

Traveling the Ice Age Floods National Geologic Trail

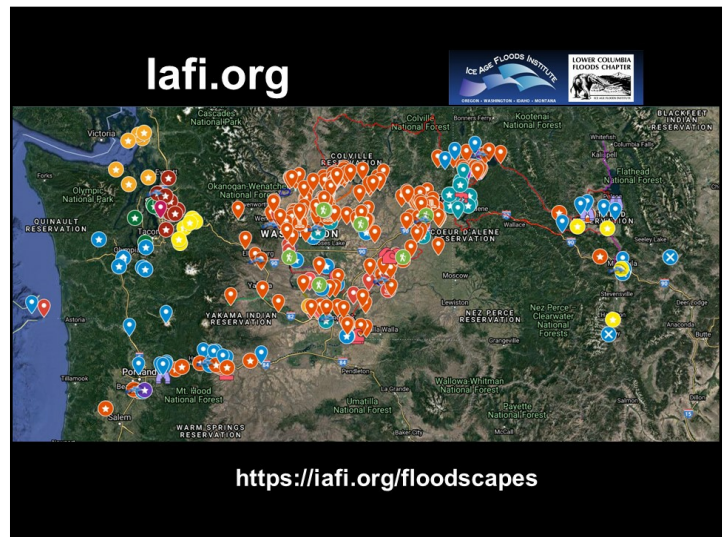
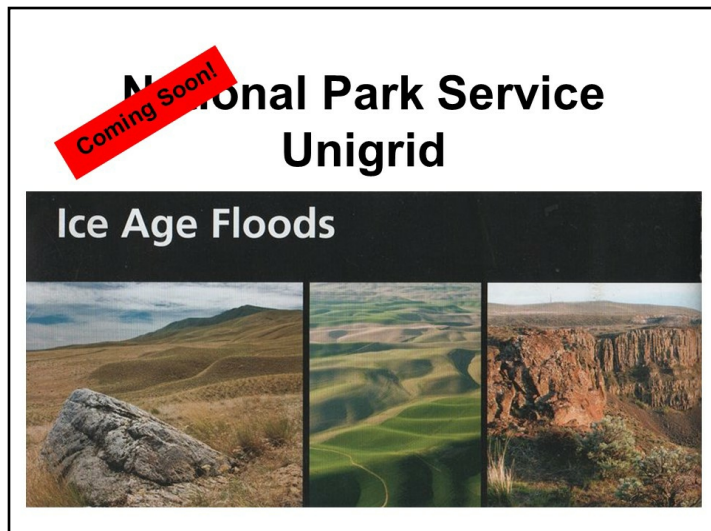
By Rick Thompson
President, Lower Columbia Chapter

In September 2021 my wife and I took a trip to see what was new along the Ice Age Floods National Geologic Trail and visit some places we did not make it to in our very first trip in 2004.



Lower Columbia Chapter brochure & circle showing all chapter brochures

The IAFI chapter brochures were very helpful in learning what there was to see in each area. We had seen a preview of the National Parks Service unigrid map brochure that will come out hopefully later this year so be sure and get one when it debuts.



The other excellent tool was the online interactive map on the Ice Age Floods Institute website: www.iafi.org under Resources and then click on Flood Resources to get to the Interactive Floods/Glacial Features Regional Map. Here you can click on a spot and see a photo and description of the site. All are great planning tools.

We drove to Missoula, Montana and stayed there a couple of days as we made day trips.

Our first one was to Ovando to see a granite glacial erratic that the Glacial Lake Missoula Chapter had etched and placed at the high-water line. You will find it at Trixi's Antler Saloon which is a nice place to grab a bite for lunch. The chapter has a number of these high water markers placed already and have more planned to show the full extent of Glacial Lake Missoula.



High water marker at Trixi's Antler Saloon in Ovando, Montana

Unfortunately, due to the smoke from the wildfires we were not able to go to Hamilton to see the 8-ton granite erratics outside Ravalli Museum with four interpretive signs outside and additional displays inside.

We drove up to Paradise, Montana to the Paradise Center. We had been there before in 2016 for the fall national field trip and they were just dreaming of what the old Paradise Elementary School could become.



**Paradise Elementary School
now the Paradise Center**

They have done a wonderful job of making that dream come true. It was one of our favorite spots on this trip. They have dedicated an entire room to the ice age floods story and central is an extremely accurate 3-D map of Glacial Lake Missoula which also has lights installed so you can push a button to light up the edge of the ice lobe and other features.



Surrounding this exhibit on each side are boards with multiple interpretive panels covering the history of the discovery, acceptance, and recent research of the Lake Missoula Floods. There are plans to create interactive exhibits for youth. The outdoor walking trail has 15 interpretive panels, some related to the ice age floods.



Besides information about the ice age floods the Center also has wonderful displays about the trains & train yard that used to be in Paradise and the history of the Paradise Elementary School.



We went to the Natural History Museum in Missoula and enjoyed the panels and video which told the Lake Missoula Floods story and also about Joseph Pardee, a very important pioneer in solving the mystery of these floods.

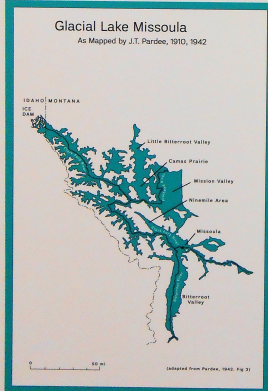
This museum also displays an amazing amount of taxidermy showing the wildlife and birds in the region.

Glacial Lake Missoula: A Lake That Wrote Its Story on the Land

If you were standing here 14,000 years ago, you would be under a thousand feet of water. Nearby, the peaks of Mount Sentinel and Mount Jumbo would be islands in an enormous lake that filled the Missoula Valley and extended into the Bitterroot, Clark Fork, Flathead, and Blackfoot drainages.



A view of the lake from above the city of Missoula, looking east down the I-90 corridor through Hellgate Canyon. The water surface is at its maximum height: 4,250 feet above sea level.



The story of Glacial Lake Missoula and the Ice Age Floods is awe-inspiring. At its highest level, the lake contained more water than Lake Erie and Lake Ontario combined. Unlike the Great Lakes, however, Glacial Lake Missoula was only temporary. Its dam was a moving wall of ice over two thousand feet high, which failed catastrophically. The flood's effects on the landscape were epic. But the story doesn't end with one flood. After its collapse, the wall of ice continued to advance. The dam reformed, refilling the lake and restarting the cycle.

What caused the dam to form?

During the most recent Ice Age, huge ice sheets formed in the north and grew southward. In North America, the ice was at its greatest extent 20,000 years ago and covered most of Canada and the northern United States.



This Cordilleran Ice Sheet came down from Alaska. A lobe of ice protruded from this ice sheet and down the Purcell Trench, north of Sandpoint, Idaho. There, it crossed the Clark Fork Valley and pushed into the mountains to the south. The ice formed a dam, backing up the water of the Clark Fork River and its tributaries for hundreds of miles, creating one of the largest lakes the earth has ever known.



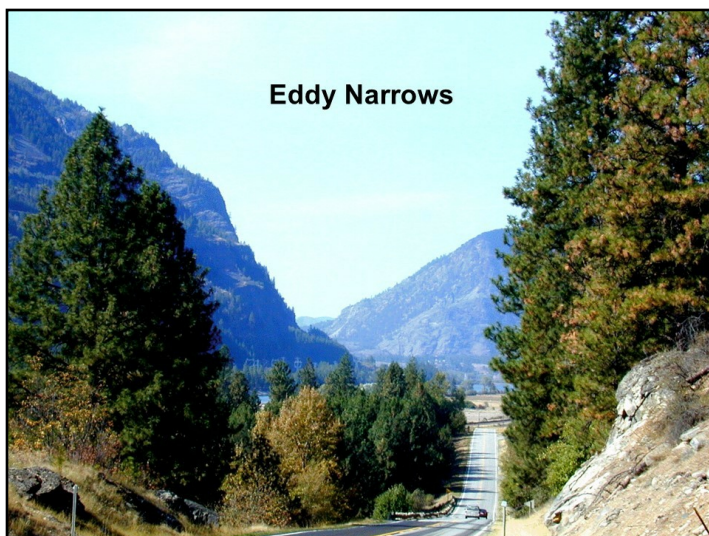
How do we know these lakes existed? The modern discovery of Glacial Lake Missoula is a tale in itself. It begins simply, around the turn of the last century, with a curious geologist and a host of clues observed across the local landscape.

Interpretive panel at Natural History Museum in Missoula, Montana

On our way up to Sandpoint, Idaho we passed through Eddy Narrows. Glacial Lake Missoula drained through this canyon going 80 mph leaving horizontal marks high up on the walls.

Previously these were thought to be glacial striations, but Pardee speculated that these marks were from huge boulders as they shot through the Narrows.

The Narrows is so huge and there are few places you can pull over on Highway 200 so it can be hard to really appreciate its scope. We got a good view from



Eddy Narrows

the Koo-Koo-Sint Bighorn Sheep Viewing Interpretive Site which has several interpretive signs that talk about the sheep and the geology of the Clark Fork River valley.



We then went over to Farragut State Park which is on the southern tip of Lake Pend Oreille to view the beginning of the outburst plain that formed the Rathdrum/Spokane Valley aquifer.

Across Lake Pend Oreille is Green Monarch Ridge; the terminus of the Purcell Trench which held the 4,000 ft. ice dam that carved the steep walls. The display at the museum has several interpretive panels.



Consuelo at Riverfront Park in Spokane

The next day we met Consuelo Larrabee who gave us a personal tour of the 40,000 square foot Ice Age Floods Playground in Riverfront Park in Spokane, Washington. She and Melanie Bell, the president of the Cheney-Spokane chapter, did an enormous amount of work as consultants on this fabulous, themed park.

Kids can learn as they play on the three-story Columbian slide tower, Glacial Dam splash pad, log jam climber, an alluvial deposit fossil dig, and more.



The park was filled with kids and the adults were enjoying it as much as the kids. We loved watching the excitement of a child as she saw the splash pad water fountains simulate the ice dam starting to rupture and then the cascade of water flooding over the man-made basalt rocks.



Along the side of the building are actual basalt columns though they cannot be seen in this photo. The fossil dig led to many exciting discoveries by the children as they dug through the sand to reveal imbedded replicas of fossils.

Throughout the park are thoughtfully placed benches for people to sit and watch the fun going on around them.

There are nine interpretive panels throughout the park adding an wonderful educational benefit to all the fun one has. This park will be quite a prize for years to come.



The next day we drove along Highway 262 to W. McManamon Road to the Drumheller Channels National Natural Landmark. This outlet from the Quincy Basin, with floodwaters going 65 mph eroded not just the topsoil but the underlying basalt which created the dramatic channels, basins, potholes and buttes. The viewpoints along the drive had several interpretive panels talking about these wonderful vistas.



Drumheller Channels

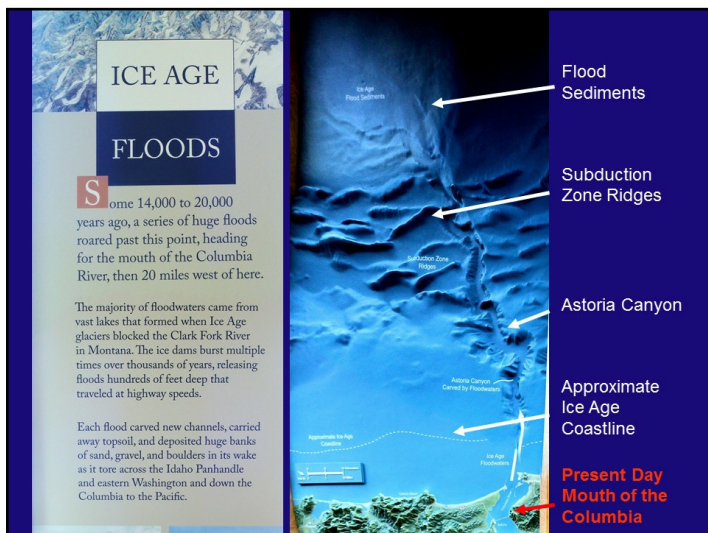
Since this trip was to see places we had not recently seen and we live in Portland, Oregon we skipped over the many wonderful places in the Columbia River Gorge, Willamette Valley & Tualatin. But for your trip, please check out the hundreds of beautiful and interesting sites to see in this region.

The last stop for this trip was Cape Disappointment.



**Cape Disappointment State Park
Near the mouth of the Columbia River
at the Pacific Ocean**

The submarine Astoria Fan was created by the debris flushing out the mouth of the Columbia River and is not visible from the surface but the Park display has a relief map that shows the canyon.

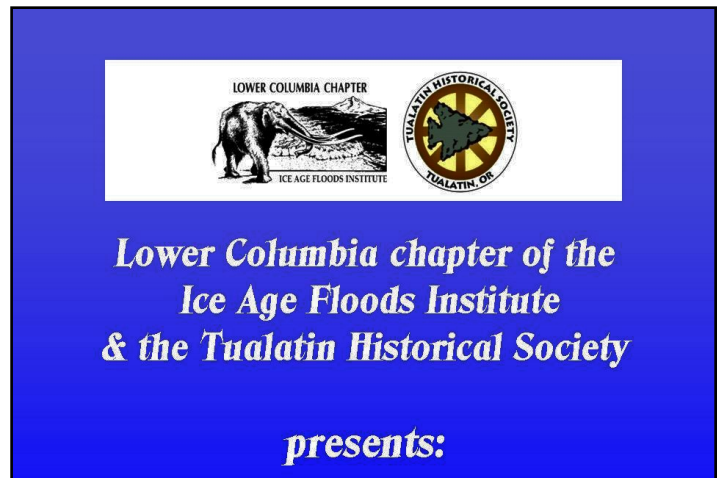


Relief map of the Astoria Fan

This area is known, as the “Graveyard of the Pacific,” because of the shifting debris that even today requires a pilot ship to guide you into the mouth of the River.

One display shows how many ships have floundered and sunk. Core drillings have shown that the ocean currents took some of this debris all the way down to Cape Mendocino, California.

When we finished our trip I put together a PowerPoint presentation which I gave to my chapter. To see this and the many other talks we have hosted, go to the IAFI website and select the Lower Columbia Chapter to get to our YouTube channel.



Title slide from PowerPoint presentation

We certainly have not covered anywhere near what there is to see along the Ice Age Floods National Geologic Trail, but we hope this has inspired you to plan a trip of your own.