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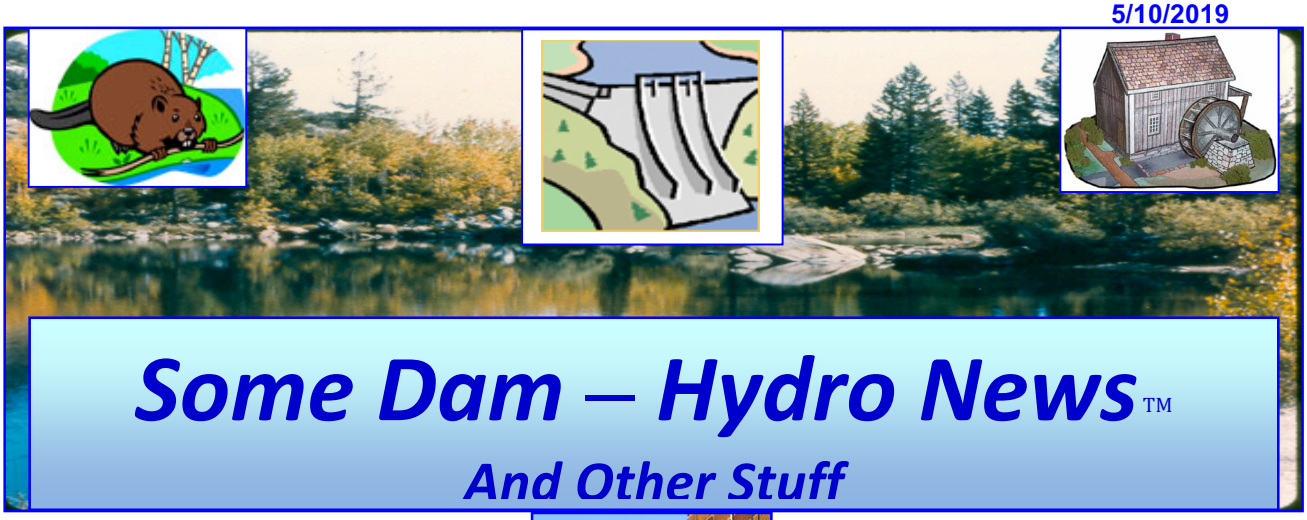


Some Dam – Hydro News™

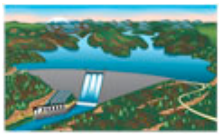
And Other Stuff

i

Quote of Note: *"I don't feel old. I don't feel anything until noon. Then it's time for my nap."- Unknown*

Some Dam - Hydro News → Newsletter Archive for Current and Back Issues and Search:
(Hold down Ctrl key when clicking on this link) http://npdp.stanford.edu/ . After clicking on link, scroll down u***nder 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 Robert Foley Charbono "Napa Valley"**
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Dams:

(Be careful around dams. Better to stay a safe distance.)

First responders stress water safety as weather warms

By Alyssa Donovan, Apr 19, 2019, theindychannel.com

INDIANAPOLIS, IN — The warmer weather may entice you to get out on local rivers and lakes, but first responders are warning this is absolutely not the time. "Right now, when we're starting to get all this rain, the river is starting to go up really fast," Indianapolis Fire Department captain Jerry Richert said. The availability of cheap watercrafts like kayaks mean there are more inexperienced boaters out on the water. "They go out in this kind of water or water that is moving fast, and they get into a situation they are not prepared for," Richert said. But when the water is this high, even experienced kayakers can get into trouble. "It literally grabs the boat and just turns it over," Richert said. The Indianapolis Fire

Department said they average between five and 10 water rescues this time of year. Many occur at the low end dam near Westfield Boulevard. "The water comes over, drops straight down and it makes a hydraulic recirculating current," Richert said. "You cannot get out of these recirculating currents. They are drowning machines and absolutely dangerous." There have been several fatalities at the spot, and boaters are warned to stay away. Before getting out on any water, any time of the year, IFD said you need to take a class and learn how to self-rescue. "The moving water is power. It's relentless. We can never beat the river," Richert said.

(Who owns the little guy?)

Turkey Creek Memorial Dam faces bizarre snag: No one knows who really owns it

By Tolly Taylor, WSBT 22 Reporter, April 22nd 2019, wsbt.com


Turkey Creek Memorial Dam

There is $1.4 billion in assessed value for property around Syracuse Lake and Lake Wawasee. That number could fall drastically if a dam the width of football uprights isn't fixed. The issue with repairing the dam is that no one knows who owns it. If it sounds bizarre, it is. In the case of the Turkey Creek Memorial Dam, the two men who once owned it passed away.

Now, everyone who lives around the two lakes is scrambling to figure out what to do about a dam that's falling into disrepair. The Syracuse Town Council paid engineers to assess the Turkey Creek Memorial Dam two times in the past six months. The engineers say repairs to the retaining walls are "critical." "There's no issues with the operation," said Chad Jonsson, Town of Syracuse Park Superintendent. "The gates open, the gates shut. I can adjust the water level, that type of thing. The issues are all around it, not necessarily the operation of the gates." The estimated cost to repair just the retaining walls is up to $300,000. That's money the town didn't plan for. Then there's the estimate for the total cost for repairs the dam needs, which could be as much as $800,000. It's a steep price to pay, but not fixing the dam could cause the water levels for both Lake Wawasee and Syracuse Lake to drop.

"Those two lakes in particular, we know that there's about $1.4 billion of assessed value around those two lakes," said Nate Bosch, Lilly Center for Lakes and Streams Director. "Obviously a lot of that assessed value is higher because it's lake front property." With no clear answer for who should fix it and so many people dependent on the dam regulating lake water levels, it's an urgent problem. Town Councilman Larry Siegel told us he thinks establishing a conservancy is the long-term solution. In the short term, he's hoping private donations and the county drainage board can keep the dam running. If he's wrong, the lakes could drop five to seven feet. You're going to have large exposed areas that are no longer under the lake but now become shoreline," said Bosch. "The lake, both of those lakes will shrink, especially Lake Wawasee." Eight different groups are working together to try to fix the problem and figure out who should fix the dam.

(Don't remove that dam! The anti-dam folks don't seem to care about the jobs.)

McDonald Steel fights to keep Girard Dam, which could be removed

Some want to remove nine dams to create a Mahoning River State Park

By: Stan Boney, Apr 22, 2019, wkbn.com

GIRARD, Ohio (WKBN) - McDonald Steel is fighting to keep the Girard Dam from being removed, saying it needs the dam to run its business. The Eastgate Regional Council of Governments and Youngstown/Warren Regional Chamber want Governor Mike DeWine to create a Mahoning River State Park. Before it can be done, nine dams between Warren and Lowellville need to be

removed, including the Girard Dam. The Girard Dam, which is on the north side of the Girard-McDonald Viaduct, is the biggest of the nine. At $10 million, it will be the most costly to demolish, which is why it is scheduled to be the last one removed. "It is not owned by the City of Girard. It is owned by McDonald Steel," said Girard Mayor Jim Melfi. He was among those who recently met with McDonald Steel's president. McDonald Steel is located about a mile north of the dam and employs about 100 people. McDonald Steel said it still draws water from the Mahoning and needs the pool created by the dam. Melfi said he would like to see the dam stay. "If they did not have that capability, they would be out of business. So we're certainly not in the business of eliminating good-paying jobs."

McDonald Steel also owns the land around the dam. One option they're discussing is creating a portage area around the dam. "It's very early in the talks, but we conveyed to the president of McDonald Steel there's no way we want to put him out of business," Melfi said. A spokesperson with Friends of the Mahoning River said they've tried working with McDonald Steel about a portage area and were told no. Friends of the Mahoning River want all of the dams removed. James Dignan, president of the Youngstown/Warren Regional Chamber, is also advocating for the removal of the dams along the river to open it up for things like canoeing and kayaking. Dignan said no final decision has been made on what will be done with the Girard Dam. He said there needs to be a study to see how much water McDonald Steel needs and if it could operate with a lower pool. Dignan also suggested just half of the dam could be removed. Since this would be the last of the nine dams to come down, it's at least a couple of years away. We don't know which group would make the final decision. It could be the Army Corps of Engineers or the Environmental Protection Agency, or a combination of both.

(Get registered.)

Dam Safety Consultants Registry

The Dam Safety Consultant Registry has being changed to a downloadable spreadsheet, http://www.michigan.gov/documents/deq/wrd-dam-consultants_568646_7.xlsx. If you are a consultant and would like to be added to this list, or would like to update your information on this list, please contact Sherry Thelen, thelens5@michigan.gov,or Dave Fongers, FongersD@michigan.gov.

(A levee is an extra-long dam, but often not too high.)

Iowa State geotechnical engineer studied failed levees, researches potential solutions

Apr 22, 2019, news.iastate.edu

AMES, Iowa – The field report is full of levees overtopped, breached and scoured. There are sand boils, crest depressions and sink holes. Under seepage. Slope failure. Surface erosion. A breach that wasn't repaired after the last flood. It's all in a 2016 report about levee performance and damage in Illinois and Missouri after December 2015 flooding along the Illinois, Sangamon and Mississippi rivers. A study team of engineers – most of them from universities – visited the flooded areas "to observe and document the performance of levees during and following the flood event." Cassandra Rutherford, then at the University of Illinois at Urbana-Champaign and now an Iowa State University assistant professor of civil, construction and environmental engineering, co-led that study team with Nicholas Pinter, a professor of earth and planetary sciences at the University of California, Davis. The study was the work of the Geotechnical Extreme Events Reconnaissance Association, with support from the National Science Foundation. The team's job was to observe the "geotechnical, hydraulic, climatic and policy-related issues" as they applied to Midwest flood-protection systems. Understanding all that, team members wrote in their report, could provide "data and methodologies for improved decision-making during future flood events." Well, there have been more Midwest flood events since that report, most recently this spring's major flooding along the Missouri River as it flows past southwest Iowa.

What can be learned from the region's repeated flooding?

"The biggest issue is that when we have a lot of annual flooding, it's no longer a 50-year event," Rutherford said. "We need to look at the levees – we need to assess their condition and adequacy." That's especially difficult in Iowa, where half of the existing levees aren't documented in the National Levee Database, Rutherford said. Plus, many of the state's dirt and clay levees were piled up 50 to 60 years ago without the help of engineers or geotechnical expertise.
In a 2015 report card by the American Society of Civil Engineers, Iowa levees earned a C-.
"The majority of Iowa's levees are currently functioning adequately with typical stream flows, but issues frequently occur when design flows are experienced," says the report card. "There appears to be thorough oversight of the permitting process; however, there is no follow-up maintenance program at the state level for constructed levees."

What can be done to improve the situation?


Using electricity to inspect levees

Using electricity to inspect levees.
Rutherford, whose research background includes work to improve slope stability around foundations, is helping with some practical solutions to fix and strengthen levees:

- One project – with collaborators Stacey Tucker-Kulesza of Kansas State University and Michelle Bernhardt-Barry of the University of Arkansas – is development of a portable, nondestructive device that uses electricity to survey levees for internal holes, channels and erosion often caused by growing tree roots or burrowing animals. The electrical surveys can identify where repairs are needed. A paper describing the technology and field tests of the device has just been accepted by the International Journal of Geoengineering Case Histories.
- Another project led by Kaoru Ikuma, an Iowa State assistant professor of civil, construction and environmental engineering, is studying whether "bio cementation" caused by spraying certain bacterial enzymes on soils could strengthen earthen levees. The Iowa State research team – including Rutherford, Bora Cetin, Chris Rehmann and Say Kee Ong, all of civil, construction and environmental engineering – found the enzyme treatments significantly strengthened the surface of soil samples and made them more resistant to water erosion in lab experiments.

Rutherford sees this spring's flooding as a call to action – and more research: "I'd like to see our government and local stakeholders focus on prioritizing funds for maintenance, inspection and research to better understand the current status of our levee system. Right now, it's an educated guess."

(More bad press for the Lower Snake River dams.)

Snake River dams: the wrong story

By Letters editor, April 24, 2019, seattletimes.com

The Seattle Times

Ron Judd's Snake River dams article claims dam proponents "have suffered the consequences of not telling (their) story." In fact, they should suffer the consequences of not having the right story to tell. Judd attempts to compensate for that, but falls short. It has been made clear by real facts in many court cases that "billions spent on salmon passage at the dams" has not "improved the lot of salmon." The dams' usefulness has waned. Despite attempting to sugarcoat the figures, even Judd admits the shipping on the Snake has declined between half and two-thirds from its peak. "State of the art" fish passage facilities fail in the absence of large spills needed to create strong currents required to flush downstream migrants through reservoirs. What is necessary is a free-flowing lower Snake to again provide currents, cooler and more oxygenated water, prevent siltation, restore the spawning grounds, reduce predator fish habitat, and provide the other conditions that the salmon and steelhead must have for survival. *Ron Richards, Port Angeles, WA*

(More Orca stuff. It's the seals and sea lion's fault.)

Letter | Orcas an ironic ally for salmon recovery

4/24/2019, eastoregonian.com

That orcas should be allies in the effort to save salmon is the latest manifestation of our failure to manage predators in the Columbia River. For eons the Columbia had been the major producer of Chinook salmon. They were so readily available that the orcas off the West Coast became dependent upon them for their survival. These large salmon, for the most part, came from the upper reaches of the Columbia and Snake rivers. Dams were constructed on the Snake River with fish being lost. Over the past 10 years the Columbia River Dart indicates there has been an average Chinook loss of 7% per year as the salmon moved from Ice Harbor Dam, through Lower Monument Dam, through Little Goose Dam and through Lower Granite Dam to the pool above. Though serious, it seems this loss would not warrant the expenditure of possibly billions to remove these dams.

The InterTribal Fish Commission conducted a study from 2010 to 2014 to assess the potential losses of spring Chinook in the area from the mouth of the Columbia to Bonneville Dam. Each year the losses steadily increased, from 20% the first year to 45% the final year of the study. During this time period the numbers of seals and sea lions increased markedly. Today that number has grown even faster. Genetic sampling showed that 68% of these tagged fish were destined for the upper reaches of the Columbia and Snake rivers. Downstream smolts also suffered increased predation from increases in cormorant, tern and pelican populations. The solution is as obvious today as it was in the 1950s and 1960s. At that time they did not allow seals and sea lions into the Columbia River. Yes, a few hundred were killed at a cost of a few thousand dollars. The state paid bounties and employed a seal hunter. The funding for this came from the fishermen and most of the bounty was paid to the fishermen. I don't know if you recognize the irony of the following scenario. Orcas, a threatened species, need Chinook salmon, some of whom are threatened because they are being eaten by seals and sea lions, which are being protected by the Endangered Species Act — a designation that should no longer apply because seals and sea lions have exceeded any need for protection from extinction. *Carlisle Harrison*, *Hermiston, OR*

(Moving right along.)

CONTRACTOR CHOSEN FOR REMOVAL OF KLAMATH RIVER DAMS

By: Jamie Parfitt, Apr. 25, 2019, kdrv.com

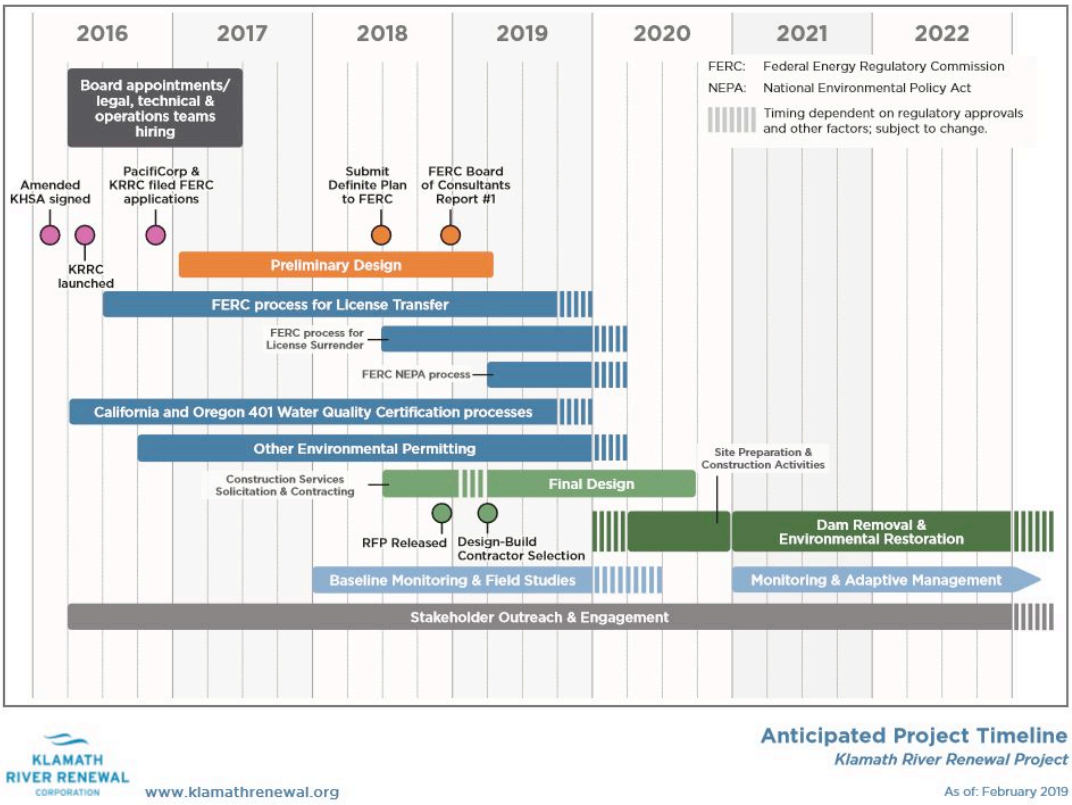

Iron Gate Dam

KLAMATH FALLS, Ore. — The project to see four dams removed from along the Klamath River just entered a new phase, with the Klamath River Renewal Corporation (KRRC) choosing a contractor to accomplish the task. The Klamath River restoration project is one of the biggest dam removal in the world so far, particularly in terms of price tag.

According to KRRC, contractor Kiewit Infrastructure West Co. out of Fairfield, California has been awarded $18.1 million for "preliminary services," and will be granted more funds once they accomplish the project's design. "Selecting Kiewit marks another key achievement and brings KRRC closer to completing the largest dam removal and river restoration project in U.S. history," said Mark Bransom, KRRC Chief Executive Officer. "Once implemented, the project will help restore the vitality of the Klamath River so that it can support all communities in the basin." Kiewit recently completed emergency reconstruction of the Oroville Dam spillway in Butte County, California — the same area ravaged by the Camp Fire in

2018. Previously, the dam had repeatedly failed to meet regulator's safety standards. It began releasing water again in March of this year.

KRRC said that the Oroville project involved removal and repair of both the main flood control and emergency spillways in less than 18 months, as well as debris and sediment removal and the development of access roads. "We are very proud to have been selected by KRRC. This project has many similarities to other complex water and hydroelectric projects we've delivered across North America," said Jamie Wisenbaker, senior vice president for Kiewit. "We fully understand the breadth and importance of this undertaking and are excited and committed to safely delivering a high-quality project that meets the expectations of KRRC, the community and all key stakeholders in the region." For the time being, Kiewit will be working on the design and planning for the project, with a 60-percent design expected by January of 2020. The removal project itself is not scheduled to begin until sometime in 2020 as well. In the meantime, the permitting, certification and licensing processes will continue [see timeline from KRRC]. "This is a major step forward in restoring the Klamath River. We're well on our way toward bringing the salmon home, improving water quality and revitalizing the river for local communities. It won't be long until we're seeing the benefits of the biggest dam removal in history," said Steve Rothert, California Director of American Rivers



(Did the dam burst or was it something else?)

'Difficult' days ahead, Quebec premier warns as dam bursts; while flood situation eases in parts of Ontario and N.B.

MONTREAL, THE CANADIAN PRESS, APRIL 27, 2019, theglobeandmail.com

Premier Francois Legault told residents in water-logged areas of Quebec on Saturday that they face a few more "difficult" days ahead and urged them to "have courage" until the flood threat

eases. Only a few hours later, a dike broke in Ste-Marthe-sur-le-Lac, Que., forcing the evacuation of hundreds of residents living along the shore of Lake of Two Mountains, northwest of Montreal. About 50 provincial police officers and a helicopter joined the effort to get residents of the town to higher ground.

The flood situation appeared to be easing somewhat in parts of Ontario and New Brunswick this weekend, leaving Quebec as the hardest-hit area. Quebec officials said Saturday that 3,085 homes remained flooded, 2,783 others were surrounded by water, 2,003 people had been forced from their homes and about 50 landslides had been reported across the province. Legault noted that swollen rivers south of Quebec City are finally receding, however, he said water levels in the corridor along the St. Lawrence and Ottawa rivers between Montreal and the boundary with Ontario are not expected to peak before Monday or Tuesday. In the Ottawa area, where hundreds of troops have been deployed to help hold back the still rising floodwaters, officials put out a call yesterday for more volunteers to pack and stack sandbags. Meanwhile, in central Ontario's cottage country officials said water levels were up slightly due to rain on Friday, but they were hopeful some late-season snow would act like a sponge and help slow the flow of water into lakes, rivers and streams. The best news comes from southern New Brunswick where the forecast calls for flood waters to slowly recede in most areas over the next five days. But in Quebec, Legault urged residents to brace for more trouble. "What I would tell flood victims is have courage," the premier said. "We have another few days that will be difficult. Another few days and we'll get there." Montreal, Ottawa and many smaller communities across the expansive flood zone have declared states of emergency, prompting the federal government to deploy hundreds of soldiers to help with sandbagging and other relief operations

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(Guess it's all over and ready for the junk heap.)
Watch the video here: https://www.kdrv.com/content/news/Four-dams-along-the-Klamath-River-will-be-removed-509244271.html

FOUR DAMS ALONG THE KLAMATH RIVER WILL BE REMOVED

Removing the dams will take about a year because they slowly have to increase the river height.

By: Leah Thompson, Apr. 30, 2019, kdrv.com

HORNBROOK, Calif. — Four dams along the Klamath River could be removed as early as January of 2021. Removing the dams will take about a year because they slowly have to increase the river height. "The goal is to draw the reservoir simultaneously 3 to 5 feet per day over about a 2 to 2 1/2 month period . . . so kind of a gentle draw down," said Dave Meurer, community liaison for the Klamath River Renewal Corporation. Meurer told NewsWatch 12 that there are many concerns about these dams being removed — the biggest one having to do with electricity. They are, after all, hydroelectric dams, built to create electricity. "A good question we receive is 'won't it cost me a fortunate in electricity once these dams go away,' and the answer is no," Meurer said. He also insists that the dams will be replaced with green energy.

Larry Alameda is a water quality monitor. He spends some of his time at the Iron Gate Dam in Hornbrook. "I was visualizing this big giant dam like Shasta Dam but it's just this little tiny earth dam that's causing so many water quality impacts downstream," Alameda said. "Every year we are seeing elevated temperature levels from these dams holding back all of this hot water and it's basically releasing hot water into the river." When water heats up it can grow algae. Muerer says this happens every year because water just sits behind the dam and heats up. This in return has an impact on the wildlife in the river. Muerer and Alameda agree that removing the dams will fix the fish and water quality problems.

(They're coming at you from every direction!)
'**Dammed to Extinction' sneek preview coming to PT**

New film asks if Snake River dams should be removed for orcas
May 1, 2019, by Lily Haight, ptleader.com

Port Townsend will be the first unofficial screening of the film, "Dammed To Extinction" which explores the problem of dams and how they affect salmon and orca whales.

Last summer, the orca known as J35, also called Tahlequah, carried her dead calf for 17 days. During those 17 days, the plight of the Southern Resident Orca Whales gained international attention, as people wondered what J35 was doing. Was she in mourning? Did she think her baby was still alive? How long would she carry her baby? What could we do to keep this from happening, and to save the southern residents? But several years before this, orca advocates and researchers were already trying to answer the problems that the orcas face. One problem in particular caught the eye of writer Steven Hawley: the salmon problem. Having done research on dams and how they affect salmon populations for his book, "Recovering a Lost River," Hawley brought one chapter of his book to filmmaker and local documentarian Michael Peterson. "The chapter was ironically titled, 'Feed Willy,'" Peterson said. "It talks about the starving southern residents, who are starving because they can't get enough of their main food source, Chinook salmon."

Four years later, amidst the rising panic over the state of the southern resident orcas, Peterson and Hawley are releasing their film "Dammed to Extinction." The first viewing of the film ("A sneak peek screening," Peterson said) will be in Port Townsend at 3:45 p.m. on May 4, at the Wheeler Theater at Fort Worden. Working with researcher Ken Balcomb from the Center for Whale Research in Friday Harbor, Peterson and Hawley created the film to educate people about the intensely political problem of dams on Pacific Northwest rivers. Through his years of research, Balcomb found that the whales need roughly a million salmon each year to survive. But he also knows that salmon populations are declining. The film explores one possible solution to this conundrum: remove four dams on the Snake River and return it to its state as the largest Chinook-producing river on earth. But the issue of removing the dams is an intensely political one.

In Eastern Washington, the dams are viewed as a large part of the economy, producing electricity and helping to barge produce. Peterson, who was born and raised in the Tri-Cities, is familiar with the issue. "I understand the culture and the people," he said. "My dad still has a place right on the Snake River. I think the biggest problem is just a lack of education about the dams." There are three major issues that the film addresses; asking if the dams are economically viable, if lack of barging would hurt local farmers, and whether irrigation of farms would be affected by taking out the dams. "The power that is produced on those four dams is not needed here in our state," Peterson said. "The dams actually lose money. What used to be a profitable thing has now become a money losing thing." Meanwhile, if the dams were removed, he said, bringing the Chinook run back would be a bigger salmon restoration effort than all of the other restoration projects combined.

"The film will be food for thought for everybody: politicians, orca advocates, energy industry professionals," said Debra Ellers, an orca advocate with the North Olympic Orca Pod. "Whether people are for or against dam breaching, it's a great experience to come see the film." Peterson, who has spent 20 years working in film and television in Hollywood, said the film is produced at a high quality with an original music score, graphics, and underwater footage, much of which was shot by local filmmaker Florian Graner, who lives on Whidbey Island. The screening at Fort Worden will be part of the Global Earth Repair Conference, which is taking place May 3-5, highlighting a host of climate activists and researchers who will give presentations, classes and panel discussions. The film screening is open to the public. It will include a discussion with the

filmmakers at the end, and proceeds from the $10 tickets will go to the filmmakers as they begin to take their film around the Pacific Northwest for screenings. To learn more about the film, visit dammedtoextinction.com.

Hydro:

(They keep trying. The title says it all.)

Ocean Power Generating Systems--Going Nowhere Fast

By Dr. Klaus L.E. Kaiser--April 13, 2019, canadafreepress.com

The number of companies that hoped in vain (some still do) to harness ocean power for "free energy" is steadily increasing.

The number of companies that hoped in vain (some still do) to harness ocean power for "free energy" is steadily increasing.

One of the latest outfits not doing so well is Ocean Power Technologies, Inc. (OPT) of Monroe Township, NJ, USA. According to its website (https://oceanpowertechnologies.gcs-web.com.), it "is a pioneer in renewable wave-energy technology that converts ocean wave energy into electricity" and they have several patents to prove it.
.Indeed, OPT was founded more than twenty years ago. In 2007, its shares on the NASDAQ stock exchange, adjusted for several stock share consolidations since (1[new]-for-10[old] shares), traded in the neighborhood of $4,000 per share. Right now you can get them for about $3 a piece, clearly, a hot investment. Let's look at the range of basic ideas to harness ocean power.

Power from Wave Energy

That's probably the most common attempt for power generation from the oceans. After all, there are nearly always and everywhere small (0.5 m) waves to be found at any shore. A variety of stationary (firmly placed in the on the bottom) and floating designs have been proposed. For example, the floating Pelamis Wave Power idea of sizable, partially water-filled, elongated tanks would create internal swapping back and forth of the water (like your kid making waves in the bathtub) and would drive an internal turbine. It didn't work out and the company folded. The OPT idea also has floating devices, in the shape of bottom-anchored buoys. Their technical specifications do not actually give details on how the wave energy is to be converted to electricity. Another, stationary concept was thought of by the SeWave wave farm project in Nípanin, Faroe Islands. The (rising) water was to compress a fixed airspace in the rock onshore that would drive an air turbine. It was to be in place by 2010. It has not been heard of since. The same idea, actually built in 2000, was the Islay LIMPET, then claimed to be the world's first commercial wave power device. It has been decommissioned since.

Power from Salinity Gradients (Osmosis)

That idea relies on the long-recognized concept of osmosis, which is the natural process of salinity equilibration between water of low salinity (freshwater) and high salinity (saltwater). It requires both, in similar quantities and a semi-permeable membrane that allows water molecules to pass through, but not the salt-ions. It was tested in a pilot plant in Norway several years ago. It may work well in a laboratory setting with clean water but not so with actual ocean water. The tiny membrane pores get readily plugged with other materials and the system was not found to be commercially viable.

Power from Tidal Currents
In 2016, with considerable fanfare, the Cape Sharp Tidal (CST) company launched its "long-awaited" underwater test turbine in the Bay of Fundy. The Bay of Fundy in Nova Scotia, Canada, has among the largest tidal sea level changes in the world and, for that reason also nearby strong tidal currents. The project built a large underwater turbine that was to convert the tidal in-and-out flows to electric power. The euphoria didn't last long. In late 2018, CST, co-owned by Nova Scotia's Emera Inc. (EI), and the Irish company OpenHydro Ltd. (OH), a subsidiary of the French co. Naval Energies, (NE), have hit the end of the road. Both CST and OH filed for bankruptcy.
It didn't surprise me. The large underwater turbine, placed somewhat offshore where the bay is approximately 500 m or more wide, could not possibly deliver the anticipated power. The current had plenty of room to flow around the "obstacle" of the turbine without creating much power.

Power from the Tides
There are a few well known tidal power plants that actually work. They are in Canada, France, South Korea, and the UK. All have large barriers that allow the incoming tide to raise the water level behind them and drive regular water turbines at low tide. They operate essentially in the same way as any dam that uses the energy of the different water levels in the upside reservoir and the lower release point. Still, such systems also have their limitations and other problems. One limitation is the nearly constant change in the tides. To begin with, the time windows around the high (to fill the reservoir) and low tides (to generate power by emptying it), where the most energy can be had, is quite short. Then, such structures interfere with other activities, like marine traffic to a harbor and a healthy range for fish to seek forage or to spawn. In addition, the occasional humpback whale and possibly other "flotsam and jetsam" can cause problems. **In summary then** Ocean power is not easy to harness. So far, only a few tidal power plants exist that actually produce a reasonable amount of electric power—at predictable intervals. All attempts at getting constant power generation from waves and currents have failed to deliver anything close to the promises. Of course, wind power generating systems are not much different. The reasons have been known for a long time, and there's plenty of tax dollars to be had to foster them.

As stated on a UK government site in 2006:
The main problem with wave power is that the sea is a very harsh, unforgiving environment. An economically-viable wave power machine will need to generate power over a wide range of wave sizes, as well as being able to withstand the largest and most severe storms and other potential problems such as algae, barnacles and corrosion.
But don't give up on your "free ocean energy" dreams yet—there are still plenty

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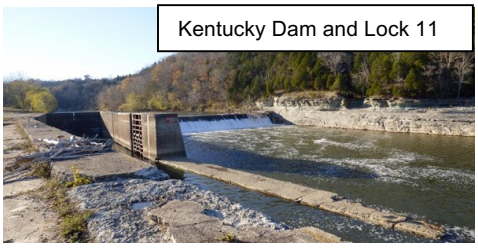
(Let's hope it works, but it still looks complicated. The problem is not the FERC regulations. The problem is the 1986 amendments of the Federal Power Act.
Congress caused the problem that they haven't fixed or won't fix.)


Kentucky Dam and Lock 11

FERC OKs Quicker Hydro License Process
By Rich Heidorn Jr, April 18, 2019, rtoinsider.com
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WASHINGTON — FERC on Thursday finalized a streamlined licensing process for hydropower projects at non-powered dams and closed-loop pumped storage projects, a response to a Congressional directive.
Under the new rule, the commission said it "will seek to ensure a final decision" within two years after receipt of a completed license application (Order 858, RM19-6). Chairman Neil Chatterjee said the commission completed the rulemaking with three days to spare under the 180-day deadline set by Congress in the America's Water Infrastructure Act of 2018, which became law in October.

The expedited rules will apply to existing non-powered dams that are not already licensed or exempted from the licensing requirements of the Federal Power Act. The facilities must generate

power through "withdrawals, diversions, releases or flows" from non-powered dams and must not make any material changes to the storage, release or flow operations of the dams. Closed-loop pumped storage projects can qualify if they cause little or no change in existing surface and groundwater flows and uses and are unlikely to adversely affect threatened or endangered species. Reservoirs at natural waterways, lakes, wetlands and other natural surface water features would not qualify. The rule permits only temporary withdrawals from surface waters or groundwater for the "initial fill and periodic recharge" of the storage facility. The rule requires developers to document their consultation with stakeholders, including tribes, dam owners and federal and state agencies responsible for required authorizations under the Clean Water Act, the Endangered Species Act and the National Historic Preservation Act. Applicants for projects at a non-powered dam must prove the owner of the dam is not opposed to hydropower development. Projects using any park, recreation area or wildlife area created by state or local law must provide documentation that the managing entity is not opposed. FERC said it issued the *new rule after consulting with 28 federal agencies, state agencies and tribes, which participated in an interagency task force*.

The new licensing option will be voluntary and will not change the commission's current three prefilling process choices for developers to use in preparing license applications. "I hope that we have a large number of license applicants" under the new rule, Commissioner Cheryl LaFleur said. "There are approximately 80,000 unpowered dams in the United States. Many of them are probably not suited for power production, but some of them are and could be brought online to help contribute reliable, carbon-free flexible electricity." The rule will take effect 90 days after publication in the Federal Register.

(It'll cost you to get a license, but they got 50-year license.)

Idaho wins debate over hydroelectric project with Oregon

Apr 26, 2019, khq.com

BOISE, Idaho--A hydroelectric project is set for the Snake River bordering Idaho and Oregon that will cost about $312 million in water and habitat. Idaho Republican Gov. Brad Little and Oregon Democratic Gov. Kate Brown announced the 50-year license on the Hells Canyon Complex. Idaho won over Oregon on the decision to not return federally protected salmon produced in the Columbia River Basin. Another controversial aspect of this project is NOAA Fisheries are analyzing how the dams might harm salmon and orcas which feed on the salmon.

(We don't have enough of these if they want to build wind and solar power. Sounds like the impossible dream. The locals are already upset.)

PUMPED UP

BY JACK LUNCH — 26 APR, 2019, thesheetnews.com

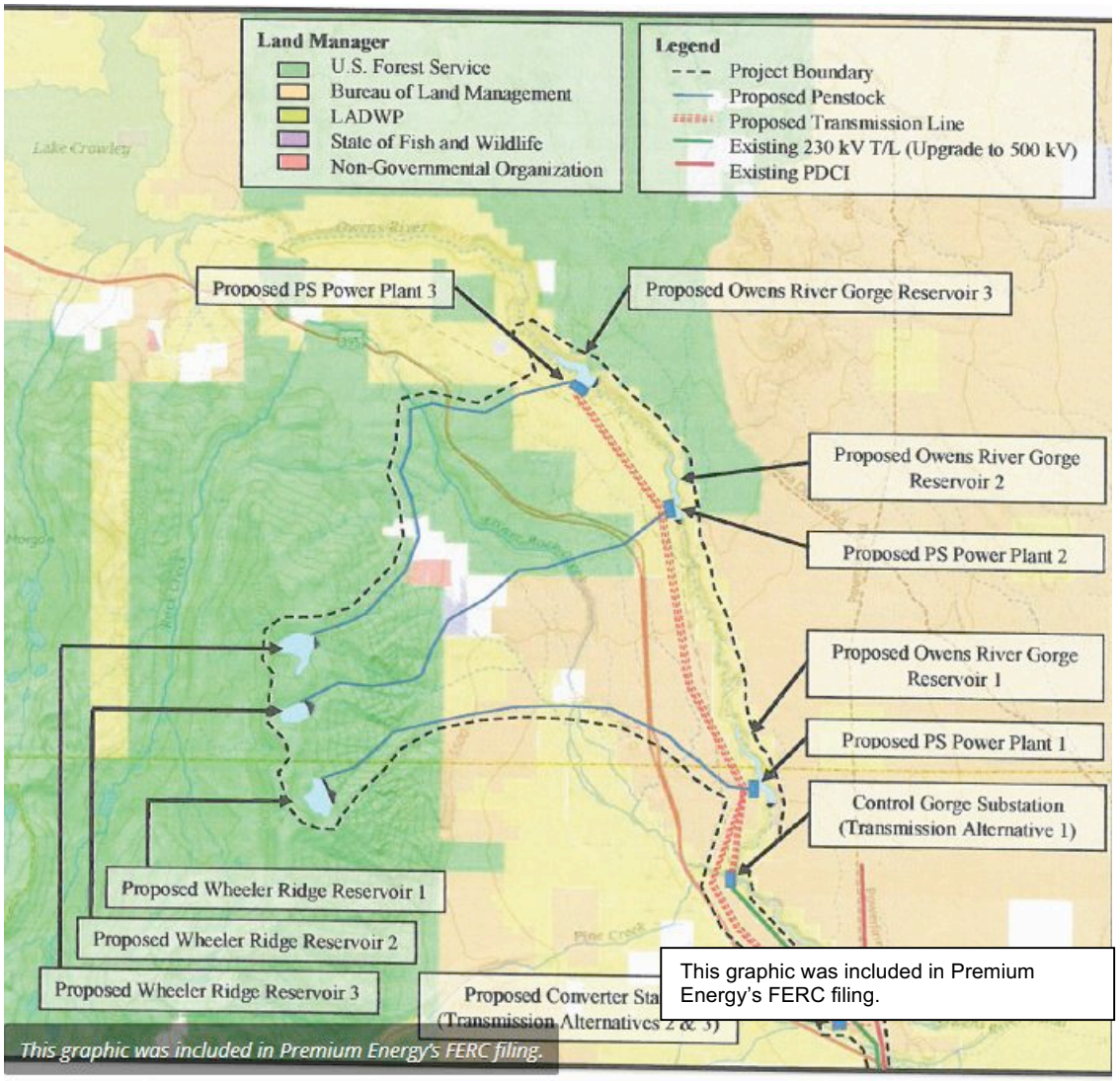
Dams on Wheeler Ridge? Wait.What?

On March 28, Premium Energy Holdings, based in Walnut, California, filed an application for a preliminary permit from the Federal Energy Regulatory Commission, which, it's safe to say, has stunned Swall Meadows, CA residents. The permit would grant Premium Energy permission to further study the company's proposed Owens Valley Pumped Storage Project. The project contemplates the erection of three large dams on Wheeler Ridge above the community of Swall Meadows which would generate a projected 5,200 megawatts of hydroelectric power.

Here's the vision.

During the day, water would be pumped uphill, in pipes bored underground through the Swall community, using cheap solar power, to reservoirs created on Wheeler Ridge. At night, the water would be released, generating power during peak demand periods, when it is far more expensive.

In short, electricity arbitrage. The water would then be collected at a lower reservoir (either at Lower Rock Creek or Owens Gorge) and be reused again and again in a continuous feedback



loop – a closed system. Pumped Storage is acknowledged as being far more efficient than storing energy in massive lithium-ion batteries. According to a story which appeared last year in the New York Times, "Lazard, the financial advisory and asset management firm, has estimated that utility-scale lithium-ion batteries cost 26 cents a kilowatt hour, compared with 15 cents for a pumped-storage hydroelectric project."

But is the proposed project even possible?

The Wheeler Crest area lies within the John Muir Wilderness boundary.

Section 4 of the Wilderness Act of 1964 asserts, "there shall be no commercial enterprise and no permanent road within any wilderness area." However, Special Provisions Section 4(d) appears to authorize an exception. "The President may, within a specific area and in accordance with such regulations as he may deem desirable, authorize prospecting for water resources, the establishment and maintenance of reservoirs, water-conservation works, power projects, transmission lines, and other facilities needed in the public interest, including the road construction and maintenance essential to development and use thereof, upon his determination that such use or uses in the specific area will better serve the interests of the United States and the people thereof than will its denial." And as neighborhood resident Tom Hopkins said ruefully

this week, "In the Trumpian era, anything can happen that we formerly thought was out-of-bounds." Premium Energy's CEO Victor Rojas told The Sheet this week that his firm has already received a letter from a member of the local chapter of the Sierra Club opposing the project, though the Club itself has taken no formal position yet.

Rojas described his company as being composed of mostly retirees from LADWP (Los Angeles Dept. of Water and Power). He describes himself as "very pro-environment" and says he is flexible in regard to the particulars of the Owens Valley Project. It's not about a certain location, he says, noting that Premium Energy will also be filing applications for preliminary permits to study White Mountain locations as well. "The idea is to have something in the mountains and something in the valleys," he said, because, "We have to keep the lights on at night, and the choice is between fossil fuel generation or hydro generation." The City of Los Angeles has a green mandate that by 2030, it will use 100% renewable power – no fossil fuels. "Everyone wants to use batteries," he says, to store solar power for example, "but batteries won't do the job." Pumped storage, says Rojas, is the only way to provide thousands of megawatts. The limitation of batteries, he explains, is that they die after 8 to 10 years. A hydro pump, by comparison, "will last 100 to 150 years."

To generate the power for the proposed Owens Valley Project, Rojas says the plan would be to use the utility right-of-way corridor as a massive solar farm. "We want to bring the project to the table and participate on the engineering side," he said, partnering with utilities such as LADWP. LADWP is certainly interested in pumped storage. As the New York Times reported last July, LADWP has floated a similar project at the venerable Hoover Dam. Estimated price tag: $3 billion. L.A. Mayor Eric Garcetti was quoted in the article as saying, "I think we have to look at this as a once-in-a-century moment. So far it looks really possible. It looks sustainable. And it looks clean." When it comes to the Owens Valley Project, Swall Meadows resident Tom Hopkins uses different adjectives. "In my view, the proposal is ludicrous and [constitutes] a gross violation of federal wilderness."

(Pumped storage is good for renewables.)

Energy Storage Changes the Power Profile

05/01/2019 | by Aaron Larson, powermag.com

The power grid is a pretty complex system. Electricity is generally produced on an as-needed basis. Generators ramp up and down based on demand. However, energy storage systems are beginning to change how demands are being met.

Hydro Is Storage

Energy storage isn't a new concept. In fact, pumped-storage hydro systems have been around since the late 1800s. According to the Department of Energy (DOE), there was 23.6 GW of operational pumped-storage capacity in the U.S. in June 2018, which accounted for 94% of the country's energy storage. Furthermore, some experts have argued that all hydropower is a form of energy storage. "Our water reservoir[s] are our batteries," Eric Martel, president and CEO of Hydro-Quebec, said in March during a panel session at the BloombergNEF (BNEF) Summit in New York. Hydro-Quebec is a Canadian public utility that operates some 60 hydroelectric generating stations. Martel said Hydro-Quebec's reservoirs are so large that the utility "can store 175 TWh, which is more than enough to provide the whole electricity for the New York state for a year and a half almost

"Pumped-storage hydro systems function kind of like a bank. Owners can make deposits, that is, use electricity to pump water into a reservoir when power is abundant and the price is cheap. Then, they can make withdrawals by reversing the operation and generating power when electricity prices increase, thus pocketing the price difference. There is some lost energy along the way, because the systems are not 100% efficient, but as long as the price difference more than makes up for the losses, the economics work. Besides arbitrage, energy storage can also help defer generation, transmission, and distribution capacity additions; improve grid flexibility,

reliability, and resiliency; provide ancillary services; stabilize power quality; minimize renewable energy curtailments; and assist end-users in managing energy costs.

"If we use the hydro capacity to store energy and to firm the production of other resources, then we are getting to power which is as-consumed power, no longer as-produced," Grzegorz Górski, managing director of ENGIE's Centralized Generation Métier, said at the BNEF event. Game-Changing Cost Reductions While pumped-hydro systems dwarf all other forms of energy storage currently in service, significant advancements have been made in batteries and costs have decreased dramatically. According to a BNEF analysis released on March 26, the benchmark levelized cost of electricity for lithium-ion (Li-ion) batteries has fallen 35% since the first half of 2018 to $187/MWh. "Batteries co-located with solar or wind projects are starting to compete, in many markets and without subsidy, with coal- and gas-fired generation for the provision of 'dispatchable power' that can be delivered whenever the grid needs it (as opposed to only when the wind is blowing, or the sun is shining)," BNEF said.

(All of a sudden, people finally getting interested in pumped storage.)

The 4th largest battery in the world is in Ludington, Mich.

That big berm on the west side of US-31 just south of Ludington is a man-made reservoir that's capable of holding up to 27 billion gallons of Lake Michigan.

Author: Jon Mills, April 30, 2019, wzzm13.com

LUDINGTON, Mich. — Work to build the Ludington Pumped Storage plant started 50 years ago this June. However, a license allowing Consumers Energy and DTE to operate the facility expires on June 30.
The unique hydroelectric plant, at one time, was the largest of its kind in the world. It's now the fourth largest. Some drivers rushing past the massive berm on the west side of US-31, just south of Ludington likely don't know it's a man-made reservoir capable of holding up to 27-billion gallons of Lake Michigan. "In real terms, it's a battery," said Brian Zatloukal, Operations and Maintenance Manager at the Ludington Pumped Storage for Consumers Energy. The 840-acre body of water, roughly three-times the size of Reeds Lake in East Grand Rapids, has the ability to produce enough electricity to meet the needs of a community three times the size of Kent County
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Ludington Pumped Storage Plant

It's been called one of the world's biggest electric batteries. The Ludington Pumped Storage Plant can provide energy at a moment's notice. This and its sustainable fuel source make Ludington an important part of our generating fleet. That means fewer inconveniences and more savings for you in 1959, Consumers Energy and Detroit Edison began designing the hydroelectric plant. Construction started a decade later and the plant began commercial operation in 1973. "This is unique site. It's different; there aren't a lot of them around," Zatloukal said. When power costs are low, billions of gallons of Lake Michigan are pumped uphill into the reservoir. The water is stored there until power is a higher cost. It's then the water is released and allowed to travel downhill, spinning six turbines to create electricity. "It's slightly different based on the season, but generally, we'll generate during the day and pump at night," Zatloukal said. The electricity is sold to the regional transmission grid.

Consumers Energy and DTE are replacing all six turbines. It's an $800-million investment that will allow the facility to generate more electricity and operate more efficient. The five-year process of relicensing the facility should be completed in June. The property is surrounded by fence and considered a secure facility. Consumers Energy offers the public views of the property from access points on Lakeshore Drive. One overlook offers visitors views of the powerhouse. A paved walkway to the upper reservoir is open during summer months. In the spring, workers affix a net in front of the intake pipe to keep fish from being sucked into the reservoir.

Water:

(The Treaty. Is the pie big enough that when they slice it everybody is happy? I don't think so.)

Roll on, Columbia? U.S. tribes demand seat at river treaty negotiating table

By Gregory Scruggs, Apr 18,2019, reuters.com

BRIDGEPORT, Washington (Thomson Reuters Foundation) - Rodney Cawston's father and grandfather passed down stories of such abundant salmon fishing in the U.S. Northwest's Columbia River that the banks were a feast of red flesh. But Cawston, chair of the U.S. Confederated Tribes of the Colville Reservation, has never seen fish harvests like those. He was born after the United States and Canada began construction in the 1930s of a series of more than 450 dams along the Columbia basin, which drains a watershed the size of France across seven U.S. states and one Canadian province.

While the project was praised for generating electricity for the area and irrigating farmland, indigenous tribes mourned the loss of traditional fishing grounds but hope negotiations over a 1964 treaty governing the river could resolve this. The river and its tributaries border three sides of the Colville Reservation, a Native American reservation in the U.S. state of Washington. As the United States and Canada conducted a fresh round of negotiations this month in Victoria, British Columbia, to update the 1964 treaty - which can be terminated in 2024 - Cawston and fellow tribal leaders want to be formally represented in talks. "We have no representation even though our people have lived for thousands of years in this region," Cawston said, adding that the river's 15 U.S. tribes had seen their requests for formal representation at the negotiations rebuffed. A State Department spokeswoman said by email that "the best way to balance the United States' objectives and conclude a successful agreement with Canada in a timely manner is to limit the negotiating team to federal agencies." Three Canadian tribes have also "requested direct participation in the negotiations but to date have not reached agreement with Canada on that issue", said a spokeswoman for Grand Chief Stewart Phillip, chair of the Okanagan Nation Alliance. Canada meets with the three Canadian tribes before each round of talks and debriefs them afterwards, said a spokeswoman for the British Columbia Ministry of Energy, Mines and Petroleum, which serves on the Canadian negotiating team.

A SALMON PEOPLE

John Day Dam

The dams built along the Columbia River helped make Washington into a leader in apple production and were viewed as an important way to sustain agriculture in the area. Apples are the state's top agricultural crop, representing some $2 billion to $2.5 billion in sales each year, according to the Washington Apple Commission. But Cawston said the upstream movement of fish was blocked by two dams along the river, Chief Joseph and Grand Coulee, the latter of which folk singer Woody Guthrie called "the mightiest thing ever built by a man" in his song "Roll On, Columbia".

"Salmon was up to 70 percent of our diet," Cawston told the Thomson Reuters Foundation from the tribe's fish hatchery in the reservation, 128 miles (206km) northeast of Seattle. "We are a salmon people. That way of life was completely lost with the construction of the dams on the Columbia River." To mitigate for the loss of endangered salmon along the Columbia, federal agencies maintain and fund fish hatcheries, restore habitat and cull invasive predators. For example, one quarter of the reservoir of the Grand Coulee Dam has been set aside for local tribes to fish and hunt. And the tide is turning for fish losses this year thanks to favorable ocean conditions, with 1.3 million salmon and steelhead expected to enter the Columbia River in 2019 - according to the Washington Department of Fish and Wildlife - compared to 665,000 in 2018.

TRADEOFFS

The 1964 treaty sets a protocol for managing how much water Canada will release annually from the river's headwaters and how much the United States will pay in return. Tribes hope the revised agreement will prioritize fishing by adding a third pillar alongside hydropower and flood control, the so-called "ecosystem-based function". This would "provide the right quantity of water at the right time to help fish migration and improve river conditions," said Greg Haller, executive director of environmental group Pacific Rivers. He cited the abnormally hot summer of 2015 when more than 250,000 Columbia River sockeye salmon died, an event scientists fear may become more common due to climate change. Environmentalists said there was a tradeoff in managing the river between interests like flood control and better conditions for fish, but argue they can coexist. "By optimizing the river for flood risk and hydropower, we automatically impact salmon," Pacific Rivers' Haller said. "In order to change that, we need to produce less hydropower." Demand for hydropower has decreased in recent years as California, once its biggest customer, adopts more solar and wind power, according to the Bonneville Power Administration, the federal agency that administers Columbia River hydropower. A 2017 study by environmental consultancy Earth Economics estimated improved management of the Columbia River could produce economic gains of $1.5 billion annually.

As for flood risk, Haller said, "we are able to bump up flows in the river without threatening property or life." Neither the U.S. nor Canadian negotiating teams would comment on river management in the revised treaty with talks ongoing. Despite the lack of formal participation, Cawston remains cautiously optimistic he might one day experience what his forefathers did. "With the renegotiation of this treaty, I really look forward to seeing salmon passage behind Chief Joseph Dam and Grand Coulee Dam," he said. *Reporting by Gregory Scruggs, Editing by Astrid Zweynert and Zoe Tabary. Please credit the Thomson Reuters Foundation, the charitable arm of Thomson Reuters, that covers humanitarian news, women's and LGBT+ rights, human trafficking, property rights, and climate change. Visit news.trust.org*

(Too much water in Canada. Of course, some are blaming it on Climate Change. Guess they forgot the large floods of the past, especially when it caused a dam failure.)

This is the worrisome headline: Dam at risk of failure is holding up after Grenville-sur-la-Rouge evacuated

Take a look at this dramatic video: https://montreal.ctvnews.ca/video?clipId=1668918

(Here comes some more.)

More rain forecast for flood-weary communities in Ontario, Quebec, N.B.

The Canadian Press, APRIL 27, 2019, thompsoncitizen.net

OTTAWA, Canada — It's shaping up to be another anxious weekend for flood-weary communities in Eastern Canada, with more rain in the forecast for an area stretching from cottage country north of Toronto, all the way to the Acadian Peninsula. Montreal, Ottawa and many smaller communities across the expansive flood zone have declared states of emergency, prompting the

federal government to deploy hundreds of soldiers to help with sandbagging and other relief operations.

Prime Minister Justin Trudeau is set to tour Constance Bay, the riverfront village west of downtown Ottawa that has seen the worst flooding so far, on Saturday morning. He is expected to help with sandbagging and receive a briefing from officials in charge of the fight against the flood. Despite a night that gave Ottawa and Gatineau, Que., a break from rain, water levels around the capital region are expected to rise half a metre higher than they did during a 2017 flood that was thought to have been a once-in-a-century event. A morning report from the board that monitors levels in the Ottawa River says near Constance Bay, water levels are just shy of their 2017 levels and are forecast to rise another 47 centimetres. At a measuring spot near Parliament Hill, where paths and parking lots along the river are already underwater, the board forecasts a rise of another 75 centimetres before water levels peak on May 1.

Rising river levels forced the closure Saturday morning of a heavily travelled bridge onto the Island of Montreal. Quebec's Transport Department announced it was closing the Galipeault Bridge, a western access point to Montreal along Highway 20. The department said in a statement that the closure is for an indefinite period. Traffic is being diverted to another bridge farther north, but the department asked motorists to avoid the area.
A close eye is also being kept on a hydroelectric dam, on a tributary of the Ottawa River between Ottawa and Montreal, that's at risk of failing. Water at the Chute-Bell dam has reached levels expected to occur every 1,000 years, but Hydro-Quebec says it's confident the structure is solid.

Meantime, a bit of relief is in sight for flood-weary residents of southern New Brunswick, with the latest forecast calling for waters to slowly recede in most areas over the next five days.
Geoffrey Downey, a spokesman for New Brunswick Emergency Measures Organization, says while it's raining across much of the province today, officials aren't expecting a lot of precipitation. He says the five-day flood forecast is for the Saint John River to be below flood stage in Fredericton, and down to flood stage in Maugerville, Oak Point and Saint John, by Thursday.
In southern Manitoba, the rising Red River has forced some road closures and a small number of evacuations but earlier predictions for major flooding between the U.S. border and Winnipeg haven't come to pass.

Other Stuff:

(Passwords drive me crazy.)

These 10 Passwords Are a Hacker's Dream

UK cybersecurity group says '123456,' others are easily breached

By Jenn Gidman, Newser Staff, Apr 22, 2019, newser.com

(NEWSER) – Think you've got a password that no one would ever guess, or simply hoping no one would ever try to capitalize on your password laziness? Based on a new survey out of the UK, you may want to reexamine that assessment. Per CNN Business, the National Cyber Security Centre looked at internet passwords from around the globe that hackers had been able to crack, and it found that certain first names, sports teams, variations of the word "password," swear words, and simple series of numbers were the most commonly breached, with an example of the latter—123456, used by more than 23 million accounts—taking the top spot. Advice from an NCSC spokesman: Combine "three random but memorable words." Check out which other inadvisable passwords made the NCSC's Top 10 list (meaning it's a bad idea to use them)

1. 123456
2. 12345
3. password1
4. 1234567
5. abc123
6. 12345678

7. 111111
8. password
9. qwerty
10. 123456789

Click to see if a password you use made the list: https://www.ncsc.gov.uk/static-assets/documents/PwnedPasswordTop100k.txt

(Read more passwords stories.): https://www.newser.com/tag/26376/1/passwords.html

(More bad news for solar power. Wind and solar are dead without subsidies. How long can you fool the taxpayers/ratepayers/voters?))

Solar Setbacks in Australia and Elsewhere

By Jack Dini, April 19, 2019, canadafreepress.com

South Australia was planning to build the world's largest thermal solar plant. There were notices in the press and the peer review in heralding the grand scheme. Claims were that the cost of the plant would be cut to one half, and produce three times more energy. [1]

The plant received formal development approval from the state government on January 9, 2018. SolarReserve anticipated commencing construction in mid-2018 and taking 650 workers two and a half years to build it.

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On April 5, 2019, SolarReserve said the project would not be going ahead.[1] As one reviewer asked, "How is it possible to believe somebody can be able to cut the cost of the plant to one half, and produce three times more? Magical thinking. The company's prototype was Crescent Dunes Solar Energy Project located near Tonopah, Nevada which had a capacity factor of only 16%. Possible investors also weren't enthused about the dismal operation of that smaller sister plant in California which was beset with maintenance issues and failed for one third of the time in its first two years. That 110MW plant cost $1.3 billion in 2015 and produced electricity at $178/MWh, nearly 6 times as pricey as the 53 year old Hazelwood coal plant in Australia managed in its last month of operation. [2] This isn't the first time Australia experienced solar setbacks. In July 2014 Joanne Nova reported, "We're told 'clean' energy is viable and cost effective. But cut the government subsidies and 97 percent of investors vanish. In Australia it's collapsed from $2.6 billion annually to $80 million. The truth is that renewables are almost totally dependent on taxpayer largess." [3] In the United States, venture capitalists lost half of the $25 billion they pumped into startups of wind and solar between 2006 and 2011.[4]

In 2009, Obama and his crowd gave Solyndra $535 million of loan guarantees; it promptly defaulted by 2011. Germany is the poster child for the global warming movement. However, after the government decided to reduce subsidies to the solar industry in 2012, the industry nose-dived. By 2018 virtually every major German solar producer had gone under as new capacity declined by 90 percent and new investment by 92 percent. Some 80,000 workers, 70 percent of the solar workforce lost their jobs.[5] Spain is retrospectively capping its renewable subsidies, lapping 40% off the earnings of its largest solar operator. There were public protests about electricity prices in Bulgaria that were so bad, the government is demanding some subsidies get paid back.

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