

# Digging into the glacial history of Whitefish Lake

The Flathead Valley was once the geologic setting for repeated southward advances and retreats of the Flathead Lobe of the Cordilleran Ice Sheet — the last being about 13,000 years ago.

These ice advances plowed their way down the Rocky Mountain Trench. The Rocky Mountain Trench begins in British Columbia and is bounded by the Whitefish Mountain Range to the north and Swan Range to the east.

The progression and retreat of the Flathead Lobe carved the surrounding landscape and left large glacial lakes as the ice receded.

The glacial history of the Whitefish Lake area recently received heightened attention by Whitefish Lake Institute and Cliff Clark, a University of Montana Department of Geosciences student. The question at hand — what was the maximum extent of Glacial Whitefish Lake during the last retreat of the Flathead Lobe of the Cordilleran Ice Sheet?

With shovel in hand, Cliff set out to document the ancient shoreline of the lake by digging sample pits at strategic locations. He was looking for the boundary of glaciolacustrine sediment, which can be defined as sediments deposited into

lakes from glacial meltwater.

To eliminate the effects of other geologic processes, the most important dig site was up the Swift Creek drainage. As luck would have it, he found the boundary of glaciolacustrine sediment about a mile upstream from Whitefish Lake at an elevation of 934 meters above sea level.

At 934 meters, almost the entire Flathead valley floor between Flathead Lake and Whitefish Lake would have consisted of one large proglacial lake when the glacier retreated.

The glaciolacustrine

sediment found in the Averill's Viking Creek Wetland Preserve is well over two meters deep, indicating the proglacial lake existed for thousands of years. In the Whitefish area there were islands created by morainal deposition near the current lake boundary. Good examples include the gravel pit across from Alpine Market and the hill near City Beach.

Was this large proglacial lake once part of Glacial Lake Missoula? Glacial Lake Missoula most likely bordered the Flathead Lobe in the Polson area during the last glacial maxima, however, it is hypothe-

sized that Glacial Lake Missoula drained prior to the retreat of the Flathead Lobe.

Past research has helped us better understand the glacial landscape that existed in the Flathead Valley. Further investigation is necessary to better define the parameters of these glacial events related to our current understanding of local landform distribution and watershed dynamics.

— *Mike Koopal is executive director of Whitefish Lake Institute. He writes a monthly column for the Pilot.*