

Summer 2011

THE PLEISTOCENE POST

Newsletter of the Ice Age Floods Institute



See our website for more information
www.iafi.org

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PRESIDENT'S MESSAGE

Occasionally I receive calls from local communities within the Ice Age Floods region asking me how they can get on the map of the Ice Age Floods National Geologic Trail (IAFNGT) - as if it is being built right now. I began receiving these calls shortly after the legislation passed in January of 2009 and made a conservative guess that the trail would be completed in five years.

Since then, I have received a lesson in federal appropriations (funding) in a post-recessionary environment that has tempered my expectations but not my energy and enthusiasm. Already, the Federal Interagency Coordination Committee has started work on the General Management Plan by completing a draft Foundation Statement (article on page 5) with a \$25,000 grant from the National Park Service (NPS).

Board member David Daugherty and I represented the Ice Age Floods Institute at the weeklong workshop. Additionally, board member Brent Cunderla was in attendance representing the Bureau of Land Management. The meetings affirmed for me how well the Institute has transitioned from Trail champion to vital NPS partner in the development of the IAFNGT.

Through local chapters of the Institute, the IAFI has entered into a myriad of partnerships that support our mission. The current issue of the newsletter highlights several of these partnerships and demonstrates broad support for the Institute and IAFNGT.

One of our partners, the National Parks Conservation Association, has extended an invitation for me to go to Washington D.C. to meet with the sponsors and co-sponsors of the IAFNGT and lobby for funding (\$150,000) to hire an interim Trail manager and interpreter. With the completed draft of the Foundation Statement, I will be well armed to make the case that the IAFNGT is worth funding and offers economic opportunities to cities within the Ice Age Floods region.

You, our members, are our most important partners. Your membership and volunteerism is the primary source of support for the Institute. Thanks to you, we are moving forward on constructing a new website, designing a new brochure and further implementing our strategic plan.

Thank you for your continued support. We are looking forward to seeing you at the fall membership meeting and field trip.

-- Mark Buser

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CHAPTER NEWS

Cheney-Spokane Chapter – Spokane, WA

The Cheney-Spokane Chapter applied for and received a \$5300 grant from the City of Cheney Hotel/Motel Tax Funds to develop a tour brochure featuring the northern Channeled Scablands and to hire Ron Hall to develop Google Earth flood features that are in the Cheney-Spokane area. The grant is matched by \$2000 provided by the Chapter for the two projects.

On March 6, 41 hikers went with Lloyd Stoess and Gene Kiver through Palouse Canyon to Palouse Falls. This hike included geomorphology, geology, botany, zoology, Ice Age Floods and early Indian history. The distance was eight miles and the hike followed a combination of established trails, game trails, and bush whacking. Almost 400 individuals attended the “*In The Wake of the Flood*” lecture by Jack Nisbet and Gene Kiver at Spokane Community College, March 16. This presentation, sponsored by Humanities Washington, gathered the earliest art and mapwork done in the Spokane vicinity to search for flood features.

Two bus loads of “floodies” participated in the annual field trip on April 30 that began in Cheney near the Cheney-Palouse Scabland Tract and progressed southward to Rock Lake and south along the east edge of the Scabland Track to the Palouse River Valley. Gene Kiver, Bruce Bjornstad, and Lloyd Stoess led the tour of cataract canyons, dry falls, basalt buttes and mesas, streamlined and scarped loess islands and divide crossings caused by monstrous Missoula Floods.

Dr. Patrick Lubinski, Professor of Anthropology at Central Washington University, presented “*Wenas Creek Mammoth Excavations*” on June 23 at Eastern Washington University. This presentation was sponsored by Humanities Washington.

The Cheney-Spokane Chapter has been reaching out in the Spokane area to spread the Floods story by exhibiting at Garden Expo with an attendance of 20,000+, Medical Lake Founders Day, Cheney Jubilee – a new annual event in Cheney, Washington, Camp Caslo – a week long camp for 5 to 12 year olds who learned about the Ice Age Floods, and two field trips for ages 50+ through Cheney Parks and Recreation. More than 300 contacts were collected to add to the Chapter’s distribution list, numerous new memberships were received, and many maps and field guides and other items from the IAFI Store-In-A-Box were sold.

--Melanie Bell

Columbia Gorge Chapter

It’s been a busy year in the Columbia River Gorge. Our speakers so far have been Pat Lubinski of CWSU with his talk on the Wenas Creek mammoth; Ron Hall, the “Google Geek”, helped us learn how to use Google Earth to mark local areas of interest; David Shapiro, author of “*Terra Tempo*” gave a presentation for adults and children, and George Last gave his presentation on the mammoths of Lake Lewis.

I’ve been on the lecture circuit also. In June I gave a presentation to about 50 members of the Bingen-White Salmon Rotary; Mensa had their Annual Gathering in Portland this year where I spoke to an audience of about 225 brainiacs. I guess some of them wanted to learn more as sales from the “store-in-a-box” were \$189.

-- Terry Hurd

Ellensburg Chapter – Ellensburg, WA

Our Ellensburg Chapter has been cruising along - both in the field and at our evening talks given at Central Washington University. During the 2010-2011 school year, we did field trips to the Waterville Plateau (our first bus trip), Moses Coulee, Yakima, and Leavenworth. Lecture topics included Mammoths of Lake Lewis (George Last), Pollen Research in the Northwest (Megan Walsh), Himalayan Glaciers & Climate (Susan Kaspari), and two wide-ranging Missoula Flood talks by Jim O’Connor and Vic Baker. Thanks to Ellensburg Chapter members for their support!

-- Nick Zentner

Lake Lewis Chapter - Tri-Cities, WA

As of April 30, 2011 we had 106 active memberships (including family memberships), 70 of which are current for 2011. Note that a number of new or renewing members were added during our July field Trip. We held two regular chapter meetings, an evening tour, and a field trip this Spring. Our March program was by Dr. Patrick Spencer on “*Age, Correlation and Ecology of Eolian and Non-Eolian Facies of the Palouse Silt, Southeastern Washington.*” In May, we had Dr. Jim O’Connor talk to us about “*Pacific Northwest Megaflooding; some thoughts and findings on the Missoula, Bonneville and other late Quaternary large floods.*” In July we took a tour of the Coyote Canyon Mammoth Site, led by Bax Barton, and a field trip through the Western Channeled Scablands led by Bruce Bjornstad.

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This spring, our members also gave a number of talks, led field trips, and/or provided support to a number of community organizations including: the Sandhill Crane Festival, Kiwanis Clubs, Cub Scout Troops, the Yakima Valley Boat Club, the Salmon Summit, Kennewick Community Education, gem and mineral shows, Pompy's Lessons, National Parks Conservation Association, League of Women Voters, the Ice Age Floods Festival, the Ridges to Rivers Open Space Network, and the Mid-Columbia Basin Old Nature Sciences (MCBONES) Research Center Foundation.

--George Last

Lower Columbia Chapter - Portland, OR

On April 13, 2011, Dr. Richard Waitt's new presentation "*The Ice Age Floods Impact on Geology of the Pacific Northwest*" filled the room at the Tualatin public library. The meeting was held in partnership with the Tualatin Historical Society (THS). In May, Lower Columbia Chapter President Rick Thompson led two half-day field trips exploring "*Tualatin/Sherwood's Ice Age History – Mega-floods and Mega-fauna.*" The trip visited flood channels, kolk lakes and ponds, basalt knobs, giant current ripples and viewed the remains of several ice age mammals found in the flood channels. The field trip was timed to take advantage of the Tualatin River National Wildlife Refuge annual bird festival. The wildlife refuge is in the confluence of the Tonquin flood channel and one of the Lake Oswego/Tualatin Valley flood channels.

In partnership with THS, our chapter hosted Eric Lindstrom in a talk, slideshow and book reading about Fanno Creek, a leading tributary to the Tualatin River. It was a very interesting program with history, some geology, some environmental concerns and many anecdotes from his research for his yet to be published book.

Rick and Sylvia Thompson attended the 3rd annual Ice Age Flood Fest at Dry Falls Interpretive Center near Coulee City, Washington. In addition to their booth, IAFI was also represented by a booth staffed by the local chapter. The event was fairly small and attended mostly by locals and vacationers who just happened to be visit Dry Falls that weekend. Next year we hope to have a broader impact by working on publicizing the event more.

Charles B. Hall, our chapter treasurer, gave an inspiring talk on the Pacific Northwest Economic Region (PNWER) whose annual meeting was held in Portland the following week. This unique international organization represents states and provinces; all of which were affected by the Ice Age and the Ice Age Floods. It was a good program showing the influence of PNWER on this region and giving ideas for more future involvement of mutual benefit for the affected areas.

-- Rick Thompson

Wenatchee Valley Erratics Chapter - Wenatchee, WA

As always, its been a busy time for the Wenatchee Valley Erratics. Scott Burns was our speaker in June and joined Brent and Ken the next day to view ancient flood deposits in the Quincy Basin. Vic Baker also visited here to collect samples on the West Bar for dating and may speak to us next spring. Ken has led several Quincy City geology tours with more to come. He was also sponsored by the Cambridge Assisted Living Facility and The Erratics to lead a tour for the Ephrata Senior Center. They, too, are planning a future trip. Much interest by all!

Dr. Ralph Dawes, Professor of Earth Sciences at Wenatchee Valley Community College, and Director for The Erratics, presented the program "*Geology of the Greater Wenatchee Area*" on July 21. This program was exceptionally well attended, and spawned lots of questions. Dr. Dawes also led a field trip to the Okanogan Highlands as part of a series of field trips to explore "Highland Wonders" for the Okanogan Highlands Alliance. It filled up quickly so the field trip guide that includes a map and geologic summary put together by Ralph and his wife Cheryl, also a geologist, should be a welcome addition to the Alliance's website. He has also arranged a tour of the geology of Moses Coulee, Dry Falls, Grand Coulee and the Waterville Plateau for 20 students from Naju City, Korea, a sister city of Wenatchee. This will be led by him and Ken Lacy and will include 6th to 8th graders who are here with chaperones to learn English and experience America. Ralph's humble comment was "the Ice Age Floods landscapes should leave a lasting impression on them." To say the least!

-- Susan Lacy

FROM THE FIELD

Local Chapters Drive Important Institute Partnerships

Lower Columbia Chapter

The Lower Columbia Chapter in the Willamette Valley has joined the City of Tualatin in implementing their recently completed Ice Age Tourism Plan. Together, the Tualatin Historical Society and Lower Columbia Chapter are holding monthly lectures at the Tualatin Heritage Center. “The lecture series has succeeded beyond our expectations. The dynamic blend of natural and cultural heritage speakers have drawn strong attendance to our events” said President Rick Thompson.

Mark Buser, former President of the Lower Columbia Chapter and current President of the IAFI, has been serving on the Willamette Falls Heritage Area Coalition - a newly formed nonprofit working to become a National Heritage Area in order to protect, enhance, share, and enjoy the region defined by the Willamette River between the mouths of the Tualatin River and Clackamas River. Ancient Beginnings & Natural History is one of seven interpretive themes identified and solidifies this partnership with the IAFI.

Lake Lewis Chapter

The Lake Lewis Chapter is collaborating with the Mid-Columbia Basin Old Natural Education Sciences (MCBONES) Research Center Foundation, to provide K-12 teachers and their students an opportunity to actively participate in field and laboratory research at the Coyote Canyon Mammoth Site. MCBONES is a Washington State nonprofit organization. Bax Barton (with the Quaternary Research Center, University of Washington, and Burke Museum) is the center’s research director; Institute board member Gary Kleinknecht is the education coordinator, and Chapter President George Last is the geology research coordinator. A number of Lake Lewis chapter members have participated in activities to prepare the site for excavation, study the geology of the site, conduct fund raising efforts, prepare brochures and technical posters of the site, and participate in excavation and paleontological studies.

INSTITUTE ANNOUNCEMENTS

Upcoming Events

Board Position Open

The IAFI board is seeking a new board member to fill the role of Secretary. The requirements for this position are to attend 2 meetings each year (travel involved) and take meeting minutes. Most travel expenses will be reimbursed by the Institute.

Fall Membership Meeting

(see pages 11-13 for registration forms)

Membership Meeting: Friday, October 7th, 6:30 PM

Lecture: Friday, October 7th, 7:00 PM, speaker TBD

Field Trip: Saturday, October 8th, 8:00 AM – 5:00 PM

Field Trip Brief

This all day field excursion begins and ends on the Eastern Washington University (EWU) campus, located on the northwest flank of the Cheney Palouse Scabland Tract. The trip is aimed at viewing the Ice Age Floods features left by 700 foot high wall of water and ice from Glacial Lake Missoula that exited the Spokane Valley and spread laterally outward to form the extensive scabland topography. The Spokane West Plains were scoured of

their loess deposits while sand and gravel filled in the existing drainages. A relatively thin but extensive flood gravel layer covers much of the basalt in and around the Spokane International Airport. Current megaripples are well developed in the vicinity of Airway Heights and extend northward to the Spokane River. Sand pediments formed on the leeward side of granitic hills while sand and gravel deltas formed to the west. Loess hills were sculpted and even undercut by the flood waters, causing large landslides near Medical Lake. Stops will include hilltop overviews of the flood scoured West Plains, cliff top views of the mouth of Spokane Valley, active quarries exposing the sand and gravel fills within flood filled paleochannels, the largest sand current megaripples known, and lunch on the shore of a flood-scoured bedrock lake. Discussions will range from the cultural influence of this flood-scoured terrain to the local economy to why J Harlen Bretz only belatedly realized that this region had been scoured by flood waters. Also included is the latest scientific research by the authors on how the outburst floods affected the geomorphology of this region, plus a discussion on the formation of the local lakes and the aquifer system beneath the West Plains.

ICE AGE FLOODS NATIONAL GEOLOGIC TRAIL UPDATE

National Park Service Begins Foundation Planning for Ice Age Floods National Geologic Trail (IAFNGT)

The National Park Service and its IAFNGT partners held a workshop in early May at the Washington State Parks Regional Office in East Wenatchee to begin preparation of the foundation statement for the Ice Age Floods National Geologic Trail. A foundation statement is a formal expression of the core mission for a particular national park, or in this case a national trail, and provides basic direction for management decisions about that unit. Such a document helps ensure that the most important objectives are accomplished before other less important tasks not directly related to the IAFNGT's mission.

Managers and stakeholders both need to know why the Trail was established, basic information about its resources and why they are important within a wider context, and legal and policy requirements that apply to its management. A completed foundation statement provides an opportunity to coordinate all types and levels of planning and decision making from a common understanding. There are four key elements of a foundation statement:

- **Purpose** will provide a defining statement, based on the enabling legislation, of why Congress established the Trail. It will provide the most fundamental criteria against which the appropriateness of all planning recommendations, operational decisions, and management actions will be tested.
- **Statements of significance** will define what is most important about the Trail's associated resources and values. Guided by legislation and by our more specific knowledge acquired through management, research,

and civic engagement, statements of significance will help guide planning and management decisions by focusing attention on those qualities that Congress wanted preserved and interpreted.

- **Fundamental resources and values** are those tangible resources and intangible qualities that are critical to achieving purpose and maintaining significance and warrant primary consideration during planning and management, that, if allowed to deteriorate could jeopardized the integrity of the Trail.
- **Primary interpretive themes** are the key stories, concepts, and ideas for the public to "take away" about the Trail. They will describe what needs to be interpreted in order for people to understand and appreciate the Trail. Interpretive themes are written at many levels, and primary interpretive themes are the most general level. They will not include everything that may be interpreted, but they will help guide the development of the Long Range Interpretive Plan.

Participants at the workshop included representatives from federal and state land management agencies, including: the Bureau of Land Management, Bureau of Reclamation, National Park Service, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Forest Service, U.S. Geological Survey, and Washington State Parks. Representatives from the IAFI also took part. NPS planners from the Denver Service Center facilitated the workshop. The planning team will continue to refine the foundation elements in the coming months and present a draft for public review and comment during future stages of planning.

ICE AGE FLOODS TREASURE FOR SALE

A tremendous national treasure will be up for sale in 2011. The "crown jewel" of the Ice Age Floods National Geologic Trail, known as Wallula Gap, is that treasure. It is located on the Columbia River, southeast of Kennewick Washington. One of the most spectacular natural water events in geological history took place at Wallula Gap as several hydrological dams slowed the Ice Age Flood waters, creating Glacial Lake Lewis.

Wallula Gap is identified as a National Natural Landmark (NNLM) due to its unique stature in the Ice Age Floods story and the relatively well-preserved

condition of its geology. The National Natural Landmarks Program recognizes and encourages the conservation of outstanding examples of our country's natural history. However the NNLM program has no jurisdiction over private lands identified as National Natural Landmarks. The majority of the Wallula Gap NNLM is in private ownership and the primary owner is putting their portion of the property up for sale. As soon as the water rights are clarified, up go the *For Sale* signs.

ON THE TRAIL OF THE ICE AGE FLOODS

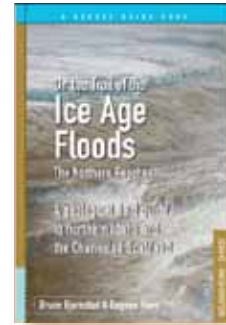
Castle Lake Cataract and Plunge Pool Hike

Excerpted from: *On the Trail of the Ice Age Floods: The Northern Reaches*
by Bruce Bjornstad and Eugene Kiver

Book to be published and available in the IAFI Store by early 2012

“Castle Lake Falls totals about 300 feet in height above Deep Lake... the only human uses of this desolate area south of Coulee City are traverses, gravel pits, springs, the main irrigation canal, and perhaps jackrabbit hunting.”

Bretz (1969)



Flood Features:

Recessional cataract canyon, plunge-pool lake, rock benches, potholes, faceted butte escarpment and hanging coulees

Elevation:

High point of cataract is 1,620 feet, Castle Lake plunge pool lies at 1,370 feet.

Maximum Flood Depth (Elevation):

Nearly 300 feet at the lip of cataract, 530 feet (1,900 feet) over present-day Castle Lake

- The Castle Lake basin lies along the east end of J Harlen Bretz’s Great Cataract Group (Figure 1).
- At the base of the cataract is lovely, blue-green Castle Lake plunge pool nestled into the rock bench below.
- Castle Lake lies within a single recessional cataract canyon eroded down to a flood-swept, pothole-studded rock bench that hangs 100 feet above Deep Lake. This is the same rock bench of Grande Ronde Basalt where dozens of potholes occur at the opposite (western) end of Deep Lake.
- Castle Rock is an isolated butte along the west side of the Castle Lake basin. It is a faceted butte escarpment neatly sheared off by monstrous flood forces moving across the sides of Castle Lake basin.

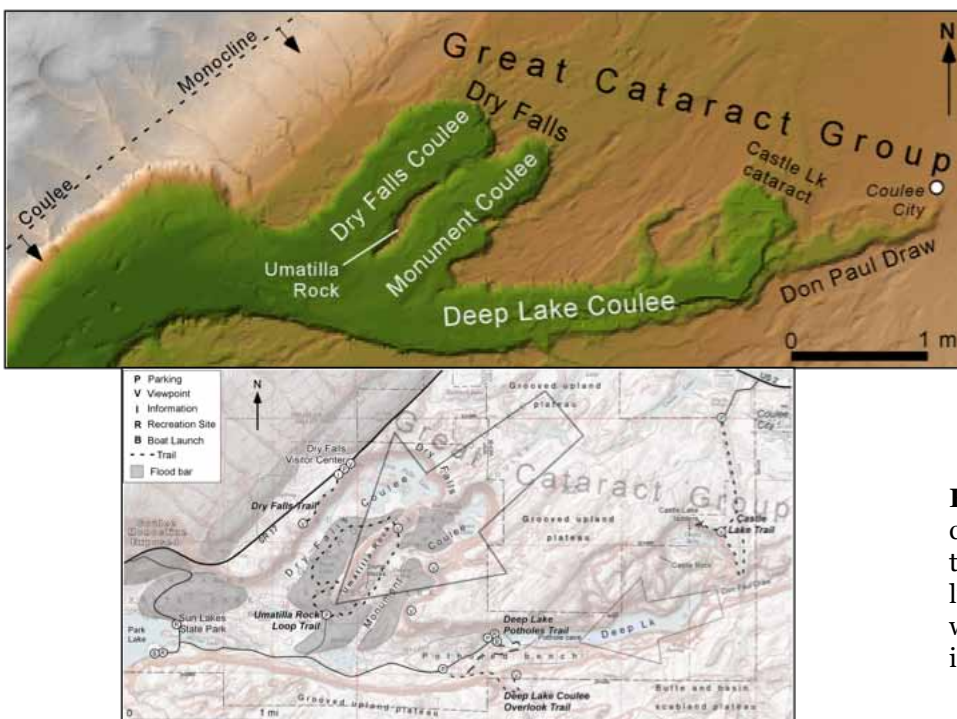


Figure 1. Shaded-relief (top) and contour (bottom) maps of scabland of the Great Cataract Group. Castle Lake lies at the east end of the four-mile-wide Great Cataract Group. Floods invaded from the northeast.

Castle Lake Trail

7

Hike across grooved scabland to the Castle Lake cataract precipice and an expansive view across the Castle Lake plunge pool and a pothole-cratered bench above Deep Lake. Also visible is "the Castle", a prominent flood-truncated basalt butte. Make an exciting descent to Castle Lake via a pair of ladders permanently affixed to the cataract wall. During the return take a short side trip to the edge of Don Paul Draw past the head of the Bacon Siphons and Tunnels, key engineered structures in the workings of the Columbia Basin Project.

Geologic Highlights: Grooved upland plateau, abandoned cataract, plunge pool, mesas, rock bench, faceted-butte escarpment (Castle Rock), potholed bench

Length: 3.5 miles (round trip)

Elevation (Relief) Along Trail: 1,370 to 1,570 feet (200 feet)

Difficulty: Moderate to difficult. Most of the route is cross country (i.e., no established trail). Short scramble up and over berm may be somewhat challenging. Also be careful on the two, short, secured metal ladders used to descend into the Castle Lake plunge pool and basin.

Best Observation Points: A number of eye-popping views occur along the edge of the cataract above the Castle Lake plunge pool and beyond toward Deep Lake cataract canyon.

Best Mode of Travel: Hike

Management/Ownership: U.S. Bureau of Reclamation, Washington State Department of Fish and Wildlife, Washington State Department of Natural Resources, Washington State Parks

USGS 1:24,000 Scale Map: Coulee City, WA

Warnings: No potable water or mid-day shade, cliff drop offs; large basalt boulders on berm may shift while climbing over and around.

Directions: From U.S. Highway 2 at east end of Dry Falls Dam, just west of Coulee City, turn south onto Road I NE (N 8th St). Drive about 100 yards past the Dry Falls Dam power plant and turn right. Cross bridge over the Main Canal and immediately turn left onto the U.S. Bureau of Reclamation (USBR) service road that parallels the west side of the canal. After one-quarter mile, park at pullout at end of road next to canal at the head of a tall, man-made berm of basalt boulders.

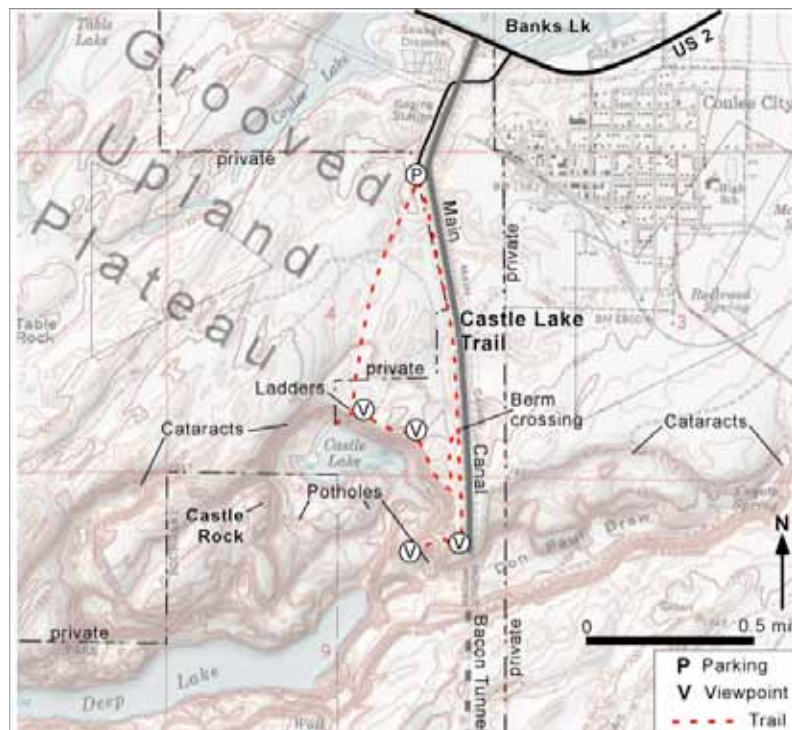


Figure 2. Map in the vicinity of the Castle Lake Trail.

Trail Log:

0.0 Park at pullout just short of gated road next to the Main Canal (N47.6116, W119.3039). Pass through an opening in the fence that heads west and proceed south (Figure 2). The massive berm was derived from the blasting and removal of basalt bedrock from the Main Canal constructed between 1946 and 1951 as part of the Columbia Basin Project.

0.5 After passing through a series of flood-gouged, giant, longitudinal grooves in the basalt bedrock arrive at the edge of the upper (shorter) cataract for the Castle Lake basin. After descending the cataract continue south across a rock bench towards the main cataract.

0.8 Arrive at Castle Lake Cataract precipice (Figure 3) and top of ladders that descend to Castle Lake (N47.6010, W119.3072). Great views of the Castle Lake plunge pool, and rugged butte and basin scabland beyond. This is near the east end of what J Harlen Bretz referred to as the Great Cataract Group, a long series of eroded cliffs, altogether almost four miles wide (see Figure 1). Beyond Castle Lake notice

several enormous, deep potholes and channels on rock bench above Deep Lake. The prominent butte off the right is Castle Rock (Figure 4, right). Imagine, during the largest Ice Age floods, water was already up to 300 feet deep before going over the precipice, and over 500 feet deep over Castle Lake.

If feeling adventurous descend the first ladder (Figure 4, left) before traversing west a short distance to catch the second ladder that drops to near the lakeshore. Retrace route to the top of cataract via the ladders.



Figure 3. Castle Lake cataract , plunge pool and basin at the east end of the Great Cataract Group.



Figure 4. Castle Lake basin. Left: One of a pair of metal ladders descending to Castle Lake. Right: Flood-faceted face of Castle Rock. The east face of Castle Rock butte was sheared off as megafloods carved out the Castle Lake basin. Looking southwest.



0.9 From the top of the ladders continue southeast along the lip of the cataract to where the berm intersects the cataract cliff (Figure 5).

1.3 Leave the edge of the cataract to head north along the base of the berm.

Figure 5. Aerial view of the Castle Lake Basin, looking southeast. The Columbia Basin Project's Main Canal delivers irrigation water from Banks Lake to the Bacon Siphon. From there the water travels underground through the Bacon Siphons and Tunnels for two miles before discharging into Trail Lake Coulee (top center).

1.5 Ascend more gently sloping portion of berm and through a saddle at N47.60015, W119.30163. Beware of shifting 9 blocks of loose basalt while crossing the berm. Hike south along crest of berm to the edge of Don Paul Draw.

2.0 At the south end of the berm, along Don Paul Draw, the Main Canal divides and disappears into the two Bacon Siphons (Figure 6). The siphons lead to the head of Bacon Tunnel on the opposite side of the draw before running underground for two miles all the way to the head of Trail Lake Coulee. From here return to the trailhead by following the access road north between the canal and berm. Head west along top of rock blade of basalt for great view onto Deep Lake.

2.2 After passing above a cavernous pothole (Figure 2) reach far west end of rock blade overlooking Deep Lake. Retrace route to the berm.

2.4 At berm follow service road (Figure 6) north along east side of the berm to the trailhead.

3.5 Arrive at trailhead – end of trail loop.



Figure 6. Head of the dual Bacon Siphon and Tunnel of the Columbia Basin Project. Left: Irrigation water in the Main Canal splits into two conduits before disappearing into the Bacon Siphons. Looking south. Right: Construction of the 1,000-foot-long siphon (now buried) spans Don Paul Draw, circa 1946, looking north. Photo courtesy of Central Washington University Archives, Rufus Woods Photographic Collection. A second buried siphon leading to a parallel tunnel was completed in 1980.

ICE AGE FLOODS TREASURE FOR SALE – *continued from page 5*

The Ridges to Rivers Open Space Network (RROS-www.rrosn.org), a local non-profit organization, initiated discussions with the land owners to determine the path forward on this project. Donations of integral geological parcels and trail easements for public access were discussed. However, the sale of the land or a land swap is the only alternative being considered.

At the agency and jurisdictional level, the county has no funds for acquisition. BLM has been approached for a land swap and a proposal has been submitted to Washington State Parks to complement their Dry Falls Ice Age Floods Park to the north with a similar facility to the south at Wallula Gap.

But don't hold your breath on any of these. The bottom line is approximately \$1.5 million to secure the vital 2700 acres and access easements. If you can't write a check for that much, you might consider a note to Congressman Doc Hastings and Senator Maria Cantwell who supported the IAFNGT legislation, requesting that they authorize BLM to exercise a land swap to keep the "crown jewel" of the Ice Age Floods National Geologic Trail in public ownership and available for public access.

DRY FALLS A LONG-TERM INVESTMENT

In the heart of the path of the Ice Age Floods lies one of the natural wonders of the world—the Dry Falls cataract. This National Natural Landmark is arguably one of the most impressive features along the Ice Age Floods National Geologic Trail. In an effort to enhance this site Washington State Parks has engaged in a collaborative effort to revitalize the Dry Falls Visitor Center experience.

A conceptual design for a new visitor center at Dry Falls was completed in the fall of 2009. The design presents a new state-of-the-art facility envisioned to provide a world class visitor experience and a primary destination site along the four-state Ice Age Floods National Geologic Trail. Nestled in the surrounding basalt bedrock, the future Dry Falls Visitor Center will complement the site's natural setting and preserve historic landscape features dating back to the late 1920s. The building's position will provide unrivaled views of the surrounding cataract, plunge pools and other scabland features. Its sunlit exhibit gallery will house a wide range of interactive exhibits that will serve as a modern framework for conveying broad and focused interpretive themes of the Ice Age floods story. The immersive theater space will provide for a full spectrum of multimedia allowing visitors of all ages

to experience the feeling of the floods. Outside, visitors will find outdoor seating and an interpretive trail system that will serve as an outdoor classroom connecting visitors to the surrounding native and historic landscapes. Visitors will leave the site prepared to continue their exploration of the Ice Age Floods story within the park, region and along the National Trail.

Washington State Parks continues to explore funding opportunities to complete architectural designs and to obtain appropriate permits to move the project forward. With construction plans in hand, State Parks will be working with the National Park Service and other federal, tribal, state and local organizations to fund construction of the building and to develop interpretive content. While there is much work yet to be done, the goal of enhancing visitor access, understanding and appreciation of the Ice Age Floods story is all part of the long-term investment in this truly remarkable national treasure.

For more information on the Dry Falls Visitor Center design project go to: <http://www.parks.wa.gov/plans/dryfalls/>



Conceptual sketch of the new Dry Falls Visitor Center, a “Journey to the Edge”, 2009.



IAFI Field Trip Information, Registration Form, and Liability Release Form

*"GLACIAL OUTBURST FLOOD FEATURES FROM
THE MOUTH OF SPOKANE VALLEY TO REARDAN"*

HOST: Ice Age Floods Institute, Cheney-Spokane Chapter

WHEN: **SATURDAY, October 8, 2011, 8:00 a.m. to 6 p.m.**

WHERE: Meet at EWU Parking Lot-P 18 at the Red Barn on south end of EWU Campus on Washington Street just past the Washington State Archives building. Buses will begin loading at 7:30 a.m.; **buses leave promptly at 8 a.m.** Buses will return here no later than 6:00 p.m.

LEADERS: Dr. Linda B. McCollum, Chair, Department of Geology, Eastern Washington University, and Michael B. McCollum, Research Associate, are the leaders. They have been studying and mapping flood and bedrock geologic features on the West Plains of Spokane for two decades.

DESCRIPTION OF FIELD TRIP: This all day field excursion begins and ends on the Eastern Washington University Cheney Campus located on the northwest flank of the Cheney Palouse Scabland Tract. The trip is aimed at viewing the Ice Age Flood features just outboard of 700 foot high tsunami of water and ice from glacial Lake Missoula that exited the Spokane Valley and spread laterally outward to form the extensive scabland topography. Stops will include hilltop overviews of the flood scoured Spokane West Plains, cliff top views of the mouth of the Spokane Valley, active quarries exposing the sand and gravel fills within flood filled paleochannels, drives through the largest sand current megaripples known. Lunch will be served on the shore of a glacially scoured bedrock lake. Discussions will range from the cultural influence of this flood scoured terrain to the local economy to why J Harlan Bretz only belatedly realized that this region had been scoured by flood waters. The latest scientific research on the flood features of this region by the authors will also be included.

PRE-FIELD TRIP LECTURE AND ANNUAL IAFI MEMBERSHIP MEETING: Friday, October 7, 2011, 7 p.m. – 9 p.m., Auditorium, John F. Kennedy Library on the Eastern Washington University Campus in Cheney, Washington. JFK Library is located next to the Science Building on the EWU Campus. Enter the Auditorium through the west side pergola marked "Auditorium"; this is the only entrance to the Auditorium and this is the door closest to the Science Building. Parking is available along Washington Street.

IAFI BOARD OF DIRECTORS MEETING – Friday, October 7, 2011, 8 a.m. -5 p.m. on the Second Floor of Willow Springs Station Restaurant and Lounge, 809 1st Street, Cheney, Washington. Lunch will be ordered from the restaurant menu during the morning session.

LODGING: Holiday Inn Express, 111 Betz Road, Cheney, Washington, 99004, located at the corner of WA 904 (Michael Anderson Highway) and Betz Road near the first traffic light entering Cheney from the north. For reservations, call 509.235.1100 and let them know that you are with the "Ice Age Floods Institute Group" for \$99 a night stay suite.

CANCELLATION: Cancellation refunds will be made only if field trip registrar, Linda Long, receives notice no later than **WEDNESDAY, OCTOBER 5** and vacancies can be filled from a stand-by list. Long can be reached at iaficheneyspokane@gmail.com or 509.235.4251.

INSTITUTE MEMBERSHIP: You are encouraged to become a member of the Ice Age Floods Institute and support our educational efforts to tell the Ice Age Floods story. A Membership Form can be downloaded from our website at www.iafi.org and mailed in with your registration.

ITEMS TO BRING WITH YOU: Binoculars, camera, sunglasses, snacks, tea or coffee

RESTROOM AVAILABILITY: Restroom is available aboard deluxe bus and at some stops.

***FIELD TRIP FEE** covers: 1) two outstanding and knowledgeable field trip leaders, 2) a very detailed and well-illustrated Field Trip Guidebook, 3) delicious Box Lunch, and 4) comfortable deluxe chartered bus with microphone system for lectures while in route.

NO PETS PERMITTED ON FIELD TRIP

IAFI FIELD TRIP REGISTRATION FORM – SATURDAY, OCTOBER 8, 2011

Prior to October 1 complete (1) Registration Form, (2) Liability Release Form and mail with (3) fee payment to Field Trip Registrar, Linda Long, PO Box 622, Cheney, WA 99004.

Make checks payable to IAFICS. A confirmation will be sent to you via email or phone.

For field trip registration information, how to join IAFI, or travel directions - contact Melanie Bell by emailing iaficheneyspokane@gmail.com or call 509.954.4242.

Last Name	First Name	Middle Name or Initial
Mailing Address	City/State	Zip Code
Email Address	Phone #	Cell Phone #
How did you learn about this event? Identify Health Care Skills:	Are you a 2011 member of the Ice Age Floods Institute? YES NO	Payment Check # and Amount

[] \$55* fieldtrip fee- Registering as Ice Age Floods Institute Member (must be current for YR 2011) **CHAPTER** _____
 If just joining or renewing as an IAFI member, also include your IAFI Membership Application (available at www.iafi.org) with your field trip registration, fees and liability release form; you may write one check for both fees payable to IAFICS.

[] \$70* fieldtrip fee- Registering as non-Ice Age Floods Institute Member

[] \$40* fieldtrip fee - Registering as a Teacher; please indicate (1) Name of School/College _____
 (2) Grade Level(s) _____ (3) Subject(s) _____

[] \$25* fieldtrip fee - Registering as a student; please indicate (1) Name of School/College _____
 (2) Grade/Year Level _____ (3) Field (s) of Study _____

Box Lunch Preference: [] Ham [] Roast Beef [] Turkey [] Veggie
 [] no preference

Lunch includes chips, dessert, and drink. Please bring your own fruit, coffee and tea.
 Snacks will be provided mid-morning and mid-afternoon.

LIABILITY RELEASE FORM

IAFI FIELD TRIP - SATURDAY, October 8, 2011

"GLACIAL OUTBURST FLOOD FEATURES FROM
THE MOUTH OF SPOKANE VALLEY TO REARDAN"

Hosted By Ice Age Floods Institute, Cheney-Spokane Chapter

EACH person attending this field trip must read and sign a Liability Release Form.

I understand that the Ice Age Floods Institute's field trips may involve inherent risks. I realize that the tour itinerary may include some walking on rocky terrain, and that other natural hazards do exist, that falls and collisions do occur, and that therefore injuries may result. I understand that it is my option whether or not to take part in any of the activities on the field trip. I therefore accept the risks to myself and others, and agree to use extreme caution at all times on this trip.

I understand that any costs for medical expenses incurred as a result of accidental injury or death while participating in the field trip WILL NOT BE PAID BY THE ICE AGE FLOODS INSTITUTE OR ANY OF ITS CHAPTERS.

I, the undersigned, intending to be legally bound hereby for myself, my heirs, executors and administrators, waive and release any and all rights and claims for losses and damages I may have against the Ice Age Floods Institute, its chapters, officers, board members, chapter members, field trip leaders and volunteers, for any and all injuries suffered by me on this field trip. I attest and verify that I am participating at my own risk. This liability release is only intended for the use of the Ice Age Floods Institute, and does not absolve any other parties from their liability.

Signed: _____ Date ____ / ____ / ____

(For minor(s))

Parents or guardian's signature: _____ Date: _____

Please describe any allergies or medical concerns of which Ice Age Floods Institute leaders and volunteers should be aware, and who to contact if you have difficulty.

(1) _____

(2) _____

(3) _____

ICE AGE FLOODS INSTITUTE
95 Lee Blvd
Richland, WA 99352

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SECRETARY VACANCY ON IAFI BOARD

We are looking for someone who would like to contribute to the Ice Age Floods Institute by serving as IAFI Secretary beginning with the October 7, 2011 Board of Directors meeting in Cheney, Washington. The Secretary maintains a record of the proceedings of IAFI, Board of Directors, annual membership meetings, and the Executive Committee, as well as other related duties assigned by the IAFI President. This is a three-year term and the incumbent may be re-elected to successive terms. The Secretary is a member of the Board of Directors that meets twice a year; mileage and a portion of hotel expenses are covered by IAFI. The Secretary is also a member of the Executive Committee. If you are available to learn more about the Ice Age Floods while contributing to a great organization, then please contact president Mark Buser at president@iafi.org.