Palouse Falls Chapter
Washutnaca, Washington

The Palouse Falls Chapter is named after the 186-foot waterfall midway in the Palouse Canyon in southeast Washington. The falls is located in Palouse Falls State Park and is the official waterfall of the state of Washington.

The chapter covers the lower end of the Cheney-Palouse Scabland Tract where some of the best examples of channeled scabland topography can be found, including numerous coulees, canyons, buttes, and flood bars. Giant current ripples can be seen on many of the bars. Geologist John Harlen Bretz who first proposed the flood theory said “...features of the channeled scablands do not resemble any other type of topography anywhere in the world.”

The Palouse Falls Chapter is comprised of mostly local farmers, ranchers, and others who make their living off this incredible land. We offer public lectures, bus tours, and hikes as well as assisting local schools in relating the amazing story of this land. Learn more, become involved and join our chapter at IAFI.org/Palouse-Falls-Chapter

FOLLOWING THE PATHWAY
During the last glacial cycle of the Ice Age some 80,000 to 14,000 years ago, repeated massive floods carved many of the distinguishing features of the interior Northwest’s unique landscape.

This is your guide to the dramatic evidence of these historic floods, from spectacular canyons and cliffs to waterfalls and vast, flood-eroded scablands, that can be witnessed with a short road trip.

It is our hope that you will use this guide to explore the fascinating geological flood features in our region, and want to learn more about the dramatic Ice Age Floods story.

OF THE GREAT FLOODS

The Story of the Great Ice Age Floods

During the peak of the last Ice Age, a vast Cordilleran continental ice sheet covered southwestern Canada and the northern parts of Washington, Idaho, and Montana. An eastern punch bowl of the ice sheet descended into the Idaho panhandle, blocking the Clark Fork River with an ice dam thousands of feet thick.

Water rising behind the dam flooded the valleys of Montana creating Glacial Lake Missoula — a great inland lake stretching over 200 miles to the east with a volume of water greater than Lake Erie and Lake Ontario combined.

The rising lake waters periodically caused the ice dam to fail, resulting in sudden, cataclysmic floods that rushed across northern Idaho and the Channeled Scablands of eastern and central Washington, through the Columbia River Gorge, and into Oregon’s Willamette Valley, before emptying into the Pacific Ocean at the ancient mouth of the Columbia River. Glacial Lake Missoula would have drained in just a few days as a volume of floodwaters greater than all the rivers of the world combined roared across the landscape at up to 60+ mph.

Now imagine this happening not once but dozens, perhaps even hundreds of times as the advancing continental glacier built a new ice dam!

Interesting Flood Facts!

Ice Age Floods National Geologic Trail

Since the 1980’s the Ice Age Floods Institute (IAFI) has worked to create and build support for the Ice Age Floods National Geologic Trail. The Ice Age Floods National Geologic Trail is essentially a network of marked touring routes extending across parts of Montana, Idaho, Washington, and Oregon, with several special interpretive centers located across the region. Many interested parties are being brought together in a collaborative and effective interpretive program at a remarkably low cost, despite the extraordinary size of the region.

The Trail is being developed under the National Park Service on existing public lands, with no changes in jurisdiction and no threats to private property rights. The role of the National Park Service is to coordinate and manage the planning of the project and the telling of the story, without taking custodianship of public and private lands.

A GUIDETHEINCREDEBLE ICE AGE FLOODS WHERE THE SCABLANDS MEET THE PALOUSE

Our Cataclysmic Floodscape

DETAILED MAP INSIDE
Highlighting prominent ice-age flood features in the Cheney-Palouse Scabland area

A regional guide to geological evidence of the GREAT ICE AGE FLOODS that powerfully sculpted the dramatic Palouse Falls landscape.

LEARN MORE AT IAFI.ORG OR FACEBOOK.COM/ICEAEGFLOODS/
Explore Ice Age Floods Features in the Palouse Falls Area

Discover why our region is like nowhere else. Jump into the Ice Age Floods story with a DRIVE/HIKE/LEARN day tour.

1. Little Cove / Big Cove
Paired Coulee Canyons

Little Cove and Big Cove are the westernmost points of entry of floodwaters into the Palouse River Valley. As floodwaters poured over the rim of the Palouse Valley, recessional coulées migrated northwest producing the two couvées. Little Cove Road takes you up the west side of Little Cove. The road is public but the property along it is private. Traveling north on Cherry Creek Road between the two covers, you will cross through a Palouse upland area that didn’t erode away, before seeing a spectacular view of channelized scablands and the upper end of Big Cove to the east.

2. Staircase Rapids
Deltaic Bedding, Giant Ripple Marks

The name Staircase Rapids was given by J. Harlin Breit to the scabland feature north of Wastachena. He noted that the upper cliffed and plunge pool basins on the north end, and the 5-mile long bar at the south and with deltaic bedding and giant ripple marks on top, could not be explained by processes of normal slow erosion and deposition over eons of time.

3. Iconic Palouse Falls
Recessional Cataract Waterfall

Palouse Falls is centrally located on the spillway between Wastachena Coulee and the Snake River in the middle of the Palouse Canyon. As floodwaters crossed the divide, numerous canyons were carved out of the Palouse Canyon. A waterfall started when the water spilled over the north rim of the Snake River. The waterfall recorded hundreds of yards upstream with each flood, leaving a recessional cataract, whose current location was “thrown in place after the last flood, and its downstream coulee canyon.

4. Palouse Canyon
Fault-Controlled Floods Path Cutoff

Prior to the Missoula Floods, the Palouse River flowed through the current town of Wastachena, Kettle Falls, Coulee City and Washcota before entering the Columbia River at the TriCities. Most of the floodwater traveling down the Cherry-Palouse Scabland Trench merged together in the Palouse River Valley at present day Hooper. That valley couldn’t contain the floodwaters, so flooding crossed the divide to the Snake River Valley now onto the north.

5. Devil’s Canyon & Monument
Floods Spillway, Unique Basalt Columns

Devil’s Canyon is another location floodwaters spilled over the divide between the original Palouse River and Snake River valleys, cutting off this spectacular 5 mi long linear canyon in the fractured basalt. It is located just south of Kettle Falls with state highway 263, tracing the length of the canyon.

About 1 mile from the mouth of the canyon, you can see Devil’s Monument on both walls of the canyon. It is identified by the basalt columns being more horizontally than the normal vertical position. Millers of years ago, the ancestral Salmon-Clearwater River carved out this feature which was then filled by a later basalt flow. It eroded from the middle and top rather than the bottom and the top which led to the unusual positioning of the columns.

Useful Terms
Recessional Cataract - a waterfall that receives upstream erosion and removal of rock underlying the waterfall.
Coulée - a valley or canyon that may have had piping or slumping rates that is an abandoned ice-Age flood channel, often marking the erosional path of a recessional cataract.

6. Lake Sacajawea Bar
Huge Floods-Deposited Gravel Bar

Lake Sacajawea Bar is one of the largest depositional features left behind by the great Ice Age Floods. The bar rises abruptly to 400 feet above the river, making it one of the tallest ice-Age flood bars. Lake Sacajawea Bar is divided into two segments. A barrier bar lies just downstream of a basal spur and is classified as a longitudinal-pendant bar. The largest floods, which came off the Channeled Scabland from the northwest, formed this pendant bar.

Downstream, the bar narrows and has the northwest side of the valley to form a longitudinal-bar delta. Its surface lies 140 feet lower than the present floodplain.

Near the top of the eddy bar is a sequence of stacked gravel flood rhythmites containing the Mount St. Helens “S” ash layer, dated at 7,000 calendar years B.P. Flow-direction indications again suggest these deposits were laid down as the last of the Ice-Age Floods swept around in a large eddy at this location.

Lake Sacajawea Bar has undergone considerable environmental degradation from railroad construction and gravel mining since the early part of the 20th century. Unfortunately for geologists, highway activities created several good exposures of the interior of the bar from which we can interpret some of the history and dynamics of ice-Age flooding.

Find an interactive map and additional details about these and other Ice Age features online at https://iafi.org/floodscapes.