

Santa Barbara Mariculture Survey



Santa Barbara, CA, USA
June 6'Th, 2013

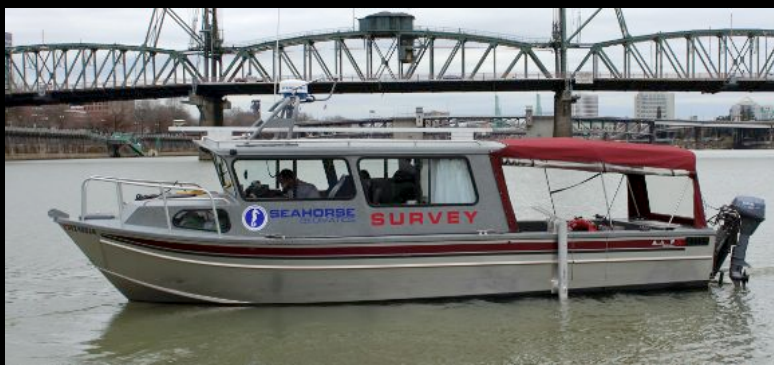
Santa Barbara, June 2013 Santa Barbara Marine Culture Survey

Survey conducted from SeaHorse Geomatics Vessel with:

- NORBIT bathymetry sonar mounted
- Ocean Modules ROV with a Norbit Forward looking sonar

Support vessel SB Marine Culture vessel

Objective primarily to survey the anchor points with Sonar and Video to verify integrity.



SeaHorse Geomatics vessel with iWBMS mounted



Ocean Modules ROV with Norbit sonar



29 April, 2013

Aquaculture site, 1 mile off Santa Barbara coastline

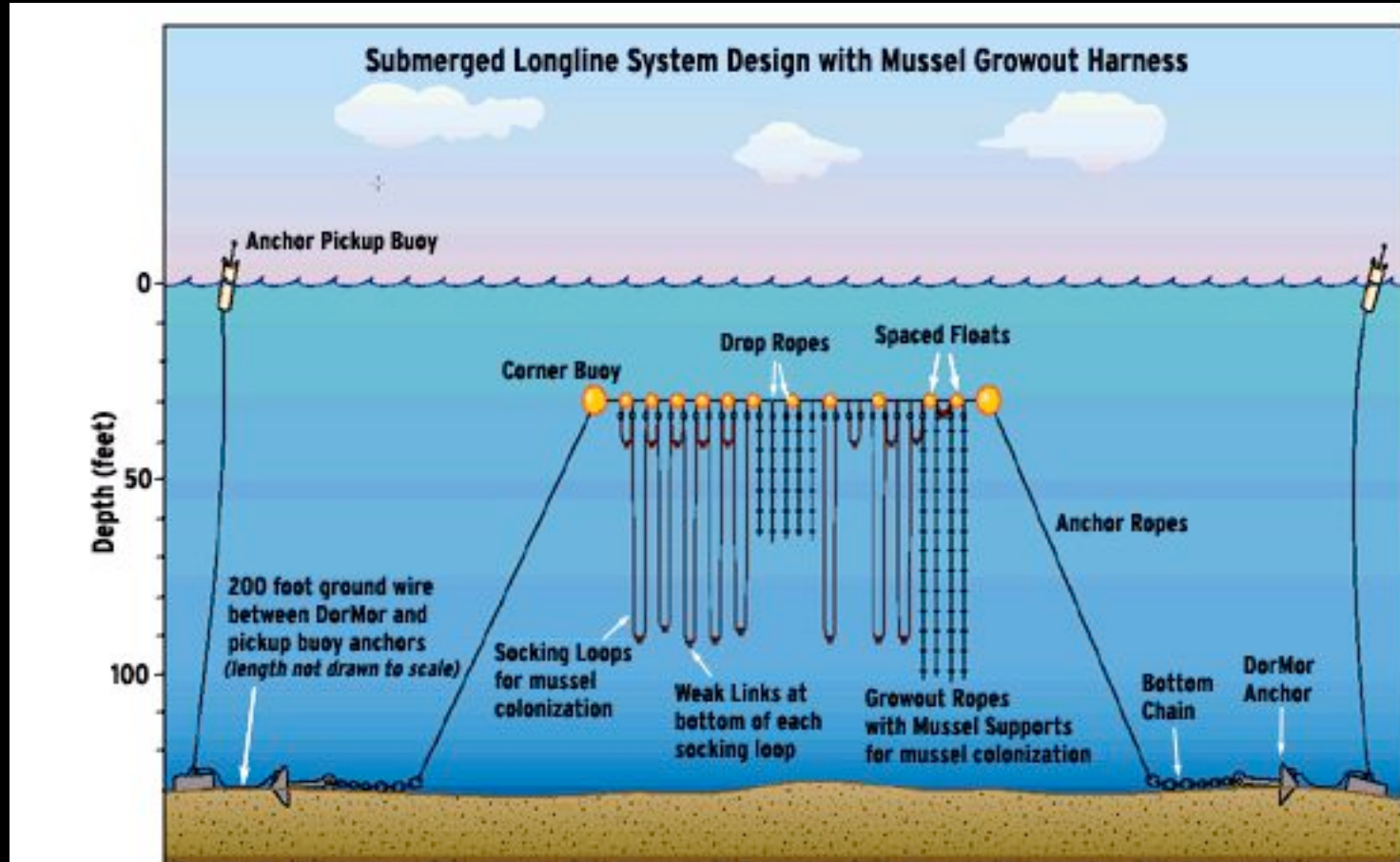


NORBIT

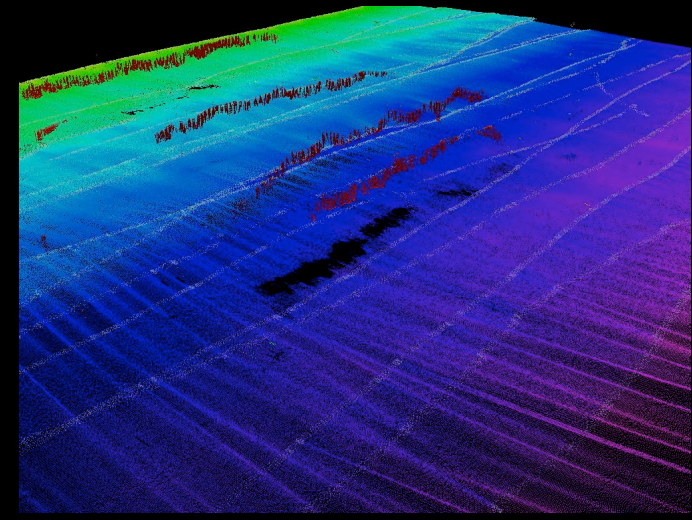
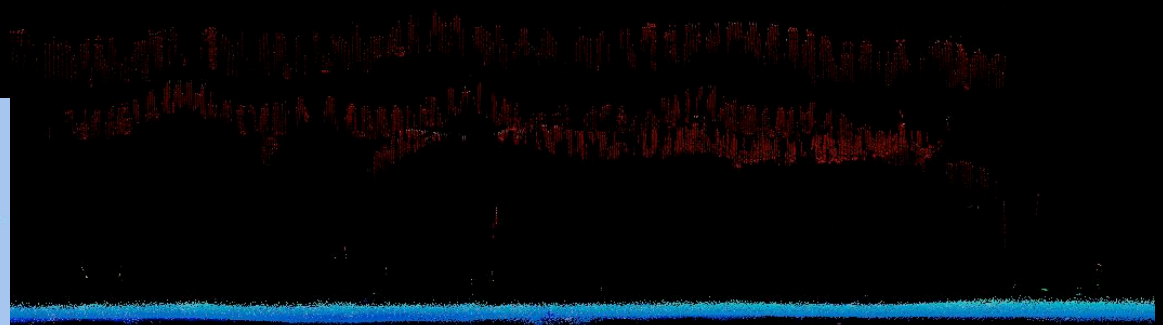
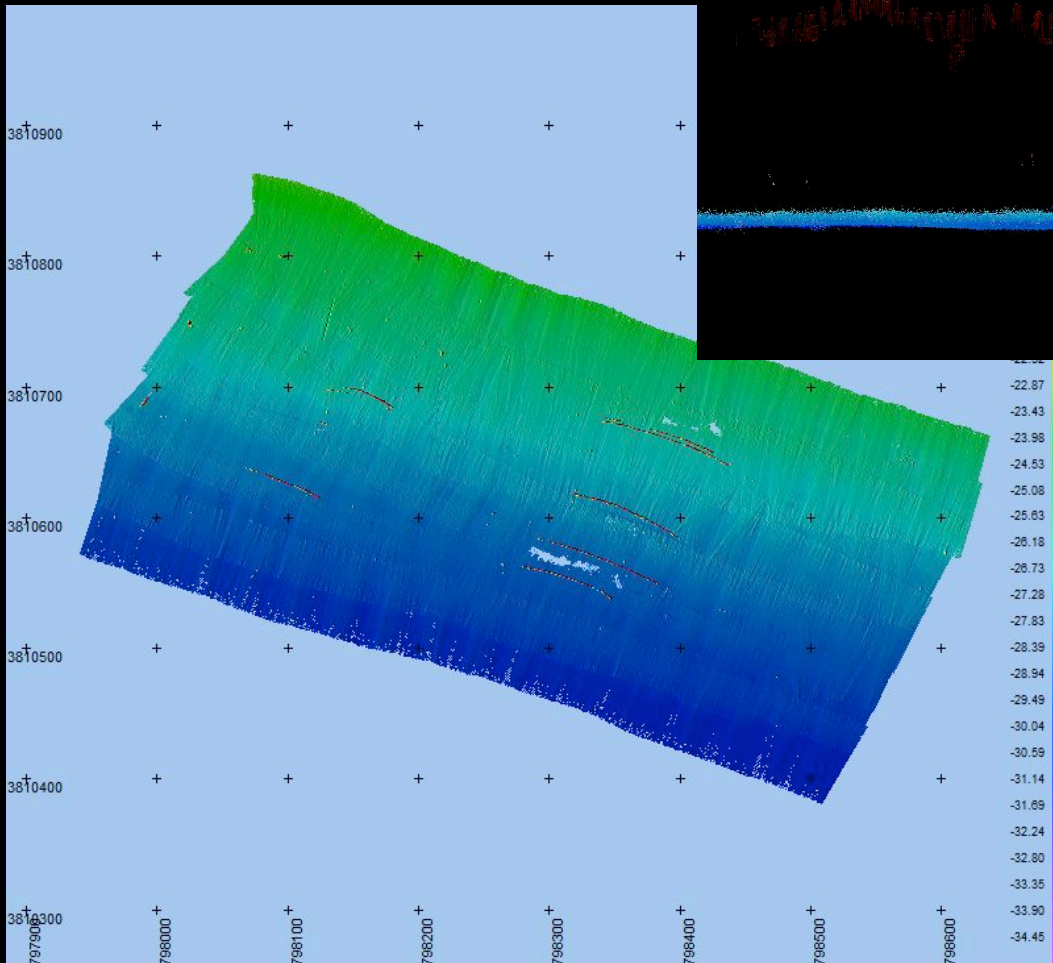
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Longline setup



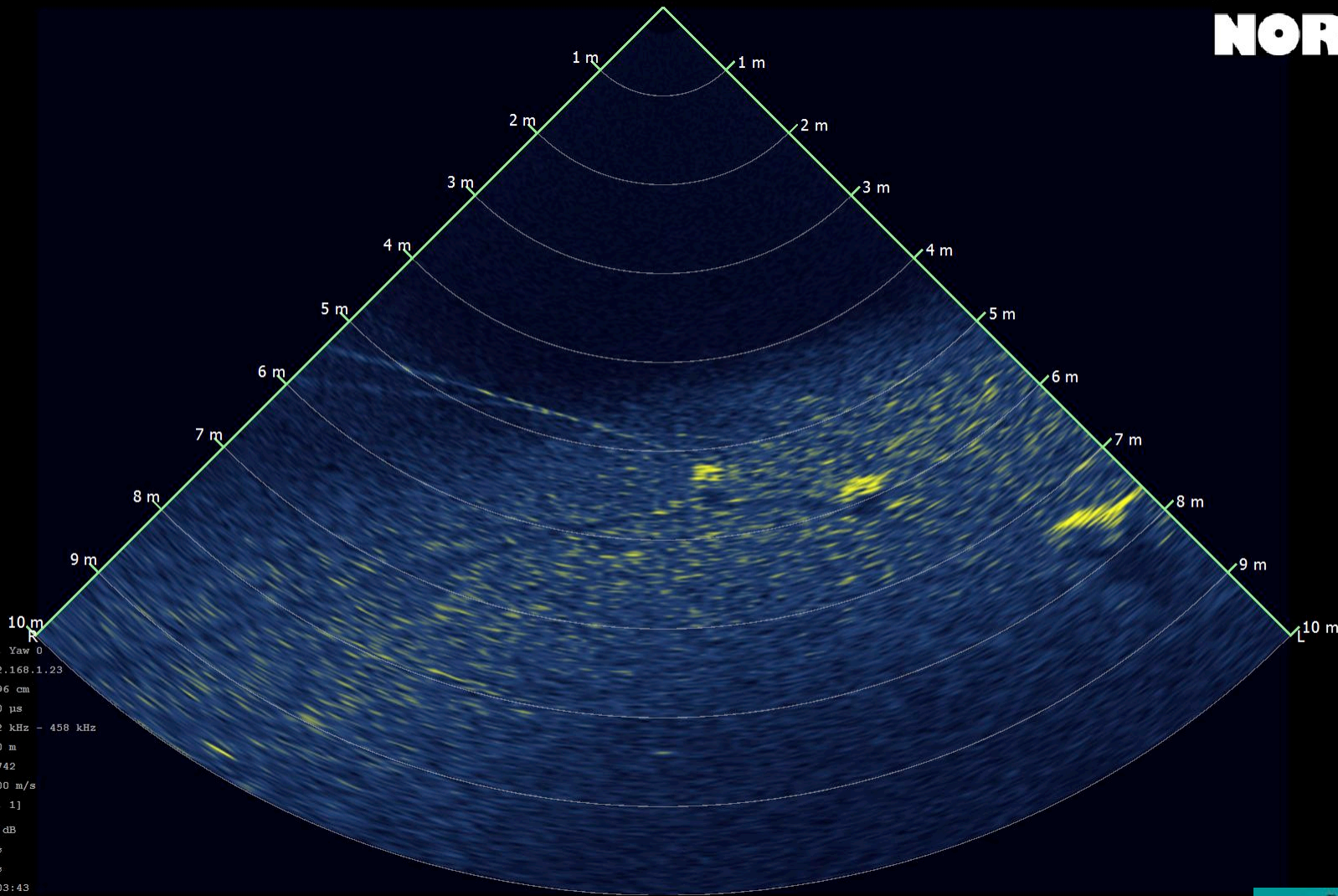
Aquaculture site, 1 mile off Santa Barbara coastline, Bathymetry water column survey



Wildlife



Anchor details and Lobster Pod ROV Sonar view



Roll: 0 , Pitch: 0 , Yaw 0
Sonar Name: 192.168.1.23
Resolution: 0.96 cm
Sweep time: 400 μ s
Frequency range: 382 kHz - 458 kHz
Focus distance: 5.0 m
Ping number: 46742
Sound velocity: 1500 m/s
Dynamic range: [0, 1]
Gain: 24 dB
Threshold: 0 %
Saturation: 1 %
Sat, 08.06.2013 11:03:43



Lobster Pod ROV Sonar view

NORBIT®

-57 dB



Depressor
Block

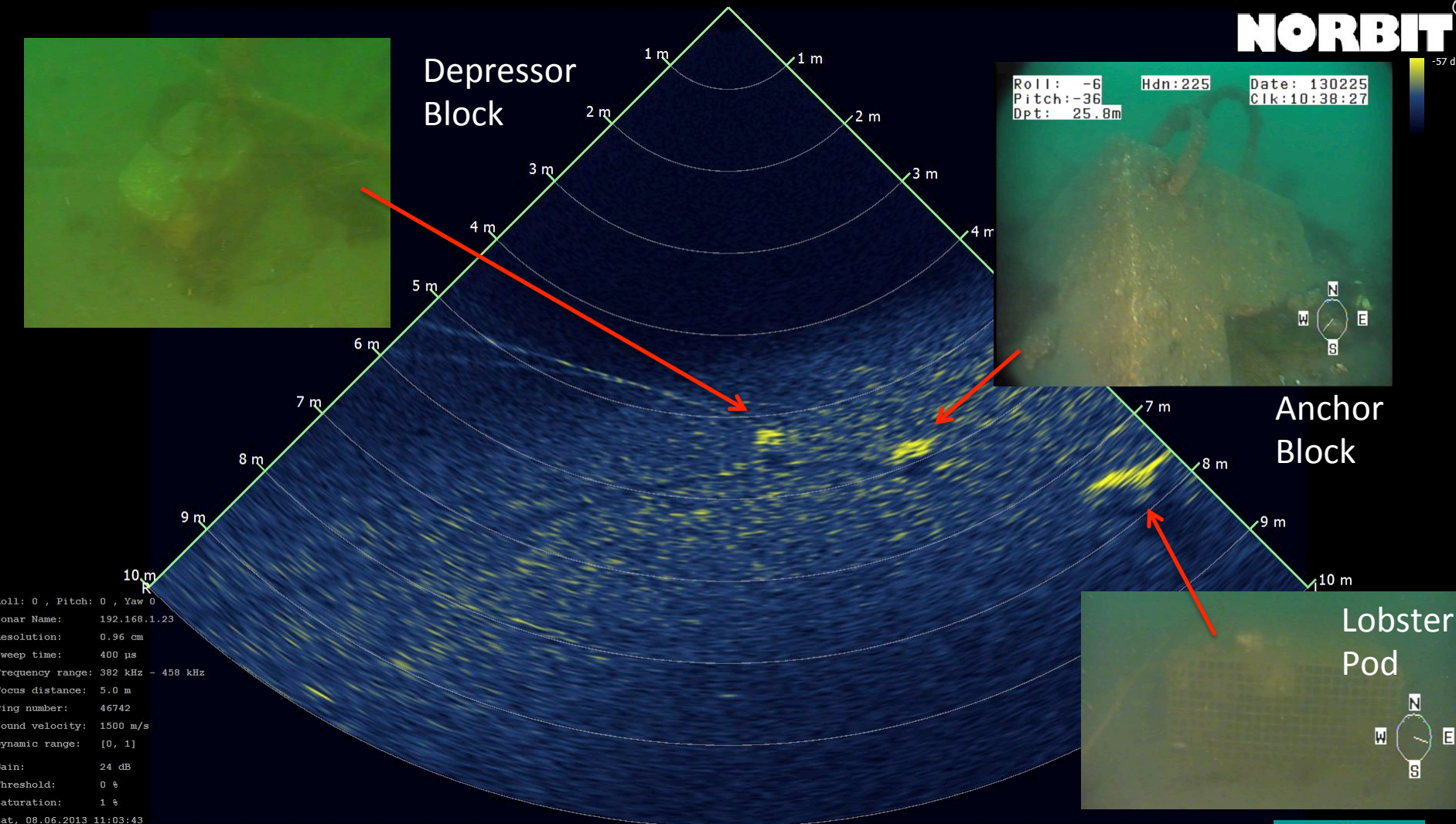
Roll: -6 Hdn: 225 Date: 130225
Pitch: -36 Clk: 10:38:27
Dpt: 25.8m



Anchor
Block



Lobster
Pod



Roll: 0 , Pitch: 0 , Yaw 0
Sonar Name: 192.168.1.23
Resolution: 0.96 cm
Sweep time: 400 µs
Frequency range: 382 kHz - 458 kHz
Focus distance: 5.0 m
Ping number: 46742
Sound velocity: 1500 m/s
Dynamic range: [0, 1]
Gain: 24 dB
Threshold: 0 %
Saturation: 1 %
Sat, 08.06.2013 11:03:43

NORBIT

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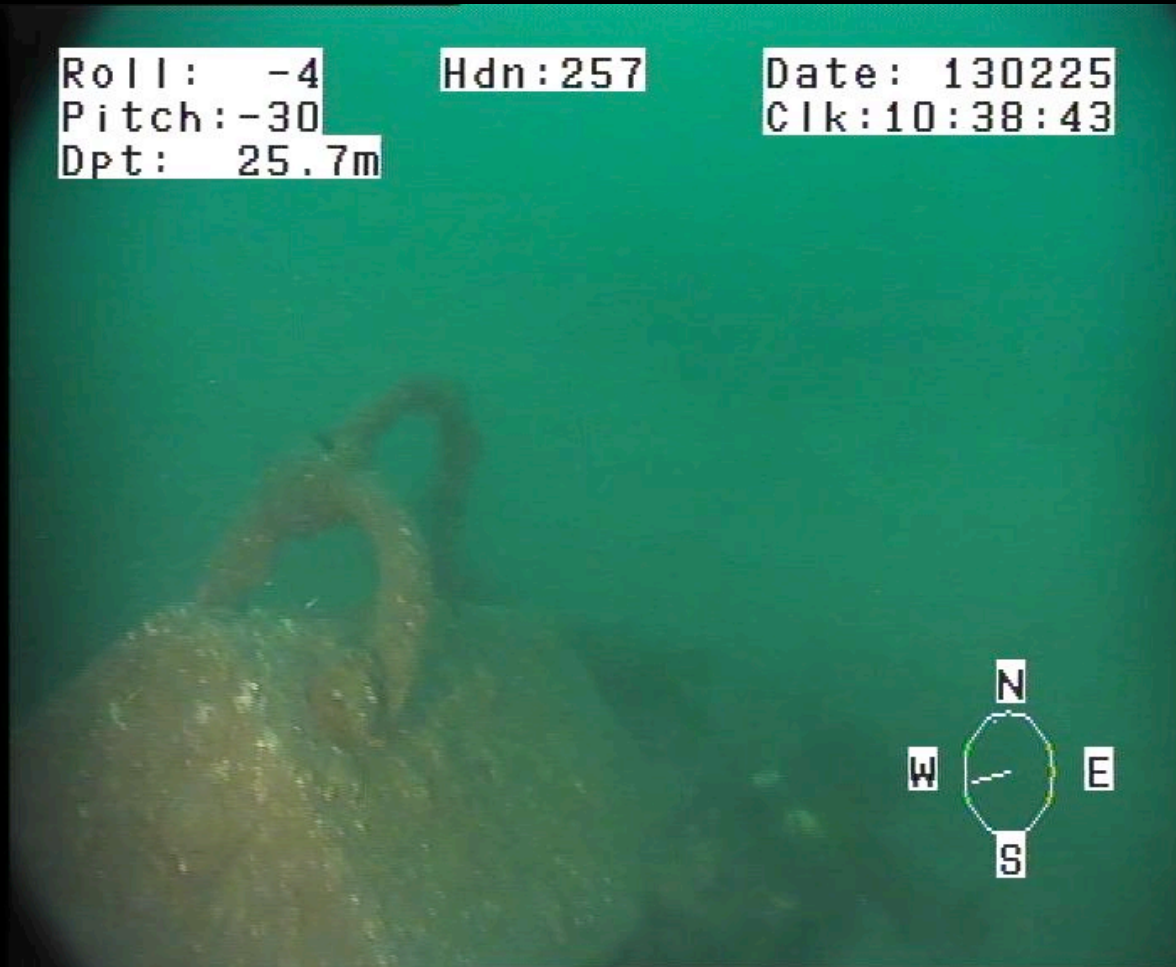


Longline setup Anchors ROV Camera

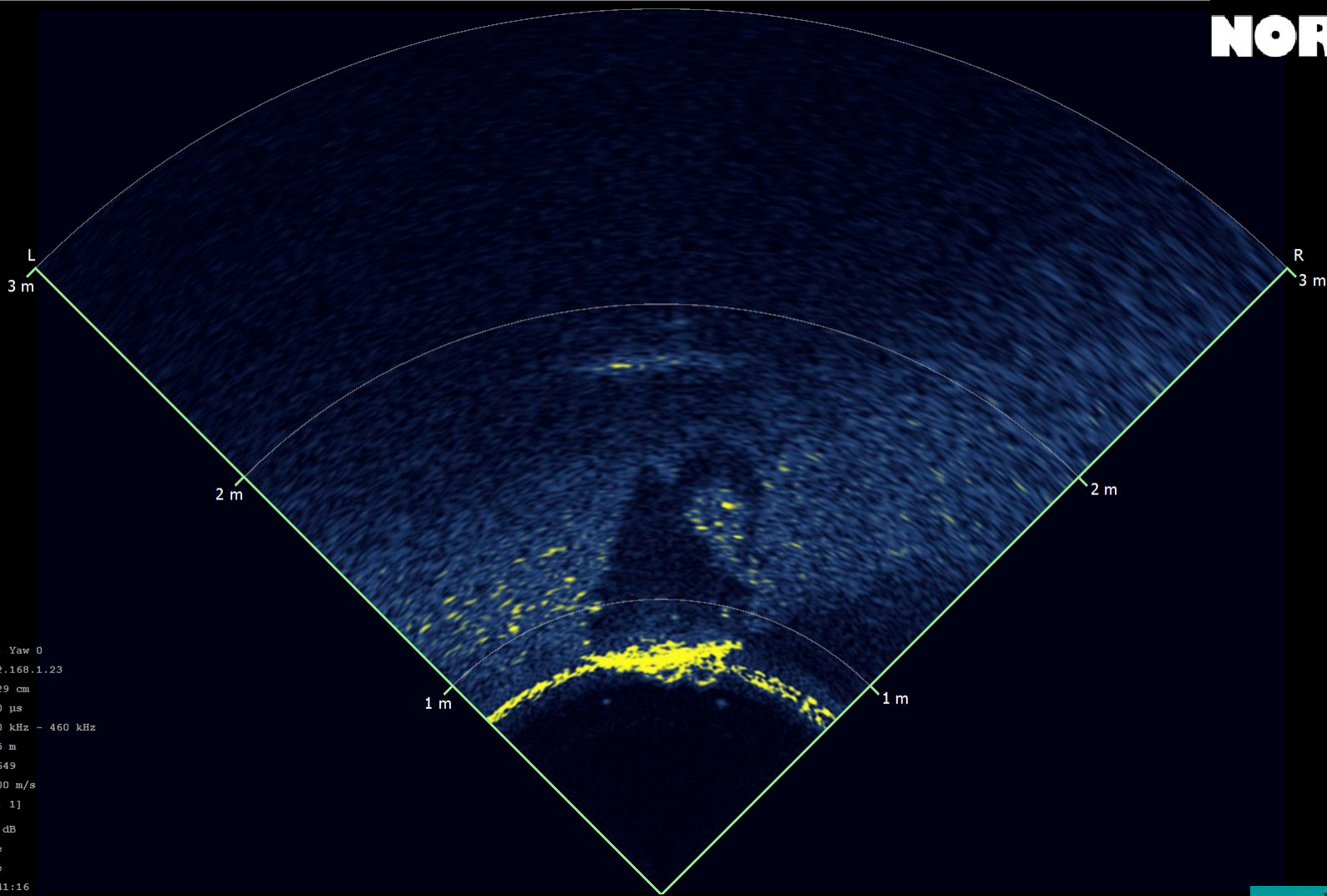
Roll: -4
Pitch: -30
Dpt: 25.7m

Hdn: 257

Date: 130225
Clk: 10:38:43



Longline setup Anchor blocks, notice shadows



Roll: 0 , Pitch: 0 , Yaw 0
Sonar Name: 192.168.1.23
Resolution: 0.29 cm
Sweep time: 100 μ s
Frequency range: 380 kHz - 460 kHz
Focus distance: 1.5 m
Ping number: 15649
Sound velocity: 1500 m/s
Dynamic range: [0, 1]
Gain: 30 dB
Threshold: 0 %
Saturation: 1 %
Sat, 08.06.2013 10:41:16

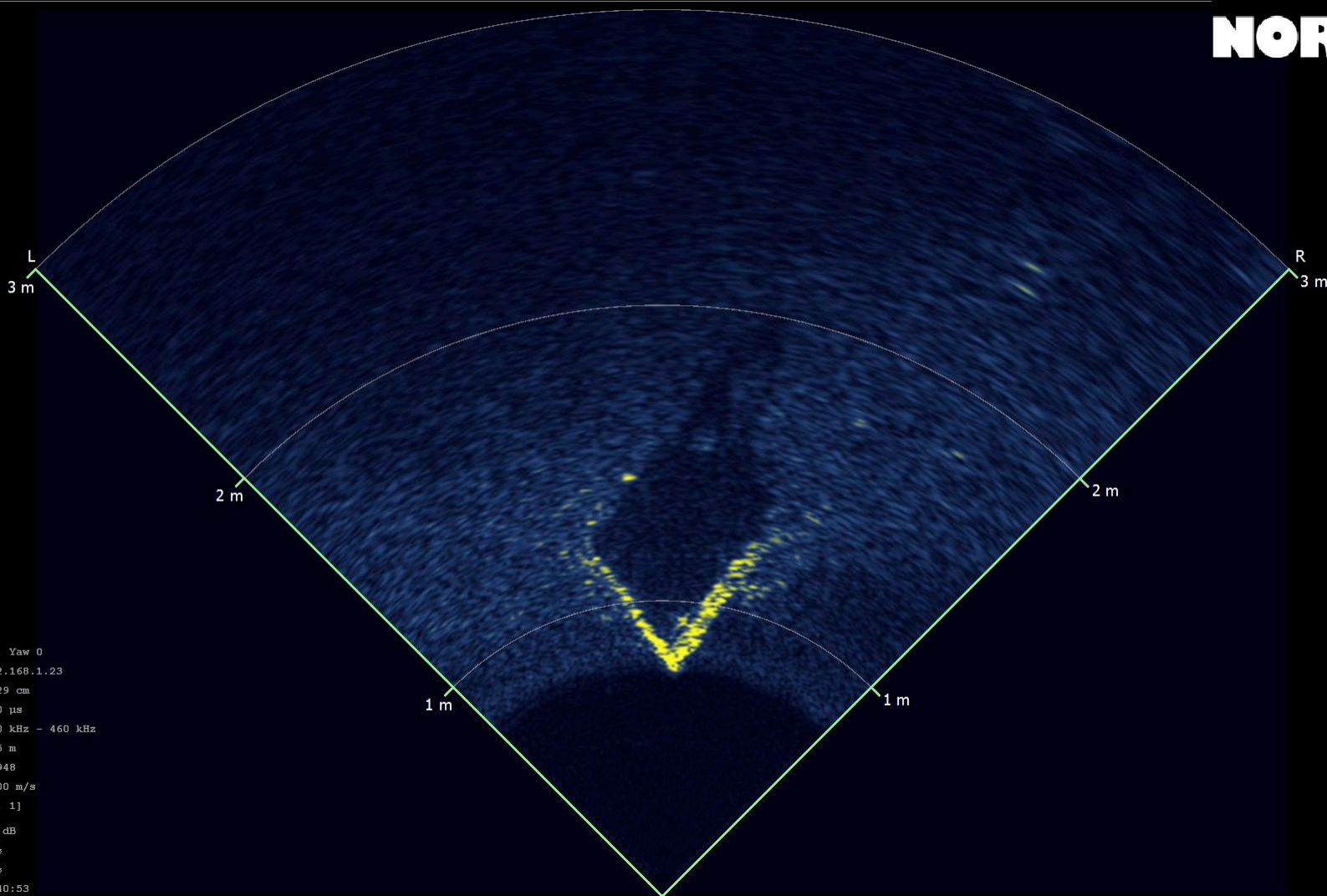


29 April, 2013

Longline setup

Anchor blocks, notice shadows other angle

NORBIT[®]



Roll: 0 , Pitch: 0 , Yaw 0
Sonar Name: 192.168.1.23
Resolution: 0.29 cm
Sweep time: 100 μ s
Frequency range: 380 kHz - 460 kHz
Focus distance: 1.5 m
Ping number: 14948
Sound velocity: 1500 m/s
Dynamic range: [0, 1]
Gain: 24 dB
Threshold: 0 %
Saturation: 1 %
Sat, 08.06.2013 10:40:53

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Lobster Pod Drop Weight ROV Camera

Roll: -2
Pitch: -34
Dpt: 25.1m

Hdn: 131

Date: 130225
Clk: 10:37:14



Lobster Pod

Drop weight and rope on sonar @ 25.1m water depth

Norbit WBMS viewer - C:\Users\Norbit\Desktop\Norbit\2013-06-08-10_31_43\1

Playback Settings
Advanced Playback Settings
Show Grid
Sonar Orientation Modifier 0 deg

Playback Controls
UI Preferences...
Browse...
Export...
Export Current Ping
Export Video...
Close
Set Workarea...

Tags
Ping Desc. Time

Side Lobe Suppression
On/Off

Motion Detection
On/Off

Roll: 0 , Pitch: 0 , Yaw 0
Sonar Name: 192.168.1.23
Resolution: 0.29 cm
Sweep time: 100 µs
Frequency range: 380 kHz - 460 kHz
Focus distance: 1.5 m
Ping number: 8472
Sound velocity: 1500 m/s
Dynamic range: [0, 1]
Gain: 36 dB
Threshold: 0 %
Saturation: 1 %
Sat, 08.06.2013 10:37:15

NORBIT -69 dB

10:31 11:11

Playback Speed: x1.00
Noise Threshold: 0
Brightness: 101 %
Contrast: 79 %
Median Filter: 0
Color Map: blue_to_yellow

Lobster Pod ROV CAM view

Roll: 1
Pitch: -37
Dpt: 28.2m

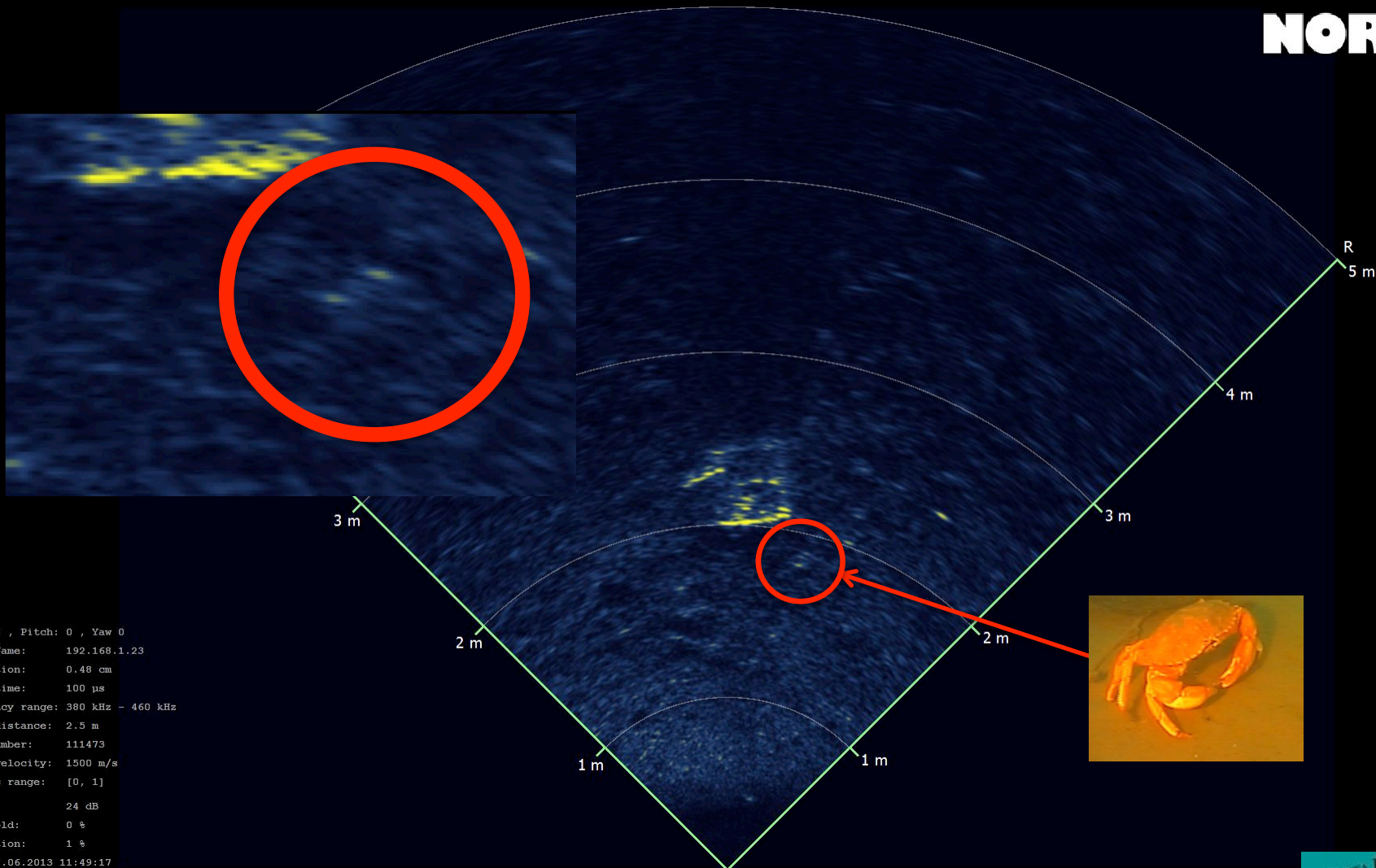
Hdn: 109

Date: 130225
Clk: 11:48:50



Lobster Pod ROV Sonar view

NORBIT[®]
-57 dB



Roll: 0 , Pitch: 0 , Yaw 0
Sonar Name: 192.168.1.23
Resolution: 0.48 cm
Sweep time: 100 μ s
Frequency range: 380 kHz - 460 kHz
Focus distance: 2.5 m
Ping number: 111473
Sound velocity: 1500 m/s
Dynamic range: [0, 1]
Gain: 24 dB
Threshold: 0 %
Saturation: 1 %
Sat, 08.06.2013 11:49:17

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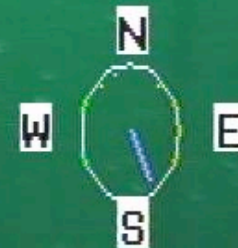


Longline Production Rope setup ROV CAM view

Roll: -2
Pitch: -21
Dpt: 4.3m

Hdn: 152

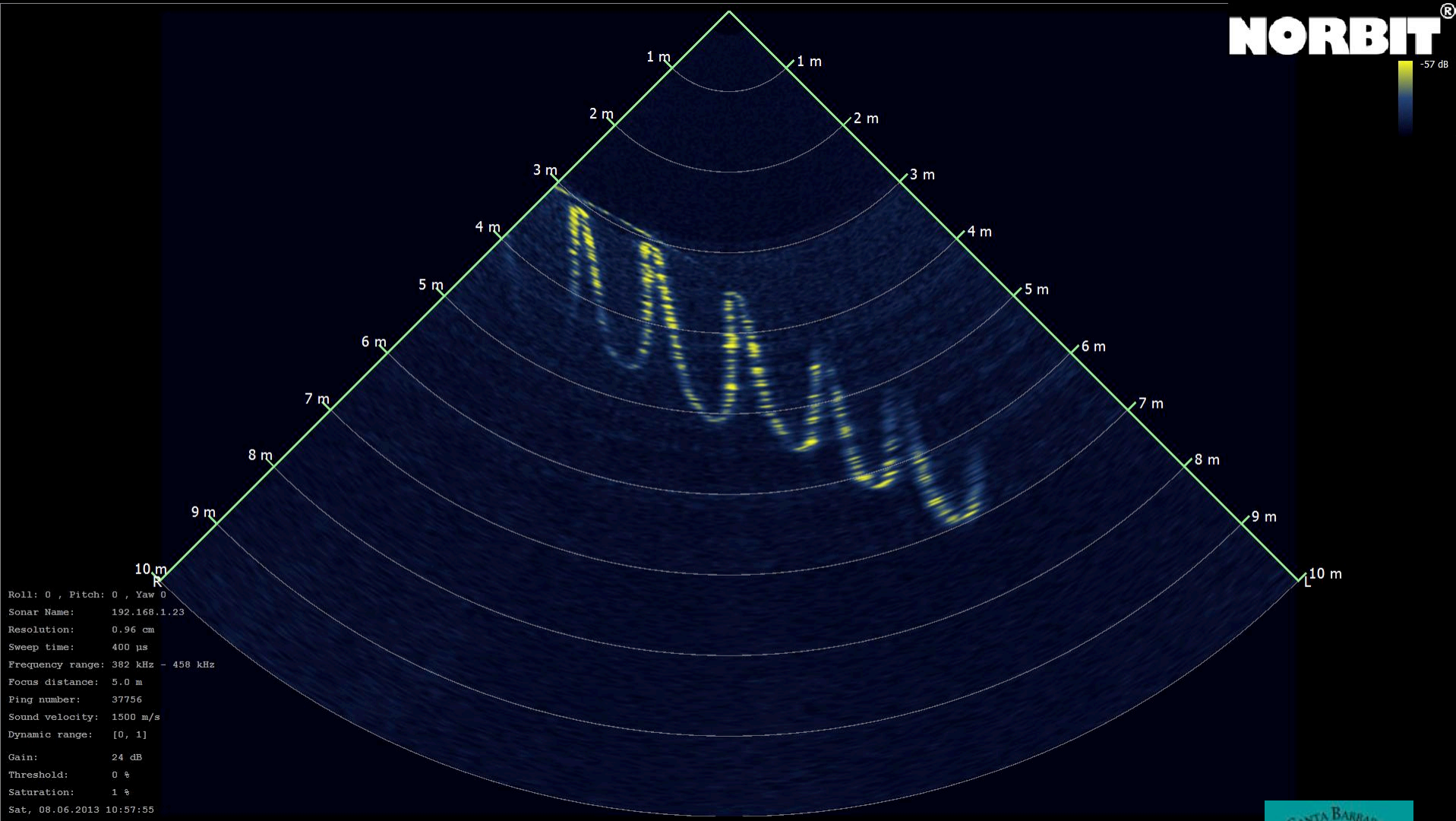
Date: 130225
Clk: 10:57:13



Longline Production Rope setup ROV CAM view



Longline Production Rope setup Looking down the line



Roll: 0 , Pitch: 0 , Yaw 0
Sonar Name: 192.168.1.23
Resolution: 0.96 cm
Sweep time: 400 μ s
Frequency range: 382 kHz - 458 kHz
Focus distance: 5.0 m
Ping number: 37756
Sound velocity: 1500 m/s
Dynamic range: [0, 1]
Gain: 24 dB
Threshold: 0 %
Saturation: 1 %
Sat, 08.06.2013 10:57:55



Longline Production Rope setup ROV CAM view

Roll: 0
Pitch: -62
Dpt: 6.2m

Hdn: 156

Date: 130225
CIK: 10:33:03



29 April, 2013

END

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