

Next

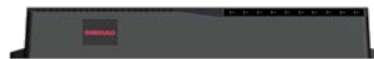
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EK80

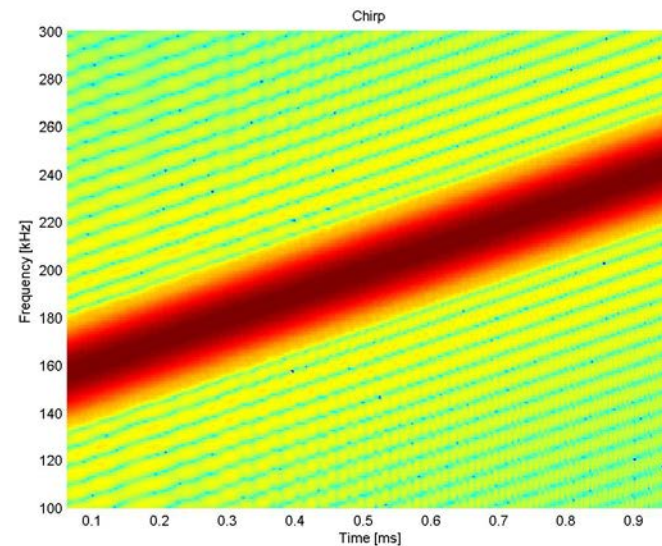
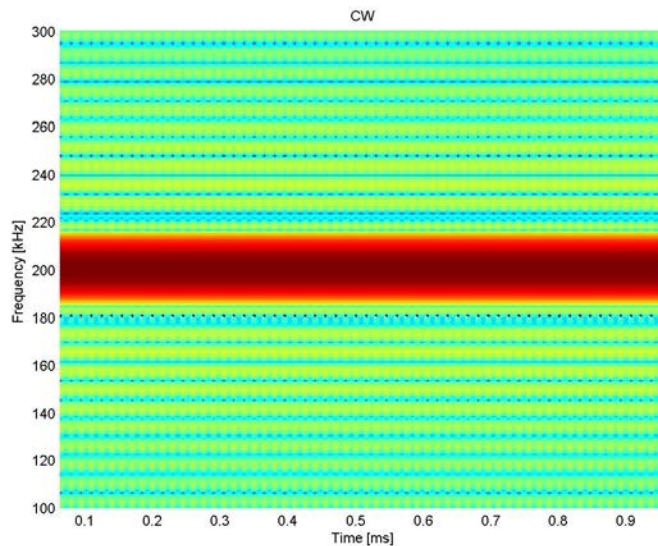


TECHNOLOGY FOR SUSTAINABLE FISHERIES

- What is EK80
 - EK60 functionality
 - And **Wideband** (Broadband) functionality
 - New Wide Band Transceiver (WBT)
 - New operating software (EK80)
 - Existing and new transducers



- What is wideband (broadband) in EK80?
 - The transceiver (WBT) can operate from 10 kHz to 500 kHz
 - Simrad transducers determine bandwidth
 - Types of signals:
 - Continuous wave (CW) – “One discrete” frequency during entire pulse duration (EK60)
 - Chirp – Frequency increasing linearly from low to high during pulse duration
 - User defined – User specifies transmit sample values (e.g. simulated dolphin click)



- High range resolution **and** Long range
 - (for resolved single targets)
- Continuous target frequency response

- EK60
 - High range resolution using short pulse duration
 - Long range performance using long pulse duration
 - Compromise between high range resolution and long range performance

- EK80 - Wideband
 - Range resolution depends on bandwidth – not on pulse duration
 - High range resolution using wide bandwidth
 - Long range performance using long pulse duration
 - High range resolution **and** long range performance using wide bandwidth and long pulse duration

- EK60
 - Volume backscatter, $S_v(f)$, for discrete frequencies
 - Target strength, $TS(f)$, for discrete frequencies
- EK80 - Wideband
 - Volume backscatter, $S_v(f)$, continuously over entire band
 - Target strength, $TS(f)$, continuously over entire band
 - Increased information about acoustic properties of targets
 - Increased information about target species, size, and angle of orientation

- Requirements

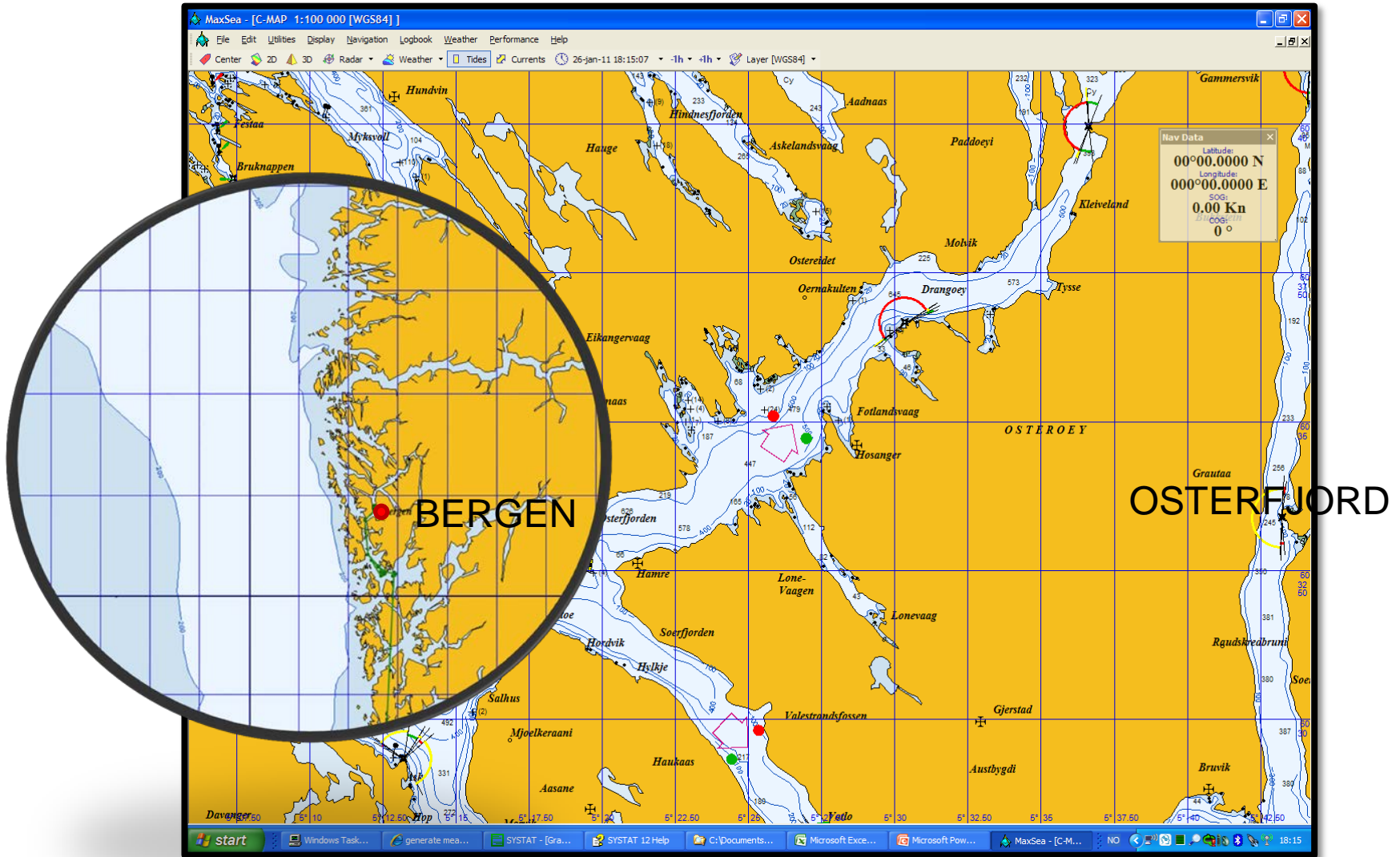
- High transducer transmit and receiving sensitivity over a wide bandwidth.
- Transmit and receiving sensitivity is directly related to
 - Directivity (Beam opening)
 - Transducer efficiency
- Low internal electronic noise level for the echo sounder.
- Careful system installation in order to eliminate/reduce interference from other electronic noise sources over the entire operational bandwidth.

- Simrad composite transducers

- ES70-7C, ES120-7C, ES200-7C, ES333-7C
- High efficiency
- Low sidelobes
- Repeatable beam patterns
- Reliable

WESTZOO - Survey area

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TECHNOLOGY FOR SUSTAINABLE FISHERIES

Scenery

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TS probe 2009

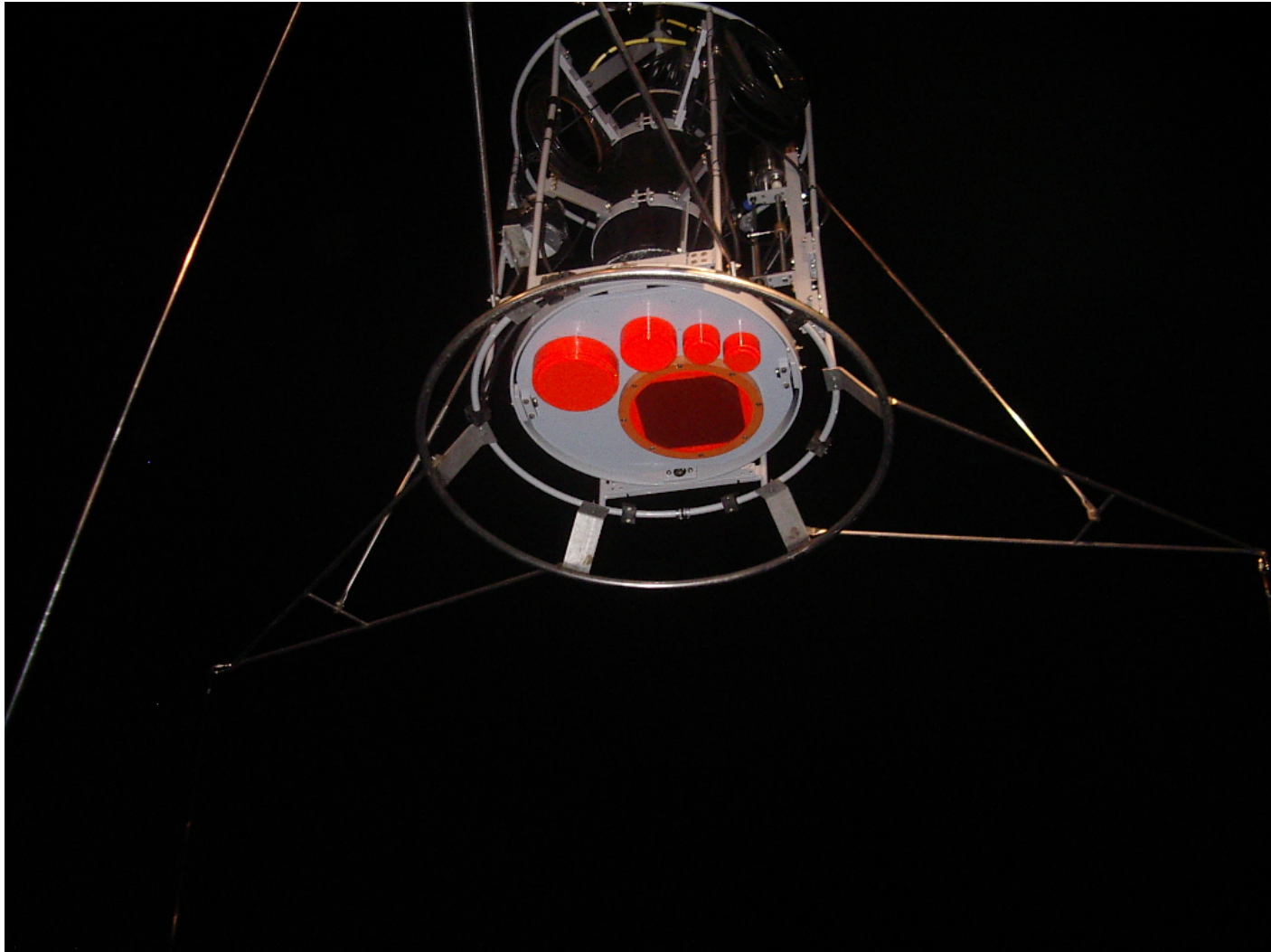
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38, 70, 120, 200, 333 kHz

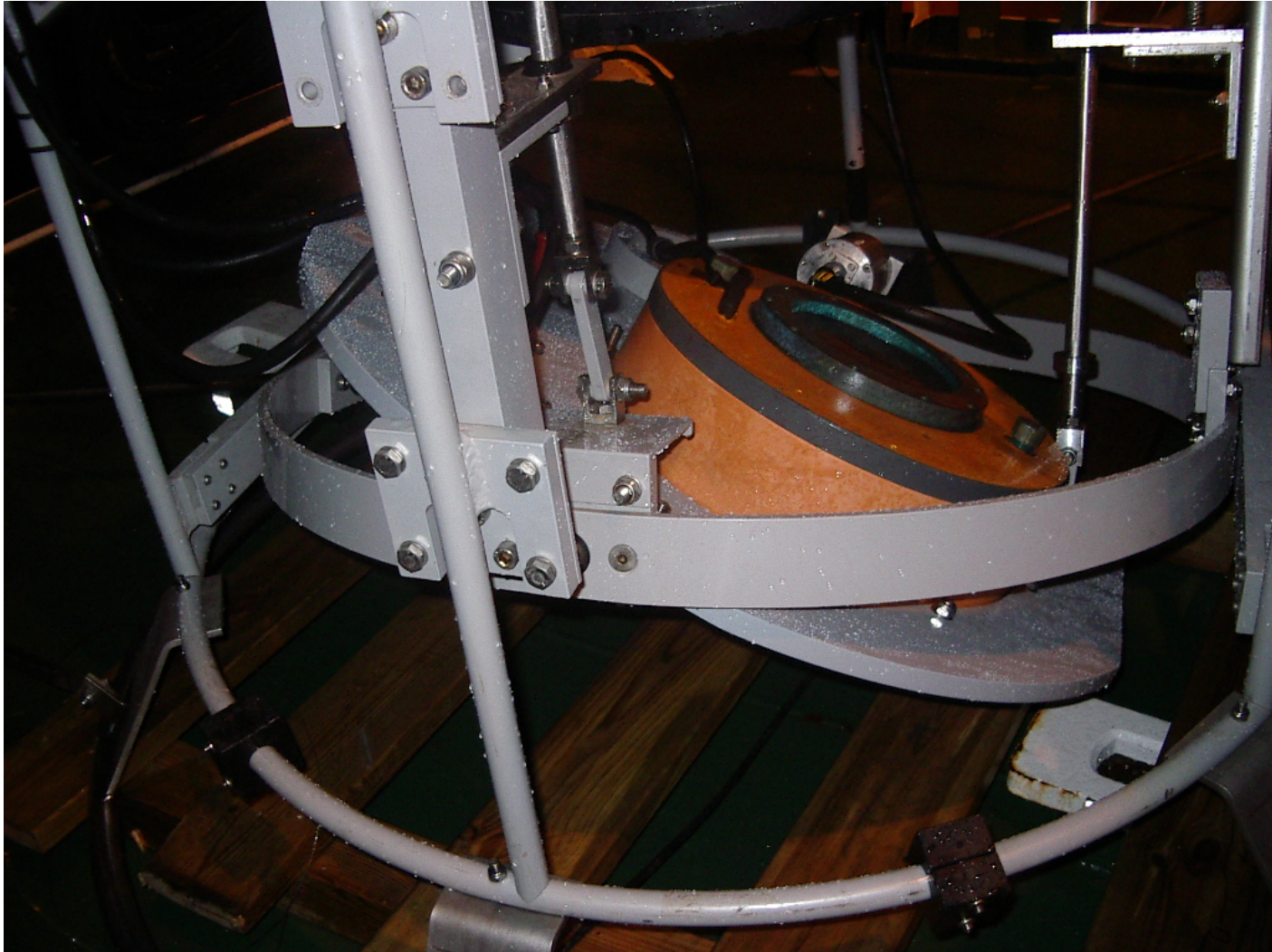
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Motorized transducer platform

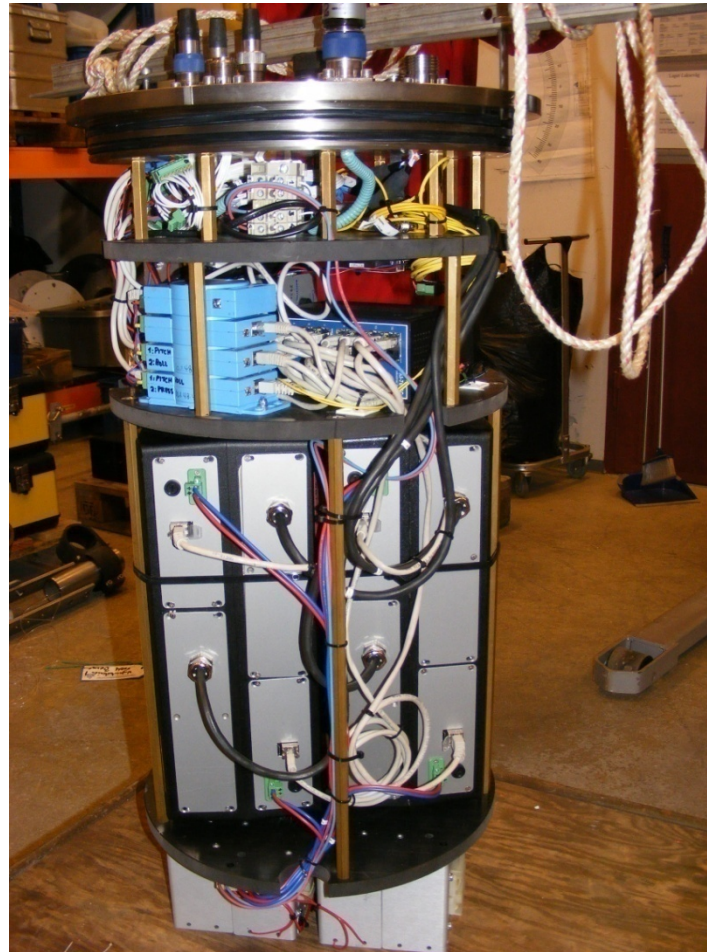
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Inside probe

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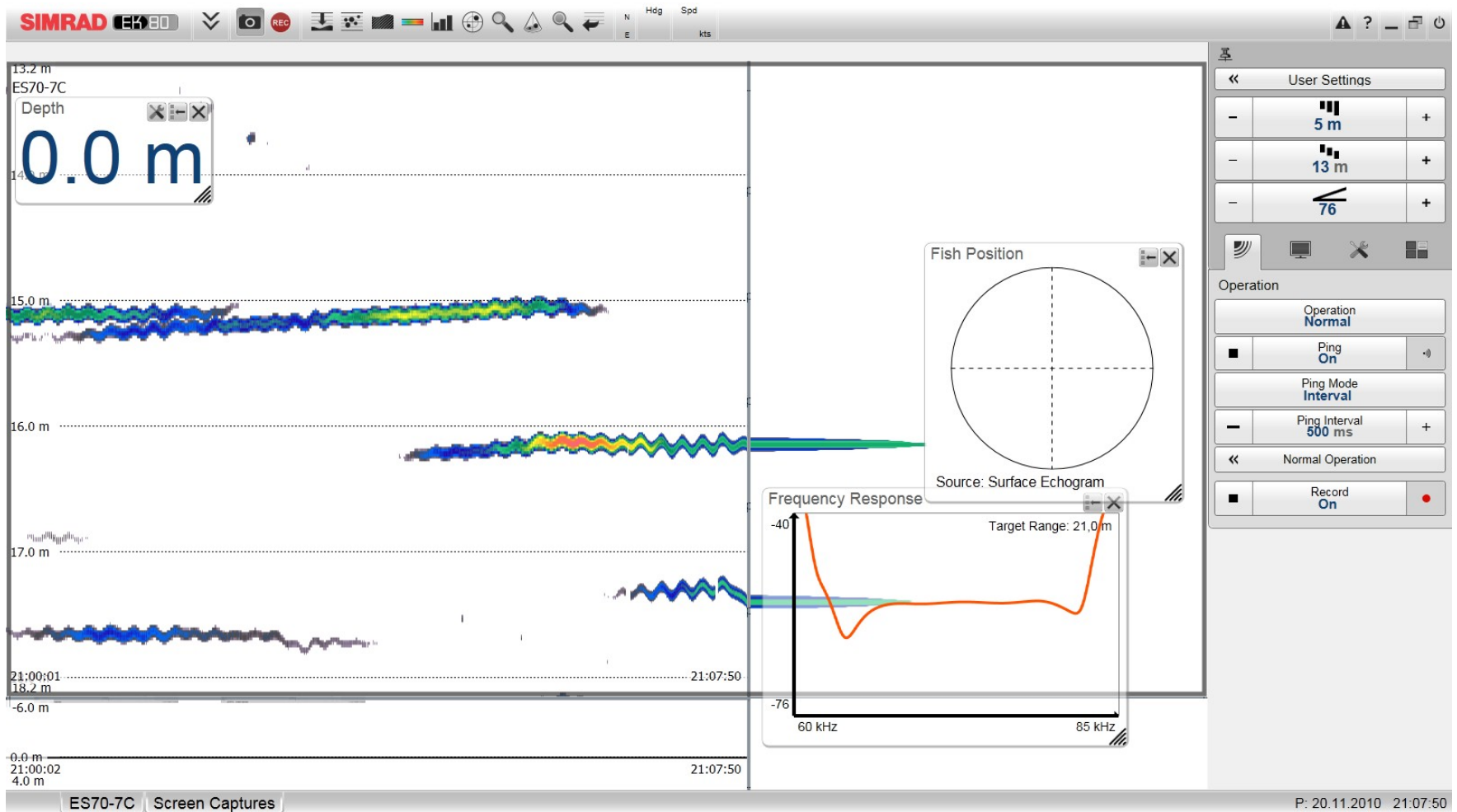
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Example - Catches



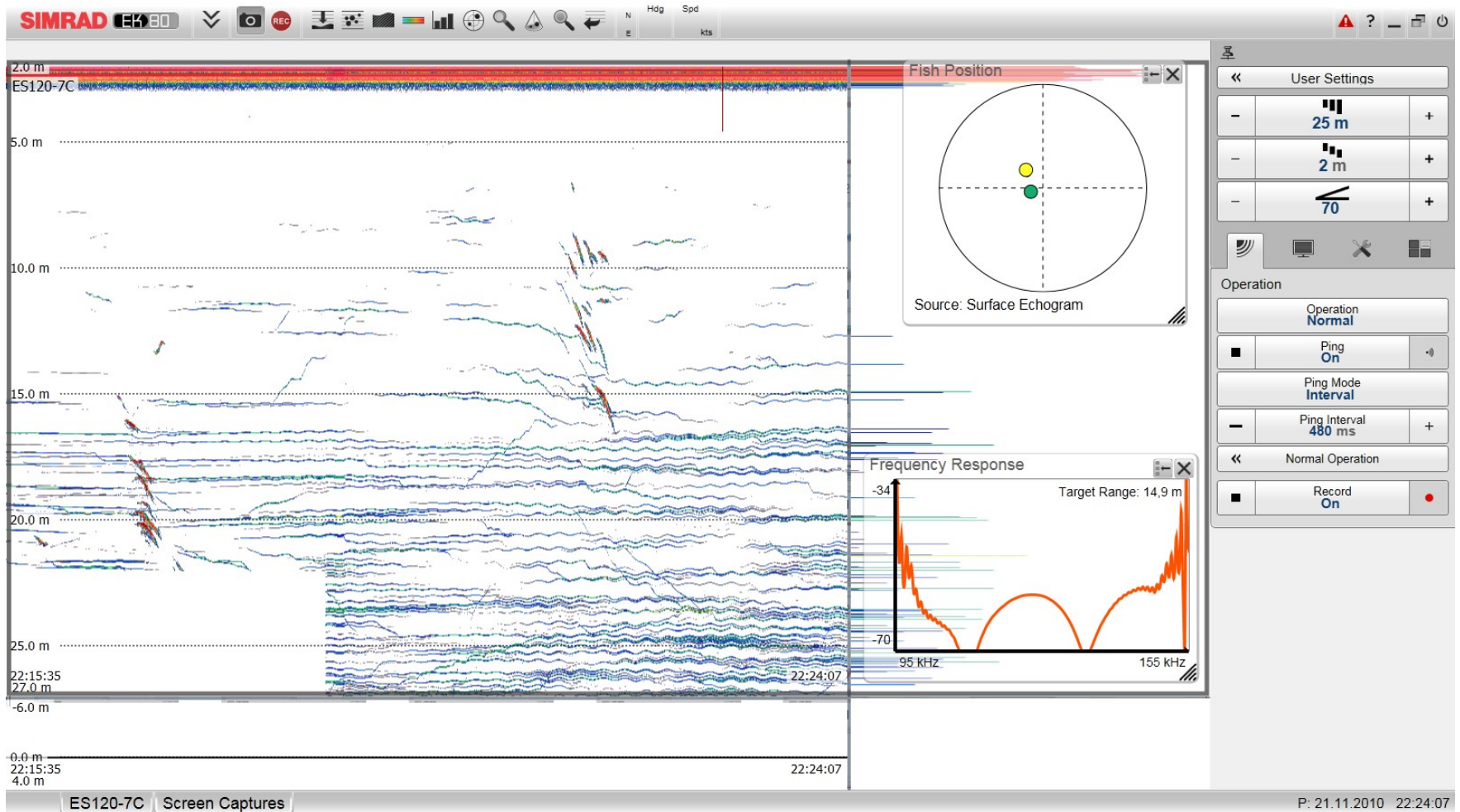
Example - Myctophids

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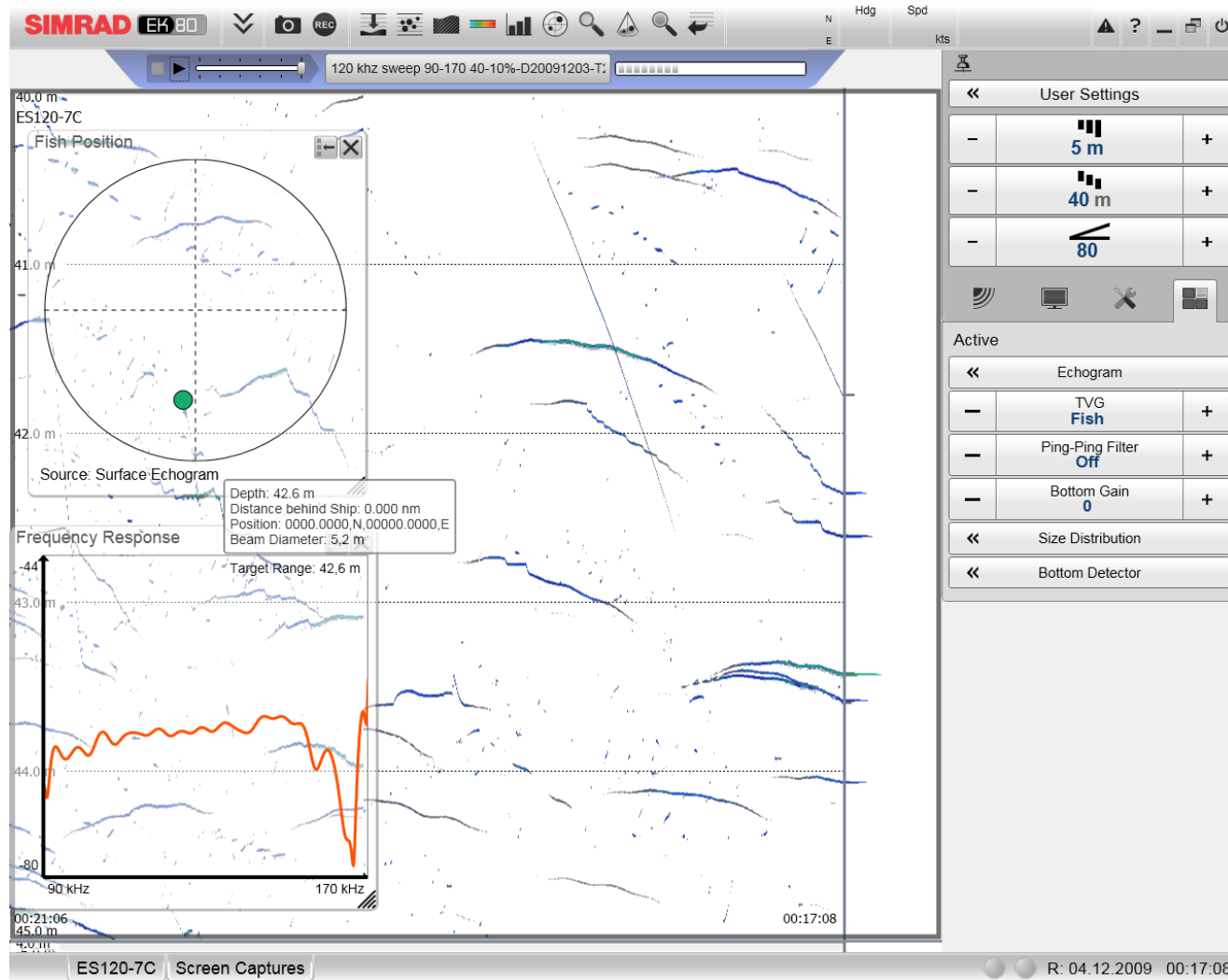
Example - Inside the krill layer

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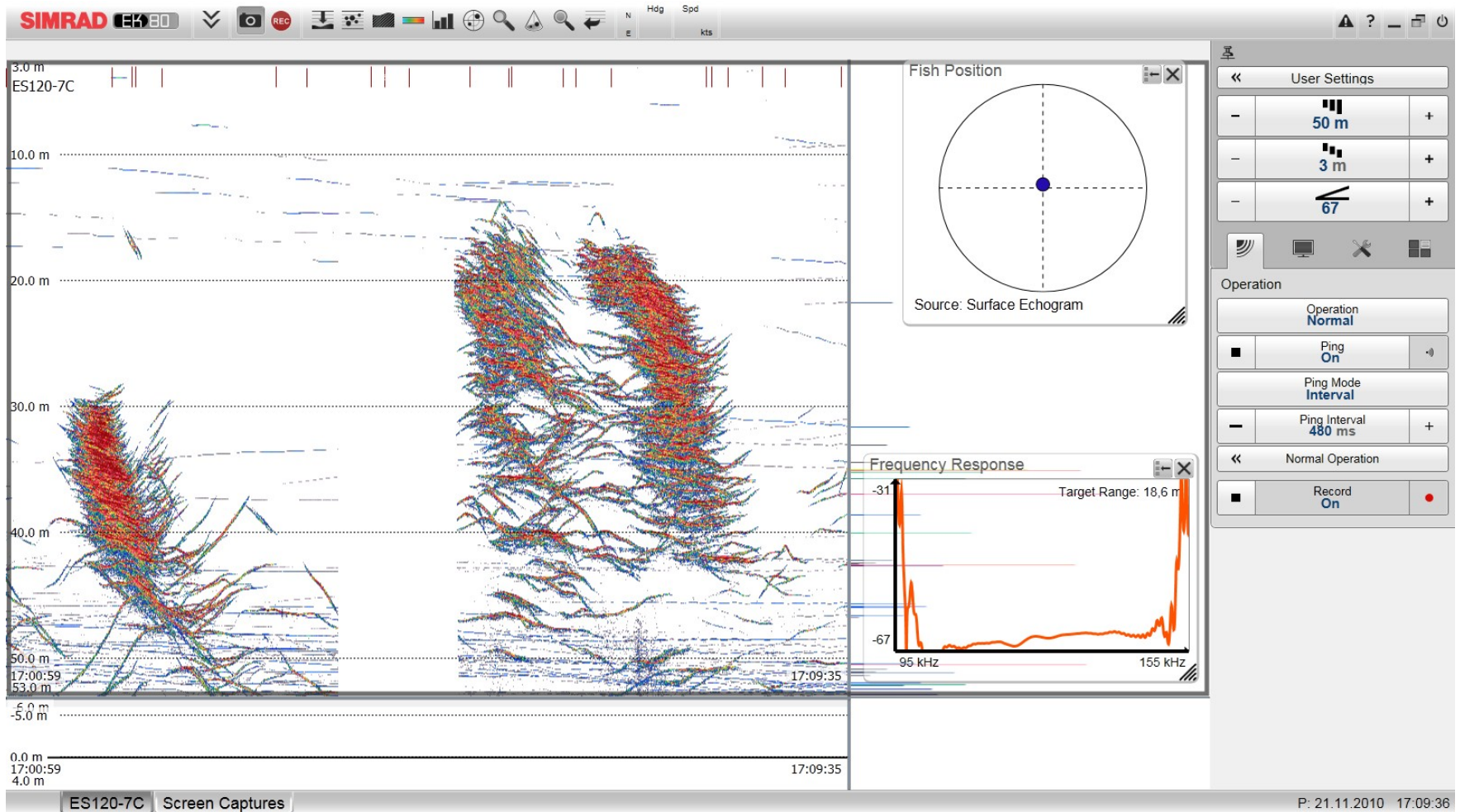
Example – More krill

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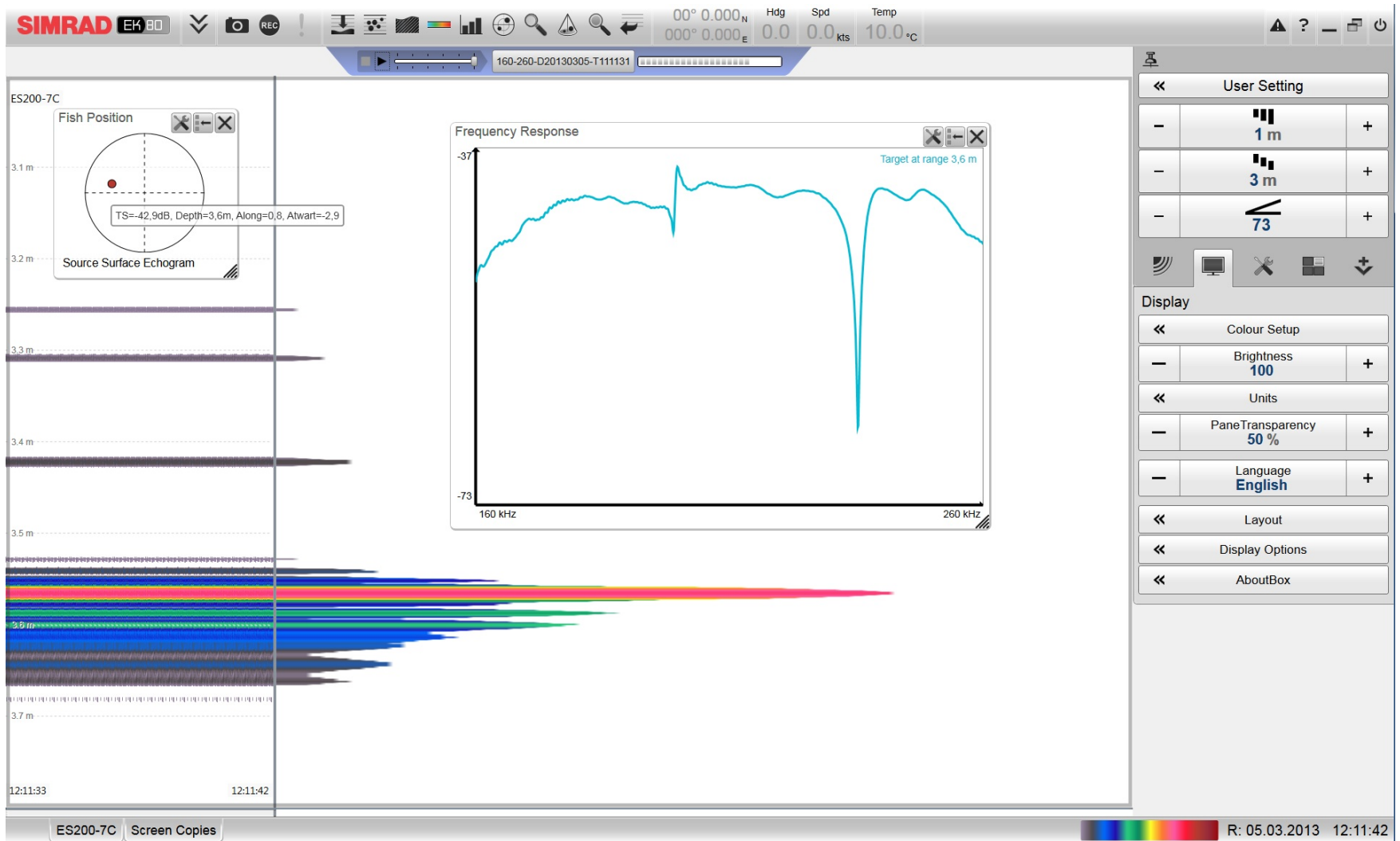
Example - Saithe schools

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Example – WC 22 mm in tank

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- Some comments to the new EK80 functionality
 - EK80 software will work with a combination of EK80 WBT's and EK60 GPT's to allow smooth transition.
 - The EK60 GPT's will of course not be able to provide wideband functionality.
 - EK80 will be able to provide almost all the existing functionality of the EK60 and much more.
 - EK80 is able to use split beam to determine single target position also when operating with wideband and will correctly compensate for the beam pattern according to target position and the wideband frequencies.
 - EK80 will be able to display $S_v(f)$ and $TS(f)$ in real time.
 - EK80 WBT has 4 channels and each channel can be configured independently. This allows for support of new transducers with new configurations, e.g. split beam using 3 sectors and one single beam.



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