



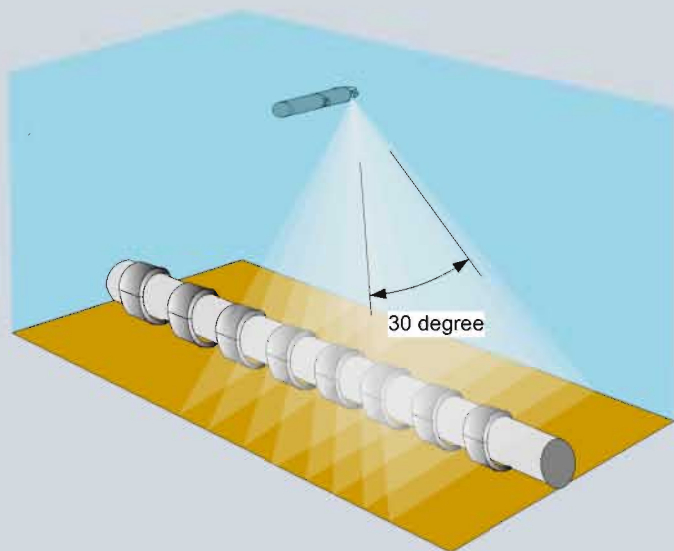
Pipeline River Crossing Visualization

Changing the sonar head alignment from vertical to horizontal allows an acoustic perspective of mid-water and bottom targets – such as these pipelines shown below. Keep the head stable and positioned just to one side of the structure to be viewed. This same technique is used to visualize anchor lines, pilings, bridge piers, and other vertical structures.

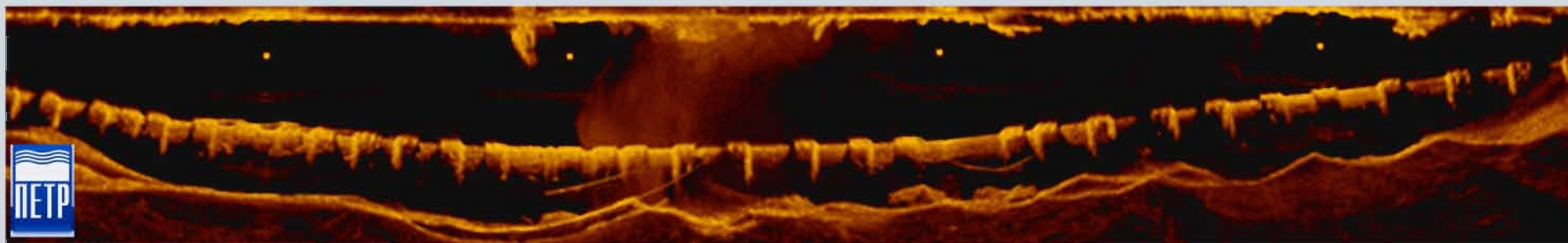
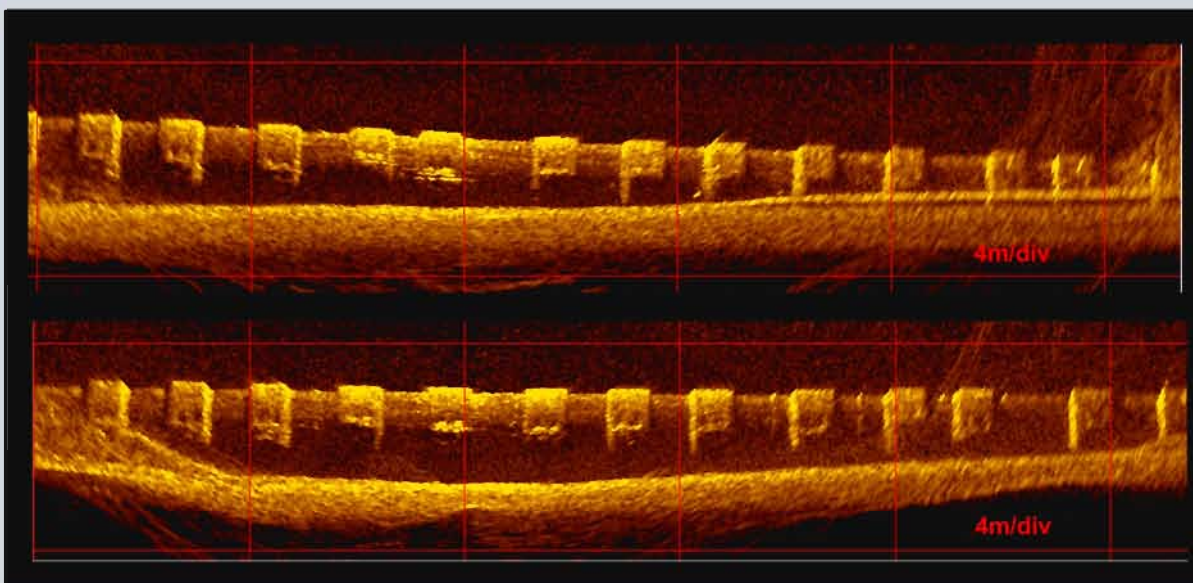
Mount the sonar head so the 0° head reference is vertical.

Consider using both this alignment and conventional tripod deployment for riverbed and pipeline visualization.

Remember: the same ambiguity of knowing where a target is in the beam when the head is vertically aligned is present when the head is turned and the beam has the wide field of view in the horizontal plane.



Sonar head alignment used to visualize exposed pipelines at two river crossings in Russia





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Sonar equipment configuration to complete vertical visualization projects:

- Computer with MS 1000 PC-based Sonar Software
- "Splashproof" MS 1000 Interface Unit (operates with either a 120/240 VAC or 9-30 VDC supply voltage)
- Kevlar operations cable
- 675 kHz High Resolution Scanning Sonar Head with Fan transducer (or Multi Frequency High Resolution Sonar Head)
- Deployment system

One of the key components to all sonar operations is correctly orienting the transducer to target. The images show three examples of deployment systems used for vertical visualization of structures.



"T-bracket" Nautilus Marine Group, LLC



Custom deployment arm Peter Diving Services, Russia



Photo credit, *Expertech Marine, Inc.*
Quebec City, Quebec, Canada