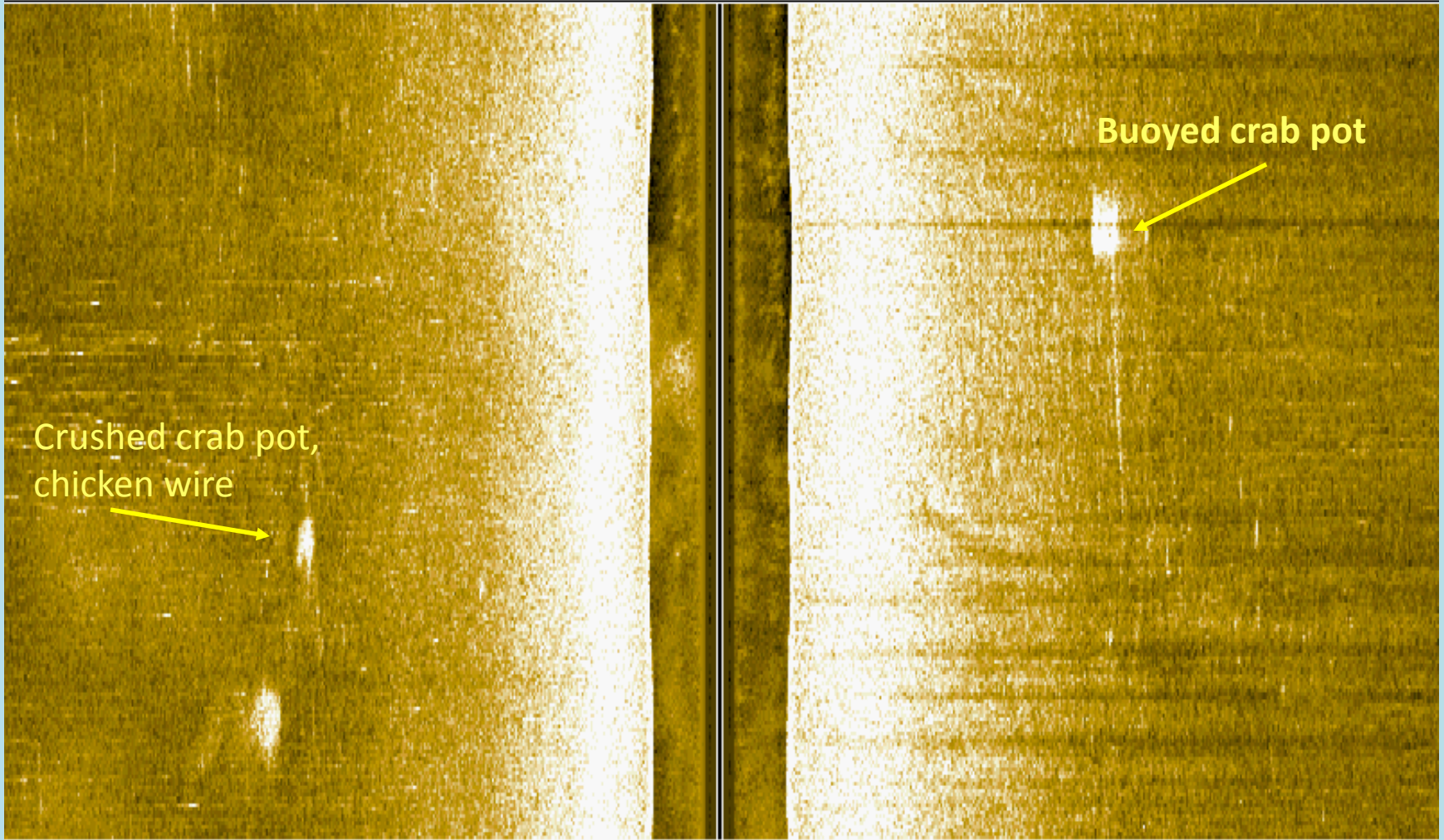
Crab pots



Depth	ft	Speed	kts	Course	°t		
16.6		4.4		074		N 37.82978°	12:21:45 PM
						W 076.28154°	12/22/08

75 Left

Right 75



Crushed crab pot,
chicken wire

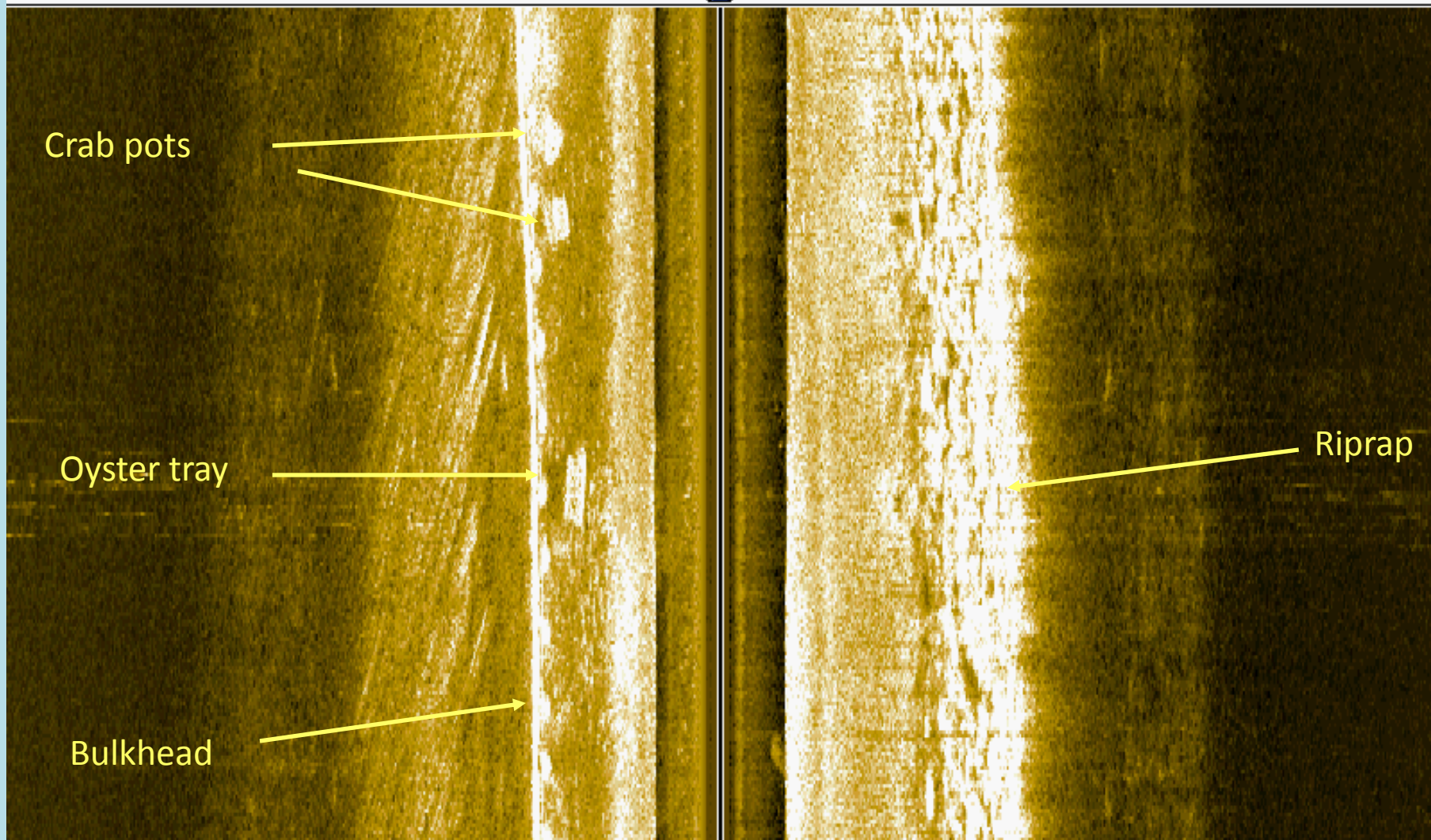
Buoyed crab pot

Depth | ft | Temp | °F | Speed | kts | Course | °t | VLT | V

13.4 | **64.1** | **3.7** | **065** | **12.6**

75 Left

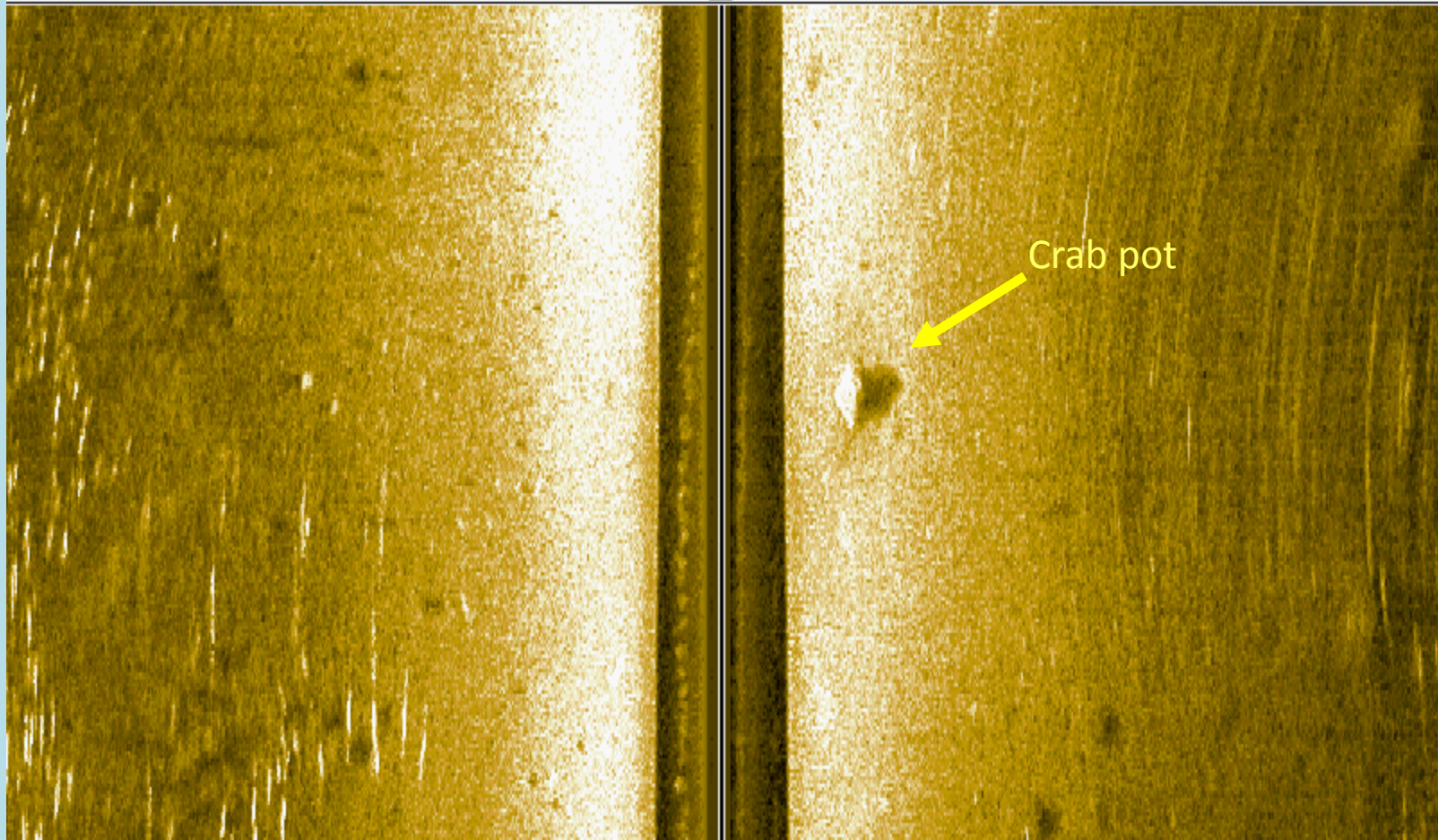
Right 75



Depth	ft	Temp	°F	Speed	kts	Course	°t	VLT	V
6.8		63.0		4.1		030		12.6	


75 Left

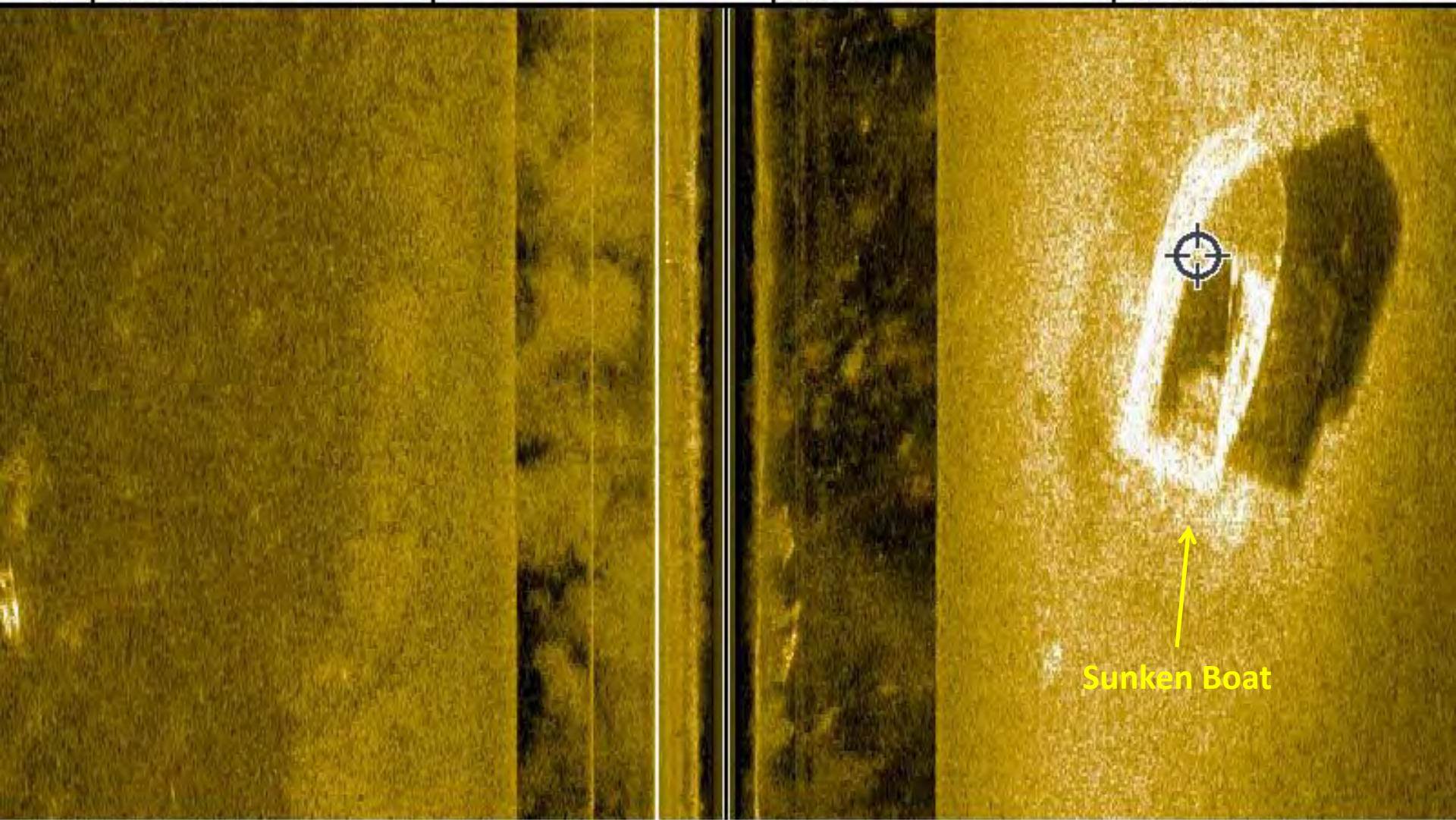
Right 75



Crab pot

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

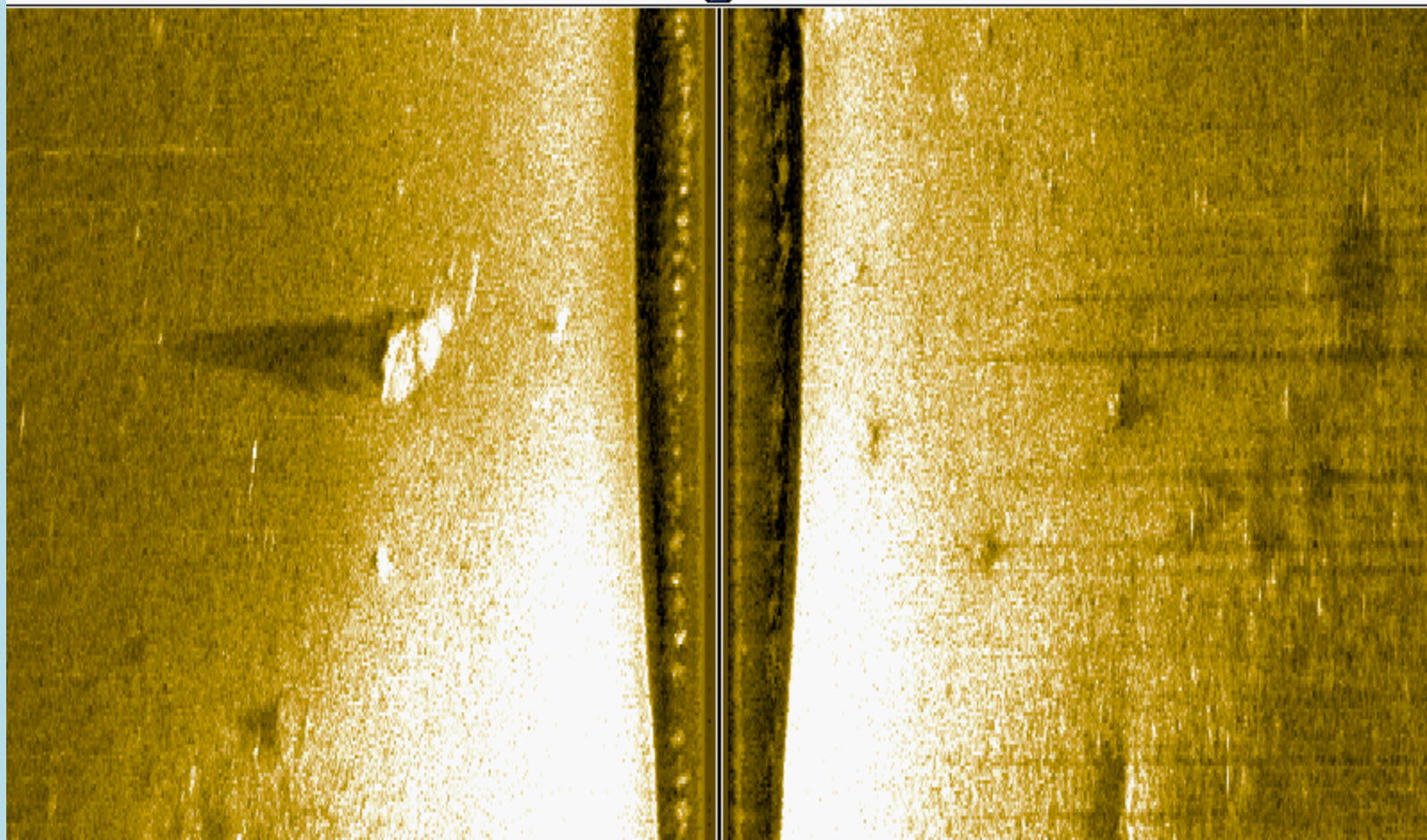
 **48.4** ft Cursor Depth **98** ft Distance **132** °t Bearing



Depth **21.5** ft Speed **5.3** kts Course **336** °t
N 37.82029° 7:51:56 AM
W 076.29806° 1/02/09

75 Left

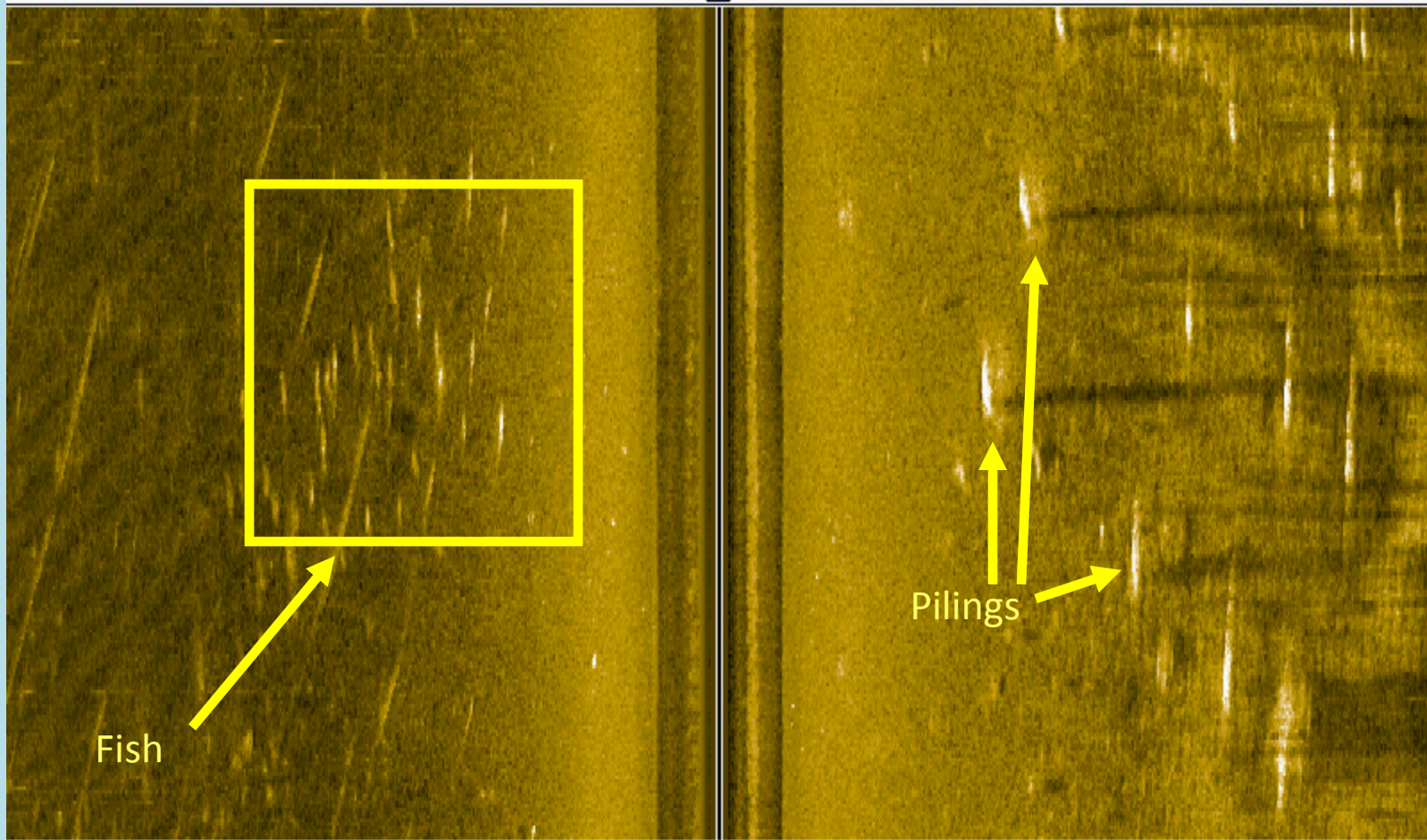
Right 75



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

75 Left

Right 75



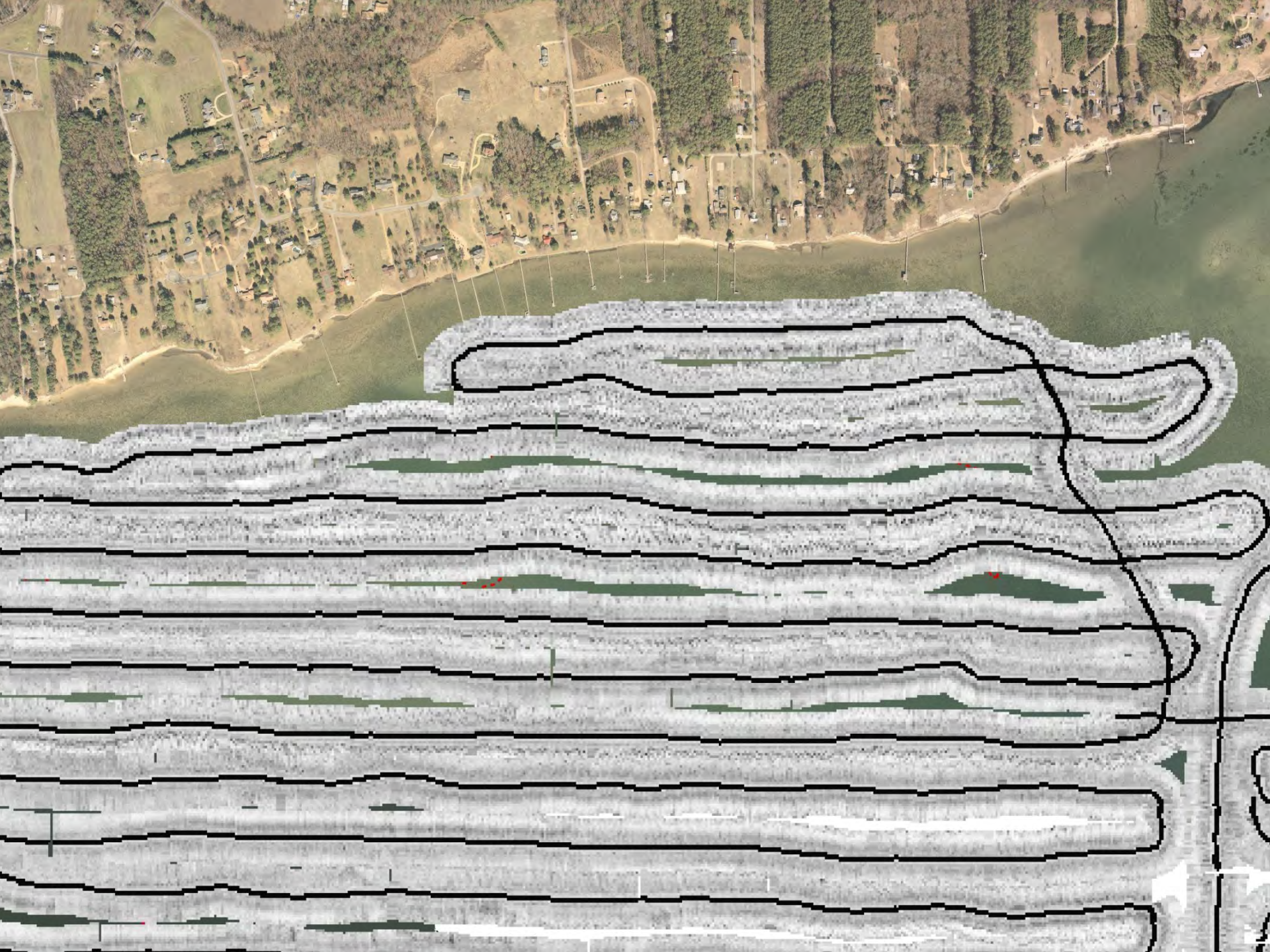
Fish

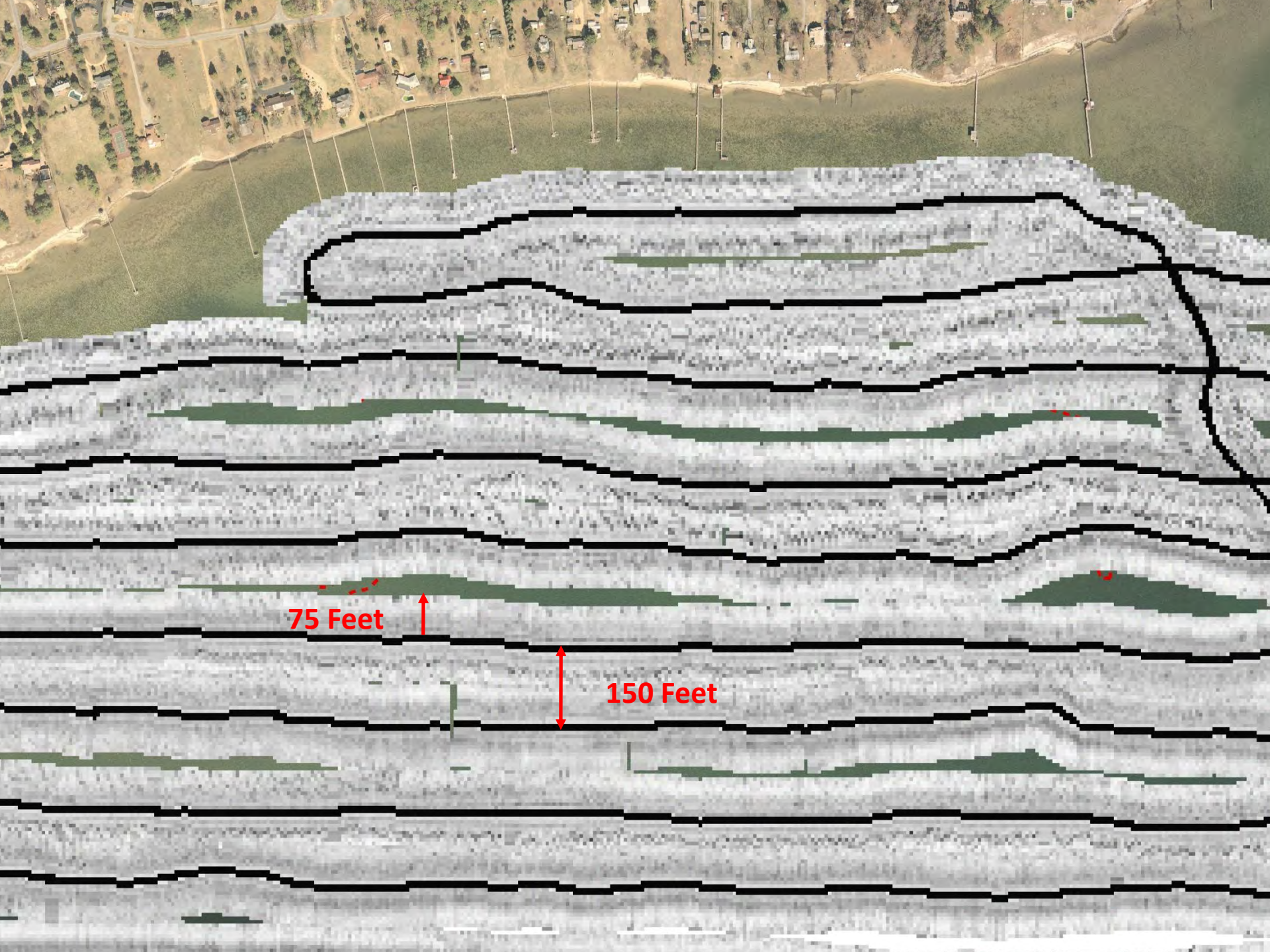
Pilings

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



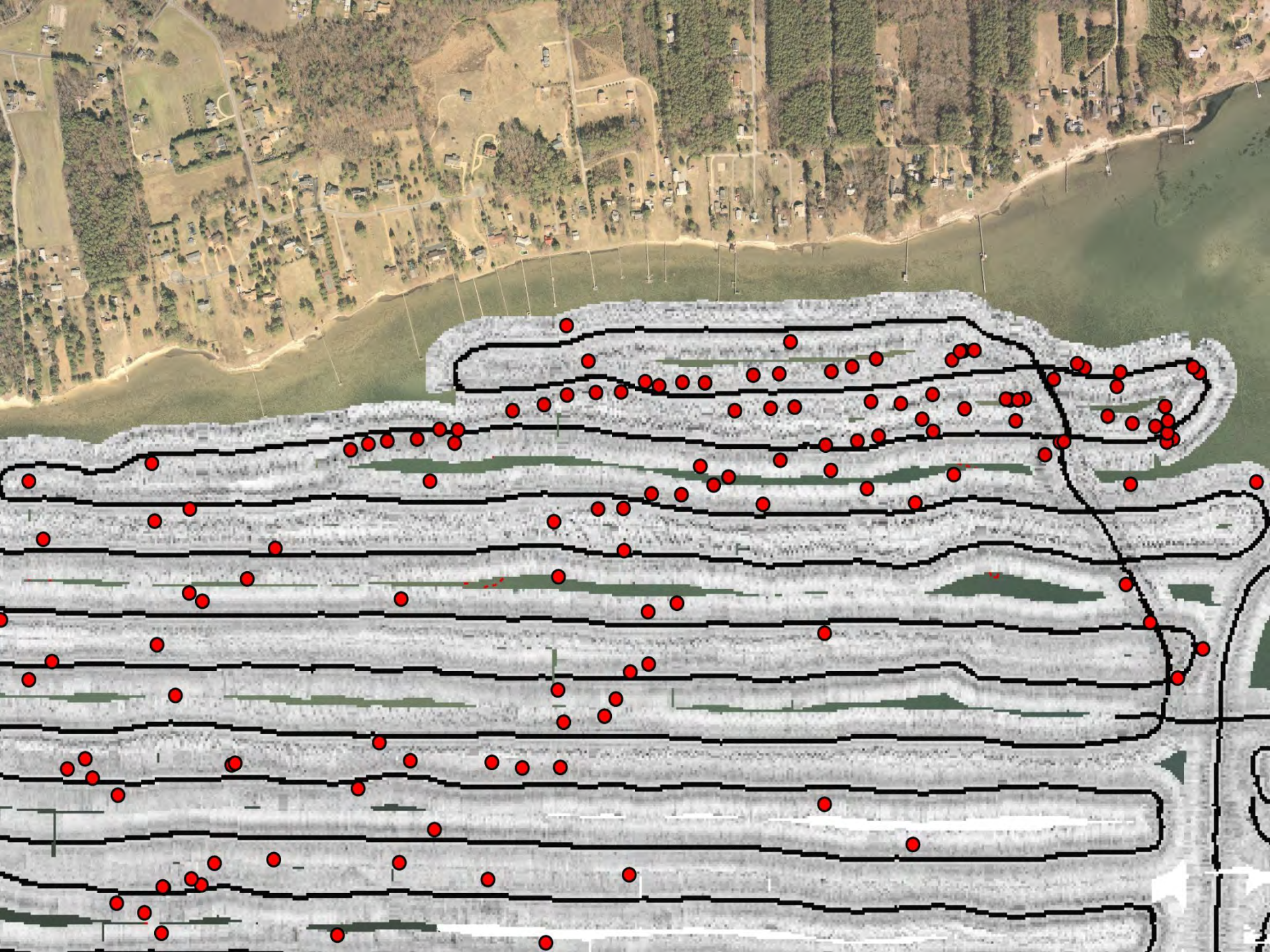
Survey Techniques



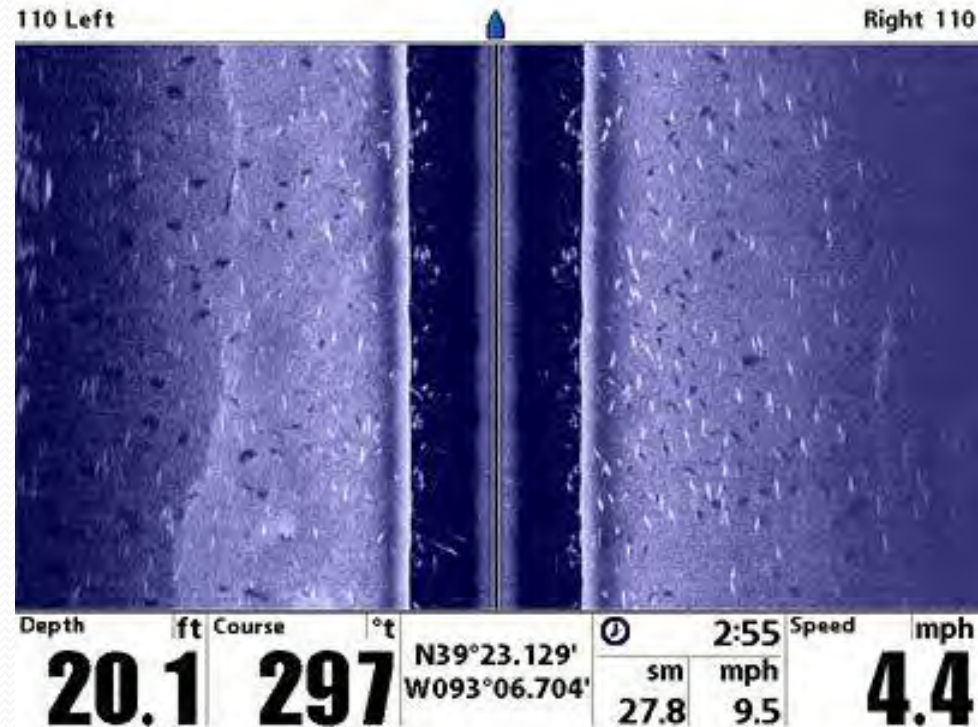
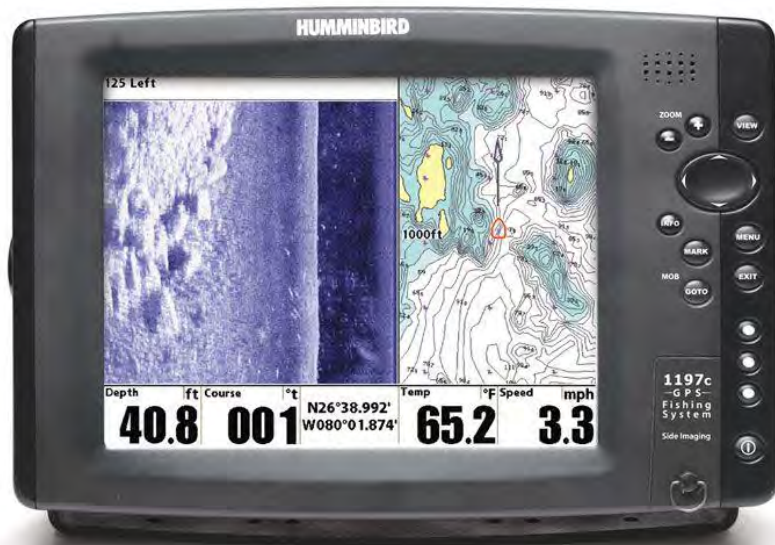


75 Feet

150 Feet



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.

Instruction for HUMMINBIRD

Marking Debris

1. Turn on HUMMINBIRD
2. press “exit” key
3. press quick key #1, to be in side view mode, to mark debris
4. when you see debris push the cursor so the bulls eye is over the object
5. Push the + key to zoom in
6. push the “**mark**” key
7. you must push exit to get back to the side view screen

At the end of the day to save all data

1. Push the “**menu**” key twice
2. scroll across to the “**NAV**” tab
3. scroll down to “**current track**”
4. scroll across to “**save**”
5. scroll to the right to save and confirm
6. After saving scroll down to “**clear**” and scroll to the right to confirm
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All your way points are automatically saved to the SD card

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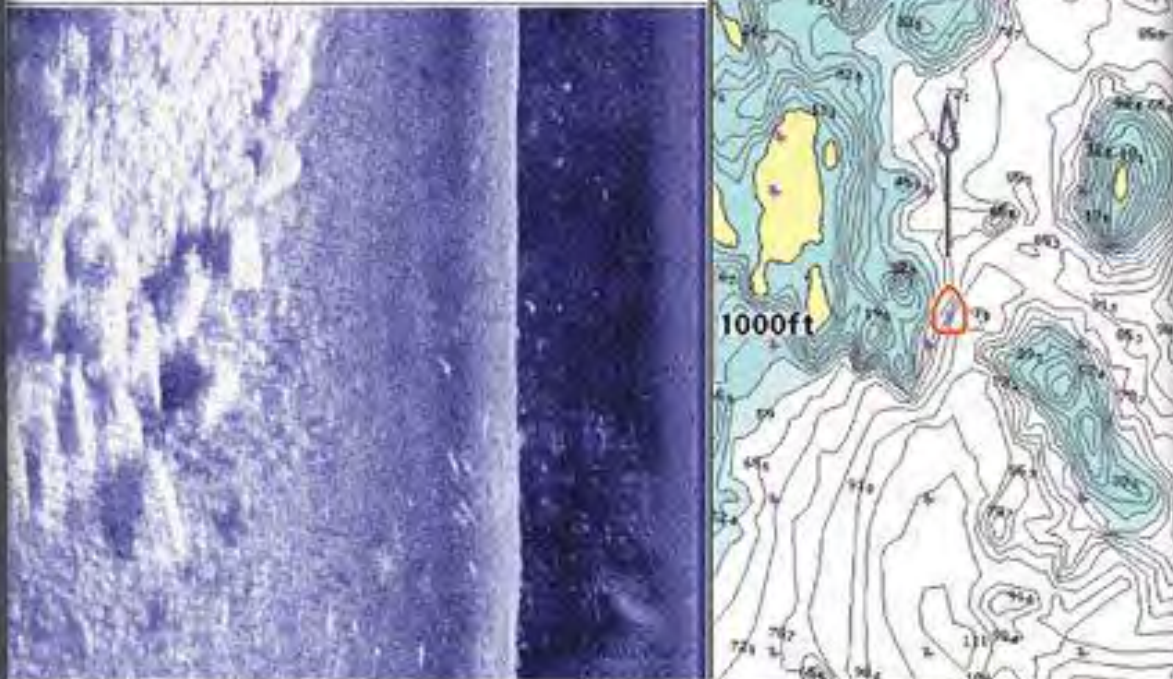
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HUMMINBIRD

125 Left



Depth	ft	Course	°t	Temp	°F	Speed	mph
40.8		001		65.2		3.3	
N26°38.992'				W080°01.874'			

ZOOM



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Fishing
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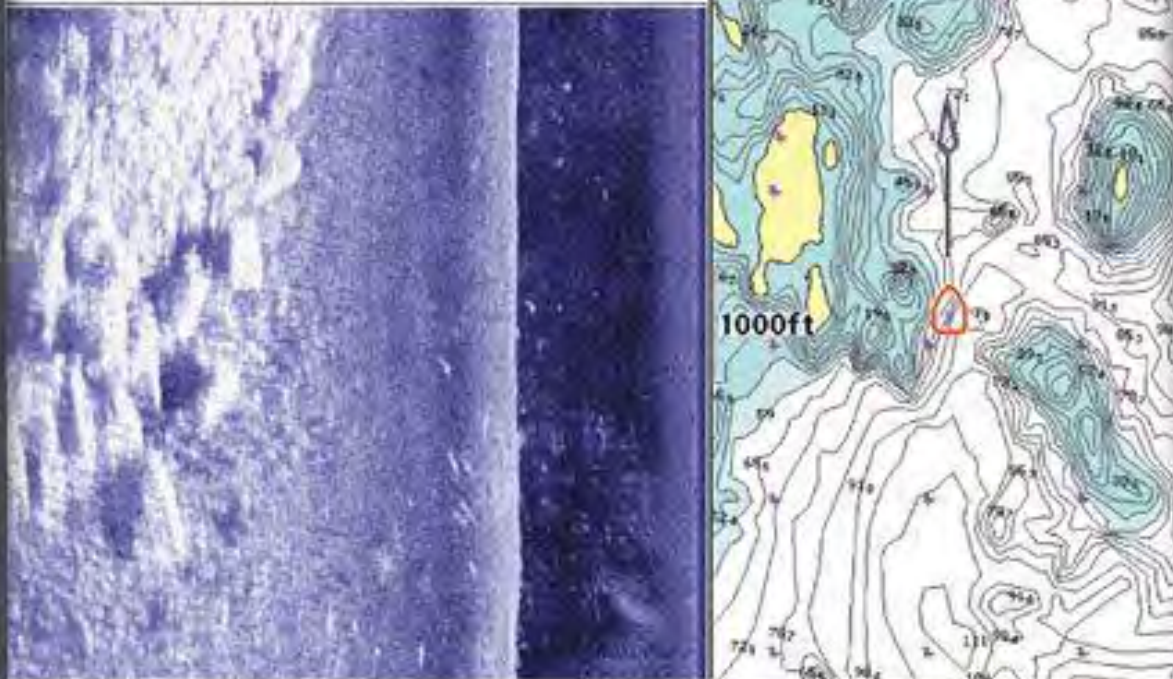
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HUMMINBIRD

125 Left



Depth	ft	Course	°t	Temp	°F	Speed	mph
40.8		001		65.2		3.3	
N26°38.992'				W080°01.874'			

ZOOM



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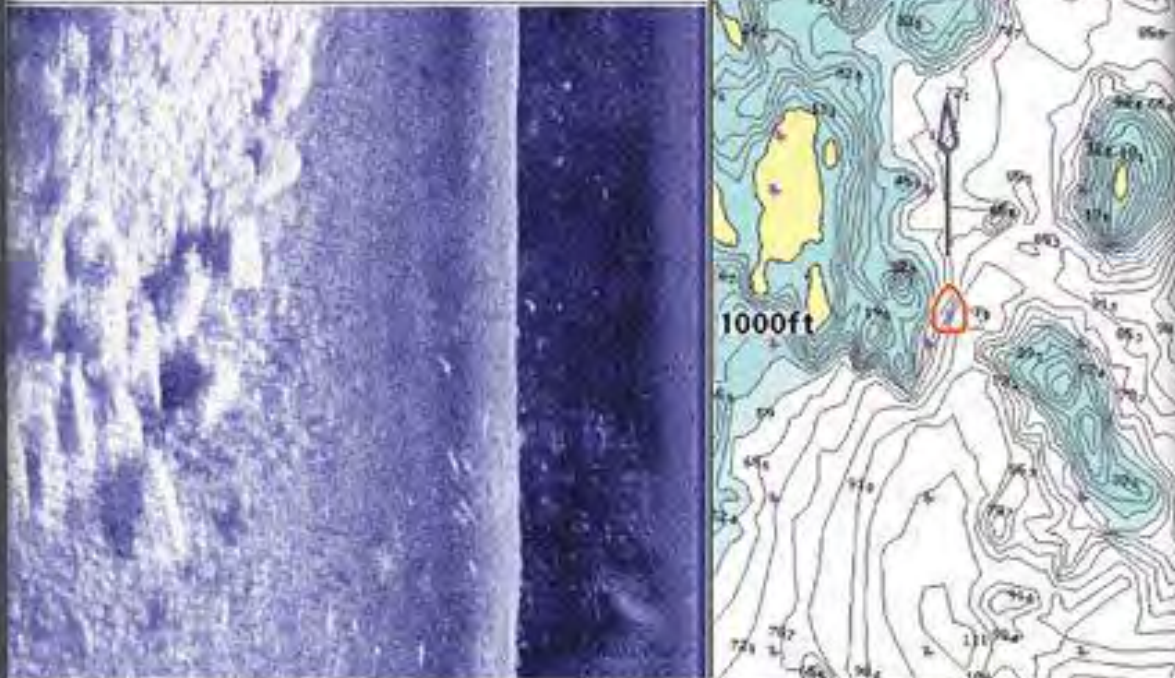
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HUMMINBIRD

125 Left



Depth	ft	Course	°t	Temp	°F	Speed	mph
40.8		001		65.2		3.3	

N26°38.992'
W080°01.874'

ZOOM



VIEW



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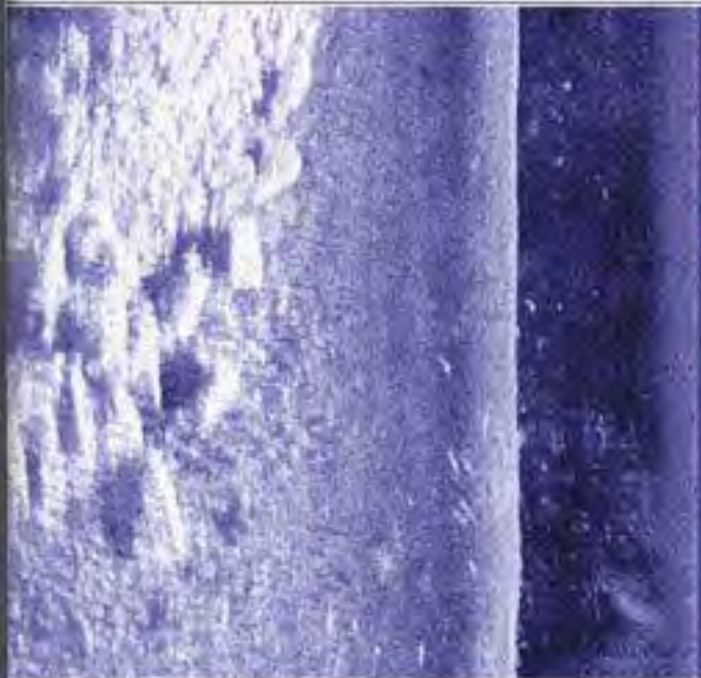
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HUMMINBIRD

125 Left



Depth	ft	Course	°t	Temp	°F	Speed	mph
40.8		001		65.2		3.3	
N26°38.992'				W080°01.874'			

ZOOM



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60.1 ft

Cursor

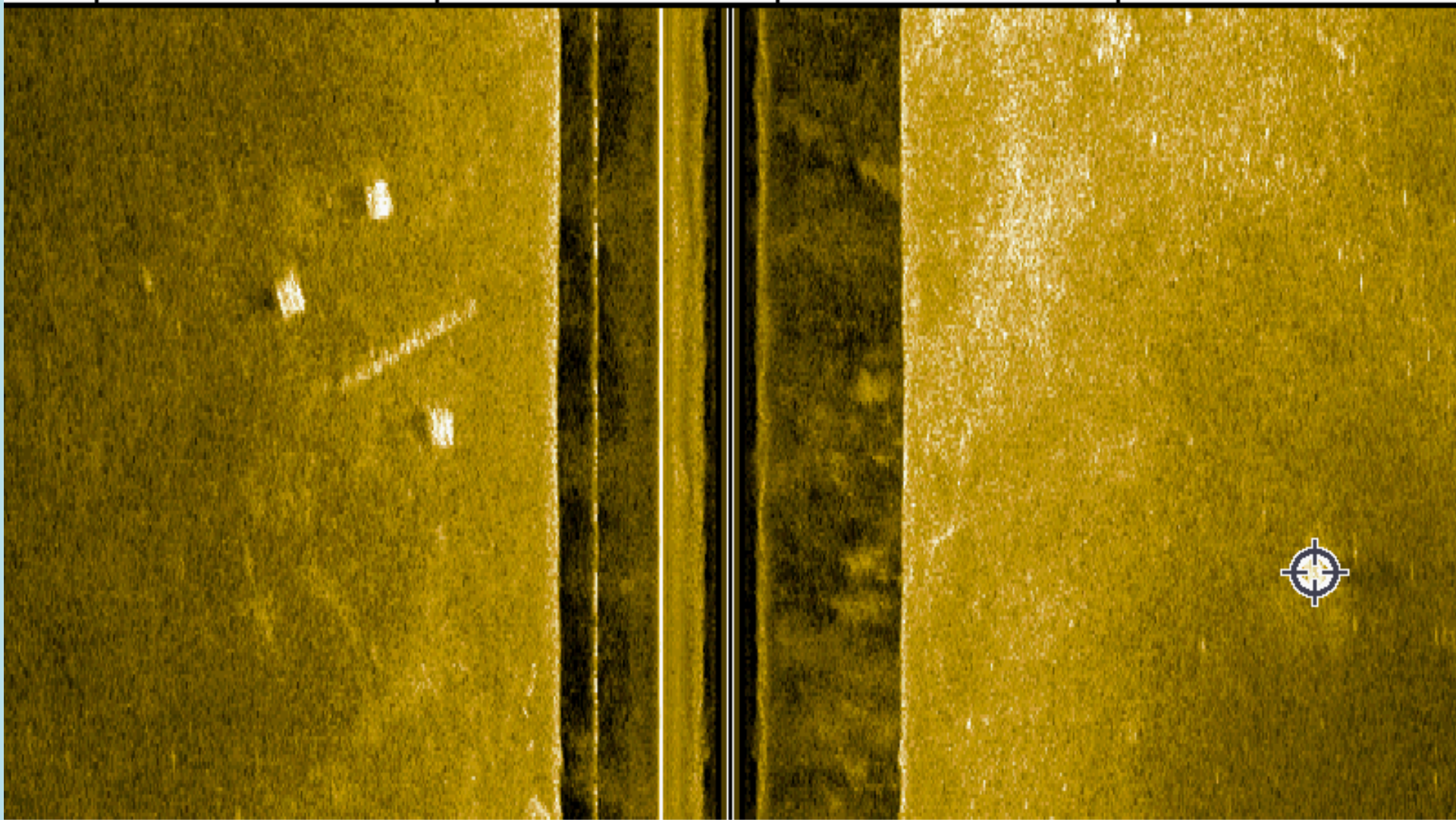
Depth

336 ft

Distance

345 °t

Bearing



Depth	ft	Speed	kts	Course	°t		
16.6		4.4		074		N 37.82978°	12:21:45 PM
						W 076.28154°	12/22/08

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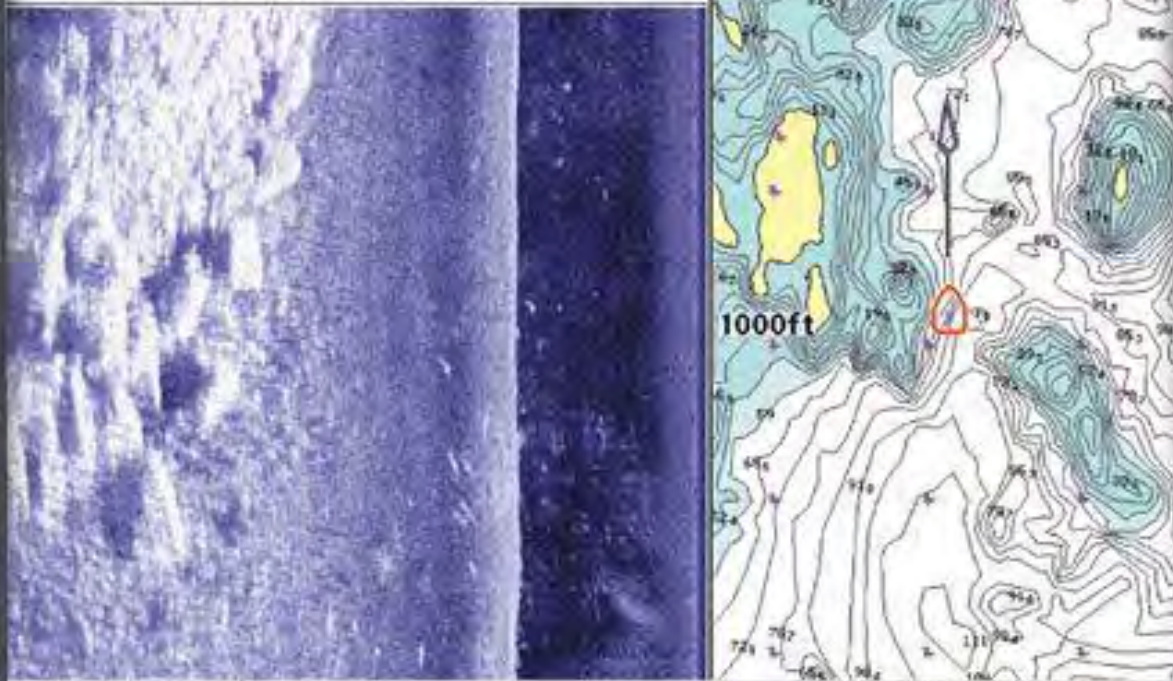
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HUMMINBIRD

125 Left



Depth	ft	Course	°t	Temp	°F	Speed	mph
40.8		001		65.2		3.3	

N26°38.992'
W080°01.874'

ZOOM

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35.9ft

Cursor

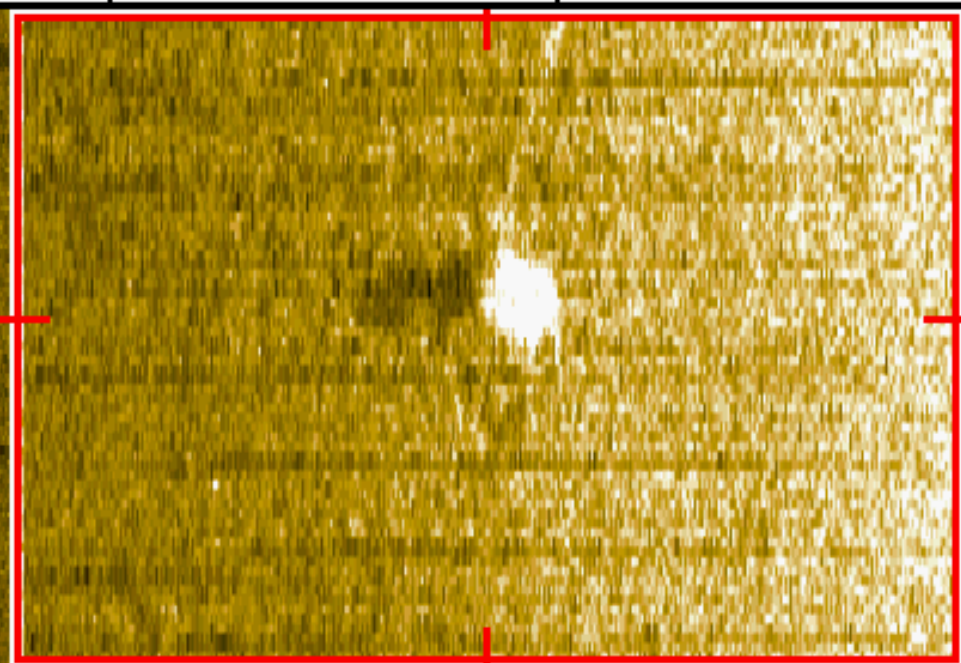
Depth

162ft

Distance

BRG 151°t

Zoom 2x



Depth	ft	Speed	kts	Course	°t		
13.2		6.5		331		N 37.31065°	8:07:36 AM
						W 076.60654°	12/30/08

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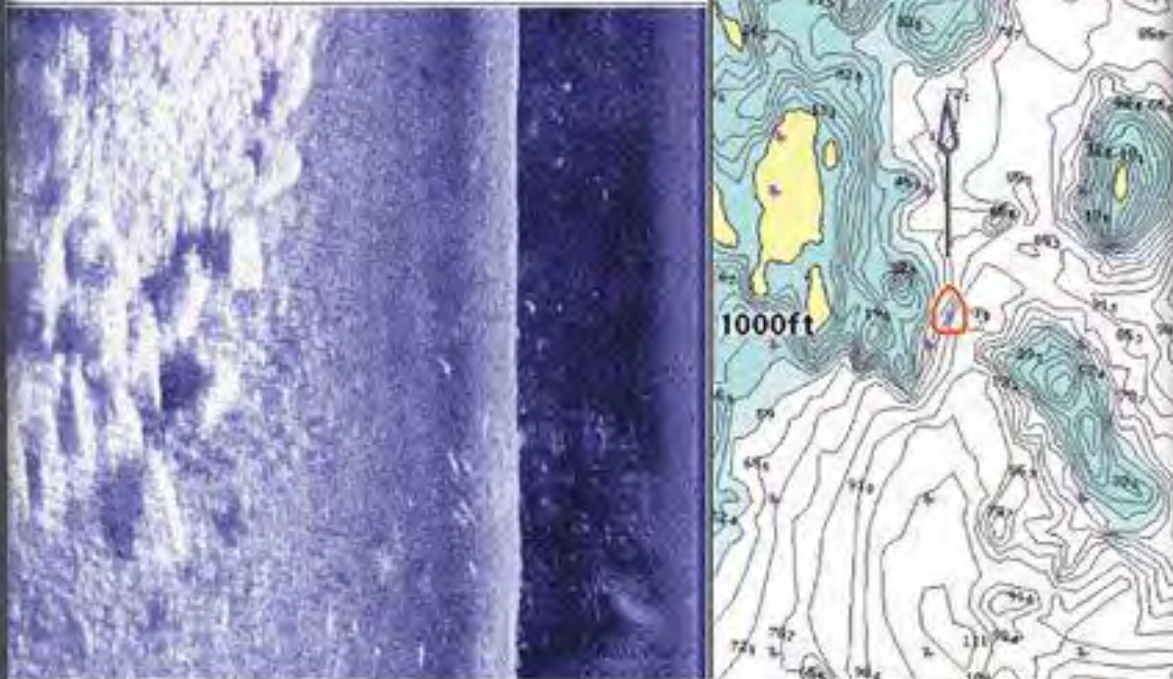
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HUMMINBIRD

125 Left



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40.8		001		65.2		3.3	
N26°38.992'				W080°01.874'			

ZOOM



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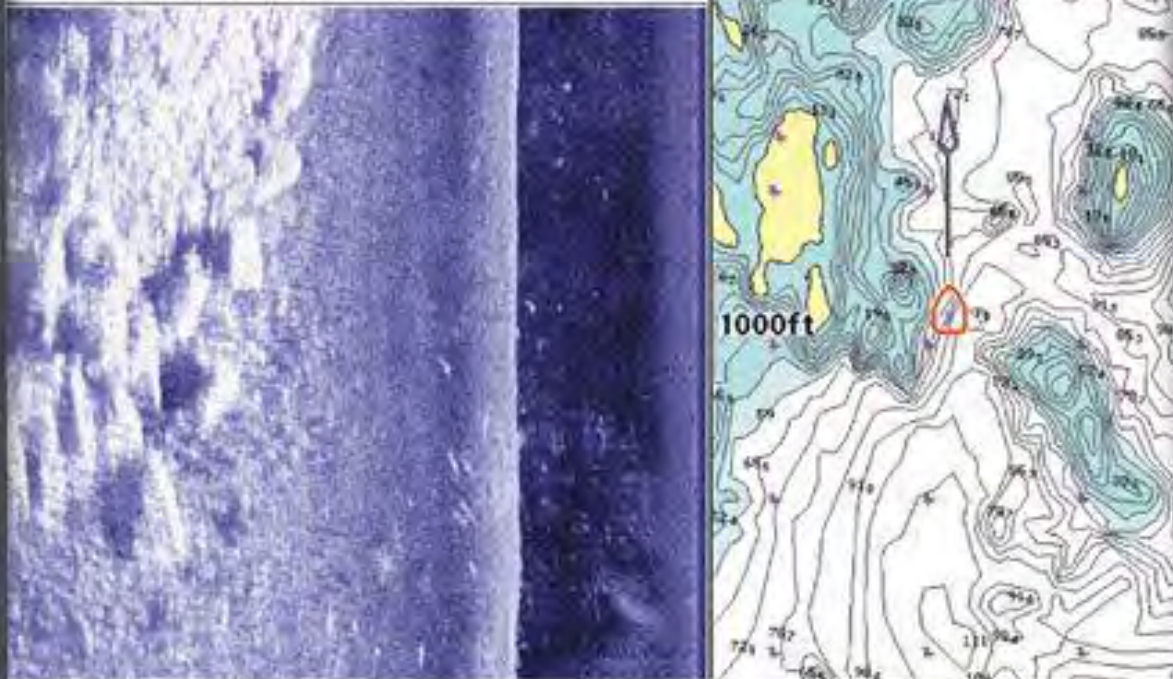
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HUMMINBIRD

125 Left



Depth	ft	Course	°t	Temp	°F	Speed	mph
40.8		001		65.2		3.3	

N26°38.992'
W080°01.874'

ZOOM



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EXIT



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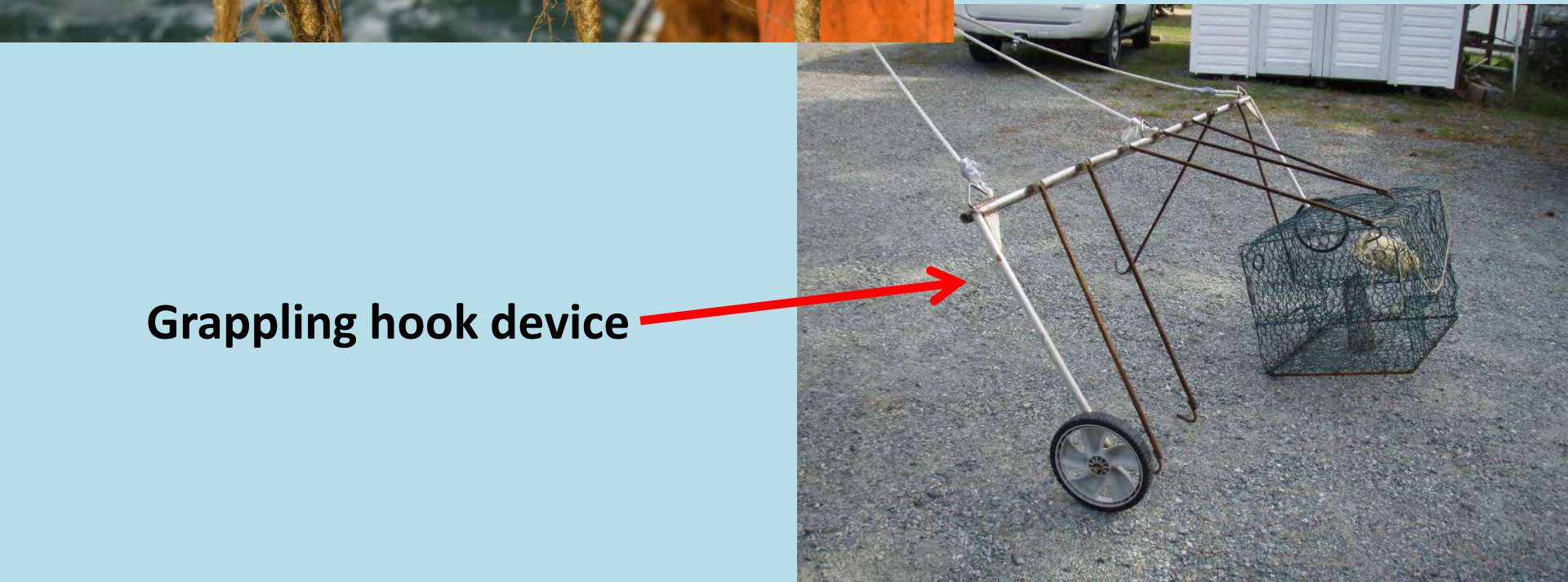


Retrieval of Marine Debris

- 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.



Dragline



Grappling hook device



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

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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

