Baywei

Sea possibilities

Baywei M1 MBES in a river environment

Kayak tour with a tiny multibeam sonar system

2025

About M1 GEO Multibeam Sonar

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The Baywei M1 GEO sonar is engineered for rapid underwater structure and terrain assessment.

It's lightweight, app-controlled, and streams real-time point cloud data directly through any web browser — even on a smartphone — ensuring maximum flexibility in the field.

At its core is the **Underwater Point Cloud Generator**, purpose-built **for geospatial professionals**.

With its small footprint and simple plug-and-play operation, the M1 makes it quick and easy to begin mapping lakebeds, riverbeds, and submerged structures with speed and precision.



Baywei M1 Sonar system



So simple: Only one junction box to connect the power, data (Ethernet) and two GNSS cables. No hassle with onboard unit.

Baywei M1 MBES in a river environment

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- Purpose
  - This survey was performed using the Baywei M1 MBES in a river environment due to a small sonar draft to map very shallow areas.
  - M1 is a fully integrated system with onboard navigation which does not require any additional devices to run the survey. All survey software is included with the sonar.
  - M1 fits on any vessel of opportunity, here kayak due to the nature of shallow fast river mapping.



What makes the The Willamette River interesting?

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The Willamette River facts:

- 12 to 15 percent of the Columbia's flow
- 187 miles (301 km) long
- 15 large dams and many smaller ones
- Average discharge 33,010 cu ft/s (935 m3/s)
- One of the most productive agricultural regions in North America

Mounting the M1 on the kayak

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M1 was mounted on a special mini-pole, with GNSS antennas. M1 is connected with a single cable to a small data collection PC.





Survey

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The M1 is powered from 100W solar panel with a backup battery in case of overcast.
The entire system including data collection PC draws less than 55W.

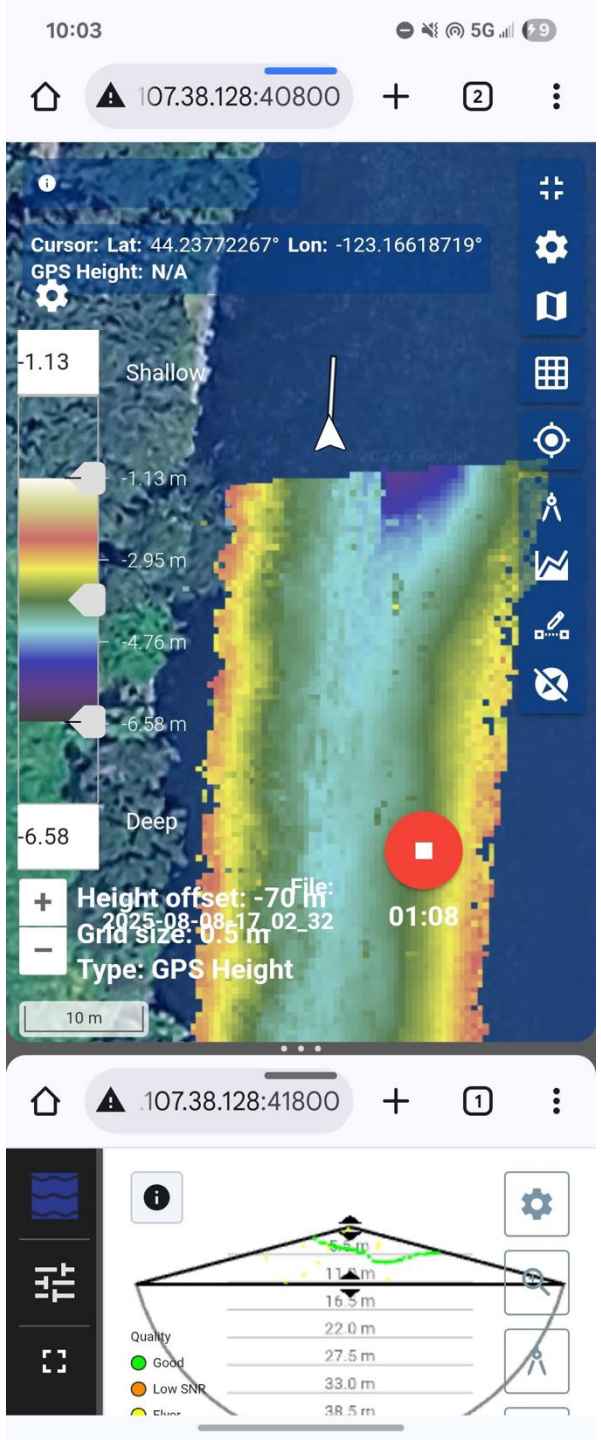
The smart phone with a web browser is used to configure the sonar and observe the data in real time via WiFi or 5G.

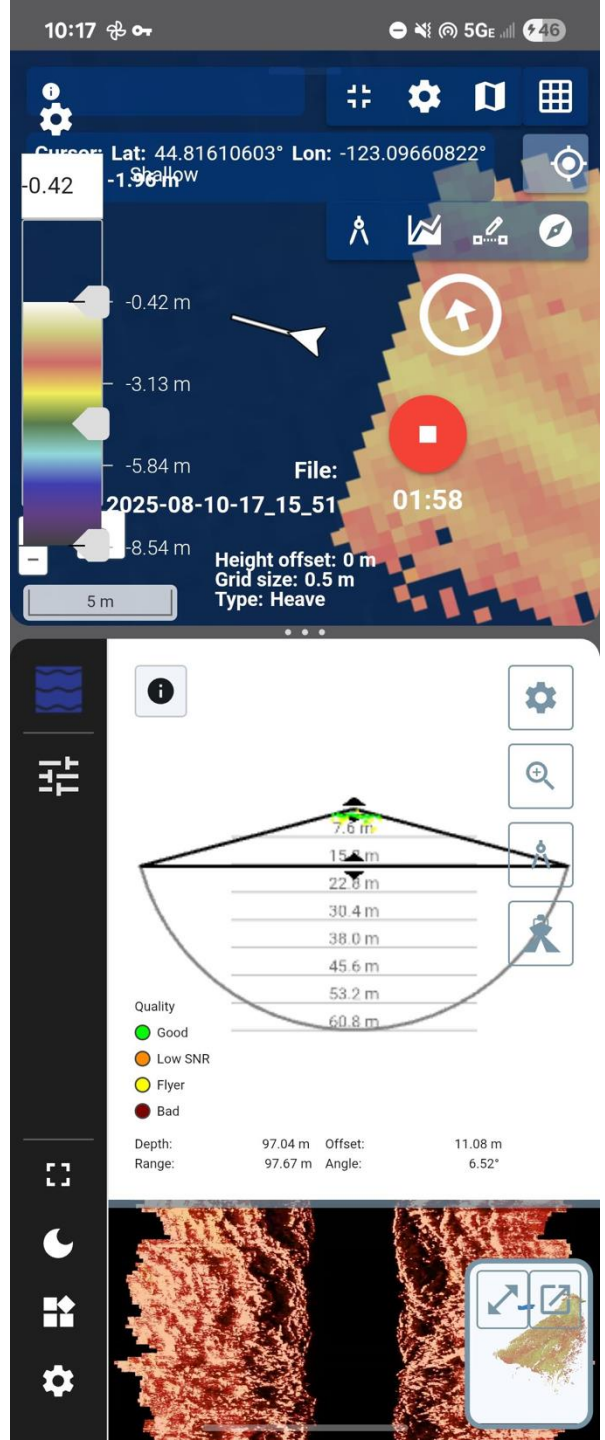
Survey

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The M1 integrates a GNSS/INS system which will track the motion of the vessel even in difficult environments and multipath such as bridges or channels.





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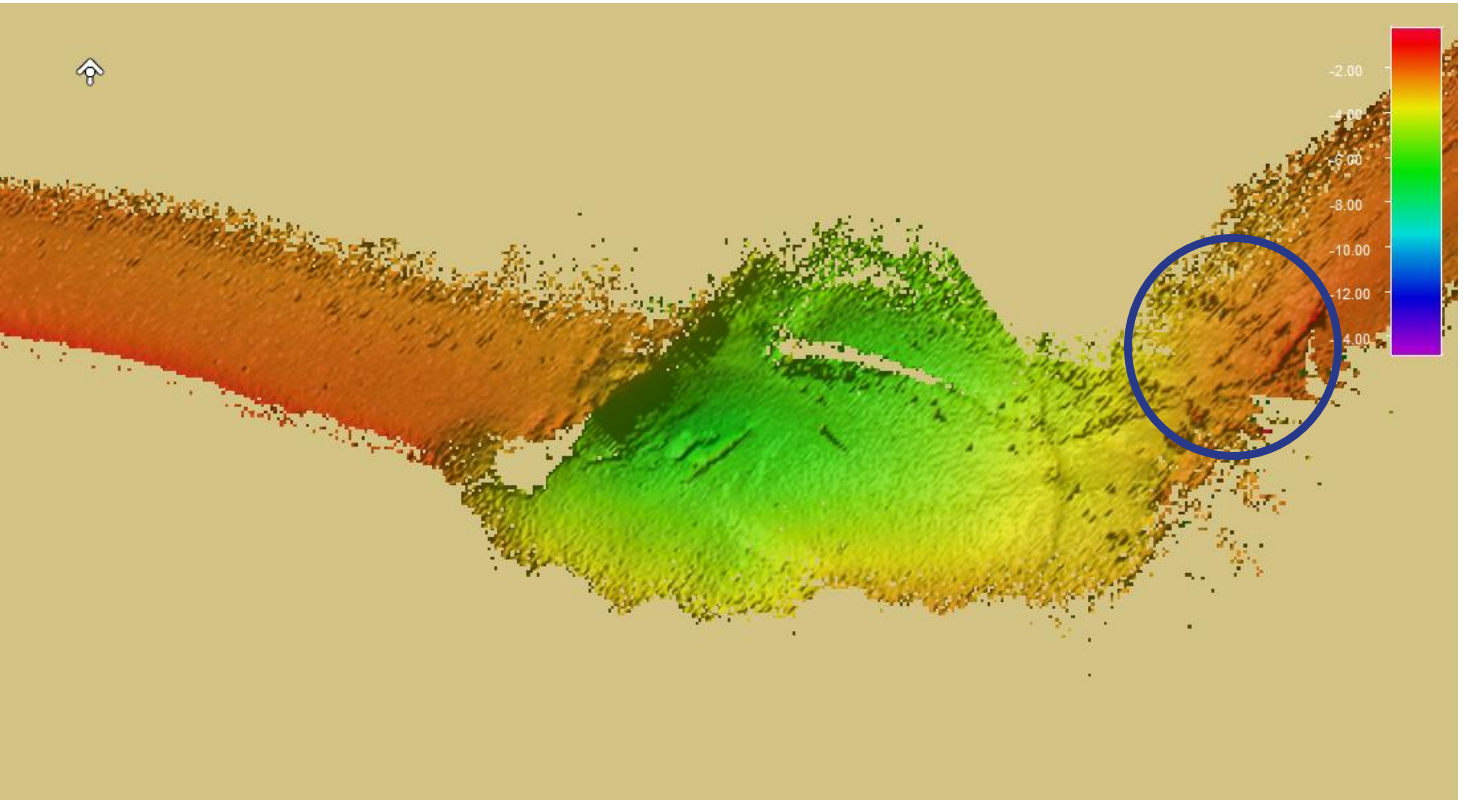
Screen shots of data collection
Picture on the left shows an android smart phone in split screen. The top is the DCT survey software, and the bottom one is the sonar configuration

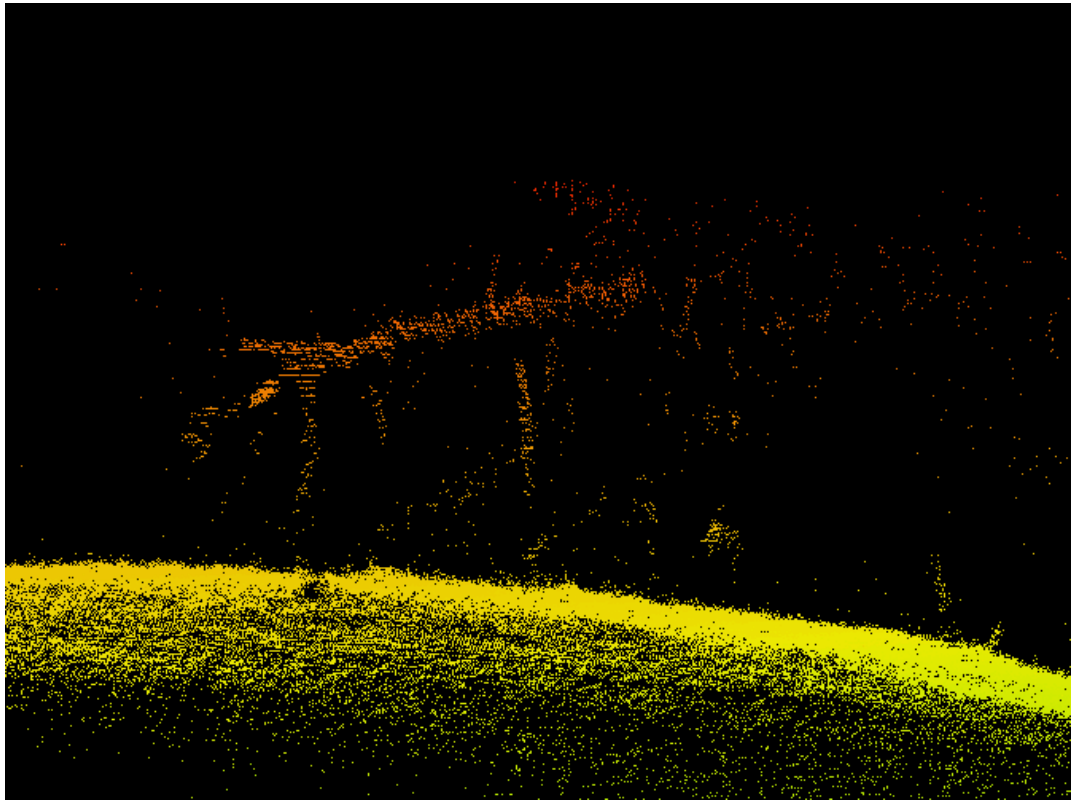
Picture on the right shows additional sidescan and 3D point cloud display in the bottom of the screen.

Point cloud showing tree branch underwater

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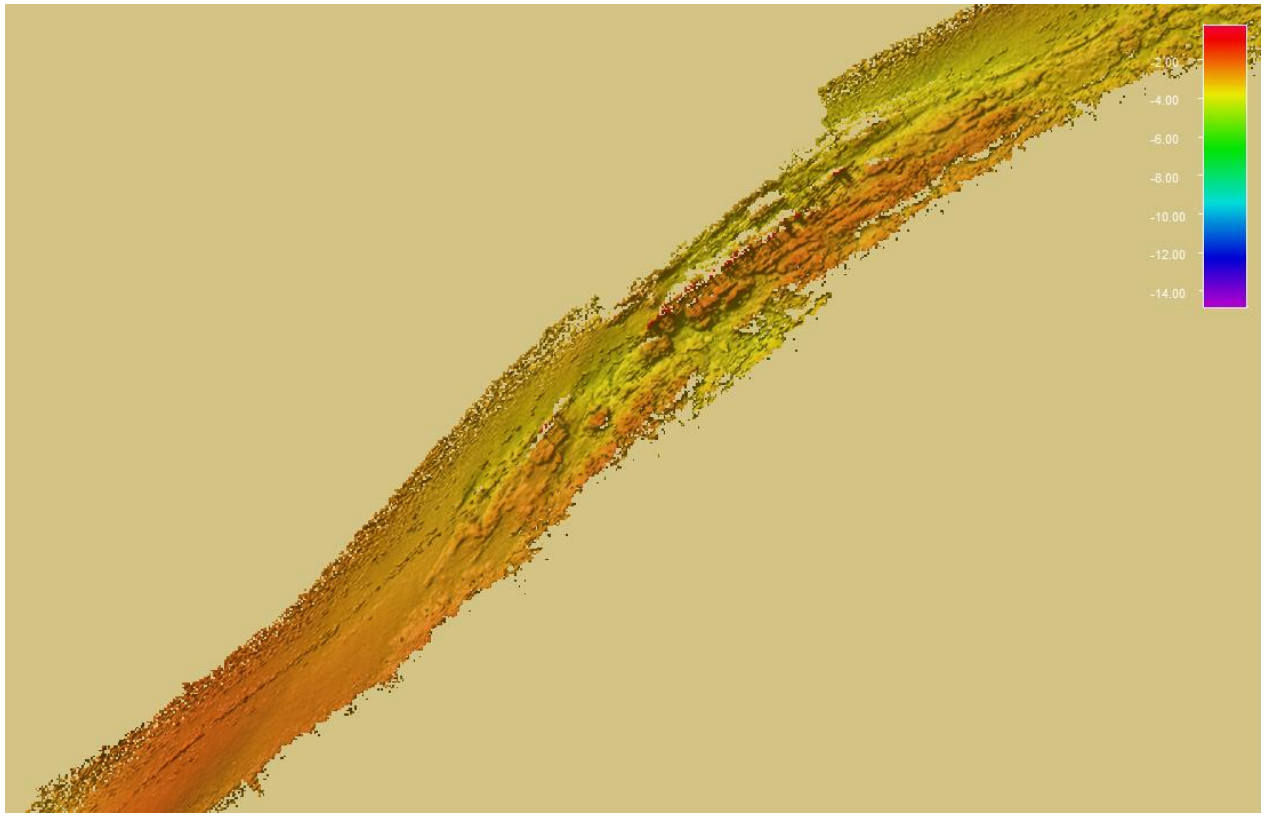
M1 collects XYZ data, build real time maps and outputs 3D point cloud data in real time.

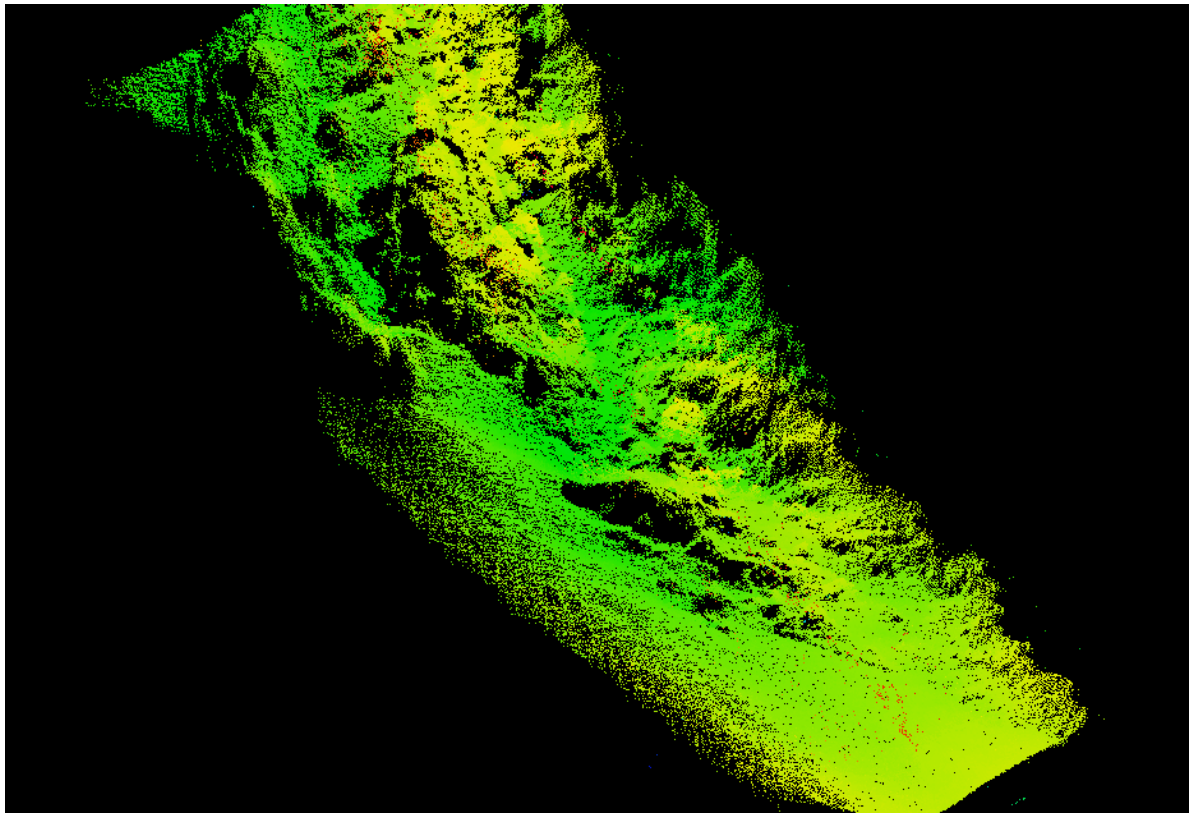


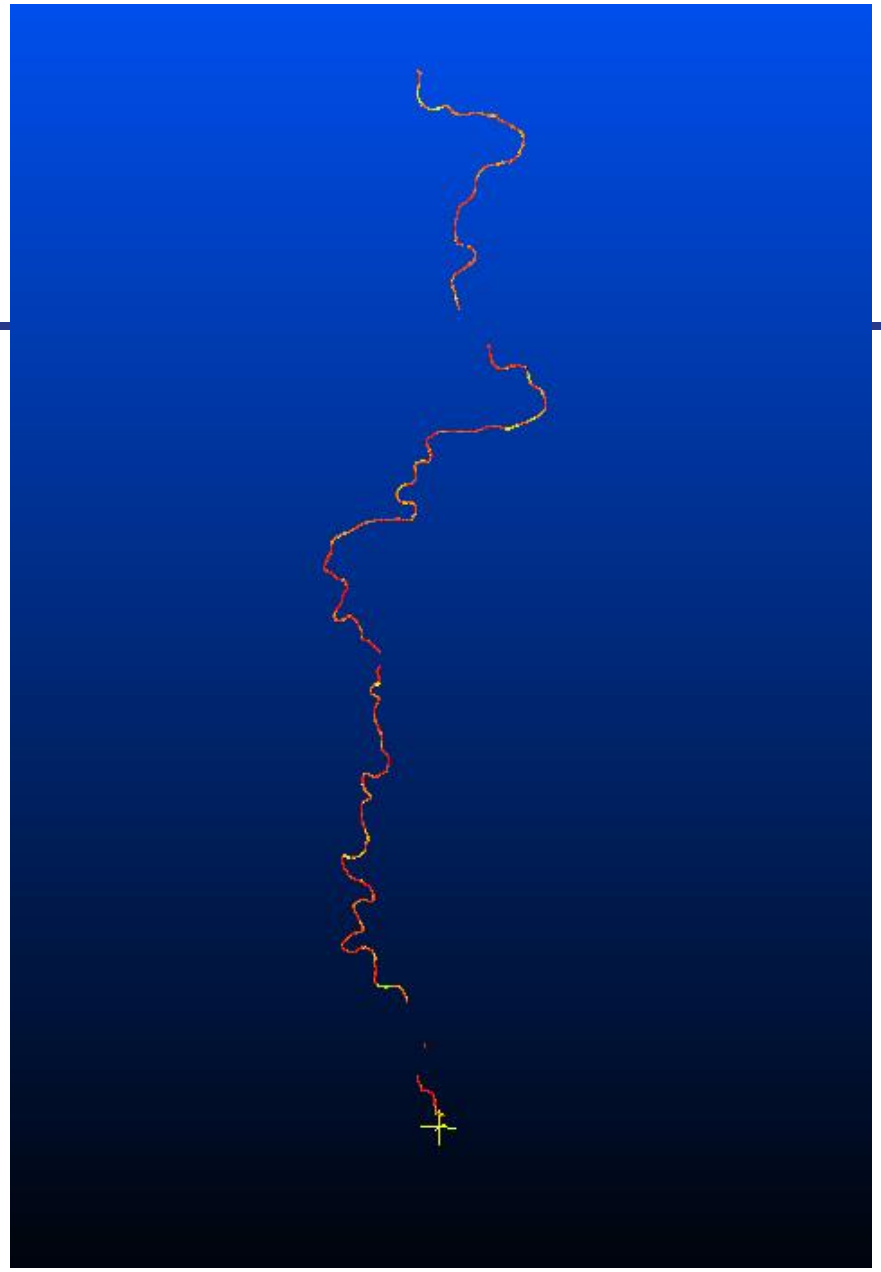


Data showing…

The data can be postprocessed in 3D point cloud software of choice if needed or the maps can be accessed via WMS (Web Map Service) with software such as Google Earth, QGIS or ArcGIS for further processing.







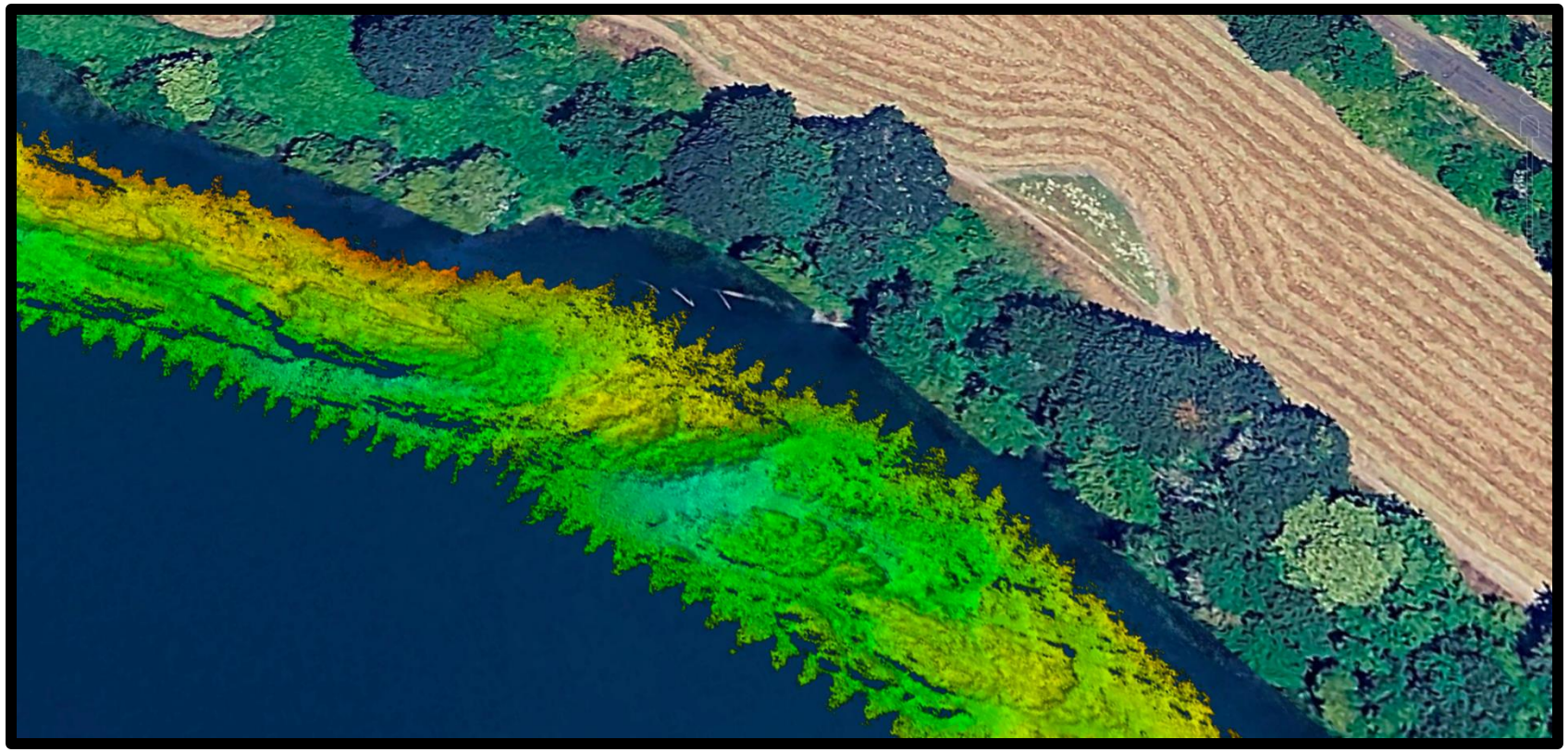
100 miles of river

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Baywei M1 – Rethinking multibeam sonar systems for the real world

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Contact us: sales@bayweisonar.com – or online at bayweisonar.com