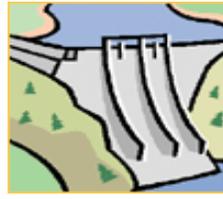


5/4/2018



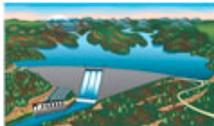
Some Dam – Hydro News™ And Other Stuff



Quote of Note: "Your greatest fears are created by your imagination. Don't give in to them." ~ Winston Churchill

Some Dam - Hydro News → Newsletter Archive for Current and Back Issues and Search:
(Hold down Ctrl key when clicking on this link) <http://nmdp.stanford.edu/> ' After clicking on link, scroll down under Partners/Newsletters on left click one of the links (Current issue or View Back Issues)

"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: 2015 Brotte French - Rhone (Red Blend) "Creation Grosset Cairanne"
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Dams:

(New law because of Oroville.)

JAMES GALLAGHER ON RECENTLY PASSED DAM SAFETY BILL

By: Heidi Rene, Apr 19, 2018, actionnewsnow.com

Below is the closed-captioning text associated with this video. Since this uses automated speech to text spelling and grammar may not be accurate. ... a new set of rules for dam safety and maintenance have been adopted for the state of California. What exactly does that mean? Action News now reporter Hayley Skene talks with Assemblyman James Gallagher. He wrote the bill on dam safety that was passed into law exactly one year after the spillway ruptured. Good morning, I'm here in TC with James Gallagher who's behind a lot of bills and one of the greatest accomplishments many would say this year was the dam safety bill - tell me how that began and why it's so important? "In the aftermath of the Oroville crisis we started looking at



the law .. stated that dams would be inspected 'from time to time' .. that was totally unacceptable so we authored a bill that would require high-hazard dams be inspected at least once a year and there had to be more substance to what they're looking at - we had to work through some hurdles and got it passed this year ... it's really only the first step to making sure Oroville is a safer place. Authored legislation to create a local oversight body to give people more of a voice in how the dam is operated ... we're hoping to get that passed as well." OK thanks so much, coming up we'll talk more about other bills in the works, some to do with dam safety and some other current issues, we'll talk about in Yuba City, Hayley Skene, action news now. ### Julia

(Onward to the finish line.)

VIDEO: PHASE 2 OF OROVILLE DAM CONSTRUCTION TO START MAY 8

Expected low inflow water levels this year will help maximize the construction window

April 20, 2018, constructionequipment.com

Video:

<https://www.constructionequipment.com/video-phase-2-oroville-dam-construction-start-may-8>

California's Department of Water Resources (DWR) has posted an update for the Lake Oroville Spillways Emergency Recovery Project construction activities. The 2018 Lake Oroville Operations Plan hopes to begin construction around May 8 at which time the main spillway gates will be closed. The May 8 date is fluid but the DWR hopes to maximize the 2018 construction window and ensure the main spillway is fully reconstructed before next winter.

The plan was submitted this week to the Federal Energy Regulatory Commission (FERC) and the California Division of Safety of Dams (DSOD) for approval.



A worker from Penhall Company controls the concrete diamond blade during a cut of the secant pile wall to its correct height at the Lake Oroville emergency spillway site

Before the gates are closed, prep work to resurface, or mill, the top layer of the roller-compacted concrete (RCC) middle chute is targeted to begin on April 25 to create a uniform surface to prepare for placement of steel-reinforced structural concrete slabs. Crews will remove up to five inches of the surface of the RCC section of the chute. On that same date, DWR hopes to begin removal of the remaining surface layer of the grouted rip rap on the emergency spillway hillside. This is the rip rap that was placed as part of the February 2017 emergency response. Crews are currently placing a concrete cap, or grade beam, on the recently completed underground secant pile cutoff wall. The cap will reinforce the structural concrete piles and secure the wall to the RCC splashpad. The secant pile wall is 1,450 feet long and located 750 feet downhill of the emergency spillway with concrete piles at depths of 35 to 65 feet. Crews continue to construct the RCC splashpad, which will cover the hillside between the emergency spillway and secant pile wall. The splashpad, in conjunction with the secant pile wall, will armor the existing hillside to significantly reduce the type of uphill erosion that occurred during the February 2017 incident.

Inflows into Lake Oroville are expected to be low this summer due to below-average snowpack and snow water content in the Northern Sierra, so the updated plan targets a lake level of approximately 830 feet before triggering more aggressive outflows. As of mid-April, the lake was at 808 feet. The DWR expects lake levels to fluctuate through the year as the agency accommodates various uses, including providing water for the 29 State Water Project contractors and senior water rights holders. Other uses include flood protection, environmental releases, recreation and salinity control and flow requirements in the Sacramento-San Joaquin River Delta,

officials explain. The operations plan will enable the agency to “maximize our construction window,” says John Leahigh, a State Water Project principal engineer.

Construction plans for the Main Spillway and Emergency Spillway

- Demolition of the original 730 feet of the upper chute leading to the radial gates and reconstruction with steel-reinforced structural concrete slabs and walls.
- Placement of three-foot, steel-reinforced structural concrete slabs over the RCC middle chute, and placement of a drainage system.
- Removal of the RCC walls in the middle chute and replacement with structural concrete walls, with a permanent drainage system.
- Hydro-blasting and resurfacing of the energy dissipaters at the base of the main spillway.
- Later this year, an RCC buttress will be constructed at the base of the emergency spillway structure to provide further reinforcement.

Maintenance updates:

Over the next four to six weeks, DWR will be conducting routine maintenance on three of the six turbines (turbines four, five, and six) at Hyatt Powerplant to ensure the performance of Hyatt Powerplant throughout the construction season when the main spillway will be unavailable. DWR had planned to begin this maintenance at the beginning of April but delayed the work to provide full outflow capacity from Hyatt Powerplant to safely manage lake levels during recent storms. Turbine one is undergoing an extensive upgrade and has been offline since 2015. Work on turbine one is targeted for completion by the end of this year. **With two turbines active, Hyatt Powerplant has an outflow capacity of 5,000 cubic-feet per second.** Lake Oroville is the chief reservoir for the State Water Project, whose contractors irrigate about 750,000 acres of Central Valley farmland and serve more than 26 million customers. The dam’s near-failure amid heavy storms in February, 2017 prompted the reconstruction project that is expected to take two years and cost \$870 million.

[\(More on the Lower Snake River Dams.\)](#)

Think tank slams dam-breaching study

Group that commissioned research defends its transparency, objectivity

By ERIC BARKER of the Tribune, Apr 21, 2018, Imtribune.com

A study claiming power generated at four dams on the Lower Snake River could be replaced by a combination of renewable sources, conservation and better management of electricity use has been met with sharp criticism from a Seattle-based free-market think tank. Todd Myers, director of the Center for Environment at the Washington Policy Center, said the study by the Northwest Energy Coalition contained errors and faulty assumptions to reach its conclusion and suggested it did so to promote a dam-breaching agenda. **"They are trying to support removal of the dams," Myers said. "The electricity and the value of the electricity is the No. 1 issue they have to deal with. I think to that end they played a few games."**



Many salmon advocates say removing Ice Harbor, Lower Monumental, Little Goose and Lower Granite dams is the best way to recover stocks of Snake River salmon and steelhead protected by the Endangered Species Act. The federal agencies that operate dams on the lower Snake and Columbia rivers are in the midst of a lengthy court-ordered rewrite of plans meant to ensure the dams don't jeopardize the survival of the protected fish species. That review, in the form of an environmental impact statement, is expected to include a dam breaching alternative.

In his blog and in an op-ed that appeared in the Tri-City Herald, Myers claims the amount of additional wind and solar needed to replace power produced at the dams is daunting and would cost much more to produce than the study states. For example, the study calls for an addition of 1.7 million megawatt hours of solar power in Idaho and 4.7 million megawatt hours of wind. That is 50 percent more solar than already exists in Washington and a 57-fold increase in Idaho's current solar power production. He also argues that the study used a figure to determine how much that solar power would cost based on solar capability not in the Northwest, but rather in Arizona. "Their price estimates are just wrong; they use the wrong evidence," he said.

One price that Myers said is particularly low is the group's estimate that adding enough new solar and wind sources to replace the power contribution of the dams would lead to a little more than a \$1 increase to the bills of rate payers in Washington, Oregon, Idaho and Montana. "They take the total costs and spread it over all the households in four-state region. That is not how it works," he said, noting people who get their electricity from utilities that purchase from the Bonneville Power Administration would see much higher rate hikes than those who are supplied from privately-owned utilities. "In Billings, Mont., and Bellingham, Wash., they are not going to pay extra for replacing the Snake River dams. It's going to be people who use the hydropower now. They are going to get big increases." He also said the replacement power would increase the release of greenhouse gasses above current levels, something the study acknowledges. Myers' blog post is available at <https://bit.ly/2F3Kqfp>.

Northwest Energy Coalition spokesman Sean O'Leary defended the study and said he takes offense at Myers calling the group's motives into question. His organization has voted not to take a position on dam breaching, other than to say it should be analyzed. He said the report was purposefully transparent and used the same models and tools that are used by utilities and regulators in the region, including those used by the Northwest Power and Conservation Council and Bonneville Power Administration. "We went far out of our way with being open about how the study was being done and used data from federal agencies and also used the same modeling tools they used. We shared our information with them." O'Leary noted the group faced pushback from some salmon advocates who claim the power could be replaced at much cheaper prices and some who said because of the surplus of power in the region, it would not be necessary to replace the generating capacity of the dams at all.

"We have come under a great deal of criticism for the opposite reason - using renewable energy prices they believe are too high." When calculating the cost ratepayers might face if the dams were breached, O'Leary said the study used a Northwest Power and Conservation Council formula. He acknowledged not all ratepayers would see equal increases and some might pay more than others. But he said all of the hikes would be modest. "We are talking about single-digit dollars a month. We are not talking about some outlandish figure." Despite Myers' claims that a massive amount of new solar and wind plants would have to be built to make up for power the dams produce, O'Leary said doing so is easily within reach and already has been done in other regions. "The amount of renewables that would be required for replacement scenarios are on a scale that is significantly smaller than many parts of the country that have replaced in just the last decade," he said. The study is available at <https://nwenergy.org>.

(Different opinion.)

Guest Opinion: Dam replacement study reveals new opportunities

BY NANCY HIRSH, April 21, 2018, tri-cityherald.com

The NW Energy Coalition has released a new study demonstrating that the ongoing decline in the cost of new wind and solar energy can not only contribute to a cleaner environment, it may also help save Northwest salmon and orca whales threatened with extinction. The power replacement study — the most extensive yet undertaken on the subject — shows that power from the four lower Snake River dams can be affordably replaced by a mix of energy efficiency measures and renewable energy resources without any loss of electric-system reliability and with little or no increase in greenhouse gas emissions. In fact, electric system adequacy, reliability and flexibility

would actually improve. These findings put to rest the decades-old myth that we have to choose between clean, affordable and reliable energy on the one hand, and the recovery of salmon populations on the other. That's quite a deal when you also consider the opportunities that would accompany build-out of new renewable resources, the economic shot in the arm that dam removal would give our fishing and tourism industries, and the establishment of the Tri-Cities as a navigation terminus for future shipping activity.

(Partially failed. Don't know what the photo has to do with the dam!)

Regulators monitoring collapsed section of Lumberport dam

wdtv.com, Apr 18, 2018

LUMBERPORT, W.Va. (AP) -- West Virginia regulators are monitoring a damaged dam in the northern part of the state that could potentially fail. The state Department of Environmental Protection says in a news release a worker with the town of Lumberport notified authorities Wednesday about a collapsed section of the dam. The statement says erosion has occurred underneath a concrete spillway and water is flowing over and under the collapsed section. The dam is about 13 feet tall, has a shallow reservoir behind it and is owned by the community of about 870 residents. Another dam is immediately downstream. The DEP says it's working to open drain gates to relieve pressure on the failing dam and potentially pump water around it. A March 20 inspection noted the erosion. Both Lumberport dams were out of compliance with safety regulations.



(If you can't do it one way, try another.)

Locals pursue Public Utility District option for Klamath dams

By David Smith / siskiyoudaily.com, Apr 20, 2018

As the process to remove four dams on the Klamath River moves forward, one local group is attempting to set in motion a completely different outcome – a takeover of the dams to be operated by a Public Utility District. A local steering committee has placed a number of petitions locally in an effort to gather enough signatures to get an initiative on a ballot this year – likely the November ballot – to let voters decide whether or not a PUD would be formed in the county. “The proposed initiative would create and establish a PUD within the boundaries of Siskiyou County. The PUD would be for the purpose of generating, manufacturing, purchasing, acquiring, transporting, and accumulating all forms of energy and capacity for the members of the district and transmitting, erecting, purchasing, leasing as lessor, exchanging and mortgaging plants, building works, machinery, supplies, apparatus, equipment and electrical transmission and distribution line systems as necessary, convenient or useful to carry out the district's purpose of providing low cost electricity,” the petition reads.



The main focus of that effort would be on the Klamath dams, according to Yreka resident Anthony Intiso, who spoke with the Siskiyou Daily News recently as a representative of the local PUD steering committee. He stated that PUDs are nothing new – estimating that there are currently about 60 just in the state of California. He said that the impetus behind the movement involves two main factors: Dissatisfaction with rising electrical rates and “the shortsightedness of removing clean and removable power” if the dams are taken out. The plan to remove the Iron Gate, Copco 1, Copco 2, and J.C. Boyle dams was formalized in 2008 in the Klamath Hydroelectric Settlement

Agreement, which was revised in 2016 after Congress failed to pass necessary legislation authorizing portions of the agreement.

Now the process is in the hands of the Federal Energy Regulatory Commission, which is considering whether or not it will allow the current owner of the dams – PacifiCorp – to decommission the dams and allow the Klamath River Renewal Corporation to demolish them. Intiso said that he and the local committee would rather see the dams in place and providing power to the area – and possibly without interference from FERC and the California Public Utilities Commission, which sets electricity rates for public utilities. Intiso argued that, since the planned PUD would be a 501 (c) 3 nonprofit entity, it would be exempt from the CPUC's rate setting, allowing for power to be sold to consumers at the cost of generating it – without any additional fees.

As for FERC, the committee believes that there are a number of reasons a local PUD would be exempt from the commission's guiding hand. Chief among the arguments is that Congress did not grant FERC the authority to regulate PUDs based on two assertions. The first is that FERC's role, as a federal agency, is to regulate the interstate transmission and sale of electricity and if the electricity is sold only in the state, it would not be subject to FERC's jurisdiction. The second is that, under the Hydropower Regulatory Efficiency Act of 2013, hydroelectric projects that produce less than 40 megawatts of power are exempt from federal licensing requirements. Whether or not the project gets that far is reliant on a number of factors, the first of which is getting enough Siskiyou County voters to sign the petitions to get the initiative on the ballot. Intiso said that at least 1,374 signatures from registered voters must be gathered at least 90 days from the Nov. 6 election. **The goal, he said, is to actually get 2,100 signatures as a safety margin.**

If the initiative makes the ballot, it will then be up to the voters to decide whether or not they will support the formation of the PUD. If they do, there will be 45 days to elect and install a board for the district. **According to Intiso, the plan is that, once a board is in place, the PUD will seek a loan from property owners in the county – at approximately \$155 per parcel – to cover the process of obtaining the dams. He estimated that the loan could raise approximately \$6 million.** He said that the idea is that the loan would be paid back once the dams are acquired and generating income. The most significant hurdle at that time would be initiating eminent domain proceedings to have the dams condemned and then operated by the PUD, Intiso said. **The \$6 million raised by the PUD would be used to show a judge that the district could afford to take on the dams,** he explained. PacifiCorp would be given an opportunity to fight the takeover of its dams, however; and only if the district prevailed would the court then decide how much the company would have to be compensated for its property. A 1990 United States Court of Appeals case involving Pacific Power & Light Company and the Surprise Valley Electrification Corporation – located in neighboring Modoc County – provides some insight into the eminent domain process as it relates to PUDs. In that case, the City of Alturas sought to condemn some of PP&L's facilities and transfer them to SVEC, one of the state's longest running PUDs. The court found that using eminent domain to obtain the facilities and achieve lower power rates for consumers would be a "valid public use" of eminent domain per statutory law. The city and SVEC did not prevail outright, however; the court also found that SVEC would require CPUC approval before it could operate and maintain the power facilities.

When questioned, Intiso agreed that there are other issues at play as well – for example, various agencies require certain flow rates in the river for aquatic species, and the PUD would likely have to follow those mandates. In addition, the PUD board would also likely have to acquire some additional facilities in order to transfer power to customers from the dams. Despite the long road ahead for the initiative, Intiso is optimistic that it can be done, and hopes that operation of the dams through a PUD would benefit the community in more ways than just lower power rates. He explained that excess power could possibly be sold into the existing power grid, providing a source of income that could then be funneled into the community – from supporting area schools to family resource centers. He said that he believes the PUD could greatly enhance the community while simultaneously making the county more self-sufficient in terms of energy. Intiso

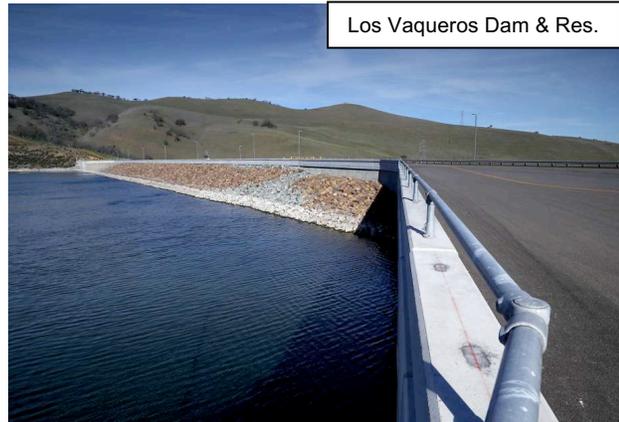
stated that he is planning town hall meetings in various areas of the county to discuss the PUD initiative. Currently, petitions are located in Yreka at the Grange Insurance building, which is located at 347 North Main Street; at Siskiyou Countertops, located at 1217 South Main Street; and Misty's Wet Yer Whistle Espresso Bar at 401 South Main Street.

(New dams, huh! A change in the decision.)

California announces tentative funding for new giant dams

By Kurtis Alexander, April 20, 2018, sfgate.com

California officials said Friday that eight major water projects qualify for a share of billions in state drought funds, an announcement that breathes new life into plans for two reservoir expansions in the Bay Area and two new massive dams in the Central Valley. Bids to enlarge the East Bay's Los Vaqueros Reservoir and Santa Clara County's Pacheco Reservoir were deemed eligible for the highly sought Proposition 1 money. So were proposals for a new, 13-mile-long reservoir in Sites (Colusa County) and a new, 18-mile-long reservoir known as Temperance Flat near Fresno.



Friday's funding decision was good news for proponents of the storage projects, most of whom had been denied money in a tentative scoring of their applications announced in January. The California Water Commission initially determined that just three of 11 proposals submitted met Prop. 1's strict terms for providing public benefit. Most of the applicants appealed the original decision, which could have doomed many of the projects, resulting in a new round of scoring

(On a related matter. Court on the fisheries.)

High court grills Washington state lawyers on tribal treaty rights

Legal fight over culverts

By Don Jenkins, Capital Press, April 20, 2018, dailyastorian.com

Washington state's solicitor general faced tough questioning Wednesday from Supreme Court Justice Neil Gorsuch, who said he was "struggling" to accept that other interests can outweigh the treaty rights of 21 western Washington tribes. Gorsuch said Washington's appeal of a court order to replace more than 800 fish-impeding culverts "boils down" to whether the state can affect tribal fishing in the pursuit of public benefits. He said he didn't see anything in the treaties that says tribal fishing rights "may be completely eliminated, if necessary, to meet other domestic needs." "Which is," Gorsuch told the state's attorney, Noah Purcell, "the position you're taking, I think, before this court." The questioning came during oral arguments in the latest phase of litigation the Justice Department started in 1970 against the state on behalf of the tribes that signed the Stevens treaties in 1854 and 1855.



AP PHOTO/TED S. WARREN
Melissa Erkel, a fish passage biologist with the Washington Department of Fish and Wildlife, looks at a culvert — a large pipe that allows streams to pass beneath roads but block migrating salmon — along the north fork of Newaukum Creek near Enumclaw, Wash., in 2015.

A previous phase allocated up to half the fish to tribes. Although the case before the Supreme Court stems from a 9th U.S. Circuit Court of Appeals order to replace culverts, the larger question

is to what extent the treaties obligate Washington to protect salmon habitat. Washington argues that the order to remove culverts makes every “significant human activity” a potential treaty violation, a concern echoed by farm groups and some other states, including Idaho, that have treaty tribes. Eight justices are deciding the case. Justice Anthony Kennedy, often a swing vote, recused himself because he participated in a 1985 Circuit Court ruling regarding the treaties. Gorsuch may play a pivotal role in whether the court reaches a decision or deadlocks. Native American groups endorsed his appointment by President Donald Trump based on his record on the 10th U.S. Circuit Court of Appeals. At the outset, Purcell acknowledged the state made a mistake when it told the Circuit Court that it had the right to completely block every salmon-bearing stream. He said the state could not cause a “large decline.” Justices pressed Purcell to quantify “large decline.” “I think that a decline of half or anything approaching half would obviously be a large decline,” Purcell said.

The state estimates that the culverts reduce fish runs by 1 to 5 percent. “I don’t think 5 percent should suffice,” Purcell said. Justice Department lawyer Allon Kedem and the tribes’ attorney, William Jay, also did not provide a definite percentage. Jay said the species of fish and time of year would have to be taken into consideration. “I don’t think it means a hard-and-fast number,” he said. Justice Samuel Alito told Kedem that he had read that dams cause more damage to fish than anything else. “Do the dams that the federal government has built on the lower Snake River and lower Columbia River violate the treaty?” he asked. Kedem said some dams have fish ladders and that in other cases the federal government has compensated tribes for damage to fish. “We have taken extraordinary efforts to remediate some of the problems that have been caused by some of these federal dams,” he said. Purcell told justices that Washington has spent billions of dollars on salmon recovery. Alito asked Jay whether the tribes agreed that federal dams do not violate treaties. Jay said a dam could be violation, but that would have to be litigated dam by dam, and that was not part of this case. Purcell sparred with Kedem and Jay over how to frame the question the court is being asked to decide. Purcell said the question was whether the treaties guaranteed tribes a “moderate living” from fishing. Jay said the treaties should prohibit obstructing and degrading the fishery. “So if we were to write an opinion in this case, you would have no objection if it said that there is no moderate living standard at issue here?” Chief Justice John Roberts asked. “We would have no objection to that at all,” Jay said.

(The big deal!)

BENEFITS OF LIBBY DAM, OTHERS UP FOR DEBATE AS U.S. AND CANADA PREPARE TO RENEGOTIATE THE COLUMBIA RIVER TREATY

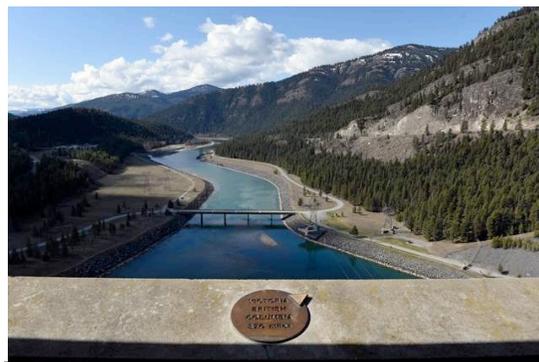
April 22, 2018 | By PATRICK REILLY, Daily Inter Lake, dailyinterlake.com

Print Article

Day and night, five turbines hum at the base of Libby Dam. Spun by water from its reservoir, Lake Koochanusa, each one can generate 120 megawatts of power — enough for 87,600 homes.

The dam, run by the U.S. Army Corps of Engineers, is one of four envisioned by the Columbia River Treaty, a 1964 agreement between the United States and Canada. Under this pact, the two nations have tamed the river’s floods and supplied the West with hydropower.

But these gains are now up for debate. The United States and Canada plan to start re-negotiating the treaty this year. Both sides support the treaty in principle, but are at odds over some details. One of these is the power generated at dams like Libby. “The Columbia River system is operated as one system,” explained Greg Hoffman, Libby’s fishery biologist. The United States and Canada have built



A MARKER atop Libby Dam’s Treaty Tower points toward Victoria, British Columbia. (Casey Kreider/Daily Inter Lake)

dams along the river and its tributaries, which drain a cross-border region the size of France, since the 19th century. After a 1948 flood devastated the town of Vanport, Oregon, the two countries sought ways to better manage the waterways. These discussions culminated in the Columbia River Treaty of 1964. Canada agreed to build three dams in British Columbia, together able to store 15.5 million acre-feet of water. This step provided 60 years of guaranteed flood control for the United States, which paid Canada \$64.4 million. The treaty also permitted the United States to build Libby Dam across the Kootenai River, which eventually joins the Columbia. The 7.6-million-ton structure can hold back more than 5.8 million acre-feet of water. These dams flooded valleys and displaced residents on both sides of the border, but also boosted the region's energy supply. Hydropower now provides more than half of the Northwest's energy, and regional energy rates are among the lowest in the nation.

Now, the pact guiding this system is set to change. In 2024, six decades after ratification, either signatory will have the right to cancel most of the treaty with 10 years' notice. Last December, the State Department announced plans to begin talks on the topic this year (a starting date is still being determined, according to a State Department spokesperson). Both the United States and Canada have voiced their desire to modernize the treaty. But the challenges of this task are becoming clear. The negotiators will face a region greatly changed since 1964. New infrastructure has been built on both sides of the border, and concerns about ecological health and Native American rights have become part of the policy-making process. One way or another, most of these issues lead back to electricity. By regulating water flows, the treaty's three Canadian dams made existing American dams downriver, in Washington and Oregon, more productive. The United States and Canada agreed to split this added production evenly. Canada's share is known as the "Canadian Entitlement," and is between 1,100 and 1,400 megawatts of generation capacity, worth \$120 to \$300 million, each year. The Bonneville Power Administration, which retails the dams' electricity, delivers it to British Columbia through a link between the grids.

Both countries want to change the way this delivery is calculated. And both are citing new developments along the rivers to bolster their cases. The Treaty's U.S. Entity, composed of Bonneville and the Army Corps, wants the downstream benefits, and therefore the Entitlement, pared down. A main reason is that, in recent years, a subtle distinction in the treaty has yawned wider. The agreement defines the treaty dams' benefits as their added "hydroelectric power capable of being generated in the United States of America." However, new environmental safeguards have the United States producing below that capability. In the 1990s, 12 species of Columbia salmon and steelhead were listed as endangered or threatened, requiring federal agencies to protect them. This effort includes periodically opening dams' spillways, sending fish over the turbines and toward the ocean. From a power-generation standpoint, that's wasted water. "We're not burning it through the turbines and we're not producing electricity," explained treaty expert Barbara Cosens, a professor at the University of Idaho College of Law. In 16 years at Libby, Hoffman has seen these measures in action. "Oftentimes, we'd experience a month of minimum flows" through the turbines, "so it's a pretty big impact on power generation." But this drop isn't factored into the Entitlement. "What the U.S. would like is [for] the Canadian Entitlement to be based on what we actually end up producing after we actually made all those adjustments to the operation of the system," Cosens told the Daily Inter Lake. Fish protection isn't the only post-1964 shift. Both nations have since added hydropower capacity as well.

The treaty allowed, but did not require, the United States to build Libby Dam. Dedicated in 1975, it spun out \$138 million worth of electricity last year, according to its natural resource specialist, Jake Williams. The treaty stated that Libby benefits would "accrue to the country in which they occur." Some of those benefits are north of the border. Below the dam, the Kootenai River makes a U-turn and returns to Canada, joining other tributaries and flowing through turbines also added after the treaty ratification. State Rep. Mike Cuffe, R-Eureka, thinks it's time to account for those changes. "One way would be to say [that] we provide flood protection and the ability to generate power right here at Kootenay Canal," he said, pointing to that station, whose name comes from the river's Canadian spelling, on a map. "Maybe British Columbia should pay us a check for flood

protection [and] power generation, the same basic idea why the treaty was formed," he told the Inter Lake.

The province sees things differently. In an email, the B.C. Ministry of Energy, Mines and Petroleum Resources acknowledged that "the benefits of Libby coordination to Canada are reduced flooding at Kootenay Lake and improved power generation on the Kootenay River," but also noted that "each country retains the benefits of this coordination." And while America seeks a slimmer Canadian Entitlement, based on actual power generation rather than capability, British Columbia plans to raise additional factors — including ecological ones — in the coming talks. "Over the last number of years," the ministry stated, "the value of the treaty beyond power and flood control has been recognized by more and more U.S. agencies, industry sectors and stakeholders." "When we reach out to Americans, we hear how the operation of Canadian treaty reservoirs benefit navigation, salmon population recovery efforts, recreation and water supply ... We have conducted an evaluation of those benefits and this will be discussed at the negotiating table with the U.S." As the negotiations approach, the University of Idaho's Cosens sees international legal norms favoring the American stance, but doesn't believe an outcome can be predicted. But whatever that outcome is, it's likely to affect Flathead Valley residents. The Bonneville Power Administration, which provides the Canadian Entitlement, is also the sole provider of electricity to the Flathead Electric Cooperative, according to its general manager, Mark Johnson. He's closely watching what happens next. "We believe that the resources that are going to Canada exceed the benefits that we're getting on the Columbia River system," he said. "It is important to renegotiate the treaty to make sure that ... we're paying a fair price for them." Flathead Electric belongs to a regional association called the Columbia River Treaty Power Group. On its website, the group argues that "the U.S. currently overpays Canada about 70-90 percent for downstream power benefits from Canadian storage," an overpayment passed on to ratepayers.

But even the current Entitlement is a small fraction of the Northwest's power supply. Last year Bonneville, a federal agency that receives all its funding from power sales, reported \$2.98 billion in operating expenses. High estimates of the Canadian Entitlement's value come in at \$300 million. Citing those numbers, Arne Olson, a senior partner at E3 Energy + Environmental Economics, said that "at most this might be a 10 percent increase or decrease to the [Bonneville] rates that they charge to their utility customers." Those rates, he continued, are only part of a consumer's bill. But even if the dollars-and-cents stake for residents is small, the Canadian Entitlement holds major importance for those running Northwest Montana's dams and power lines. It's their measure for an even sharing of benefits as the Columbia River Treaty awaits a 21st century update. "It's just a question of fairness," Johnson said. "The ratepayers in the Northwest fund the Canadian Entitlement." "There's a value for everything, and the fair value is what we want to pay." U.S. Columbia River Treaty Negotiator Jill Smail will host a Town Hall on Wednesday, April 25. She and other government representatives will review the upcoming negotiations and their plans for engaging the region, and take questions. The event will take place at the Historic Davenport Hotel in Spokane from 5-7 p.m. Pacific Time. Those unable to attend in person may participate via phone by calling 1-866-340-4886 and entering the passcode 372778087#. Questions may be sent in advance to ColumbiaRiverTreaty@state.gov.

(Difference of opinion.)

Letter: Lisa Brown contradicts herself on dams

4/23/18, dnews.com



Lisa Brown recently told The Spokesman-Review she doesn't support Rep. Cathy McMorris Rodgers's bill to protect the Snake River dams. In the same article, Brown also said a collaborative approach is needed. As a candidate for Congress, I hope she understands the National Environmental Policy Act, the Endangered Species Act and the process to produce a biological opinion each requires substantial collaboration and a lengthy public comment process so local, regional, tribal and

federal stakeholders, along with concerned citizens, can have a say.

McMorris Rodgers's biological opinion bill would continue this collaborative work. Brown wants both a collaborative agreement, but disagrees with a bill that would grant one?

After reading her statement, it's obvious that Brown either doesn't understand the issue, or would rather follow Patty Murray and Seattle liberals in supporting flawed litigation led by extreme environmental groups over commonsense approaches to ensure dams and fish can coexist. It seems like Brown is already more invested in pleasing her Seattle donors over representing eastern Washington. *Megan Lavagnino, East Wenatchee, Wash.*

(A dam removal story.)

Dam removal helps reverse century of human impact on Kalamazoo River

By Brad Devereaux, mlive.com, April 24, 2018,

OTSEGO, MI -- The removal of the Otsego Township Dam is helping to return the Kalamazoo River to its natural state, and helping Mark Mills sleep better. The dam, built more than a century ago, has not produced power for decades and has served no purpose in the river besides making Mills, Michigan Department of Natural Resources field operations manager, nervous.

"Every flood we get, I'm not sleeping at night," he said during a mid-April tour of the spot in southern Allegan County where the dam was recently removed, remembering how he felt in recent years as it deteriorated. "I'm getting up first thing in the morning to make sure it's OK," he said.



In 2013 and 2014, the DNR did interventions to make sure the dam did not completely fail, which would have spread contaminated sediment downriver, Mills said. Ultimately, he said, the dam had to go. Its removal was included in the EPA's project to clean up PCB-laden sediments in the Kalamazoo River as part of an the 80-mile Allied Paper/Portage Creek/Kalamazoo River Superfund site, listed on EPA's National Priorities List in August 1990. Polychlorinated biphenyl (PCBs) left over from processes at paper mills operating on the river beginning in the 1950s is the primary concern targeted in the cleanup. The DNR is completing its own work, funded by a separate EPA grant, that complements the EPA cleanup. The DNR's work includes removal of a structure that housed electrical producing equipment adjacent to the Otsego Township Dam, and removing a concrete pad that sat next to the dam.

DNR workers removed large timbers that were installed in 1903, Mills said, and a worker used a chainsaw at the site to cut one of the weathered poles that had axe marks on it from when it was installed. The DNR plans to use the old wood for something, Mills said. The goal is to return the location to what it was like more than a century ago, Mills said. "We're pretty close," he said. The banks will be a little higher than they were in the past, he said, though contamination within them will be cleaned up. Trees are being buried inside the riverbanks, with root balls intact, to stabilize them. On the morning of Wednesday, April 18, a crane lifted a boat from the back of a pickup truck and placed it into the rapids of the river where the dam once sat. An excavator's hydraulic arm punched through the concrete structure connected to a dam that was shut down decades ago, while other excavators dug sections of the riverbank to be hauled off site. A goose stepped over a construction barrier, honking while walking along thick mud contoured by large tire treads and work boots.

Within about six months, the machinery will be gone from the riverbed site and the area will look closer to what it looked like more than 100 years ago, when the dam was installed. "What's left behind is going to be restored and really look pretty natural," Mills said. The result will be light

rapids nearby where the dam once stood and a natural looking area next to a parking lot with access to place a kayak in the river. "The wildlife are going to like it too," Mills said. The dam removal exposed a clay and rock vein and a section of the river with ripples that kayakers will love, he said. "The fishermen are going to be fishing in here like crazy," he added. Before the dam was removed, boaters would have to pull their craft out and relaunch it on the other side of the dam. Now, boats and fish will be able to pass through freely where the dam once was.

A goal of the EPA cleanup is to make it safe to eat fish from the river again, though it will take time. EPA details plan meant to make Kalamazoo River fish safe to eat The DNR is doing initial work for a possible project in the future to remove the nearby Trowbridge Dam, Mills said. The state is working on designs for a removal and several other agencies are involved, Mills said. He expects work to begin sometime in 2019. This map shows the locations of dams on the Kalamazoo River. The Otsego Township Dam was recently removed. After years of dealing with the Otsego Township Dam and coordinating with other agencies to complete the project, Mills said it is nice to see it nearing the end. "The next generation is going to enjoy a river that looks like a lot of other areas, where we have forested and wetland habitats right up to the edge of the river where folks and wildlife can enjoy," he said. While activity at the site remains high, he expects things to be a lot different by October, when work on that portion of the river is slated to be complete.

(Report on pumped storage.)

NHA report details hurdles facing America's pumped storage sector

04/25/2018, by Michael Harris

NHA Website: <https://www.hydro.org/>

A report released today by the National Hydropower Association hopes to shed light on the state of the United States' pumped storage sector, with particular emphasis placed on the benefits it can offer and the challenges it faces.-----.

PDF version of report, go here: <https://www.hydro.org/wp-content/uploads/2018/04/2018-NHA-Pumped-Storage-Report.pdf>



Hydro:

(Hydro history.)

Hidden History: The tunnel at the Twin Falls power plant

By MYCHEL MATTHEWS, kpvi.com, 4/19/18

Several miles above Shoshone Falls on the Snake River is the waterfall for which the city of Twin Falls is named.

Visitors to Twin Falls Park, operated by Idaho Power Co., may wonder about the name, since only one waterfall exists now. But before the power company constructed a power plant at the site, two waterfalls — and sometimes, during abundant water years, three waterfalls — were visible from downstream.

The first hydroelectric plant at the falls was built in 1935 without any road access to the construction site, said power company archaeologist Shane Baker. Morrison-Knudsen Corp., the Boise-based construction giant who also built the Hoover Dam, used large cranes to lower building materials to the site. MK also dismantled heavy equipment and excavators and hoisted the pieces into the canyon, then reassembled the machines on site. A new access road



Idaho Power Co. built an access road in 1987 and blasted a tunnel through a basalt peninsula in the Snake River Canyon to build a second powerhouse at the Twin Falls hydroelectric plant. The service road to the tunnel is blocked to vehicles, but open to foot traffic.
MYCHEL MATTHEWS



— including a tunnel through a basalt peninsula — to the power plant was built in 1987, Baker said. The tunnel was blasted and sealed with shotcrete. It was the first time equipment and vehicles could actually drive to the powerhouse. The tunnel was enlarged in 1993 in preparation for the construction of the second hydroelectric plant, completed in 1995, he said.

(A judge is going to solve this technical/environmental decision. Who do you think will win?)

Judge tours Lamoille County's embattled dams

Morrisville officials say state should consider social, economic concerns

By Andrew Martin | News & Citizen, Apr 19, 2018, stowetoday.com

A two-year legal battle between Morrisville Water & Light and the state Agency of Natural Resources, VT could end this summer, when an environmental judge decides how the Morrisville-based utility should operate three hydroelectric dams. An eight-day trial on the issue wrapped up last Wednesday, April 11, in environmental court in Burlington. Two days later, the judge presiding over the case, Thomas G. Walsh, was in Morrisville and Hyde Park to tour the three dams of which he'll now decide the future.



The battle centers on how the small utility manages and operates two dams along the Lamoille River, one in Cadys Falls and another on the outskirts of Morrisville, and a third dam on the Green River in Hyde Park that holds back the Green River Reservoir. The state agency recommended new operating standards for all three dams when it issued a water quality certificate, part of Morrisville's relicensing for its hydro dams with the Federal Energy Regulatory Commission. In 2009, Morrisville hired a consultant to begin the process of filing for a new 30-year federal license. Its old license was supposed to expire in April 2015. The utility says the new state-recommended standards would sharply cut the amount of electricity the three dams can produce, and it has continued to operate them under the old conditions while fighting the new standards, issued in August 2016. One of Morrisville's main arguments was that the Agency of Natural Resources, in issuing new standards, should consider not just water quality and health, but also social and economic concerns, such as the profitability of a dam and the recreational value of the Green River Reservoir, widely acknowledged to be an extraordinary place. But that argument vanished last June, when Walsh ruled that the state agency was correct in not considering any social or economic concerns when issuing new standards for the three hydro facilities. Walsh is expected to issue a final decision later this year, which should finally end uncertainty about the dams, their future as electric-producing facilities, and the future of the Green River Reservoir.

Altering operations

Morrisville Water & Light's three main hydroelectric dams — a fourth, smaller dam on Lake Elmore hasn't been a point of contention between the utility and state — produce about 10 million kilowatt-hours of electricity per year, enough to power about 1,000 houses. Morrisville Water & Light officials believe the new standards will cut that production by one-third, and the utility would have to spend millions to upgrade the hydro facilities to make up for losing that power.

Ninety percent of that power comes from the two dams on the Lamoille River. Under the new operating standards, the state wants Morrisville to allow more water to flow around those dams, allowing a more natural "run-of-river" mode on the Lamoille. But that would cut into electricity

production. Morrisville had proposed allowing more water to flow around the dams, but not nearly as much as the Agency of Natural Resources wanted. The outlook is more grim for the dam on the Green River and the reservoir it holds back. That dam produces about 1 million kilowatt-hours of power per year, and Morrisville officials believe a third of that production will be erased if the state has its way. That's because the utility normally draws down the Green River Reservoir 10 feet each winter. The new state standards would allow a winter drawdown of just 18 inches of water to help protect the underwater habitat and ecosystem. That would reduce electrical output by as much as 350,000 kilowatt-hours per year, the utility says, and make the dam financially unviable. They have also raised safety concerns that the massive dam — the structure is 105 feet tall and sits in a narrow ravine, with the reservoir at its back — may not have the capacity to deal with spring runoff if only 18 inches is drawn down during the winter. With those concerns in mind, utility officials have raised the possibility of removing the dam and draining the Green River Reservoir, now part of a beloved state park that attracts over 10,000 visitors a year. Walsh's tour began a 60-day period when all involved parties can submit their post-trial findings of fact and conclusions.



Other Stuff:

(This is not good.)

Dying Gulf Stream May Trigger a Global Nightmare

Scientists say climate change plays a role

By Neal Colgrass, Newser Staff, Apr 22, 2018, newser.com

(NEWSER) – Scientists are raising alarm bells after two studies found that the Gulf Stream—an ocean current key to regulating Earth's climate—is the weakest it's been in 1,600 years, the Guardian reports. The culprit is apparently melting sea ice and glaciers, which inject fresh water into the North Atlantic and weaken the stream. "Fiddling with [the Gulf Stream] is very dangerous, because you may well trigger some surprises," says climate scientist Stefan Rahmstorf. "I wish I knew where this critical tipping point is, but that is unfortunately just what we don't know." If the stream dies, scientists say, its equatorial heat would stop reaching the North Atlantic—plunging Europe into bone-numbing winters and affecting weather worldwide. Even subtler changes "could wreak havoc" on the Atlantic Ocean's "delicate ecosystems," Smithsonian reports. The studies differ in approach and timeline but both say the Gulf Stream has diminished by about 15%, Nature reports. One study spotted it by measuring sediment on the ocean floor and says the problem began when the Little Ice Age subsided around 1850. The other, which analyzed sea surface temperatures combined with advanced climate simulations, says the decline started around 50 years ago. But both see human-influenced climate change as a cause, Nature says. And with Greenland's huge ice cap melting at a historic rate, some say the Paris climate agreement is our only hope. "If we can keep the temperature rise to well below 2C as agreed in the Paris agreement, I think we run a small risk of crossing this collapse tipping point," says Rahmstorf. (Meanwhile the Doomsday Clock has ticked 30 seconds closer to "midnight.")



(Wouldn't want to be near one of these.)

History's Deadliest Natural Disaster Killed Millions

LiveScience lists the worst ones on record

By Newser Editors, Newser Staff, Apr 7, 2018, newser.com

(NEWSER) – "The single-most powerful explosive event ever witnessed" took place somewhere between 1645 BC and 1500 BC, when the volcano Thera erupted on what's now the island of

Santorini. LiveScience reports its power has been likened to that of an 1883 eruption in Indonesia that could be heard 3,000 miles away and killed some 40,000 people. No such count is available for the Thera explosion, which is why it doesn't make LiveScience's list of the 11 deadliest natural disasters "for which reasonably accurate death tolls exist." It includes the 2004 Indian Ocean quake and tsunami, which hit Indonesia hardest and killed as many as a quarter of a million people overall. **Here are five disasters that didn't strike so recently:**

1. **526 Antioch quake:** The best estimate comes from John

Malalas, a Greek chronicler from the Byzantine city where the quake struck whose writings from the time put **the toll at about 250,000**. A 2007 paper noted that the temblor's May timing was inopportune as the city's population was swollen with tourists there for Ascension Day, resulting in an elevated toll.



2. **1556 Shaanxi earthquake:** As far as earthquakes go, this is pretty much the worst. Believed to have been about a magnitude 8, it is said to have demolished a 621-square-mile region of China's Shaanxi province on Jan. 23 of that year, **killing some 830,000 people**.

3. **1839 India cyclone:** Some 20,000 ships were wiped out by the cyclone and resulting storm surge that struck the port city of Coringa on Nov. 25, but that number pales in comparison to the estimated **death toll: 300,000 people**.

4. **1920 Haiyuan earthquake:** The US Geological Survey believes that this quake that hit central China on Dec. 16 of that year registered as a magnitude 7.8. Landslides were a big contributor to the **death toll, which researchers in 2010 estimated as 273,400**.

5. **1931 Central China Floods:** Pegged by LiveScience as the deadliest of all natural disasters, this one spanned the months of July and August. The estimated ranges of those killed is a huge one, but the number is big regardless: Somewhere **between 2 million and 3.7 million were killed** when the Yangtze River flooded due to strong rains and melting snow, affecting some 70,000 square miles.

Click for LiveScience's full list: <https://www.livescience.com/33316-top-10-deadliest-natural-disasters.htm>

(The U.S. is not in the top 10 list.)

The 10 Best Cities to Live In on Planet Earth

Quality of life in Switzerland, Germany seems top-notch

By Jenn Gidman, Newser Staff. Mar 21, 2018, newser.com

(NEWSER) – Each year, HR consultancy Mercer releases its "Quality of Living" ranking for cities around the globe, and for 2018, Austria's capital takes top honors. USA Today notes most of this year's highest-ranking cities tend to be in Europe, with San Francisco as the first US city showing up on the list, tied for 30th place with the Australian capital of Canberra. The 230-plus cities were analyzed over a wide range of categories, including health, education, things to do, and the political atmosphere—the latter of which is interesting, considering three of the top 10 cities fall in "neutral" Switzerland. Meanwhile, coming in dead last: Baghdad.



- | | |
|--------------------------|------------------------|
| 1. Vienna | 6. Dusseldorf, Germany |
| 2. Zurich | 7. Frankfurt, Germany |
| 3. Auckland, New Zealand | 8. Geneva |
| 4. Munich | 9. Copenhagen |
| 5. Vancouver, Canada | 10. Basel, Switzerland |

See the full list here:

<https://mobilityexchange.mercer.com/Portals/0/Content/Rankings/rankings/qol2018a789456/index.html>

(Here, the safest big cities worldwide: <http://www.newser.com/story/249989/worlds-10-safest>



This compilation of articles and other information is provided at no cost for those interested in hydropower, dams, and water resources issues and development, and should not be used for any commercial or other purpose. Any copyrighted material herein is distributed without profit or payment from those who have an interest in receiving this information for non-profit and educational purposes only.