Deep water/Complex bottom
The Dalles Survey

The Dalles, Oregon, USA

October, 2013

NORBIT

www.norbit.com

SEAHORSE GEOMATICS

www.seahorsegeomatics.com

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From 27 September through 11 October, NORBIT and SEAHORSE Geomatics performed system tests, modifications and finalization of a “Release 2.0” software/ firmware for the Wideband Bathymetric Multibeam System, WBMS.
During the test and validation a survey of the Dalles Dam area was conducted to verify complex bottom conditions as well as range capabilities of the system

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NORBIT began the evolution from their conformal array WBMS Forward Looking Sonar system into a “market game changing” bathymetric multibeam sonar system in late 2011. This system offers benefits of a conformal receiver array, which maintains the same narrow beam angle at nadir throughout the swath. This feat is not had from the many inexpensive-to-build flat array multibeam systems currently flooding the market. NORBIT celebrates the first conformal array sonar system to be introduced to the industry in more than a decade.

The system has a 78 kHz bandwidth (between 360kHz to 440kHz) with allowable pulse lengths of 30µs to 0.5 ms and full FM chirp operation. It is currently with 256 equi-angular beams over a useable 130degree swath width with maximal range of 200m.

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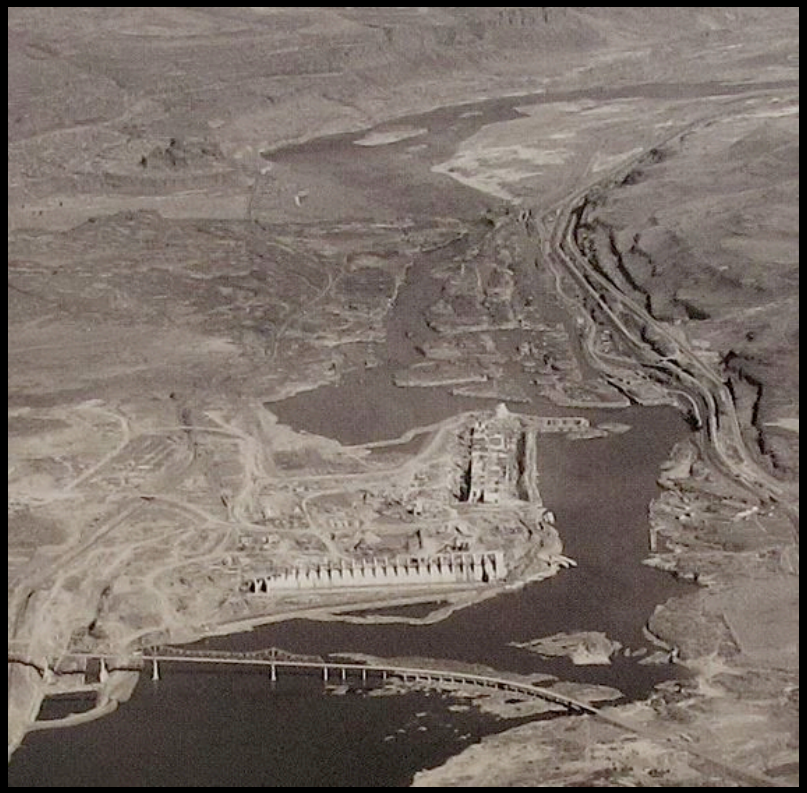
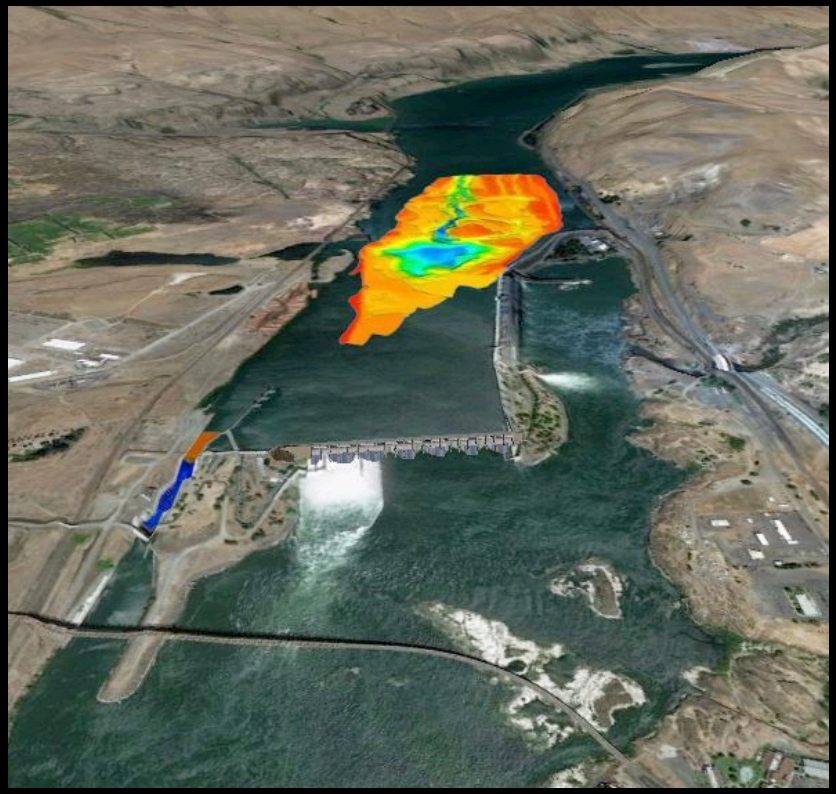
Complex Bathymetry Detection Capability – The Dalles Dam Reservoir





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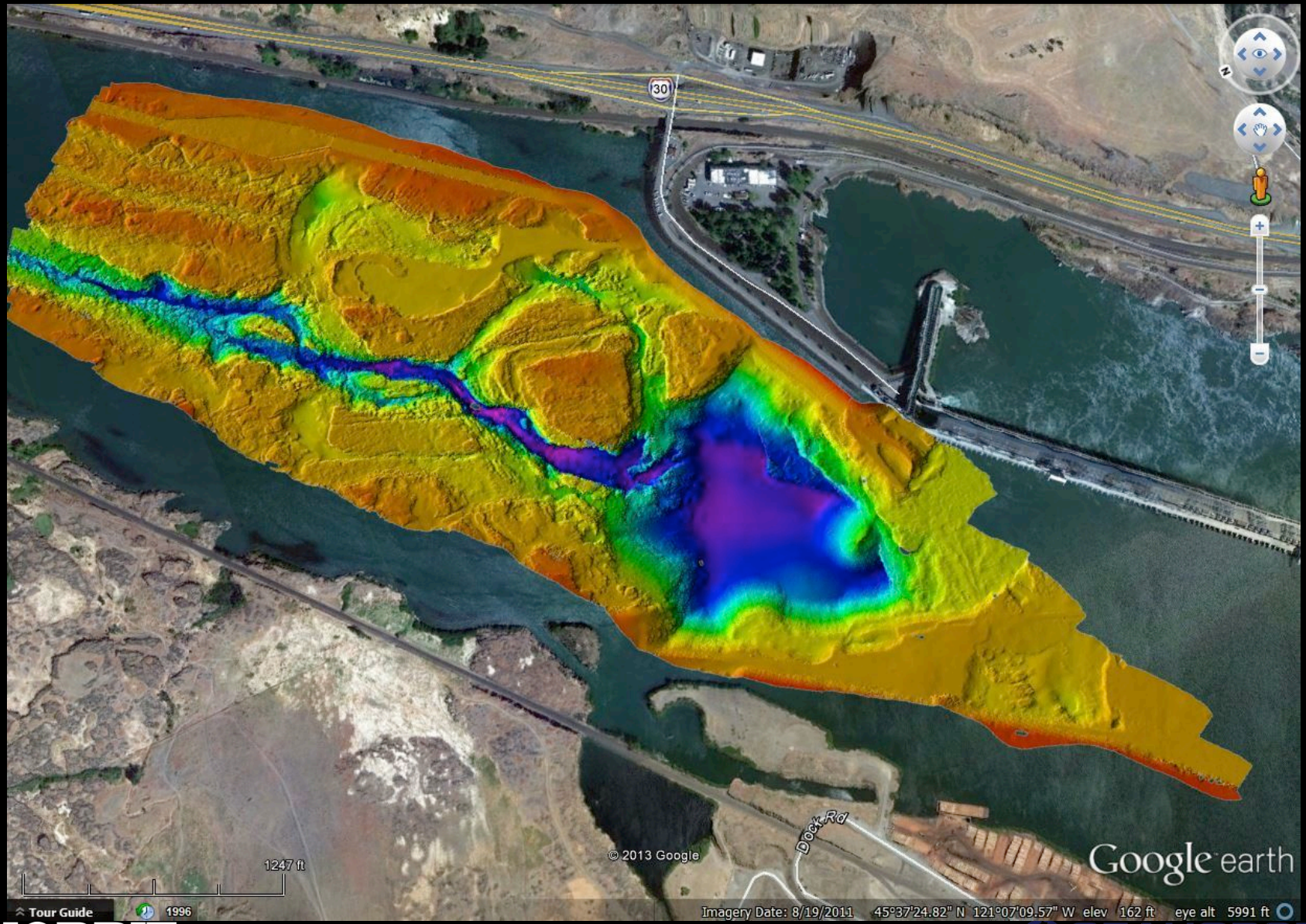

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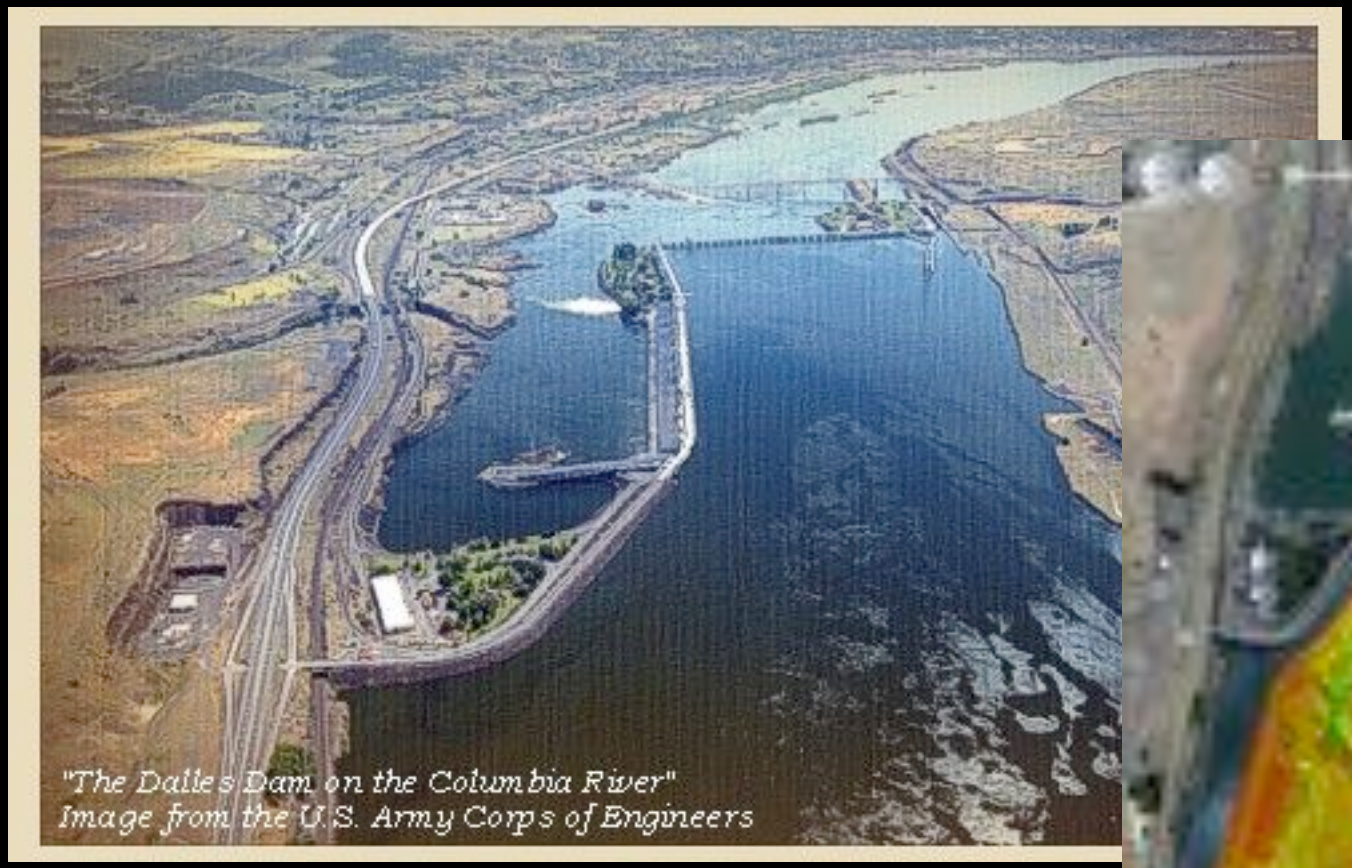

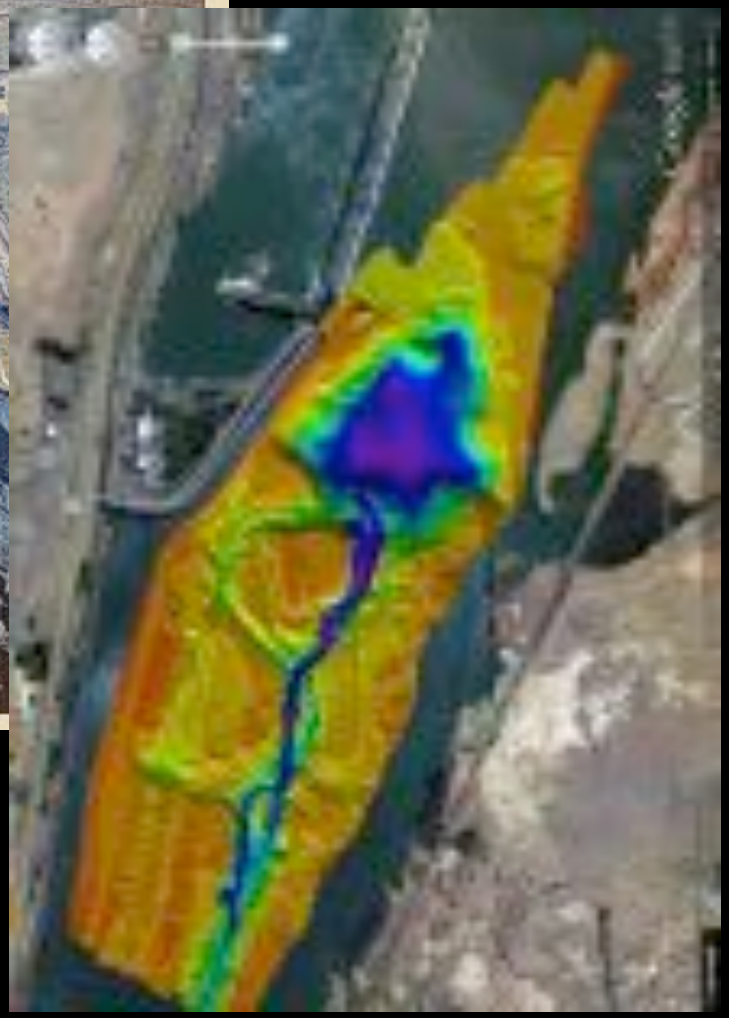

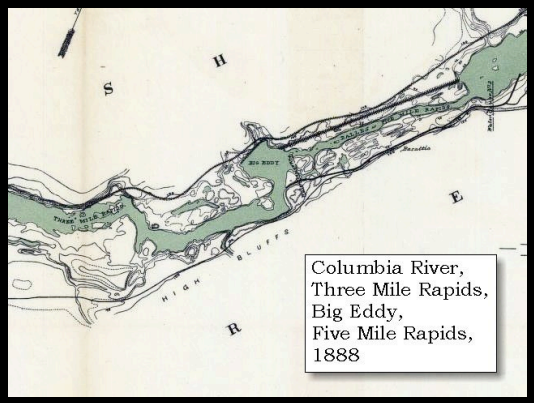

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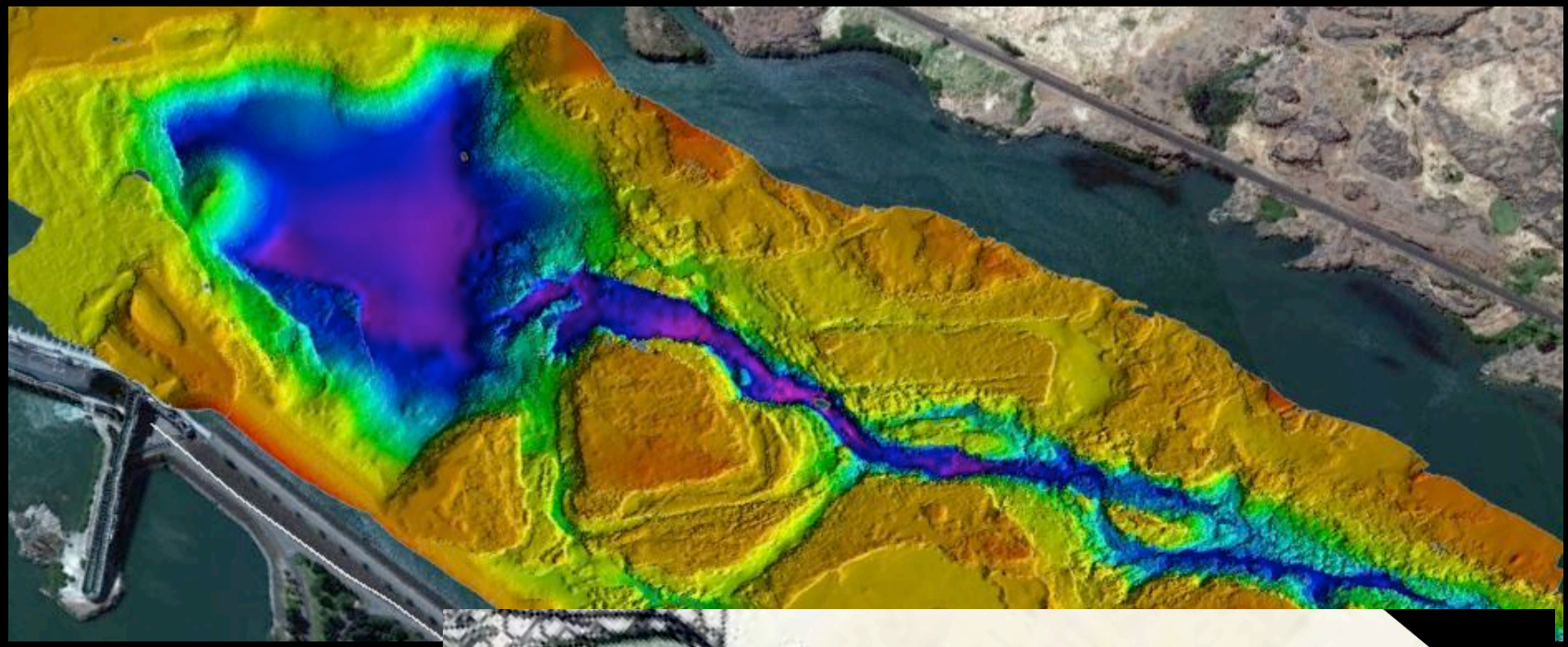

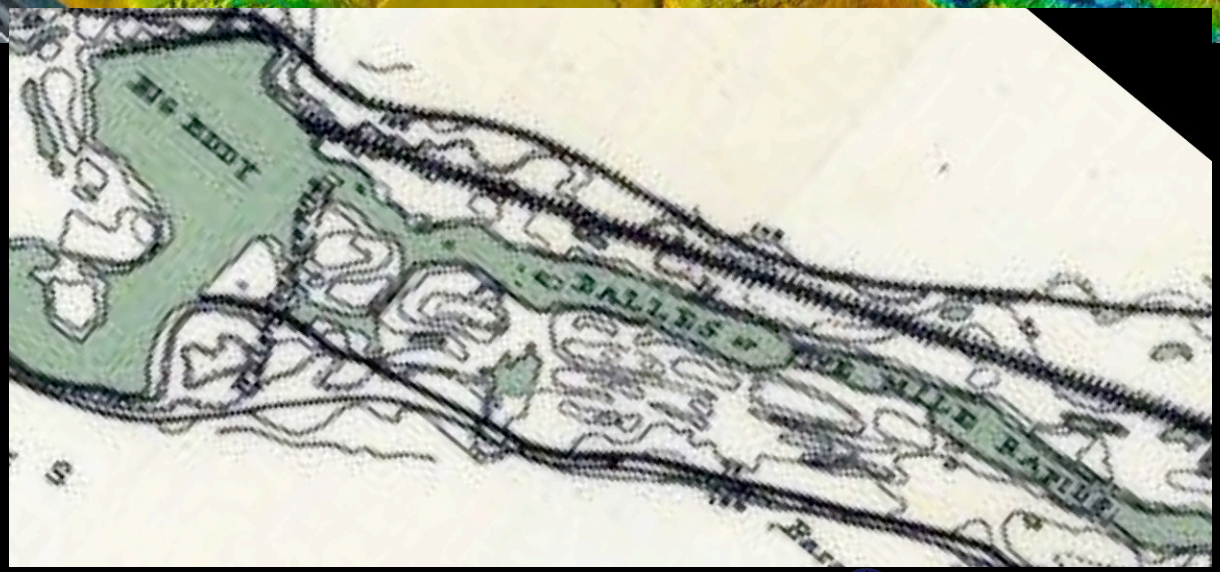

Columbia River,
Three Mile Rapids,
Big Eddy,
Five Mile Rapids,
1888

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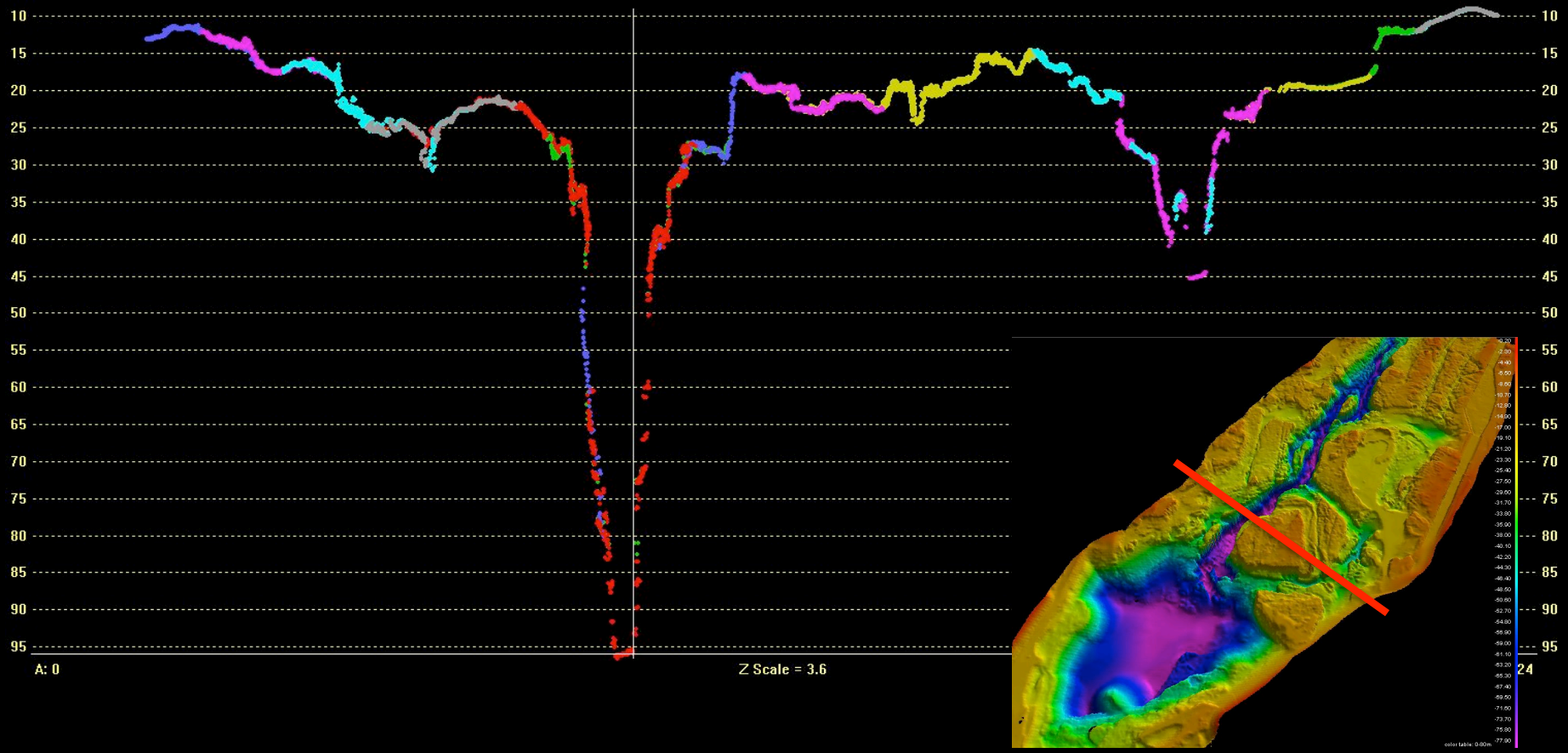
Complex Bathymetry – Profile View



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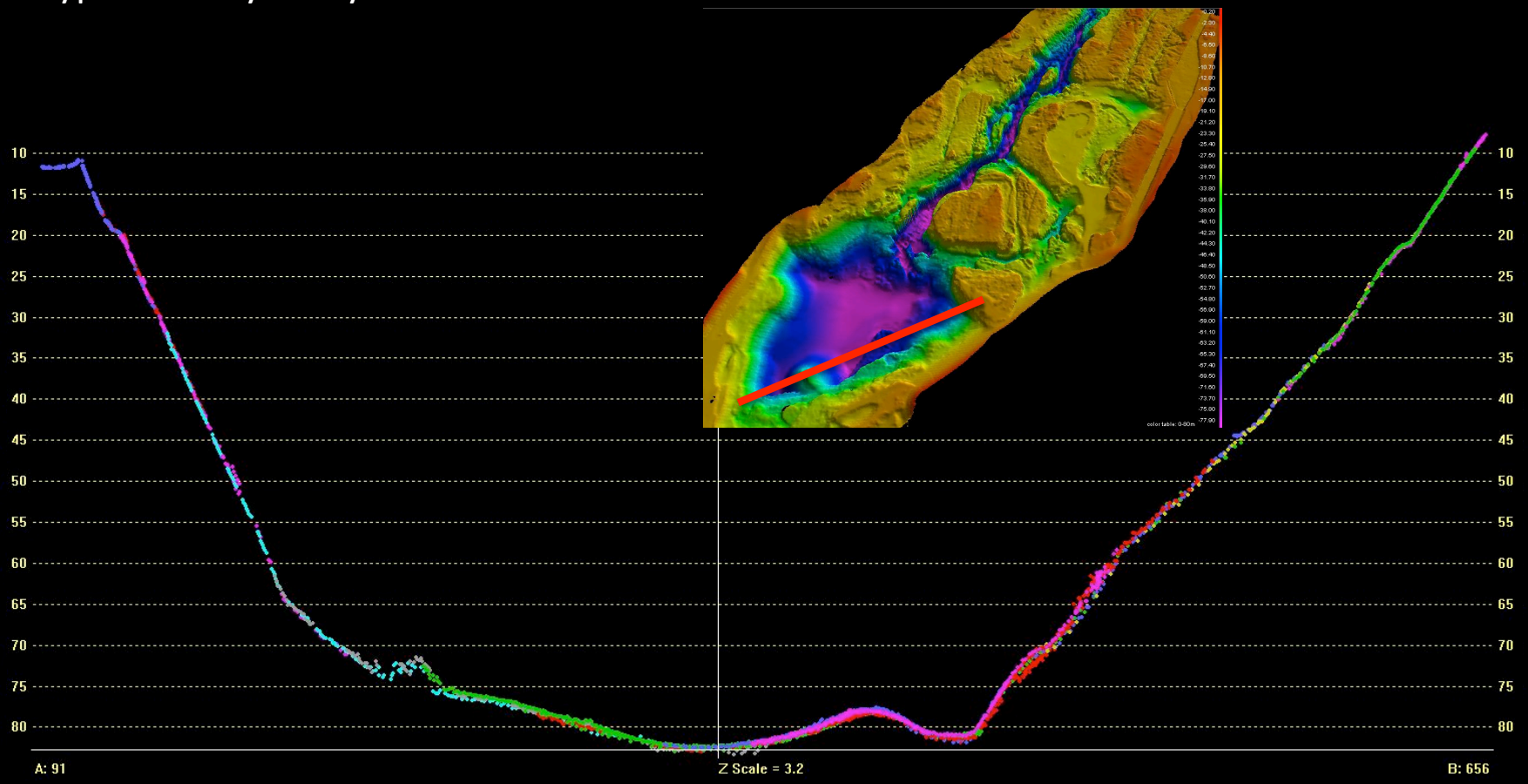
Typical Bathymetry – Profile View



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The Dalles Dam – Lock Chamber – Acoustic Multipath Environment

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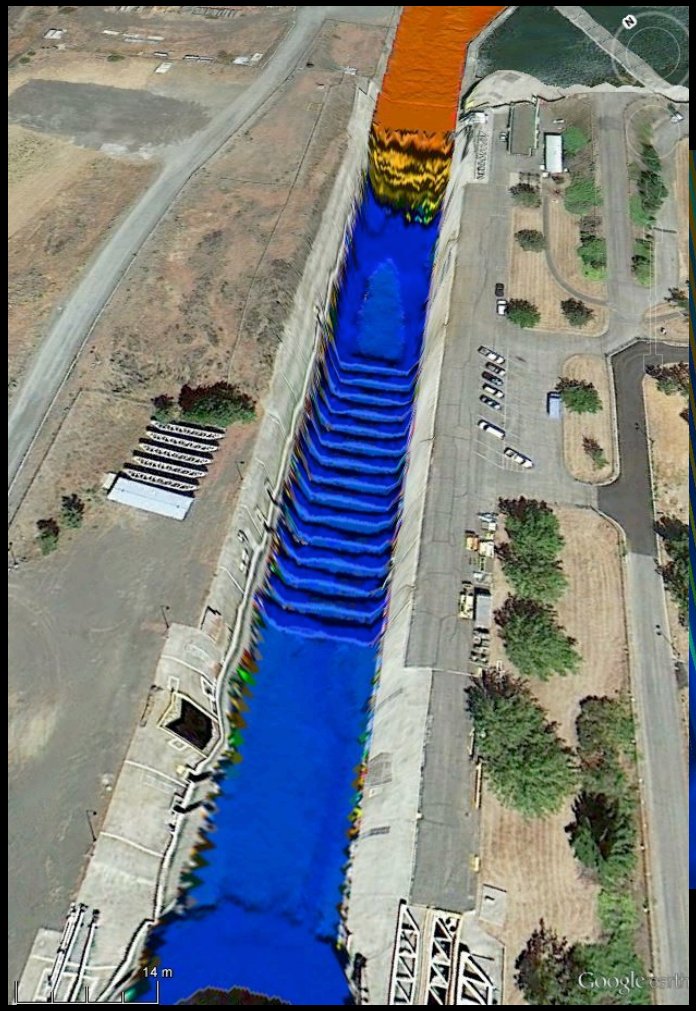
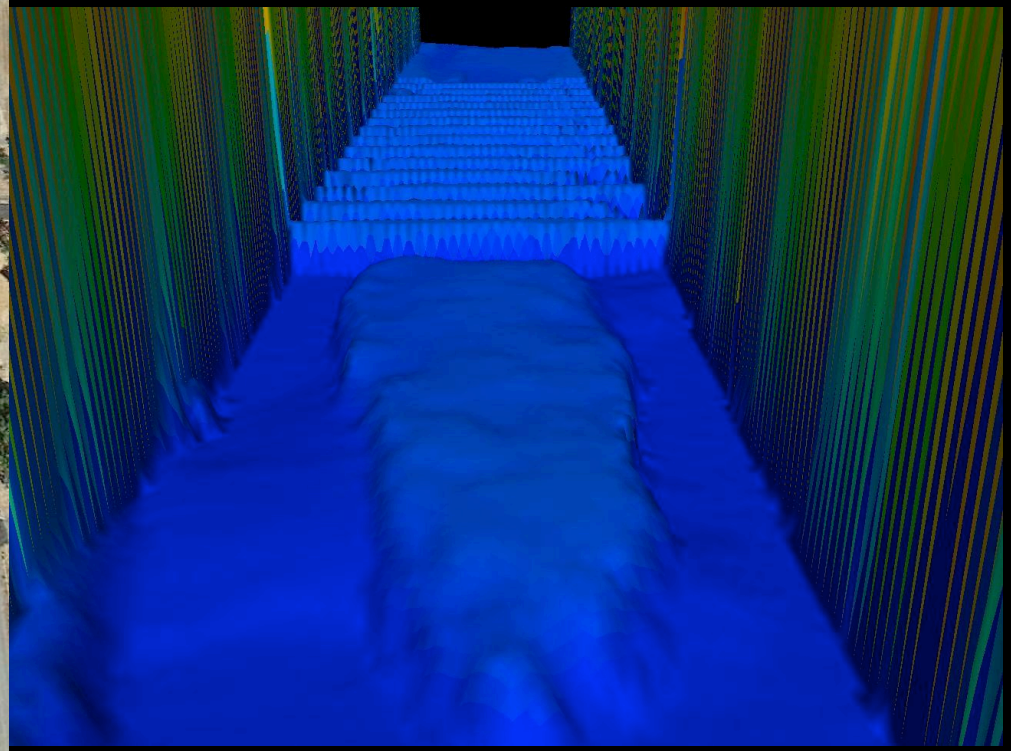
The Dalles Dam – Lock Chamber – Acoustic Multipath Environment





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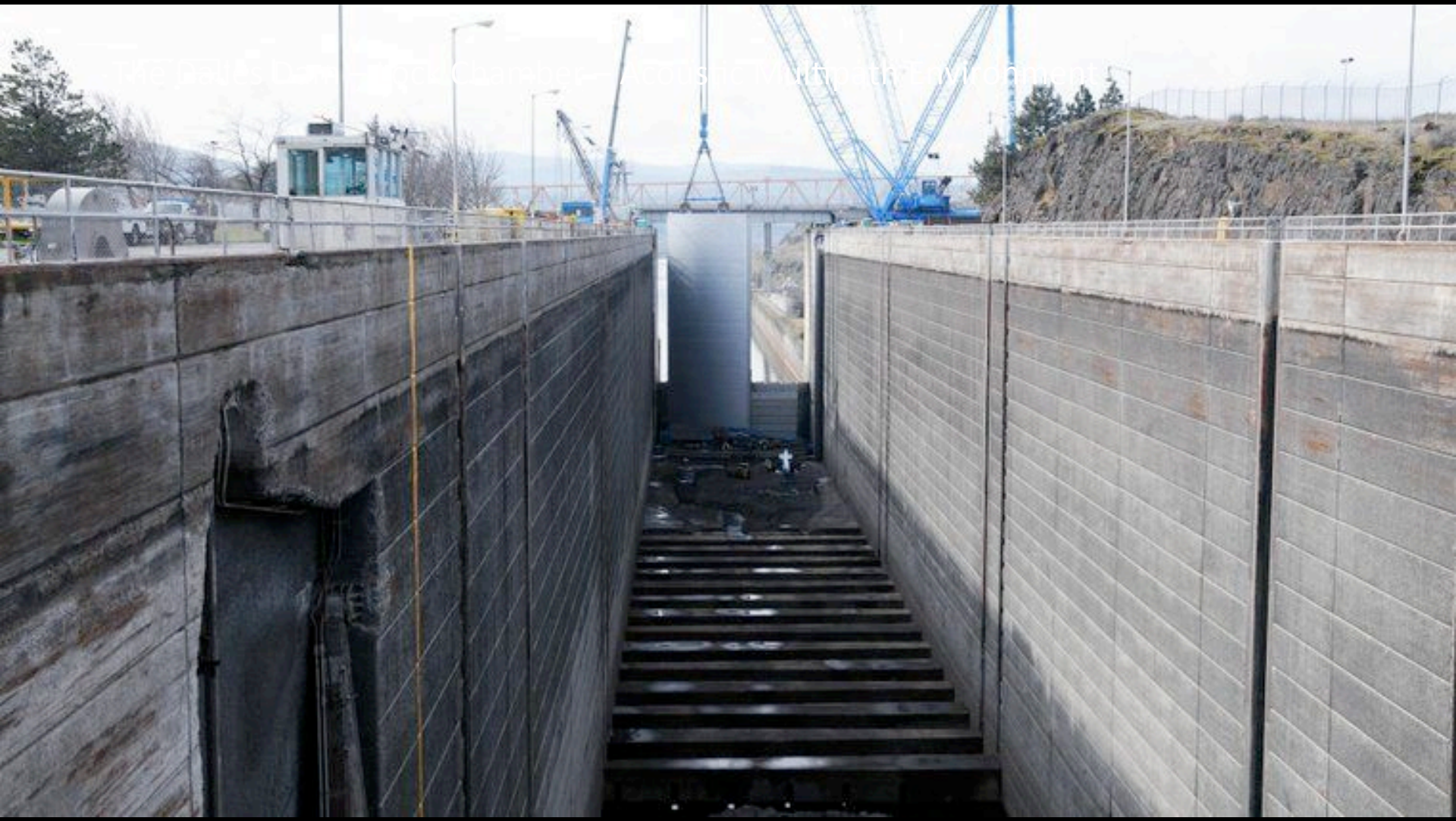

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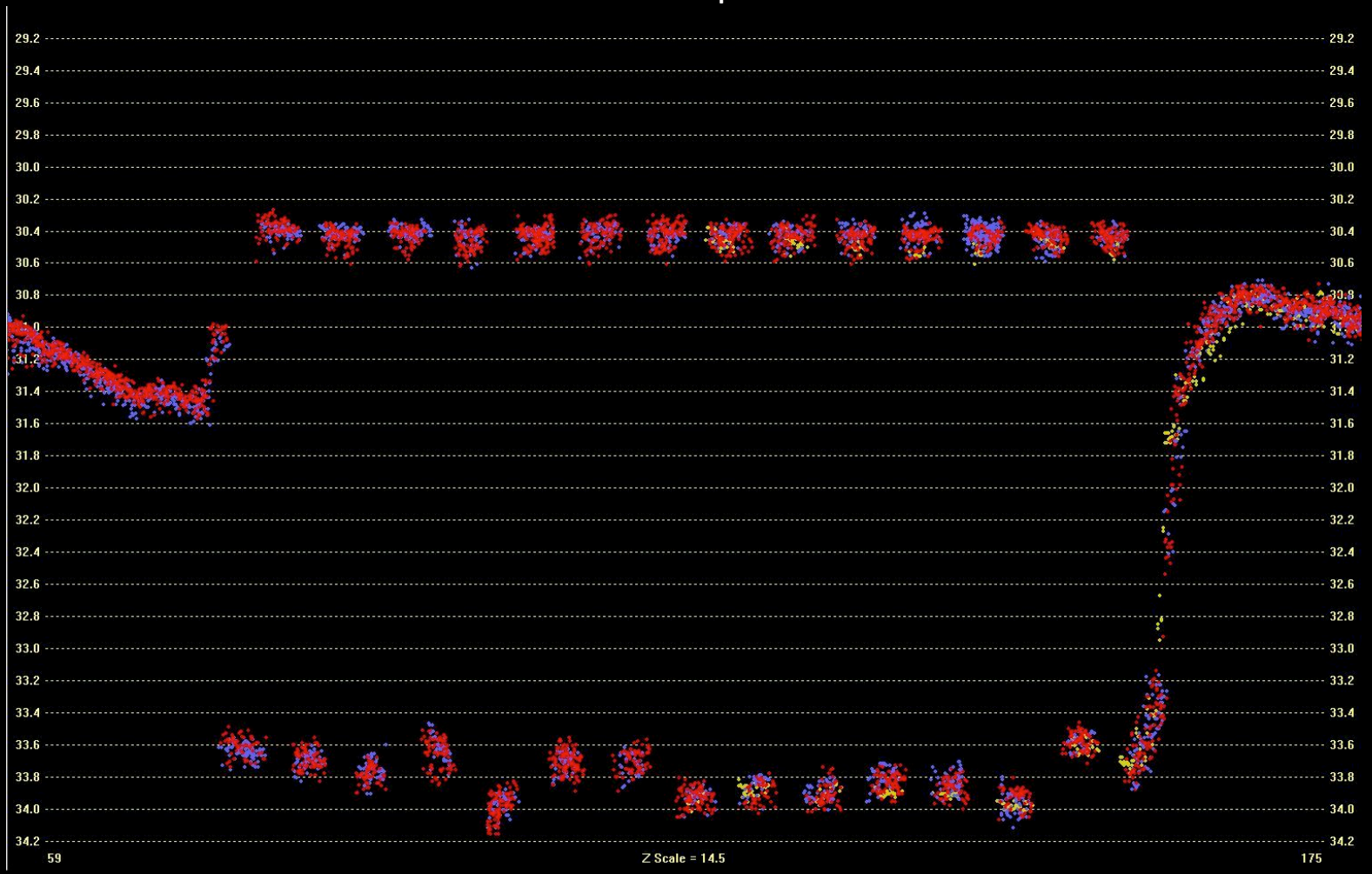
The Dalles Dam – Lock Chamber – Steel Replenishment Diffusers



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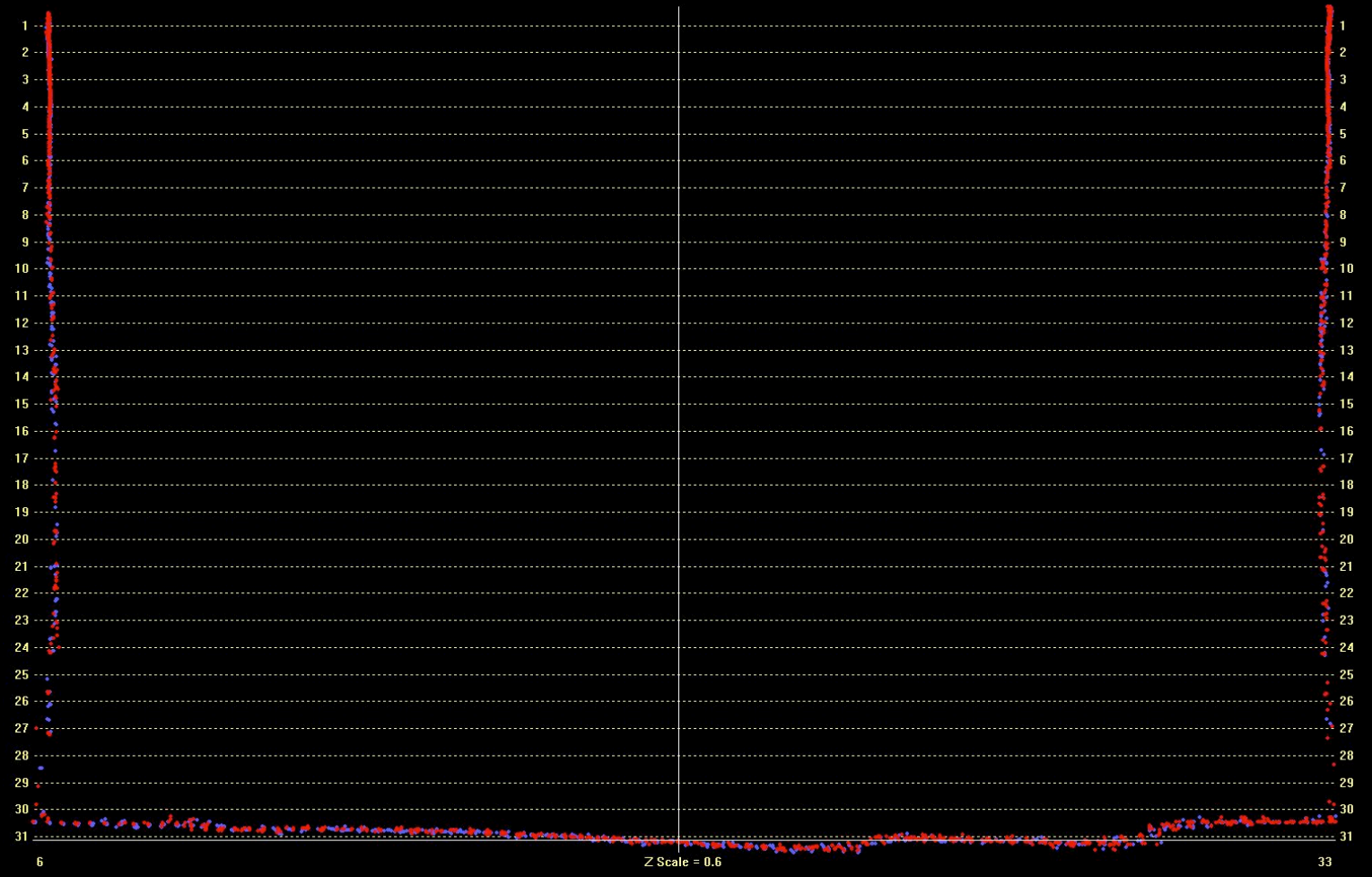
The Dalles Dam – Lock Chamber – Multipath Environments



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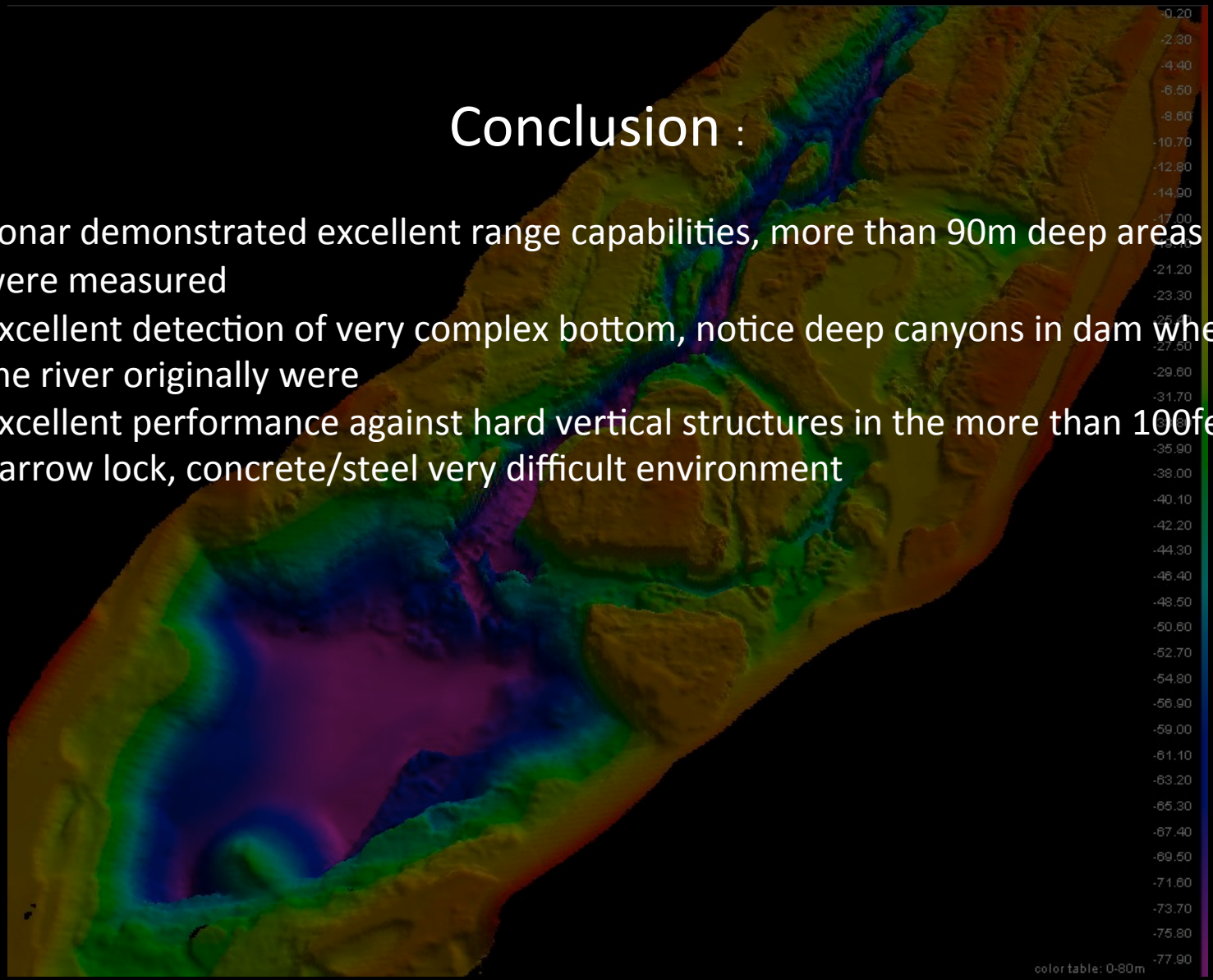
Conclusion :

- Sonar demonstrated excellent range capabilities, more than 90m deep areas were measured
- Excellent detection of very complex bottom, notice deep canyons in dam where the river originally were
- Excellent performance against hard vertical structures in the more than 100feet narrow lock, concrete/steel very difficult environment



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