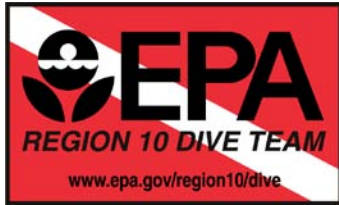


US EPA ARCHIVE DOCUMENT



## [EPA Region 10 Dive Team](#)

### **Pierre Lake, WA Hydrolab Search**

**What:** The Region 10 dive team was asked to retrieve a Hydrolab data sonde lost during Washington Department of Ecology (WDOE) mercury study of Pierre Lake, Washington.

**Why:** The WDOE had hoped that the Hydrolab, worth approximately \$10,000 could be recovered near its original deployment location so it could be used for future survey work. Hydrolabs are typically used to log temperature, salinity, conductivity, pH, depth, and dissolved oxygen. Hydrolab deployment was part of a WDOE effort studying water quality parameters at Pierre Lake as part of a long-term mercury monitoring project in Washington State. The primary goal of this project is to monitor mercury levels in edible tissue from freshwater fish at six sites per year on a five-year frequency (30 sites total). Target fish species for trend monitoring include bass and walleye. Ancillary data on the fish and sites are collected to help understand patterns, dynamics, and changes in fish tissue mercury levels over space and time. Such data include: fish length; weight; sex; age; and physical and chemical characteristics of sites such as morphometry, water chemistry, and surficial sediment mercury levels.

**Where:** Pierre Lake is located approximately 20 miles north of Kettle Falls and 10 miles south of the Canadian border in northeastern Washington State.

**When:** September 28<sup>th</sup> and 29<sup>th</sup>, 2009.

**How:** Divers utilized sector scan and hand over hand techniques to search the bottom near the last reported location of the instrument. Unfortunately, visibility was zero or near zero at the bottom of the lake. The lake also had an unconsolidated silty bottom, which the divers could not find any hard surface below. The bottom was sufficiently soft that at times the diver would be partially immersed within it while searching. Since the instrument was lost from the surface, digging in the sediment was necessary as the instrument probably impacted well within the bottom of the lake.

**Equipment:** EPA vessel Wooldive was used as the dive platform due to the small boat launch at the lake. Sector scan was used to look for hard targets on the bottom. The sector scan had difficulty being fixed in place to map the target area due to the very soft nature of the lake "bottom." To remedy this, the sector scan was suspended above the bottom on a line from the dive platform.

**Results:** Two days of tethered SCUBA dives did not locate the lost instrument due to the low visibility on the bottom of the lake. This is in stark contrast to relatively good visibility in shallower depths at the lake, where Secchi disk readings were approximately 18 feet.

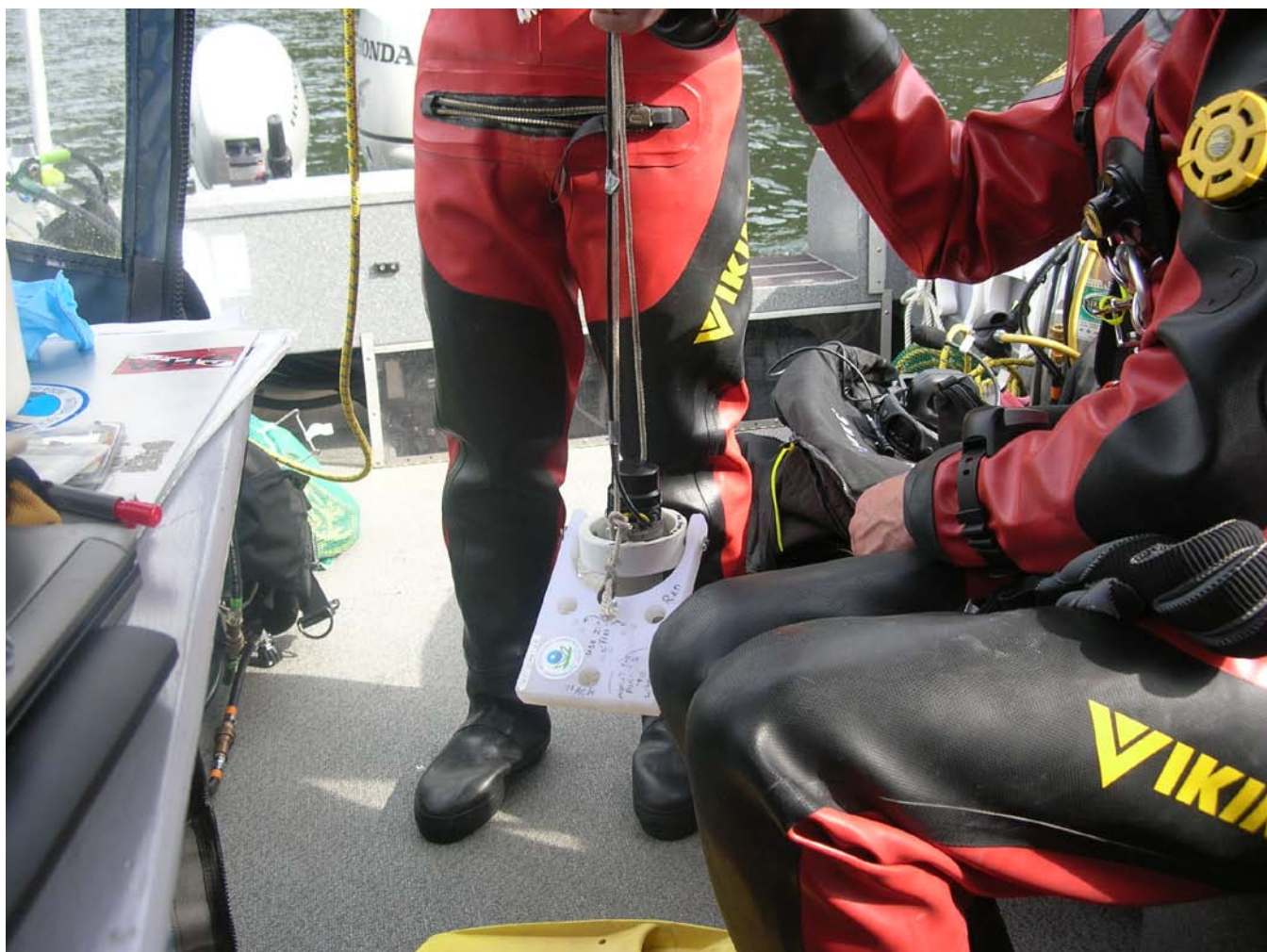
**More Details:** [WDOE Mercury Trends Study](#)

**Contact:** [Rob Pedersen](mailto:pedersen.rob@epa.gov) (206) 553-1646, pedersen.rob@epa.gov

**Photos:**



Doc Thompson and Rob Pedersen pointing towards the marker buoy, used as a visual reference for search operations as the last known data sonde position. The Hydrolab was lost from the surface at this approximate location



Picture of sector scan sonar. The sector scan, when placed near the bottom, was used to search the last known location.



Example data sonde (non functional), used to calibrate the sector scan search and verify the target size could be seen. The actual data sonde lost by WDOE was slightly longer and of a larger diameter.



Sean Sheldrake dropping the data sonde into the silty bottom to calibrate the sector scan and verify the target could be “seen” on a laptop.



Tethered SCUBA was used to best guide search operations to sector scan targets and methodically “sweep” the bottom.



Bruce Duncan installing sector scan software on his laptop to track the diver and help guide them to targets on the bottom.

Return to [EPA Region 10 Dive Team](#) homepage.