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June 3, 2025

MEMORANDUM

TO: **Council Members**

FROM: **Kerry Berg, Policy Analyst, Montana Office**

SUBJECT: **Presentation on Glacial Lake Missoula**

BACKGROUND:

Presenter: James Shelden, President, Glacial Lake Missoula Chapter of the Ice Age Flood Institute.

Summary: During the most recent Ice Age (18,000 to 13,000 years ago), and probably in previous Ice Ages, cataclysmic floods inundated portions of the Pacific Northwest. These Ice Age Floods originated primarily from Glacial Lake Missoula, but also from Lake Bonneville and perhaps as sub-glacial outbursts from under the continental ice sheet.

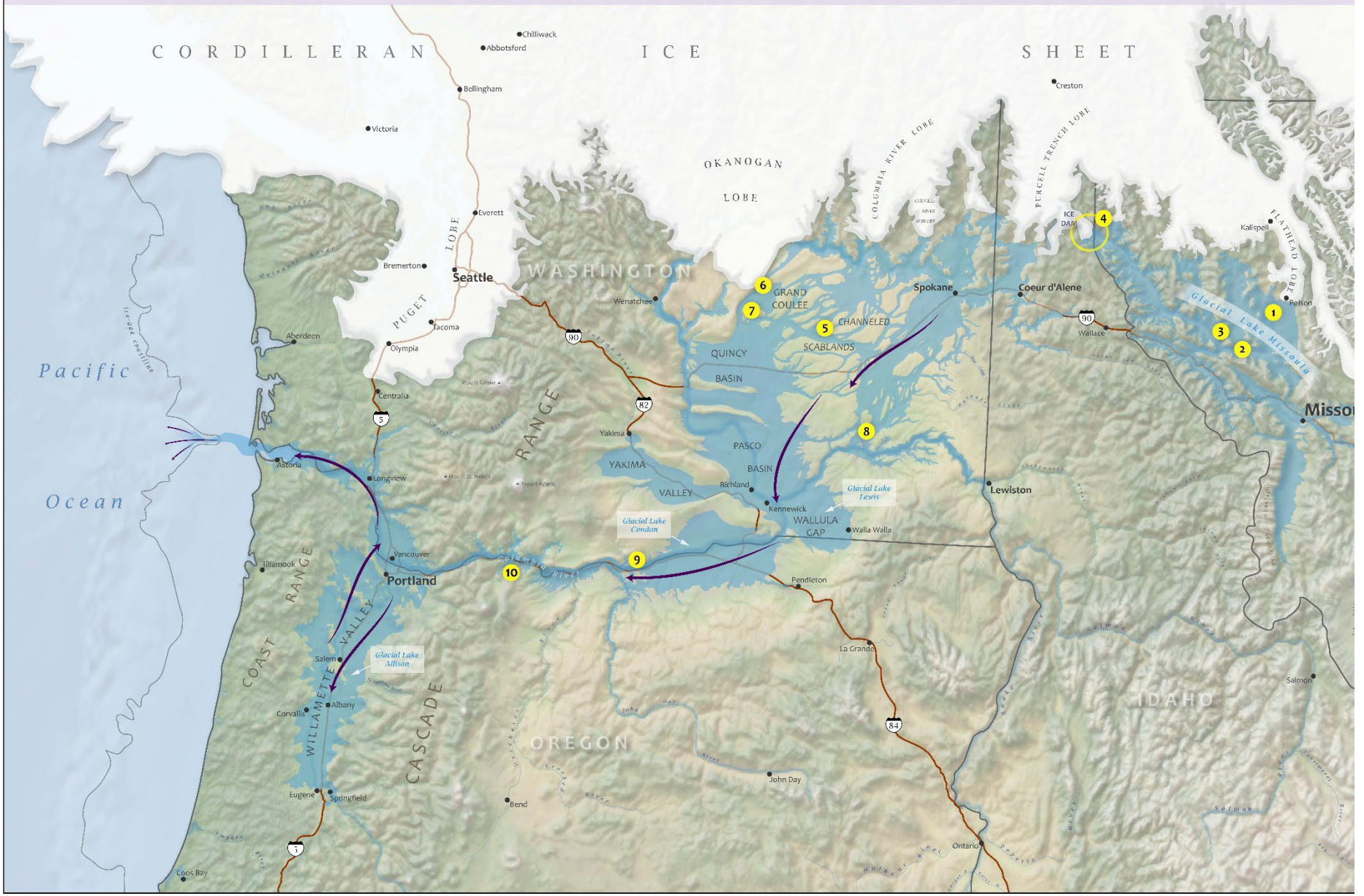
When part of that Cordilleran Ice Sheet pushed into the Lake Pend Oreille area of the Idaho Panhandle, it created an ice dam over 40 miles wide and 3000 feet thick, that blocked the Clark Fork River drainage and impounded Glacial Lake Missoula. At its largest, the lake was more than 2,000 feet deep at the ice dam and held over 500 cubic miles of water—as much as Great Lakes Erie and Ontario combined.

Relevance: Eventually the impounded lake water broke through the ice dam, sending a towering mass of water and ice, up to 1000 feet deep, sweeping across parts of Idaho, Washington, and Oregon on its way to the ocean. The huge lake likely emptied in as little as two to four days. With a peak flow rate ten times the combined flow of all the current rivers of the world, the floods stripped and locally

redeposited downstream as much as 50 cubic miles of sediment and bedrock, creating astounding landforms in the region that still attest to this story.

More info: The Glacial Lake Missoula Chapter of the Ice Age Flood Institute has placed a number of “high water markers” around the area of the lake and is actively collaborating with other local organizations to tell the story of Glacial Lake Missoula and the Ice Age Floods. For more info go to https://iafi.org/ .

Glacial Lake Missoula Flood Path

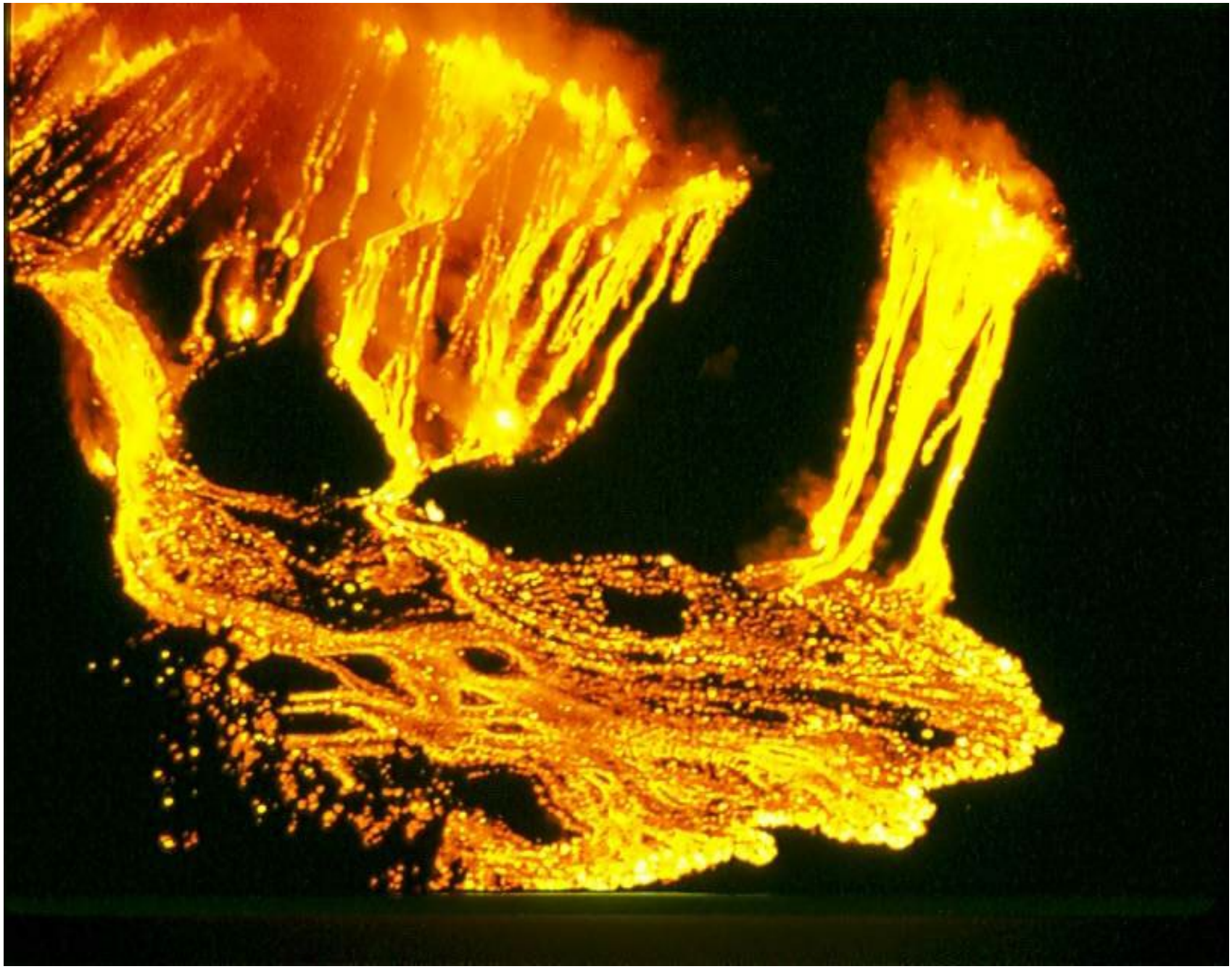


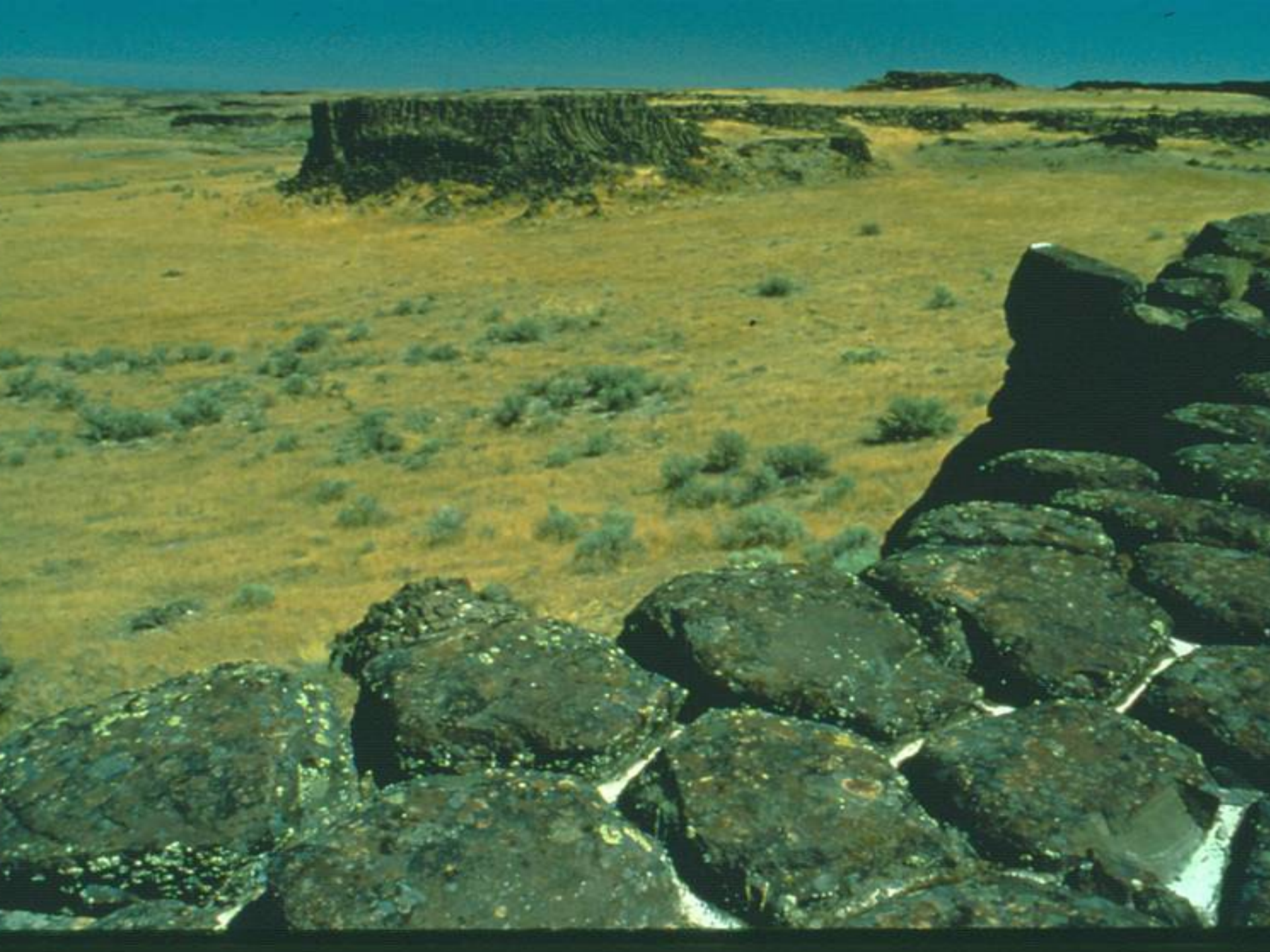
Key Points

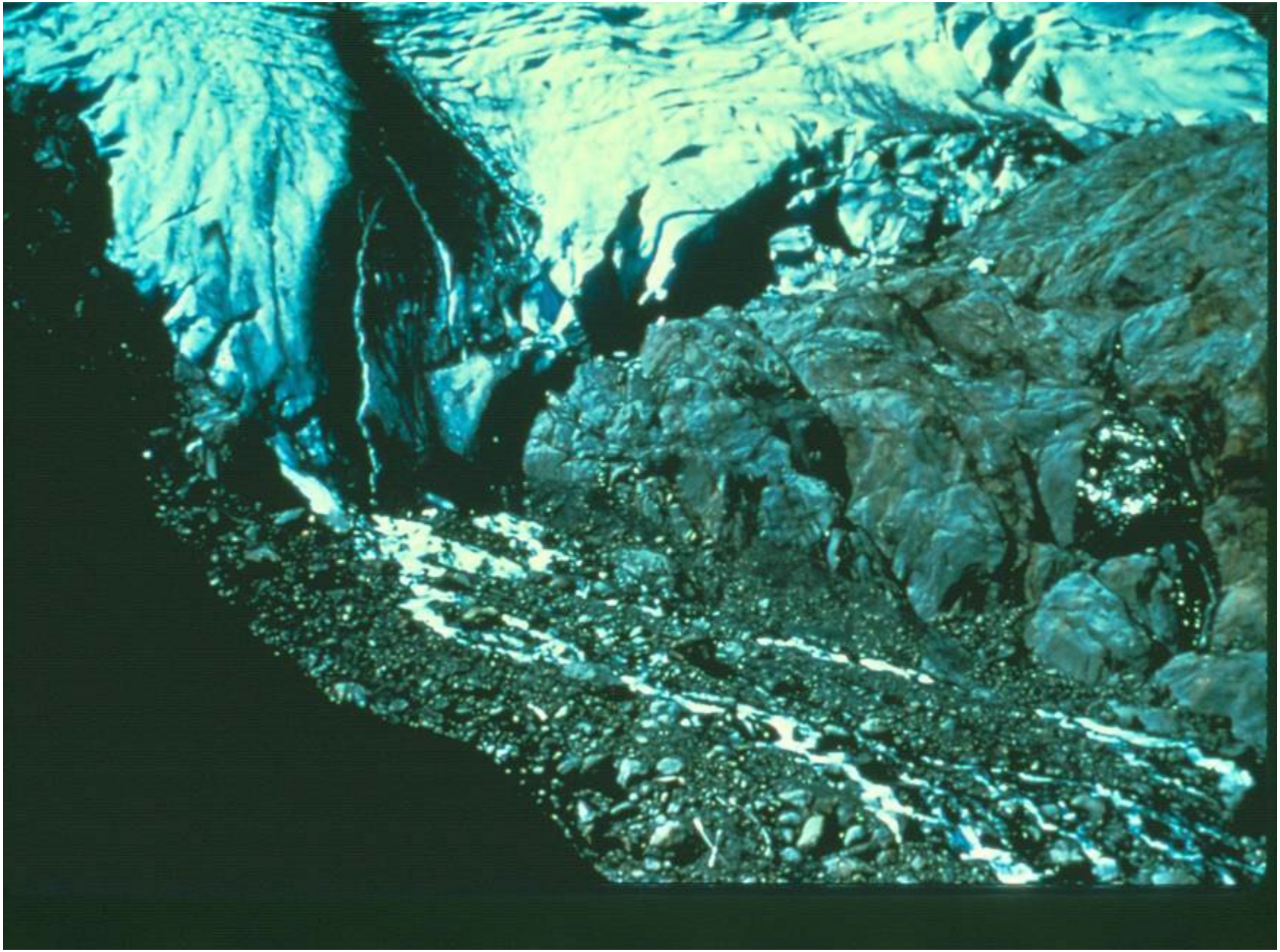
Glacial Lake Missoula

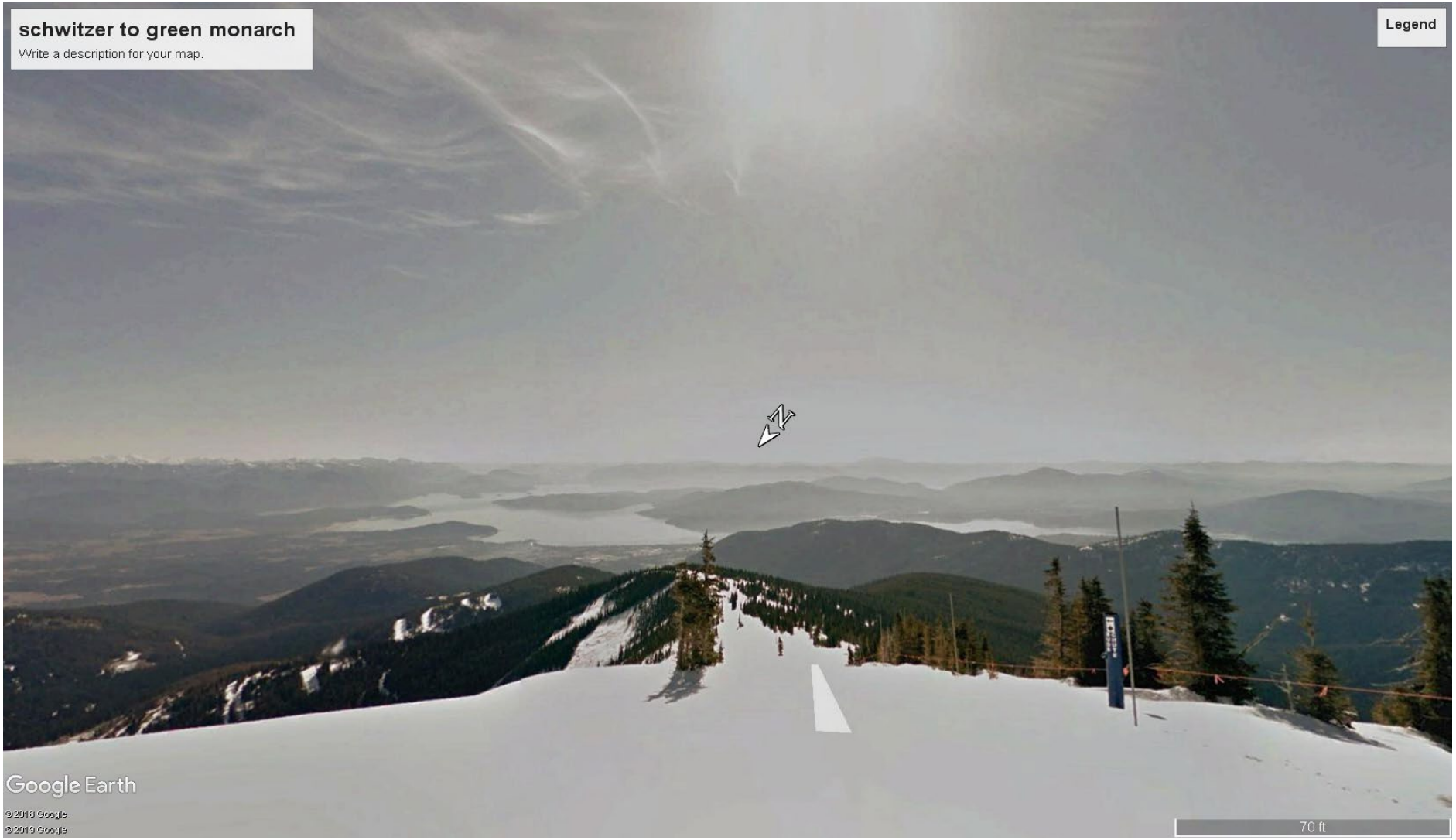
Time in history 12,000 BC

Lake Surface Elevation 4,200 feet above sea level
Missoula City Elevation 3,200 feet above sea level
This view is above the City of Missoula looking east towards Bonner





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