

4/29/2016



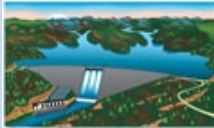
Some Dam – Hydro News™ And Other Stuff



Quote of Note: "The only difference between a tax man and a taxidermist is that the taxidermist leaves the skin." - Mark Twain

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"Good wine is a necessity of life." - Thomas Jefferson
Ron's wine pick of the week: 2013 Spellbound Petite Sirah "California"
"No nation was ever drunk when wine was cheap." - Thomas Jefferson



Dams:

(There's no end to the articles on this subject.)

PD Editorial: A step closer to freeing the Klamath River

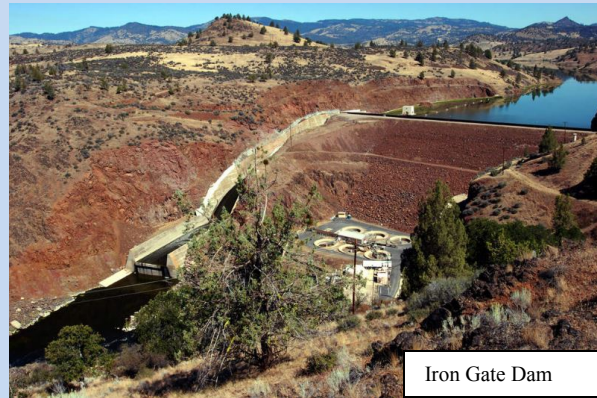
THE EDITORIAL BOARD, by THE EDITORIAL BOARD | April 16, 2016, pressdemocrat.com

The Klamath River once ranked among the most productive salmon streams on the West Coast. After the construction of hydroelectric dams in far Northern California and southern Oregon, the numbers plummeted. And one of the West's great water wars escalated. For the past decade, farmers, conservation groups, Indian tribes and other stakeholders have worked on a peace treaty that begins with removing four dams, freeing 400 miles of the Klamath for the first time in a century and allowing salmon returning from the Pacific Ocean to reach their historic spawning grounds. That effort just pushed beyond one of the last big impediments: a do-nothing Congress. Three months after the House of Representatives let the clock run out on a deadline to ratify the Klamath Basin accords, the Interior Department and the governors of California and Oregon concluded a new deal that doesn't need congressional approval.

"This historic agreement will enable Oregon and California and the interested parties to get these four dams finally removed and the Klamath River restored to its pristine beauty," Gov. Jerry Brown said at an April 6 signing ceremony held at the mouth of the river.

Oregon Gov. Kate Brown added: “These agreements are more than ink and paper. They are a roadmap to the future of the Klamath Basin and of the people who live there.” Under the new accord, a Portland-based energy company called PacifiCorp will sign the dams over to a newly created nonprofit, which in turn will petition the Federal Energy Regulatory Commission for permission to remove the Iron Gate, Copco 1, Copco 2 and J.C. Boyle dams by 2020. A side agreement promises federal help for farmers who may need to install fish screens as salmon return to the upper Klamath Basin

Reopening the Klamath would provide an immediate boost to anadromous fish, with an Interior Department study projecting an 80 percent increase in salmon stocks, with a negligible impact on energy supplies. The four dams represent just 2 percent of PacifiCorp’s power output, but they contribute to algae blooms and other conditions that have resulted in massive fish kills along the lower Klamath. A study by federal resources agencies completed during the George W. Bush administration determined that the dams couldn’t be relicensed without an expenditure of hundreds of millions of dollars to install fish passages. A related study by the Federal Energy Regulatory Commission, also completed under President Bush, concluded that the four hydroelectric dams would become money losers — a combined \$20 million a year — after accounting for the cost of installing fish passages. Evidently, those numbers weren’t enough to overcome congressional Republicans’ opposition to removing dams. Fortunately, the stakeholders were willing to return to the bargaining table and work out a new deal that Congress can’t block. If the Federal Energy Regulatory Commission approves the application, it will be the largest dam removal project in U.S. history and a peaceful conclusion to a long-running water war. And that’s no fish tale.



(How about that last line?)

LETTERS TO THE EDITOR|RAYMOND

Tell whole truth on dam removal plan

By Paul Raymond, Shasta, 4/16/16, redding.com

Nowhere on your article on the removal of the four dams on the Klamath River do you tell us how many people are using the power to heat and light their homes on the power generated by the dams. Where will the energy produced by these dams now come from? Will we now use coal as a source of energy or maybe a nuclear plant? Tell us the whole truth, not just about saving fish that we’ll never see or eat. What about the farms in the area that produce our food? Will they also go back to wilderness? I will be waiting to hear from someone. I am 85 years old, so hurry.

(Something we all should know. The best solution is to stay out of the water near dams.)

Know before you go: Dam awareness critical on waterways

By JENNI FRANKENBERG VEAL - APRIL 17, 2016, nooga.com

Low-head dams don't look particularly menacing. Thousands of these low-level structures were built on American rivers and streams in the 1800s and early 1900s to power gristmills and small industries. With a short drop of up to 5 feet, low-head dams can seem like a minor inconvenience—or even a thrill—for paddlers and swimmers. However, the churning waters at the base of these dams present a high level of danger to the unwary. Since 1960, more than 350 fatalities have occurred at low-head dams in the United States, according to Dr. Bruce Tschantz, professor emeritus at the University of Tennessee and a low-head dam expert. Two-thirds of these fatalities occurred in the past 15 years, and most occurred on weekends between April and August. Fishing boats, houseboats, powerboats, sailboats, rafts, canoes and kayaks have all succumbed to low-head dams.



Dangers

Often referred to as "drowning machines," low-head dams produce dangerous recirculating currents, large hydraulic forces, low buoyancy and other hazardous conditions sufficient to trap and drown victims. Upon entering the churning water at the base of the dam, the victim is pounded by a never-ending wave of water that forces them to the bottom. If they can bob up to the surface, the recirculating current carries them back to the dam and the nightmare begins again.

In 153 incidents where 335 people were known to go over a low-head dam, 68 percent either drowned or were injured, according to Tschantz's research.

Even life vests become ineffective because the foamy, turbulent water is highly aerated and has very little buoyancy for humans, he said. "Most people underestimate and are ignorant of the forces and currents that surround these low-head dams, and they overestimate their abilities to overcome these forces," said Tschantz, who maintains the website www.SafeDam.com to help inform the public about dam safety and the dangers of low-head dams. "Even Olympic swimmers wouldn't be able to overcome these forces and currents." Tschantz said many people also take a dangerous theme park approach to waterways: "People don't seem to be able to distinguish the difference between controlled theme park and waterslide experiences and outdoor, uncontrolled situations at river dams where hidden dangers can exist."

In April 2014, one person drowned after going over the Geneva low-head dam in Illinois in a kayak. Other drownings occurred at this site in 2011 and 1993. (Photo: Brigham Young University)

Low-head dam numbers: Unknown

There are no reliable inventories of how many exist in the U.S. today, but a study by the Association of State Dam Safety Officials estimates there may be as many as 5,000 low-head dams across Tennessee.

"We don't really know how many low-head dams there are in Tennessee because no one has published a survey—there is just no information," he said. There are three known low-head dams on waterways in this area: on the Sequatchie River at Ketner's Mill in Whitwell, Tennessee; on South Chickamauga Creek in Graysville, Georgia; and at the confluence of Oostanaula Creek and the Hiwassee River in Calhoun,



Three family members drowned during a Fourth of July outing in 2011 at this low-head dam on the Middle Fork of the Kentucky River. (Photo: Brigham Young University)

Tennessee. In July 2015, three men drowned on the Sequatchie River at Ketner's Mill. Two brothers were swimming in the river when one was swept over the low-head dam. The other brother and another man jumped into the water to save him, but police said all three drowned. A near-drowning occurred there the day before, as well.

Dam regulations, removal

Only a few states (Pennsylvania, Illinois and Virginia) regulate public safety at and around low-head dams; and few states require owners to post warning signs, erect barriers establishing exclusion zones, and have portage put-in and takeout points upstream and downstream. In Tennessee, dams less than 6 feet, regardless of impoundment volume, or dams impounding less than 15 acre-feet are not regulated for safety. American Rivers, a national river conservation organization, is working in partnership with other agencies to forward the momentum of low-head dam removal. The group serves as a dam removal resource and offers training in dam removal. "Most low-head dams are no longer serving any purpose, so there is no need for these dangerous structures to remain in the landscape," said Erin Singer McCombs, associate director of Southeast conservation with American Rivers. "Dam removal is an excellent way to remove the public safety risk, improve recreational opportunities and improve the health of a river," she said. Sixty-one dams have been removed across Tennessee, North Carolina and South Carolina, according to McCombs. Removals in Tennessee include Brown's Mill Dam on the Stones River near Murfreesboro and Richland Creek Dam and Sevenmile Creek Dam in the Nashville area.

Dam awareness

Public safety experts urge all swimmers, anglers, boaters, paddlers and tubers to check river maps and ask locals for locations of dangerous structures before setting out on any unknown waterway. Avoid approaching low-head dams and all spillway structures from both upstream and downstream, especially during high-water conditions. Watch for a smooth horizon line where the stream meets the sky, which can potentially indicate a dam. Be aware of all upstream and downstream public safety warning signs, takeout portages, and boat barrier buoys; and always wear appropriate personal flotation vests. To learn more, watch the low-head dam safety video produced by the Illinois Paddling Council and visit www.SafeDam.com. Jenni Veal enjoys writing about outdoor adventures in the southeastern United States. Visit her website www.YourOutdoorFamily.com for outdoor family travel adventures. The opinions expressed in this column belong solely to the author, not Nooga.com or its employees.

(Remote is good.)

Risk of failure at Wolford dam 'very remote

By Dennis Webb, April 17, 2016, gjsentinel.com

A review has led to the determination that there's no need for the Colorado River District to make potentially expensive repairs to its Wolford Mountain Reservoir dam in the foreseeable future and it can resume full filling of the reservoir. The review found that the risk of the Ritschard Dam in Grand County failing is extremely low despite the deformation problems it has been experiencing. "We're a public agency and we're pretty gratified that we're not looking at a 30-plus-million-dollar fix right now," River District spokesman Jim Pokrandt said. The rock-fill, clay-core dam was completed in 1995. It has settled near its center by about 2 feet, a foot more than expected of it as an earthen dam.



Its crest also has moved about 8 inches downstream. The district already has spent about \$1.5 million to install instruments to measure the dam's movement. It has considered possible repairs ranging from injecting concrete into the dam to shore it up to rebuilding it. The latter is something

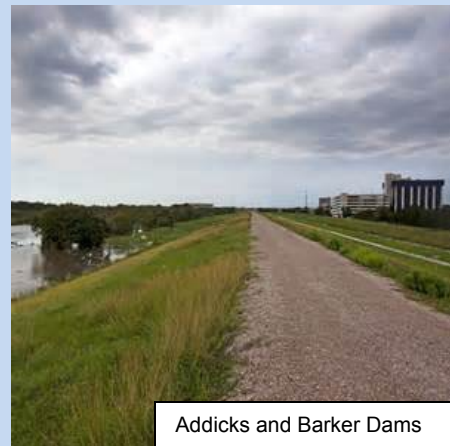
the district several years ago estimated could cost \$30 million. The district is taxpayer-funded and includes Mesa County. Any repairs might have come at least partly out of a separate enterprise fund the district derives from revenues such as water sales. **The district has called the dam problem the most important issue it faces.** The reservoir is on Muddy Creek, and the town of Kremmling is just downstream, where the Muddy meets the Colorado River. **The reservoir can hold about 66,000 acre-feet of water.** The district began to rethink how it should deal with the dam movement after a three-person outside team of dam experts said no immediate action was required. In February, it then held a workshop on the matter with participants including, among others, the outside team of experts, the state Dam Safety branch of the Colorado Division of Water Resources and Denver Water, which has a leasehold interest in the reservoir. Participants concluded that the risk of the dam failing from the movement in a given year is one in 100 million, compared to the normally acceptable one-in-a-million risk of the dam failing from a flood overtopping the dam.

"Thus, the deformation-related public risk is much lower than other, normally acceptable dam-related risks," the river district's chief engineer, John Currier, said in a memo to the district board. He wrote that the workshop participants concluded the chance of a dam failure from the problem is "very remote," and that from a risk perspective "there is no compelling reason to proceed with remediation of the dam now or in the foreseeable future." "The dam is functioning properly, and has a very high probability of continuing to function properly even if deformation continues at the historical rate for many more years," he wrote. **The district has been voluntarily keeping the water 10 feet below full as a precaution.** But those involved in the review agreed "that normal reservoir operation along with continued reasonable monitoring is appropriate," Currier wrote, and that keeping water lower, while slowing down the dam's deformation, merely prolongs how long it will take for that deformation to be complete.

Concern builds for 'high-risk' dams protecting Houston's west side

By Sebastian Herrera, April 18, 2016, chron.com

The Addicks and Barker Dams along Interstate 10 and Texas 6 are each projected to fill to 50 percent capacity by Tuesday morning after reaching 30 percent capacity by midday Monday during Houston's historic floods, said Richard Long, natural resources manager for the U.S. Army Corps of Engineers Galveston District, which oversees the dams. **The dams, which reduce flood levels from Buffalo Bayou and protect the city of Houston's west side, have been rated "extremely high risk" since 2009 by the corps.** Both dams were holding up Monday, Long said, but they will peak in several days as added rain and runoff continues downstream, with the potential of nearby communities such as Bear Creek experiencing flooding on its east side after getting swamped Monday on its west side.



Major roads throughout the dams such as Eldridge and Clay Roads were underwater Monday up to several feet as the area received 11 to 16 inches of rain, Long said. It could be more than two weeks until some of the roads open. **Since its high-risk rating, the corps has implemented interim safety measures to make the dams stronger as it waited for a long-term solution to build new outlets, which began recently.** The corps don't expect the dams to fail, Long said. But if they do, **damage cost would reach \$60 billion and there would be probable loss of life.** The dams' pool sizes are expected to be the highest ever in its more than 70-year history. The corps hopes to begin releasing the dams' water into Buffalo Bayou by Sunday, according to Long. He said it will take a month and a half to empty the dams if weather conditions are well. **"We are seeing more water than we've ever seen before,"** Long said. **"Unless people are given order to evacuate, they should remain home."**

(There's always someone against.)

Conservation Groups Question Need for Centennial Dam

Cite significant impacts on Bear and Yuba Rivers in comment letter to NID

By: Caleb Dardick, SYRCL, Apr 19, 2016 - yubanet.com

Nevada City, Calif. April 19, 2016 - The Foothills Water Network, a coalition of conservation and recreation organizations, submitted a joint letter to the Nevada Irrigation District (NID) today stating its concerns that the proposed Centennial Dam will have significant environmental impacts on the Bear and Yuba River watersheds and surrounding communities. The water agency's proposal to build a new 110,000 acre-foot reservoir with a 275 foot-tall dam on the Bear River would inundate six miles of the Bear River, completely flooding the Bear Campground, more than 25 homes and 120 parcels, and Dog Bar Bridge, the only crossing of the Bear River between Highway 49 and Highway 174. In its letter to NID, the Network asked NID to describe how its \$300 million project would actually operate to meet a long list of stated goals. "Many of the goals appear contradictory, especially the one that proposes to benefit the Delta by diverting more water," said Chris Shutes of the California Sportfishing Protection Alliance. The Network suggested a range of alternative actions for NID to consider such as repairing or modifying its aging facilities, improving canal efficiency, incentivizing water conservation, stopping leaks, and metering water.

"Dams are an example of 19th century thinking," said Otis Wollan, President of the American River Watershed Institute and a former Placer County Water Agency Board member. "Rather than build a controversial and expensive new dam, this is an historic opportunity for NID to demonstrate how it could meet its needs through increased conservation and efficiency. Since nearly half of the South and Middle Yuba River water already gets diverted to the Bear River, the South Yuba River Citizens League (SYRCL) is concerned that Centennial could demand even more water. "In a time of record drought and climate change, we need creative, environmentally sustainable solutions such as recharging the groundwater, and restoring meadows, wetlands, and floodplains," said Caleb Dardick, SYRCL's Executive Director.

The proposed dam site would completely inundate several sacred Native American sites as well as sites popular with the local community who swim, hike and fish this section of the Bear River. "The Bear River serves as a territorial divide for three different Nisenan Tribal entities. We are extremely concerned about NID's plans to flood this cultural landscape that contains spiritual and ceremonial sites that are still used by Nisenan people today as they have been for countless generations," said Shelly Covert, Secretary and Spokesperson, Nevada City Rancheria Tribal Council. "The proposed Centennial Dam will in effect create a twenty mile long reservoir, drowning the last stretch of irreplaceable, beautiful flowing river and oak woodland available to the public," said Allan Eberhart of the Sierra Club's Mother Lode Chapter. The Network's letter expressed concern about the dam's growth-inducing impact in the region. Rather than provide for current NID residential customers, most of whom live at an elevation 1,000 feet higher than the dam site and won't be served by it, the new water storage may instead facilitate more residential sprawl including as many as 12,000 new homes in Lincoln alone. "Sierra Watch already helped to stop one bad dam on the Bear River. Now the Foothills Water Network and SYRCL are asking the tough questions about another, and we're proud to stand with them," said Tom Mooers, Executive Director of Sierra Watch, a group that has challenged land-use developments in the Sierra including Garden Bar Dam.

The Centennial Dam proposal has alarmed community members throughout the Bear and Yuba watersheds. Nearly 400 people attended two public scoping meetings about the proposal on March 9th and 10th. Dozens of speakers expressed their concerns about the project's potential impacts on the environment and surrounding community.

About the Foothills Water Network:

The Foothills Water Network represents a broad group of non-governmental organizations and water resource stakeholders in the Yuba River, Bear River, and American River watersheds. The

overall goal of the Foothills Water Network is to provide a forum that increases the effectiveness of non-profit conservation organizations to achieve river and watershed restoration and protection benefits for the Yuba, Bear, and American rivers.

(Rebuild before the old falls down.)

New Calaveras Dam project reaches major milestone

By Paul Rogers, mercurynews.com, 04/18/2016

In a significant step for the largest reservoir project in the Bay Area in 20 years, workers have finished building the spillway -- a massive concrete channel as wide as eight lanes of freeway and a quarter mile long -- at Calaveras Dam near the Alameda-Santa Clara county line. The \$810 million project to replace the old dam with a new, more earthquake-proof version has been beset by delays and cost overruns, due to the discovery of ancient landslides and other difficulties in the years since work began in 2011 that have made the project more complicated.



Tucked away in the remote hillsides east of Interstate 680, Calaveras Reservoir is the largest reservoir for the Hetch Hetchy system in the Bay Area, a key part of providing water to 2.6 million customers in Alameda, Santa Clara, San Mateo and San Francisco counties.

Completing the spillway, which is essentially an overflow channel so that when the reservoir fills, the water doesn't flow uncontrolled over the top of the dam, means work can begin now on the final part of the project, the construction of the 220-foot-high earth-and rockfill dam itself.

"It's a major milestone," said Dan Wade, director of the San Francisco Public Utility Commission's Water System Improvement Program. When it was built in 1925, Calaveras was the tallest earth-fill dam in the world, an engineering marvel that created a lake three miles long. But in 2001, the state Division of Safety of Dams declared it unsafe for a major earthquake. "They knew the fault was there" in 1925, Wade said, "but they knew less about it than we know now." If the dam collapsed during a big quake on the Calaveras Fault, it would send a 30-foot-high wall of water rushing into Fremont and toward Interstate 880, studies showed, potentially killing thousands of people. Because of the threat, the state ordered the reservoir drained to no more than 40 percent of capacity, losing enough water storage for 300,000 people a year. The original Calaveras Dam was built by crews with horses and wagons, under the



direction of California's most famous water engineer, William Mulholland. In 1913, Mulholland supervised construction of the Los Angeles Aqueduct, which brought water from Owens Valley that enabled Los Angeles to grow into the nation's second-largest metropolis, a story on which the movie "Chinatown" is loosely based. The new dam will be the same size as the old one, built 400 yards downstream on Calaveras Creek. It is the largest such construction project in the Bay Area since Los Vaqueros Reservoir was built in Contra Costa County in 1998.

When finished, the base of the dam will be a quarter-mile thick, compacted with modern equipment much tighter than was possible for the old dam. It will contain enough dirt and rock to fill 330,000 dump trucks, and be built to withstand a 7.25 magnitude quake. The dam's clay core

will allow it to be built higher one day so that the current reservoir, at 96,000 acre feet, could hold four times as much water. **The current dam is considered safe now with its lower level of water.** The project's finish line has moved several times. In 2009, the project was expected to cost \$409 million and be completed in 2015. Now the cost is \$810 million, with a completion date of 2019. The reason? Once they started digging, the 150 workers found two ancient landslides in the 20 million-year-old geologic layer cake nearby, forcing them to carve away millions of tons of rock and sediment to better anchor the new dam on more solid footing. Recently, they learned of the need to shore up hillsides more than had been expected.

"We did extensive investigations with a world-class team that has built dams around the world," said Wade. "But this is an extremely complex site geologically. So there have been some challenges." The people whose rate increases are paying for the project say they understand. "We do not believe it could have been avoided," said Nicole Sandkulla, a civil engineer and CEO of the Bay Area Water Supply and Conservation Agency, an organization of 26 cities and water districts from Daly City to Hayward that purchase Hetch Hetchy Water from San Francisco. "They are moving essentially an entire mountain that is in a fault zone, and they have found things that they just couldn't see on top of the earth," she said. **The work also has so far revealed 844 fossils, including 12 whale skulls and the tooth of a 50-foot long megalodon shark.** The project is the last big part of a 15-year, \$4.8 billion effort to bring the Hetch Hetchy System in the Bay Area up to modern seismic standards. The work included building a massive water tunnel under the bay and upgrading water treatment plants and pipes. **Environmentalists hated the old Calaveras Dam because it released no water for rainbow trout, occasional steelhead and other fish in Calaveras Creek and Alameda Creek downstream. The new reservoir will regularly release water, and the project also will build a fish ladder on a smaller diversion dam nearby, opening up about 8 miles of creek.** "As you go upstream, it gets pretty remote. It looks like a stream in the foothills of the Sierras," said Jeff Miller, executive director of the Alameda Creek Alliance, a non-profit group. "It's pretty unique. It's the last chance we've got to get these fish back in the East Bay." Paul Rogers covers resources and environmental issues. Contact him at 408-920-5045. Follow him at [Twitter.com/PaulRogersSJM](https://twitter.com/PaulRogersSJM).

Graphic from 2009 shows flood danger that prompted rebuilding of Calaveras Reservoir dam.

Click to enlarge -

http://extras.mnginteractive.com/live/media/site568/2009/1005/20091005_112122_10.5.calaveras.jpg



Hydro:

(It's good someone who's not anti-hydro educates them.)

High school students can attend camp to learn about hydropower

By Devin Higgins, Apr 15, 2016, ifiberone.com

EPHRATA, WA – **Grant County high school students can now register for a summer workshop on hydropower generation.** The Science Technology English and Math (STEM) Career Academy workshop is hosted by the Foundation for Water and Energy Education and the Chelan County PUD at Rocky Reach Dam. The academy runs June 20-24, and is aimed to teach



students about how hydropower is generated at dams on the Columbia River and then distributed throughout the region.

During the academy, hydropower engineers, divers, plant mechanics, operators and linesmen will conduct tours and hands-on activities to highlight their work. Students attending the academy can get instruction and advice on how to prepare for careers in fields like power generation and delivery. "Nationally, one-third of utility employees will retire in the next 10 years. We'd like to show local students the high quality, good paying jobs that could be a part of their future," said Rocky Reach Visitor Center Supervisor Debbie Gallaher. The academy is open to students in Grant, Douglas, Chelan and Okanogan counties. Registration is \$175 per student and scholarship opportunities are available. For students having to travel more than one hour to attend, a host family option is available. Applications and more information can be found at the foundation's website. Applications must be postmarked by no later than May 3.

(An issue with public ownership. Guess they need an in lieu of taxes payment.)

Towns Worry About Tax Revenues If Vermont Buys Dams

By ASSOCIATED PRESS • 4/17/16, wamc.org

Officials in Vermont towns along the Deerfield and Connecticut rivers are worrying about what would happen to local tax revenues if power dams are purchased by the state of Vermont. The Valley News of West Lebanon, New Hampshire, reports (<http://bit.ly/1VuvQnp>) that local officials in Hartford, Vermont, which shares the Wilder Dam with Lebanon, point to Vermont law as making the dams tax-exempt if the state owned them. State officials recently formed a working group to study buying the dams. The Hartford portion of the Wilder dam is assessed at \$32.4 million, and is a big source of revenue for the town currently. Local officials would be looking to negotiate a payment in lieu of taxes from the state, the usual procedure in cities and towns with state-owned property.

(Can't argue with common sense.)

Letter: Don't ignore benefits of hydroelectric power

April 18, 2016, wvgazetteemail.com



The Herald-Dispatch editorial reprinted by the Charleston, WV Daily Mail on April 4 ("Europe shows energy shift will be costly") fails to recognize this country's leading renewable energy resource, which has been the case for nearly 100 years, and which remains the cleanest and cheapest source of electric power in the "Top Ten" renewable energy states. That cheap source of electric power is conventional hydroelectric power. Far from being the most expensive source of electric power, it is still the cheapest, and most easily obtained for future development. That's because only about 3 percent of America's existing locks and dams have generating turbines installed. Just to cite three local examples, the old powerhouse at Kanawha Falls, near Gauley Bridge, was recently retrofitted with new turbines and electronic controls. The original power station was built in the 1890s! Next, the Summersville Dam on the Gauley River was retrofitted with generating turbines not long ago, and it is performing nicely, coordinating with the popular white water rafting operations there. Finally, one has to wonder, why after nearly 70 years the Bluestone Dam on the New River at Hinton still does not have the six generating turbines installed that the dam was designed for. What gives? One thing is for sure: We should not continue to allow ignorance, stupidity or politics to derail the easiest and cheapest path to clean, renewable electric power. West Virginia could easily produce a greater share of its energy from hydropower, as could most other states. *Mike Harman, St. Albans.*

(Gotta do that maintenance.)

Putting finishing touches on dam

New South Channel Dam opens year later than expected, \$1M over budget

By BRIAN WALKER/Staff Writer, cdapress.com, April 18, 2016

POST FALLS, ID — After opening about a year behind schedule and \$1 million over budget, Avista Utilities' South Channel Dam project on the Spokane River is down to the finishing touches and roaring with water.

Mary Jensen, project manager, said all that's left is landscaping and constructing an ADA-accessible overlook at the dam for the public to enjoy. Those portions are expected to be completed late this summer. The dam, one of three that Avista owns at the site, is not used to generate power, but helps lower lake and river levels during the spring runoff season. The new structure replaced a 108-year-old one. Jensen said the project was delayed due to a cave that was found on the north bank that required new permits, the original concrete not being as strong as originally thought and the slowdown of work over the winter as a result.



"You do your best with inspections and engineering beforehand to estimate a tentative schedule, but this was a 100-year-old structure," she said. "It was a ripple effect." Jensen said work never completely shut down over the winter, but a minimal crew was on site part of the season. She said the project went about \$1 million over budget, pushing the cost to \$15 million due to the reengineering and redesign and cost of new materials. "We wanted to make sure we did it correct to make sure it lasts another 100 years," she said. The cost for the project will be shouldered by ratepayers on both sides of the border in a future rate case that will include other projects.

Debbie Simock, Avista spokeswoman, said it is estimated the project will raise the rates of the average Idaho electric customer 20 cents a month, or .2 percent. Simock said Avista appreciates the understanding of the neighbors in the Q'emiln Park area during construction, the noise and traffic. A time-lapse video of the dam's construction will be posted at avistautilities.com within the next two weeks.

(Long read but worth knowing.)

US Federal permitting reforms - A benefit to industry?

19 April 2016, waterpowermagazine.com

US Federal permitting reforms for major infrastructure - will they provide relief for new hydro projects? Mike Swiger and John Clements report.

In December 2015, President Obama signed into law the FAST/DRIVE Act (H.R. 22) transportation bill. One component of H.R. 22 is the Federal Permitting Improvement Act (Act), which aims to expedite and improve the federal permitting process for major infrastructure projects, including water power projects, costing \$200 million or more. The new law establishes a federal interagency council chaired by a Presidential appointee to develop permitting best practices, set deadlines, and enable the public to track the progress of major federal permitting actions. Two veteran FERC hydroelectric attorneys explain how these requirements will be implemented and share their perspectives on how the hydropower industry may benefit.

Provisions of the new law

The permitting streamlining provisions apply to construction of infrastructure for renewable or conventional energy production, including hydroelectric projects, electricity transmission, surface transportation, aviation, ports and waterways, water resource projects, broadband pipelines, manufacturing and other projects specifically found to be appropriate for application of the procedures by a new Federal Permitting Improvement Steering Council (Steering Council). Steering council role and responsibilities.

The Steering Council will track, coordinate and streamline permitting of covered projects and develop performance standards for permitting of different categories of projects. A covered project

is any activity that requires federal agency authorization or environmental review involving the infrastructure categories mentioned above that is: i) subject to the National Environmental Policy Act (NEPA) and likely to require a total investment exceeding \$200 million and does not qualify for abbreviated permitting under any other federal law, or ii) is subject to NEPA and in the opinion of the Steering Council is likely to benefit from enhanced permitting oversight and coordination.

To provide perspective, a 2014 report for the Western Electric Coordinating Council's Transmission Expansion Planning and Policy Committee recommended the use of capital costs for generic small (30MW and under) of \$4 million/MW and \$3.2 million/MW for large (>30MW) projects for planning purposes [1]. This suggests a range of project sizes within the \$200 million threshold ranging from approximately 50-65 MW. However, because hydroelectric project capital costs are very site-specific, it is entirely reasonable to think much smaller projects may also meet the threshold.

Each federal agency named in the Act including, among others, the Federal Energy Regulatory Commission, the Departments of Agriculture, Interior, and Commerce, and the Environmental Protection Agency, all of which may play a role in hydroelectric permitting a hydroelectric project, must appoint a high ranking official to the Steering Council. The agency must also designate a Chief Environmental Review and Permitting Officer to assist the Council member, whose duties include making recommendations to improve the agency's permitting processes. The Steering Council's tasks include establishing an online database or "Permitting Dashboard" to track covered projects. This will enable the public to track the status of review and authorizations by all agencies that are cooperating agencies in development of the environmental review document or otherwise participate in the environmental review.

The Steering Council is directed to establish within six months (early June 2016) an inventory of covered projects for which environmental review or authorization by a federal agency is pending, categorize the covered projects based on sector and type, identify the types of environmental reviews and authorizations most commonly required for each category, and add a covered project to the inventory after receiving notice from the project sponsor. Also, within one year of enactment, the Steering Council is directed to issue recommendations for: i) performance schedules for environmental reviews and authorizations most commonly required for each category of covered project, and ii) best practices for enhancing early stakeholder engagement, ensuring timely decisions, improving interagency coordination, increasing transparency, reducing information collection and other administrative burdens, making technical information available, and developing training materials for agencies. Finally, the Steering Council must also submit an annual report to Congress on its progress in implementing the law.

Permitting agency responsibilities

A project proponent initiates the review process by providing notice of initiation of the project with supporting information to a facilitating agency appointed by the Steering Committee for the applicable category of infrastructure or, if a facilitating agency has not yet been appointed for that category of project, any agency with permitting authority for that project. The agency receiving the notice, or the lead agency for NEPA compliance once designated, then identifies all federal and non-federal agencies likely to have financing, environmental review, authorization, or other responsibilities for the proposed project and invites each such federal agency to become a participating or cooperating agency in the environmental review process. An invited federal agency is deemed to be a cooperating or participating agency unless it disclaims jurisdiction or authority or states that it does not intend to exercise its authority or otherwise participate in the environmental review. States may choose to have state agencies with permitting or review authority to participate in the Act's environmental review and authorization process.

Within 60 days of the posting of a covered project on the Permitting Dashboard, the lead NEPA agency must establish a Coordinated Project Plan (CPP) including timelines for review and approval by itself and cooperating or participating agencies based on the performance schedule and timetable for that category and type of project established by the Steering Council. The CPP

is also posted to the Permitting Dashboard. To the maximum extent possible, agencies are required to carry out their tasks under the CPP concurrently and the federal review is required to be coordinated with applicable state, local or tribal agency processes. The Steering Council's Executive Director mediates any disagreements among agencies and the project proponent over the timetable. Extensions of the final completion date under the timetable must be approved by the Executive Director and cannot in total exceed half the time of the original timetable. Any further extensions must be approved by the Director of the Office of Management and Budget (OMB) and be accompanied by a report to Congress explaining the delays. Agencies are also authorized to establish by regulation fee structures for project proponents to reimburse the federal government for their reasonable costs to review and authorize covered projects.

Although cooperating agencies are required to coordinate their environmental reviews and adhere to the schedule, the Act provides no enforcement mechanism. Instead, the Act aims to "jawbone" agencies into compliance by requiring an agency that fails to meet the timeline to submit a notice for the Permitting Dashboard which must include an explanation for its failure to meet the timeline and provide an alternative completion date. In addition, each month thereafter until the agency takes final action it must submit for the Permitting Dashboard a status report describing its activity related to the project. The requirement for OMB approval and a report to Congress for extensions exceeding fifty percent of the original timeline should also create an incentive to complete permitting within a reasonable period.

Curbs on litigation

The Act attempts to curb litigation in two significant ways. First, it requires any challenge to a covered project's NEPA review to be filed within two years of the record of decision or approval or denial of a permit. Unless a statute provides otherwise, the United States Code requires civil actions against the United States to be filed within six years from the challenged action. Second, in considering whether to enjoin construction of a covered project pending a court challenge, the Act requires the court, among other things: i) to consider the potential for significant negative effects on jobs that would result from such an injunction, and ii) not to presume potential for negative effects on jobs are repairable.

Potential benefits for hydropower

The Act's regulatory reforms have the potential to improve hydroelectric permitting timelines by promoting best practices, standardizing the expectations for processing timelines, providing transparency on agency performance, establishing a continuing obligation to justify extensions of the timeline, and requiring OMB approval of particularly lengthy extensions. However, the Act does not amend any of the substantive laws that require federal hydroelectric permits and approvals, such as the Federal Power Act, NEPA, Clean Water Act, and Endangered Species Act. Thus, the overlapping federal and state permitting requirements that have hobbled efficient consideration of hydroelectric development proposals remain in place. The Act also does not establish legal deadlines for agency action. Rather, it creates a process for inter-agency negotiation of processing deadline expectations and relies on improved transparency and continuing administration and Congressional oversight to incentivize coordination of permitting processes and give substantial hydroelectric and other infrastructure projects appropriate priority. Finally, the Act includes a sunset provision which will eliminate the Steering Council and Congressional oversight seven years from enactment; i.e., December 2022. Because the program has a rather limited term it is only likely to be successful if the next administration and the affected agencies are committed to the goal of expedited federal permitting and Congress vigorously exercises its oversight authority. Whether these things will happen is a question that only time will answer.

Reference

1. Capital Cost Review of Power Generation Technologies, Recommendations for WECC's 10- and 20-Year Studies (March 2014), pp. 21, 27.

About the authors

Mike Swiger is a Partner and the Hydroelectric Practice Group Leader of Van Ness Feldman, LLP. He represents a broad cross-section of entities with interests in energy and water development before federal agencies, the presidential administration, Congress, and the federal courts. In more than 30 years of representing hydroelectric project operators and developers, he has been involved in several major hydroelectric license proceedings before the Federal Energy Regulatory Commission (FERC), appellate litigation in the U.S. courts of appeal and Supreme Court, and agency trial-type proceedings. Among others, Mike currently represents FirstLight Hydro Generating Company in relicensing of a 1,192 MW pumped storage project and a conventional project on the Connecticut River. Mike has served as Chair of the Renewable Energy & the Environment and the Hydroelectric Regulation Committees of the Energy Bar Association, is active in the National Hydropower Association (NHA), and has written and spoken extensively on regulatory and environmental issues affecting energy and water development. In 2014 he received NHA's Dr. Kenneth Henwood Lifetime Achievement Award.

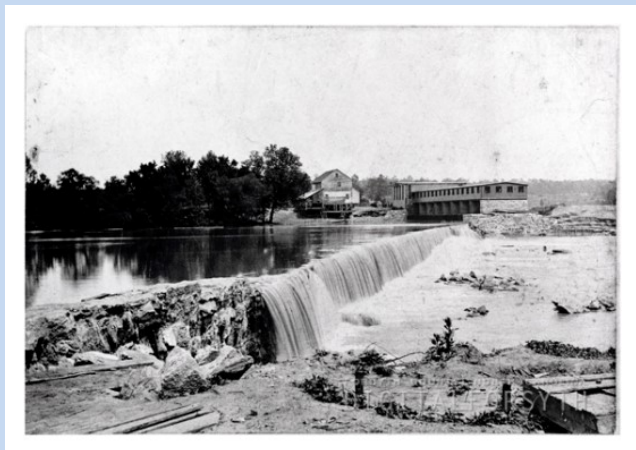
John Clements has been Of Counsel at Van Ness Feldman, LLP since 2006 and specialized in hydropower licensing for 30 years. He is currently involved in relicensing proceedings before FERC, development of new projects, license implementation and compliance, and appellate litigation in the D.C. Circuit Court of Appeals. Among others, John represents Missouri River Energy Services, which is constructing the Red Rock Project at a U.S. Army Corps of Engineers dam on the Iowa River. John is a regular panelist at industry conferences and seminars. Prior to joining the firm, John served as the Office Director and Director of Licensing in FERC's Office of Hydropower Licensing during an unprecedented wave of over 200 relicensings, as the legal and policy advisor on hydroelectric matters for three FERC Chairs, and as a senior hydroelectric attorney. John wrote the regulations for the Integrated Licensing Process, FERC's default licensing process rules.

(A bit of hydro history.)

April 20, 1898: Hydroelectric Power Introduced In Forsyth County

NC Culture , WFMY, April 20, 2016, wfmynews2.com

On April 20, 1898, the Fries Manufacturing and Power Company transmitted electrical power 13 miles from the generating plant to the Fries-owned Arista textile mill. The transmission, which originated near the Yadkin River bridge west of Clemmons in Forsyth County, was North Carolina's first long-distance transmission of electricity.



Long interested in the use of electricity to power industrial machinery, Henry Fries of Salem founded the company to harness the hydroelectric capability of the river. Construction on the power plant

began in 1897 and it soon became known as Idol's Hydroelectric Station, after a ferry that was once located on the same site. The dam built for the station was 482 feet long and the reservoir covered about 35 acres. The flow of the dam generated about 2,500 horsepower. The station later provided power for other textile and grain mills, fertilizer plants, the Winston-Salem electric railway, electric street lights and wood and metal working shops in Winston-Salem. Fries sold his power company in 1913 to Southern Public Utility Company, which was purchased by Duke Power in 1914. Duke Power, now Duke Energy, operated the Idols station until 1996. The station burned two years later.

(Finally, some free money for hydro.)

Massachusetts Clean Energy Center funds \$1M in upgrades for hydropower facilities in West Springfield, Ware and Orange

By Conor Berry | cberry@repub.com , April 21, 2016, masslive.com

WEST SPRINGFIELD — Hydropower, or harnessing the force of flowing water to generate electricity, is responsible for about 6 percent of the nation's electricity and 48 percent of its renewable energy. That's enough electricity to power 30 million homes and prevent the emission of about 200 million metric tons of carbon dioxide annually, according to the Department of Energy. As part of the Baker-Polito administration's celebration of Earth Week, state energy officials this week touted the benefits of hydroelectricity by announcing more than \$1 million in upgrades for small-scale hydroelectric facilities in West Springfield, Ware and Orange.



Officials gathered Wednesday at A&D Hydro Inc.'s West Springfield facility to announce the funding, which comes from the Massachusetts Clean Energy Center's Hydropower Program.

The upgrades will allow the Western Massachusetts facilities to annually produce an average of 1.2 million more kilowatt hours of renewable electricity, or enough energy to power 157 average Massachusetts homes, according to MassCEC officials. "Hydropower has been part of the commonwealth's energy mix since the Industrial Revolution, and these grants will help modernize these facilities and ensure they remain part of our energy portfolio for years to come," said Stephen Pike, MassCEC's interim CEO, who toured A&D Hydro's Front Street site on Wednesday morning. Thomas A. Tarpey, co-owner of A&D and 11 other hydropower facilities across the state, led the tour. A&D was awarded \$68,831 in state funding. The grant will be used to replace trash racks and a trash-raking machine and to reprogram the rake's automated control system. The upgrades are expected to help increase generation to around 116,000 kilowatt-hours a year – enough energy to power 15 average Massachusetts homes. The largest grant went to Mini-Watt Hydroelectric in Orange, which was awarded \$500,000 to help reduce leakage, replace equipment, and install a fully automated system that can be controlled by smartphone. These upgrades are expected to increase electric generation at the facility by at least 516,000 kWh per year, or enough to power 68 average Massachusetts homes, officials said. The remaining \$478,000 was awarded to Pioneer Hydro Electric Co. The money will enable the Ware company to increase the facility's efficiency and electrical generation capacity to around 561,000 kWh annually. That's enough to power 74 average Massachusetts homes, officials said. State Energy and Environmental Affairs Secretary Matthew Beaton said hydropower is a low-cost, clean resource that provides reliable electricity to state residents while protecting the environment. "Upgrading local hydroelectric facilities further diversifies the commonwealth's energy portfolio, while helping to reach our ambitious greenhouse gas emission-reduction goals," he said.

State officials say increasing the use of hydropower is also critical to meeting the requirements of the Global Warming Solutions Act, a state law requiring Massachusetts to reduce carbon emissions by 25 percent between 1990 and 2020. Gov. Charlie Baker, who did not take part in Wednesday's tour, said he and Lt. Gov. Karyn Polito recognize the importance of improving renewable energy facilities to ensure that the state continues to be a clean-energy leader. "These grants to make hydropower facilities more efficient and increasing hydropower production will help us meet our greenhouse gas emissions goals and continue to increase the role of renewables in our energy portfolio," he said in a statement. Not only does hydropower help reduce greenhouse gas emissions, but the state funding will help local communities provide more low-cost renewable

energy for citizens, according to Polito. State Sen. James T. Welch, D-West Springfield, said he couldn't think of a better way to honor the spirit of Earth Week than by funding clean-energy projects. "This grant, in addition to funding for a carbon sequestration program in last year's budget, is another step forward in West Springfield's commitment to reducing its carbon footprint," Welch said in a statement. Ware's Pioneer Hydro Electric facility is located in the legislative districts of State Sen. Anne Gobi, D-Spencer, and state Rep. Todd Smola, R-Warren, both of whom praised MassCEC for providing funding that will allow company owner Luke Wright to continue to producing clean energy in Hampshire County.

When flowing water is captured and turned into electricity, it is called hydroelectric power or hydropower, according to the Department of Energy. There are several types of hydroelectric facilities, all of which are powered by the kinetic energy of moving water. Turbines and generators convert the energy into electricity, which is then fed into the electrical grid to be used by homes, businesses, and industries. Hydropower, the world's leading renewable energy technology, has a long history in the commonwealth, where many 19th century dams have been converted into hydroelectric facilities. Hydropower generates more electricity than all other renewables combined, according to the International Energy Agency. The Massachusetts Clean Energy Center is a publicly funded agency dedicated to accelerating the success of clean energy technologies, companies and projects across the state. Since its inception in 2009, MassCEC has helped create "a robust marketplace for innovative" companies and service providers, according to the group's website. MassCEC's Hydropower Program is funded through the Renewable Energy Trust, which was created by the state Legislature in 1998. The trust is funded by municipal electric departments that have opted to participate in the program, along with a charge paid by electric customers of investor-owned utilities across the state.



Water:

(Now, that's a lotta rain.)

More than a foot of rain drenches Houston, surrounding areas

April 18, 2016, by Associated Press, foxnews.com

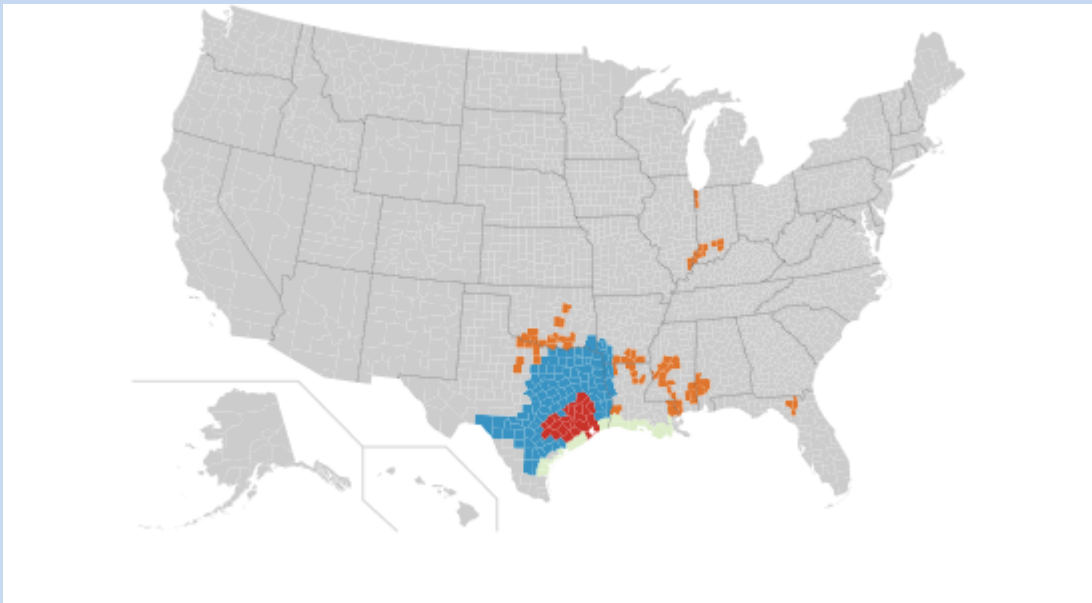
More than a foot of rain fell Monday in parts of Houston, submerging scores of subdivisions and several major interstate highways, forcing the closure of schools and knocking out power to thousands of residents who were urged to shelter in place. Sylvester Turner, mayor of the nation's fourth-largest city, told residents to stay home to fend off a weather system he called "stubborn." More rain was projected over the next two to three days.

Rain gauges in parts of Harris County, which includes most of Houston, showed water levels approaching 20 inches since late Sunday night.

The Harris County Flood Control District reported 13 bayous and creeks out of their banks. Turner said seven bayous within Houston were topped. No deaths or injuries were immediately reported. Several shelters were established for people forced from their homes. At least 100 people taken from apartment complexes in the north part of the city were being sheltered at a shopping mall. "There areas of the city that have not flooded for a long period of time that have flooded," Turner said. Harris County Judge Ed Emmett, the county's chief administrator, said more than 1,000 homes were flooded. "This is a rain even that's very significant, no question about it," he said. "Many of those homes haven't flooded before." Classes were cancelled for the Houston Independent School District's 215,000 students, Texas' largest public school district, and most other schools throughout the metropolitan area.

National Weather Service meteorologist Tom Bradshaw said about 70 Houston subdivisions flooded. At least two interstates -- I-10, the main east-west freeway, and I-45, the major north-south freeway -- were underwater near downtown. "We've seen those go under water before and they're under water again," Emmett said. Other major freeways, plus some feeder roads leading to the highways, were shut off by high water. Emmett warned drivers that even if they were able to get through on the highways, "When it's time to get off, you may not be able to." The storms were part of a wide weather system that left warnings and watches through Tuesday morning for Houston, Austin, San Antonio, Dallas, Fort Worth, Tyler-Longview and as far east as Texarkana.

One TV reporter in Houston helped to rescue a man who drove his car into a flooded underpass. In the incident captured on video Monday, KTRK reporter Steve Campion yells, "Dude, you've got to get out of the car!" The man opens the passenger door and crawls out into the water as the reporter yells: "Leave the car! Swim!" The driver swims toward Campion, who wades out into the waist-deep water and extends his hand. As the car slowly sinks under water, the driver tells Campion that he's OK and that he didn't think the water was so deep. Houston, at near sea level and known for its "gumbo" soft soil, is no stranger to flooding from torrential rains, tropical storms and hurricanes. Last Memorial Day, heavy rains caused severe flooding in the southwest parts of the city. Bayous there were quickly rising and the mayor urged residents to prepare for another round of floods. "We have had a lot of rain to fall in a short period of time and it is taxing our system," he said. "If you're not presently flooded along one of these bayous, I can tell you things remaining as they are, if conditions do not change, that those areas more than likely will be flooded." The city reported more than 115 emergency water rescues by mid-morning Monday and evacuation of at least 30 apartment complexes. CenterPoint Energy said nearly 110,000 of its customers were without power. George Bush Intercontinental Airport in Houston reported more than 410 flights canceled. William P. Hobby Airport, the city's other major airport, canceled more than 135 flights. "This situation will remain around for much of the day," the mayor said. "We're asking people to exercise caution and common sense."



(If only some of this water could get to CA)

At Least 5 Dead and Thousands Left Without Power as Texas Is Hit with Severe Flooding in the Biggest Storm Since 2001

By Andrea Park, 04/19/2016, people.com

At least five people have died from weather-related causes since Houston began experiencing major flooding late Sunday night, according to the Associated Press. Traffic cameras showed two

of the victims driving around barricades in an unsuccessful effort to drive through a flooded underpass, Harris County Judge and chief administrator Ed Emmett said in an afternoon press conference, the AP reports. Another person was found in a submerged vehicle near one of Houston's airports, while a truck driver was found dead in his truck on a flooded service road. A fifth victim, a 56-year-old man, was found dead in a car filled with water in Waller County, a local judge told CNN. According to Harris County Emergency Management, crews were dispatched to perform around 1,200 high-water rescues as of Monday afternoon, CNN reports.



"There's flooding in every part of Houston," Houston Mayor Sylvester Turner said. "We will rescue you." The National Weather Service has issued a flash flood watch through Wednesday morning. "Avoid travel in and around flooded areas," the warning reads. "Most people who die in flash flooding will die in their vehicles. If in a flooded area stay where you are ... at home or at work. Never drive into a flooded roadway. Turn around don't drown!" Emmett told CNN he estimated 240 billion gallons of rain had fallen on the Houston area as of Monday afternoon, and called this the most significant flood event since Tropical Storm Allison left 41 people dead and caused more than \$5 billion in property damage in 2001. Besides the fatalities and rescue efforts, the intense flooding has also caused major flight delays and property destruction.

Bush Intercontinental Airport experienced approximately 650 flight cancellations and over 1,100 delays, NBC News reports, and Emmett signed an emergency declaration for Harris County, saying that more than 1,000 homes had already been flooded. According to NBC News, all city buildings and the Houston Independent School District were closed Monday, and the rest of the city was encouraged to stay home from work and school. "This is a dangerous situation and I do not want our employees trying to get to work," Turner said. "Do not go out until conditions improve." Turner told NBC News that 43,000 people in the Houston area had lost power and the situation could get worse as the rains were projected to continue into Tuesday and possibly Wednesday. "This is an unprecedented amount of rain," he said. "It's been stubborn and it's not moving anytime fast."



Environment:

(Time to go fishing.)

The Vermont Department of Fish and Wildlife says the fish lift at the Winooski One hydroelectric facility on the Winooski River is now operating for the spring season

By THE ASSOCIATED PRESS, April 17, 2016 - dailyjournal.net

WINOOSKI, Vermont — The Vermont Department of Fish and Wildlife says the fish lift at the Winooski One hydroelectric facility on the Winooski River is now operating for the spring season. A fisheries biologist says the fish lift is used so steelhead rainbow trout can make their natural spring migration. It also means



expanded fishing opportunities for anglers. Steelhead that are collected by the lift are released into the 1.3-mile section of river above the dam in the city of Winooski and below the next dam, also known as Gorge 18. Between March 16 and May 31 fishing is not allowed on the section of river below the Winooski Dam downstream to the first railroad bridge to protect spawning walleye and endangered lake sturgeon.



Other Stuff:

(This is not good news.)

Sierras Are Way Overdue for Major, Costly Earthquake

And one expert says we need to start preparing

By Michael Harthorne, Newser Staff, Apr 19, 2016, newser.com

The West is long overdue for a major earthquake that could cause billions of dollars in damage to parts of Nevada and California, the AP reports. Scientists expect a magnitude-7 quake along the eastern front of the Sierra fault system every 30 years or so; there hasn't been one in more than 60. Similarly, a magnitude-6 or greater quake is expected every 10 years on average; it's been 22 years since the last one. In fact, there were seven magnitude-6.5 or stronger earthquakes between 1915 and 1954; but the fault that stretches from north of Reno and Lake Tahoe to south of Yosemite National Park has been quiet since.

FEMA estimates a magnitude-6 quake could cause up to \$1.9 billion in damage to the Reno and Sparks areas of Nevada and another \$590 million in damage to South Lake Tahoe in California. The Nevada Seismology Laboratory's Graham Kent tells the AP the unusually quiet fault system has lured residents into a false sense of security when it comes to major earthquakes. Instead, he says governments should be using this time to put together plans for both disaster response and economic recovery in the event of a major quake. Earthquake experts are gathering in Reno this week for the annual meeting of the Seismological Society of America.



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