Dams:
(Watch for too much rain.)

California Warns of High-Overflow-Risk at Partially Rebuilt Oroville Dam
By Rich Pedroncelli / Associated Press, April 5, 2018, breitbart.com

Dam safety experts are warning that a three-day storm set to hit Northern California beginning on Thursday could risk an overflow event at the partially rebuilt Oroville Dam spillway.

Northern California’s second-largest March precipitation in 20 years, and warm temperatures kicking off an early snow melt in the Sierra Nevada mountains, have raised the water level at the 700-foot-deep Lake Oroville to just 36 feet below the point where dam safety operators must open the partially repaired Oroville Dam main spillway. The Federal Energy Regulatory Commission

Quote of Note: “We hang the petty thieves and appoint the great ones to public office”
~Aesop~
FERC) and the California Department of Water Resources (DWR), which owns the state’s second-largest reservoir, had intended to keep the water storage in Lake Oroville at or below 40 percent, about 1.4 million cubic feet of the lake’s 3.5 million cubic foot capacity. But last month’s storms increased storage to 2.2 million cubic feet. After last year’s Oroville Dam spillway failure, the DWR created the 2017-18 Lake Oroville Winter Operations Plan to ensure public safety in the event of major storm events. The plan triggers more aggressive outflow at the Hyatt Powerplant, and potential main spillway use in case the water level reaches 830 feet by April. The current forecasts show the potential for inflows to raise the reservoir from the current 794 feet to near the 830-foot trigger level by the middle of next week.

At the same time, the Kiewit Construction Corporation is still supervising a two-year, $710 million repair of the dam and spillway infrastructure following last year’s near collapse of the dam and the emergency forced evacuation of 188,000 residents downstream. The first phase of construction shut down last autumn for the rainy season, and was expected to finish this summer. California Division of Dams officials claim the spillway chute is in working order after first phase repairs, and inspectors will be onsite around the clock to monitor the performance of the spillway and correct any problems if the spillway floodgates are opened. DWR spokesman Erin Mellon told SFGate.com, “Hopefully we don’t need to use the spillway,” but if it is needed, “we’ve done a lot of hydraulic monitoring. We’re confident in the construction.” Division of Dam engineers are not concerned about the structural integrity of the dam, but rather the sustainability of the main spillway, which only has a temporary roller-compacted concrete surface (versus the extremely smooth permanent concrete surface to be completed later). High-speed water flow for a prolonged period over a rough temporary surface could cause the same cavitation friction that chewed up and destroyed the main spillway last year.

Kiewit built a series of temporary cutoff walls along the half-finished main spillway as a precautionary measure in the event of an emergency overflow event. But last year’s 100,000-cubic-feet-per-second (cfs) overflow could take out the cutoff walls. In anticipation of the coming rainstorm, DWR increased outflows at the Hyatt Powerplant to 10,000 cfs. Maximum outflow capacity at the plant is 12,500 cfs, and DWR can also open the River Valve Outlet to release another 4,000 cfs before opening the spillway. At the height of last year’s crisis, the spillway was releasing 230,000 cfs. DWR has officially notified state and federal regulatory agencies; public safety organizations; the Butte County Sheriff’s office; and all local, state and federal elected officials about the potential increase in outflows and use of the spillway.

(Close only counts in horseshoes.)

DWR Says Oroville Dam Main Spillway Won’t Be Used This Week

April 8, 2018, sacramento.cbslocal.com

OROVILLE (AP/CBS13), CA — Yosemite National Park reopened Sunday after flooding that washed out roads during a strong Pacific storm, park officials said. Forecasters said up to 6 inches (15 centimeters) of rain fell over two days as rivers swelled in Northern California. Roads within Yosemite Valley were swamped by up to 4 feet (1.2 meters) of water that affected electrical and water systems. Most facilities reopened at midday, but officials warned that traffic could be slow as cleanup work continues. The area was closed Friday as a powerful “Pineapple Express” storm moved through. The heaviest rain was in the northern Sierra and in coastal counties from San Francisco north to Mendocino during a 48-hour period ending Saturday afternoon. Flooding was also reported along the Truckee River near Lake Tahoe.

Further north, water flows into Lake Oroville following the deluge were not enough to require opening the partially rebuilt spillway at the troubled dam there, officials said. The lake level stayed
below 800 feet (244 meters) and inflows were tapering off, the California Department of Water Resources said. Officials said last week they would use the main spillway if the water level reaches 830 feet (253 meters) — but they hoped to avoid it. The spillway was destroyed last year during a crisis that forced the evacuation of downstream towns amid fears of catastrophic flooding. About a third of it has been fully rebuilt with reinforced structural concrete but the rest has temporary repairs. **State officials said it’s safe to use if needed.**

(Another study says remove the dams. We’ve heard this one before.)

**Clean sources can replace power if Snake River dams are breached, study says**

By Pete Danko – Staff Reporter, Portland Business Journal, Apr 4, 2018, bizjournals.com

A combination of renewable energy, efficiency measures and energy-demand management can reliably replace power from four lower Snake River dams at relatively small additional cost, a new study out Wednesday asserts. The study, commissioned by the clean-energy focused organization Northwest Energy Coalition, comes two years after a judge ordered consideration of breaching the dams as federal agencies work on a new plan — it would be the sixth, after five failures — for protecting endangered steelhead and salmon in the Columbia River system. Advocates have long argued that breaching the dams would be a more effective — and possibly cheaper, all things considered — way to help the fish compared to programs they say are failing, and as the dams become more expensive to maintain.

On the other side, a 2016 “fact sheet” from the Bonneville Power Administration, which markets power from federal dams in the region, including the Snake River dams, says that without the 3,033 megawatts of power provided by the dams, carbon emissions would rise and maintaining regional energy reliability **would be prohibitively expensive.** Northwest Energy Coalition representatives said the new study, using hour-by-hour data for the system, contradicts that. The study looked at several replacement scenarios, including one relying exclusively on new gas-fired generation, something skeptics have said would be the inevitable reality if the dams were breached. A non-gas scenario, however, would actually provide heightened increased system reliability, and at a lower cost than relying on gas, the study concluded. That scenario calls for 1,250 megawatts of new wind power — an addition of about one-sixth of the region’s current wind capacity — and 250 megawatts of new solar. Costs of those renewable sources have been falling in the past several years. Lost power would also be made up through demand-response programs, where users are incentivized to reduce their energy use in order to trim peak demand, and investments in energy efficiency.

If the cost of this approach were spread out over the entire Northwest, residential customers would see their bills rise about $1.28 a month, the study concluded. Greenhouse-gas emissions would increase slightly, less than 1 percent, as some existing gas plants run a bit more frequently. “The Lower Snake River Dams Power Replacement Study confirms clean, renewable resources can provide a viable and effective energy alternative to the continued operation of the dams,” Northwest Energy Coalition said in a four-page summary of the study. “We can retire the dams and keep the lights on. The study also offers a framework from which the federal agencies can draw as they develop a new plan for dam operations.” A key stakeholder group, representing public utilities that rely largely on the federal hydro system for their power, wasn’t convinced. Scott Corwin, executive director of the Public Power Council, disputed the study on a number of counts, including the notion that “there is adequate reason and biological benefit to pursue this in the first place.” **And that $1.28 figure, he said, minimized the cost impact.** “Even taking the assumptions here, this study still shows a very large cost to ratepayers of between $396 million and $1.2 billion annually,” Corwin said in an email. **“And, they wrongly show it spread across**
everyone in the region. In reality it would hit mostly on one customer group, and in largely rural areas.” But a salmon advocacy that has long sought removal of the dams called the study “groundbreaking.” “It delivers a bunch of information” that breaching skeptics have demanded, Joseph Bogaard, executive director of Seattle-based Save Our Wild Salmon, said. “They’ve said we can’t replace with anything but natural gas, and this demonstrates clearly that isn’t the case.”

(Doesn’t think removal is a good idea.)

Breaching Snake River dams a mistake Washington state can’t afford
By State Sen. Jim Honeyford, 4/8/18, yakima herald.com

It’s an issue of priorities. Or perhaps, a matter of not looking a gift horse in the mouth. However you cut it, Washington is blessed with an abundance of clean, renewable hydropower. It produces carbon-free electricity and provides the baseload of power we need to forgo coal dependency and flirt with sexier, but less reliable renewables like solar and wind. Yet some in our state, including environmental activists and Gov. Jay Inslee, are willing to promote federal and judicial actions that put our hydropower at risk. In 2016, a federal judge in Oregon ordered the Bonneville Power Administration and other federal agencies to produce a new salmon-recovery plan that will consider breaching the four dams on the lower Snake River. The plan is due this year. This path was forced by a lawsuit from environmental groups, certain fishing groups, the state of Oregon and the Nez Perce tribe. Also, the Army Corps of Engineers is under a judicial order to spill more water for fish at eight Columbia and Snake River dams starting this year.

Fortunately, we have some local representatives in Congress who are doing something about it. U.S. Reps. Cathy McMorris Rodgers, Jaime Herrera Beutler and Dan Newhouse are co-sponsoring a bill intended to prevent breaching of the Snake River dams and reduce the spill over the Columbia and Snake River dams. The bill, which could come up for a vote this month, would keep in place the Federal Columbia River Biological Opinion (BiOp) until 2022. These representatives in Washington, D.C. deserve to have the support of state officials. However, Inslee recently announced he opposes the bill, and given the large influence of environmental donors in his campaign, I am not surprised. At the state level, I was among the sponsors of legislation supporting the Snake River dams and highlighting their importance to our state.

The four Snake River dams provide clean, reliable, affordable energy that powers 1.87 million homes and helps attract employers (and the jobs they create) to the region. The impact on agriculture is also immense. The dam system’s reservoirs support irrigation for farmers and help reduce the risk of catastrophic floods. Increased spills would result in higher costs for pumping water, and may even negatively affect barge traffic, which is important in getting food crops to ports. Our state’s wheat industry, for example, relies on barges to ship wheat down the Snake and Columbia rivers to ports in Portland and Vancouver and beyond. Breaching the dams would end barge navigation up the Snake River and force millions of tons of commercial cargo, valued at more than $3 billion, onto our road and rail infrastructure. The measure I sponsored, which would serve as a formal message from our Legislature to Congress, was passed by the Senate last year, under bipartisan control. The Democrat-controlled House refused to consider it. Now state and national groups are using deceptive polls to try to urge further inaction. Or as the Washington Policy Center’s Todd Myers put it in a recent blog post, “Activists looking to destroy the four Lower Snake River Dams released a poll last week purporting to show public support for removing the dams. From simple factual errors to biased questions, the poll is a mess.” Myers points out that the poll included several factual errors, minimized the importance of the Snake River dams, and set up a false choice between protecting salmon and maintaining the dams.
"As NOAA Fisheries noted last year, the dams are very close to achieving, or have already achieved, the juvenile dam passage survival objective of 96 percent for yearling Chinook salmon and steelhead migrants. Even if destroying the dams improved survival to 100 percent (which is doubtful), the improvement would be minor. The group paying for the poll would have to argue that a theoretical four percent increase is the difference between wild salmon and oblivion," writes Myers. To some extremists, it doesn’t matter how healthy the fish population gets; it is a matter of almost religious devotion that dams are bad and should be eliminated. At what cost? Higher electricity costs for families trying to make ends meet? Fewer jobs for our workers? More rail and road traffic, when barge transportation is no longer an option? These extremists, though they have the governor’s ear, have their priorities out of whack, and refuse to see our clean hydropower as the environmental gift horse it truly is. Congress should take steps to end their reckless pursuit now. I applaud our local members of Congress who are working to do just that.

* Sen. Jim Honeyford, who represents the 15th Legislative District, serves on the Senate Agriculture, Water, Natural Resources & Parks Committee.

(Sometimes you win one.)

**Court lifts block on Montana dam in endangered fish dispute**

By The Associated Press, April 4, 2018, wtop.com

HELENA, Mont. (AP) — A federal appeals court ruling Wednesday will allow construction to begin on a $59 million dam on Montana’s Yellowstone River that wildlife advocates say could doom an endangered ancient fish species. But the legal fight isn’t over yet, and the U.S. government agency leading the project near the Montana-North Dakota border will wait for a separate court ruling before deciding how to proceed. "This is an important step to move forward with this project to protect the endangered pallid sturgeon and other fish in the river while continuing to assure that irrigation needs are met," U.S. Army Corps of Engineers spokeswoman Jamie Danesi said.

The three-judge panel from the 9th U.S. Circuit Court of Appeals ruled Wednesday that the advocacy group Defenders of Wildlife did not prove the project would cause irreparable harm to the river’s pallid sturgeon. The panel also reversed U.S. District Judge Brian Morris’ temporary block of the project because the appellate judges disagreed with Morris that Defenders of Wildlife was likely to win its lawsuit against the U.S. Army Corps of Engineers. It’s the second time that the courts have blocked and then ordered the project to go ahead over concerns about whether the 125 remaining pallid sturgeon would be able to swim around the dam to spawn.

Aaron Hall, the Rockies and Plains representative for Defenders of Wildlife, said his organization will still fight to prevent the dam from being built. "We’re still reviewing things and deciding where to go," he said. Still pending is an April 19 court hearing in the lawsuit, when Morris will hear arguments on whether he should rule in favor of the advocacy group without a trial and permanently block the dam. "We will have a clearer idea of our options and timeline following Judge Morris’ decision," Danesi said.

The long-snouted pallid sturgeon, which evolved from fish that were alive in the age of dinosaurs, are already cut off from their spawning grounds by a wood-and-rock irrigation dam in eastern Montana. Both the U.S. Army Corps of Engineers, which leads the construction project, and Defenders of Wildlife agree something needs to be done soon if the species is to survive. But their solutions are very different. The Corps’ project includes a man-made bypass channel for the fish to swim to their spawning grounds. Defenders of Wildlife is concerned that the fish won’t use the bypass channel, and propose to make that section of river free-flowing and install pumps to provide river water for irrigation. The irrigators who favor constructing the new dam applauded the 9th Circuit panel’s ruling. James Brower, manager for the Lower Yellowstone Irrigation
Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu
still need water for their farmers. I asked a NID Director about SSWD's concern, and his answer was that there would be plenty of water from the planned 'Parker Dam', now Centennial Dam. When Centennial was finally made public, NID was proposing to dam the Bear River canyon between Rollins and Combie Reservoirs inundating a beloved six mile stretch of river recreation, fishing, camping, hiking, and 140 Native American cultural sites. Centennial capacity would be a 110,000-acre-foot reservoir behind a 275 foot tall dam and the projected cost began a steady increase from $160 Million to over $1 Billion. Not surprisingly Centennial has drawn a broad spectrum of criticism and concerns, and opposition.

The Foothills Water Network (FWN) is the umbrella organization of the Save the Bear, Stop Centennial campaign. Some 13 organizations and over 200 citizens have protested the NID application for water rights to the State Water Resources Control Board that currently benefit SSWD’s farmers and the Delta ecosystem. Protestants include neighboring Placer County, the South Sutter Water District, and the Placer County Water Agency. Save the Bear, Stop Centennial supporters have been attending NID Board meetings in droves demanding openness and information about NID’s dam plans. It took over a year, but NID finally installed a basic video system providing for more public involvement. Recently concerned citizens have asked for Centennial project updates at every Board meeting. However, NID decided to shuffle Centennial updates to their Engineering Committee meetings, that are not video broadcast, the staff and two Board members cannot speak to policy issues, and the meetings are more easily cancelled. At the 2017 Wild and Scenic Film Festival (WSFF) sponsored by the South Yuba River Citizens League (SYRCL), some 2000 attendees registered as 'Dam Watchdogs', committed to track and act on Centennial issues. That number has grown to 3000.

On April 11, 2017 American Rivers listed California’s Bear River among America’s Most Endangered Rivers®, shining a national spotlight on the proposed dam that would irreparably harm the river’s fish, wildlife, recreation, and Native American heritage. Please go visit the day use area to experience the beauty and power of the Bear River Canyon, NID submitted an application to the California Water Commission (CWC) for some $12 million dollars from Proposition 1 water storage funds. At this year’s WSFF, SYRCL gathered over 2500 signatures on a petition to the CWC opposing State funding for Centennial and began sending representatives to CWC meetings. NID self-calculated a Public Benefits Ratio of $4 of public benefits to every dollar spent. Independent CWC evaluators calculated a Public Benefits Ratio of ZERO based on NID’s incomplete and confusing application. One NID Board member stated the zero ratio was “well deserved” and the Board voted unanimously to not appeal the zero rating. Concerned citizens have questioned why NID is wasting rate and tax payer money buying private property, conducting engineering studies, and shamelessly promoting the project before it has been evaluated and approved. Homeowners report that NID is telling them they better sell now because the dam and reservoir is a ‘done deal’ and future prices will fall. Ultimately homeowners are threatened by eminent domain seizures by NID.

Centennial is not a 'done deal'. Over the next 18 months there are significant process steps ahead for NID and the community that can stop the dam. NID is required to produce a legally sufficient Environmental Impact Report and approve it by a vote of the Board at a public meeting. NID must obtain a dredging permit from the United States Army Corps of Engineers who are required to approve the least environmentally damaging project alternative based on a legally sufficient Environmental Impact Statement. And NID must secure water rights from the California State Water Resources Control Board against the wishes and better judgement of neighbors, wildlife agencies, and the public. The future is still ahead, but the basic questions remain unanswered: Is it really needed? Is the dam the only way? What is the true cost and financing plan? What are we losing? Peter Van Zant is a Centennial Dam Work Group volunteer. He is a former Nevada County Supervisor and a former President of the SYRCL Board of Directors. He lives in Nevada City with his wife Mary.

(Now, I have a passing grade.)

**Wolf Creek Dam now has an improved safety rating**
Since a $594 million repair to Wolf Creek Dam, KY was completed in 2013 and the level of Lake Cumberland returned to normal in 2014 the 258-foot-high structure that impounds Lake Cumberland has had a Dam Safety Action Classification (DSAC), at first 1 and now 3. Both sound sinister at best, Wolf Creek Dam was critically near failure in both 1968 and in 2005. A diaphragm wall was inserted into part of the mile-long dam during the 1970s but it proved too short and not deep enough into the limestone base to permanently stop uncontrolled seepage through the dam.

Engineers with the U.S. Army Corps of Engineers realized in 2005 a more permanent fix was necessary. The lake level was lowered 40 feet in January 2007 to insert a two-foot-thick diaphragm wall, 100 feet into the limestone base. Engineers said this would make the dam safe to the end of the century. Wolf Creek Dam initially had a DSAC 1 rating, meaning critically near failure or extremely high risk. Despite being the most instrumented dam in the world, a live person walked its length 24 hours a day.

Wolf Creek Dam’s safety rating on June 4, 2015 was upgraded to DSAC 3 — high priority, conditionally unsafe; significantly inadequate, or moderate to high risk. Despite the rating’s sinister sound, engineers contend the dam is safe. Lee Roberts, public affairs specialist with the Corps of Engineers’ Nashville District, said Wednesday “Wolf Creek Dam has many instruments that are automated through an instrumentation network. They are monitored and checked multiple times every day.” The Corps says DSAC 3 is a “significant achievement.” Of the more than 600 dams the Corps manages in the United States, none has a DSAC rating of 5, meaning normal, adequately safe with residual risks considered tolerable, said Bill Peoples, chief of public affairs. He said best of the dams, like Wolf Creek, have DSAC classifications of 3 or 4. DSAC 4 is marginally safe, inadequate with low risk. In other words, all dams leak; there are some risks associated with all dams impounding huge lakes. Rehabilitation of Wolf Creek Dam is a success, Corps engineers have said time and time again.

A lake the size of Lake Cumberland exerts tremendous pressure against Wolf Creek Dam. Mike Zoccola, chief, U.S. Army Corps of Engineers’ Design Branch, during a tour of the Wolf Creek Dam construction site several years ago, told the Commonwealth Journal Lake Cumberland at its normal depth is 250 feet deep at the dam. The deep water pushes 15,600 pounds of pressure against each square foot at the base of the dam. Wolf Creek Dam’s major problems lie in the fact the dam was built on porous limestone rock. Limestone rock is soluble in water. Core drilling during the repair work discovered caverns at least 40 feet tall. An engineer with the Corps told the Commonwealth Journal that no way would a dam be built at that place today. Work on Wolf Creek Dam began in 1941, stopped during World War 11, and completed in late 1950.

The current DSAC classification removes Wolf Creek Dam from its critically near failure and extremely high risk status and allows the Corps to reduce the frequency of monitoring (walking the dam) from a daily basis to a monthly basis as the water is held at normal pool. Wolf Creek Dam qualified for a DSAC 3 classification after construction records and instrumentation data were reviewed and analyzed by experts in dam safety. Their conclusion was that due to the remediation of the dam, risk associated with a failure was significantly reduced. Lake Cumberland, currently about 6 feet above the timberline, has been high all spring because of raining and flooding in the Cumberland Valley.

(Dam removal marches on.)

Dam removal planned for northern Indiana’s Elkhart River
ELKHART, IND. - The Army Corps of Engineers is working on plans to remove a low-head dam on northern Indiana's Elkhart River that has structural concerns. Water spills over the top of the dam near the city of Elkhart's downtown area. City aquatic biologist Daragh Deegan says the dam dates to the late 1800s and was built with river rock and covered with concrete. The Elkhart Truth reports Deegan told city officials that water is penetrating the dam. The Army Corps of Engineers will pay about two-thirds of the $2 million cost to remove the dam, while a demolition-and-replacement project could cost up to $6 million.

(Who's in control here?)

Congress must take control of federal dam policy
A judge’s ruling mandates more water be spilled over Snake and Columbia river dams.

By Editorial Board, April 8, 2018, union-bulletin.com

United States District Court Judge Michael Simon might be well versed in law, but he isn't an expert on hydroelectric dams or fish science. Yet, his 2017 ruling — which was allowed to take effect last week after a higher court rejected an appeal — mandates more water must be spilled over Snake and Columbia rivers in what the judge believes will help young salmon migrating to the Pacific Ocean. A judge should not have this authority to set policy. That is the role of Congress. Beyond that, this move has the potential to actually hurt salmon and will cost the users of electricity in the Pacific Northwest (all of us) $40 million over the next few months.

Many scientists contend spilling too much water creates high gas levels in the water that can harm juvenile fish. When the water is poured over the dam rather than the turbines, less power is generated. The added spill could also negatively impact irrigation and barging commodities — including wheat — down the rivers. Simon seems to be narrowly focused on spilling more water over the dams, regardless of the merits, as well as wanting to breach the dams. The later idea is just plain foolish. The only positive is that the increased spill rate over the dams could light a fire under Congress to take action.

Last year, the U.S. Department of Interior tossed its support behind the goals of legislation proposed by U.S. Rep. Cathy McMorris Rodgers, R-Spokane; U.S. Rep. Dan Newhouse, R-Sunnyside; and others to protect the dams from Simon’s overzealous ruling. The proposal would keep in place the Federal Columbia River Biological Opinion, often referred to as BiOp, until 2022. BiOp is the plan created by a collaboration of federal agencies, states and tribes to protect salmon while continuing to operate dams for hydropower. Simon doesn’t believe the BiOp does enough to protect salmon. The Legislation, HR 3144, would keep the status quo on the Snake and Columbia river dams until 2022, with no court-ordered change to operation.

The effort to breach dams must be curtailed. This has already been studied and studied. It’s clear tearing down the four Snake River dams would be a disaster for the Pacific Northwest. The water from a free-flowing Snake would create flooding and end shipping grains and goods on the rivers. It would add truck traffic, raise costs and boost air pollution. Last week, U.S. Sen. Patty Murray, D-Wash., clarified her position on the issue after there was some confusion when she called for an environmental study of the issue. She was asked by an audience member at a meeting in Pasco recently whether she would take a stand against breaching Ice Harbor Dam (in Walla Walla County) and other Snake River dams. "Absolutely," she said, "I did not call for, nor would I call for, the removal of the Snake River dams." Allowing a judge’s ruling to usurp federal control of

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu
the dams is bad public policy. Allowing Congress to establish control and work within the agreed-upon framework makes sense.

(The understatement of the year.)

California needs more water storage as the climate changes. Yes, that means dams

BY DAN WALTERS, CALmatters, April 08, 2018, sacbee.com

The first thing to remember about precipitation in California is that it's unpredictable, as the past several winters have once again shown us. Several years of severe drought ended in the 2016-17 winter with near-record rain and snow storms that filled the state’s badly depleted reservoirs. The 2017-18 “water year,” as hydrologists call it, began with what seemed to be a return to drought but then, in March, the state experienced a steady stream of storms that added to the Sierra snowpack upon which Californians are so dependent.

(Asleep at the switch. And, CA thinks it has problems, huh.)

Officials: Didn’t know of flood risk from dams during Harvey

BY JUAN A. LOZANO, Associated Press, April 09, 2018, miamiherald.com

HOUSTON, TX - Houston-area officials said Monday during a congressional hearing that they weren't aware of forecasts by federal authorities regarding flooding risks from local reservoirs that ended up inundating thousands of homes during Hurricane Harvey. However, the U.S. Army Corps of Engineers said concerted efforts were made to ensure all information was shared with both local officials and the public. U.S. Rep. Michael McCaul, a Republican from Texas and chairman of the Homeland Security Committee, said after the hearing that the possibility local officials and residents weren't given sufficient warning about potential flooding from the reservoirs could be "the most disturbing" thing that comes out in the wake of Harvey. McCaul said he plans to begin a congressional investigation to "get to the bottom of this." "I know a lot of these residents are very angry about what happened and they want answers and Congress through an investigation can provide those answers as to who knew what, when and where," McCaul said.

Harvey dumped up to 50 inches (127 centimeters) of rain in some parts of Houston last August, filling the area's two reservoirs — Addicks and Barker — to capacity and forcing the Corps, which operates the dams, to release water from the structures to preserve their integrity. The water releases ended up flooding thousands of homes downstream of the reservoirs. But upstream of the reservoirs, homes which had been built in areas known as flood pools also flooded during Harvey. During a hearing of the committee Monday, lawmakers discussed whether local officials had been given
sufficient warning about the flooding risks from the reservoirs, referencing a Houston Chronicle report from February that stated the Corps had failed to share with the public a forecast ahead of Harvey's arrival predicting that Barker and Addicks would flood adjacent neighborhoods.

Mark Sloan, emergency management coordinator with Harris County, where Houston is located, told the committee he never saw two forecasts made by the Corps ahead of Harvey’s arrival that predicted flooding in neighborhoods around the reservoirs. Harris County Commissioner Jack Cagle said if he and other officials had been given information of what would occur in these areas, "we would have gone in there with our trucks, horns blaring, telling everybody, 'Get out.'" Houston Mayor Sylvester Turner testified he had been informed about the Corps' plan to start releasing water from the reservoirs but told the committee he was not informed the Corps had decided to increase the rate at which it would release water.

Col. Lars Zetterstrom, commanding officer of the U.S. Army Corps of Engineers’ Galveston District, told the committee that prediction models for the reservoirs were shared with Houston-area officials on Aug. 25 — the day Harvey made landfall in South Texas but a day before its rains started inundating the city — and that information was shared throughout the storm. The Corps' first forecast about flooding from the reservoirs was made Aug. 24, the day before Harvey made landfall, according to documents obtained by the Houston Chronicle. "No risk communication program is ever perfect," Zetterstrom said. "But we did make appropriate notifications and we did provide the information necessary." Zetterstrom added that the public was also informed through social media, news releases and press conferences. U.S. Rep. John Culberson, a Texas Republican who represents part of the Houston area, said there “was inadequate warning to people” and the storm highlighted the need for an alert system that can notify residents about impending flooding dangers. Flooding associated with the reservoirs has resulted in federal lawsuits in which thousands of homeowners are seeking compensation from the Corps.

**Hydro:**
(A little history.)

**This Place in History: Bellows Falls Canal**
By: Amanda Thibault, Mar 29, 2018, mychamplainvalley.com

BELLOWS FALLS, Vt. - At 'This Place in History', we visit Bellows Falls on a very windy day with Executive Director of the Vermont Historical Society Steve Perkins. "There are a number of canals in Vermont. This was one of the first canals built in the United States. I think this is really cool. I think a lot of people don't know it's here. But we need to move over to the bridge so we can actually look down on the canal and we can talk about it a little more," introduced Perkins. "So we have to go back to the name Bellows Falls. The village was originally named Great Falls. So on the Connecticut River, there is a 52 foot falls right here, which is a good place to put a village because you have water power and whatnot. But soon you figured out boats need to get around that. So in 1791, a group of English investors decided they were going to make the Connecticut River navigable, from 250 miles from the coast, so that meant up through what's now Vermont. So they started the canal here in 1791, like I said, one of the first in the United States. It took them over 10 years to complete the canal, so the first boat didn't go through it until 1802." Compared to what you see today, "it was a little narrower. It was only about four to six feet deep. It took small canal boats. It had nine locks, which allowed the boats to go down or up that elevation through the Connecticut
River. Over time, it widened to take larger boats, but really by the 1840s, people weren't using the canal. They weren't traveling by the river anymore," explained Perkins.

They began to travel by train. "We think a lot about Bellows Falls related to train traffic and there certainly was a lot of commerce on this side of Vermont. But the train was much more efficient than the river ever could be. At that point, the river was used much more for river power and so the falls that were part of the locks were used to power paper factories. Bellows Falls really became known as a center for paper manufacturing, here in Vermont," continued Perkins. "Now by the 1920s, 1930s, it was less and less used. Electricity was used instead in the factories, so the canal was converted fully over into hydroelectric power. The locks aren't here anymore. There's a hydroelectric dam that makes power." Locking it down at 'This Place in History'!

For more from our "This Place in History' series, click here:
http://www.mychamplainvalley.com/community/vermonthistoricalsociety
To view a map of Vermont's roadside historic markers, click here:
https://roadsidemarkers.vermont.gov/

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(Hydro above the falls will be difficult.)

**Nushagak Cooperative exploring a Nuyakuk River hydroelectric project**

By AVERY LILL  • 4/4/18, kdlg.org

The energy cooperative that powers Dillingham and four other Bristol Bay communities is exploring a hydroelectric project that it says could replace diesel generators in the region.

Nushagak Cooperative is exploring the possibility of installing a hydroelectric generator on the Nuyakuk River, a Nushagak River tributary in the Wood-Tikchick State Park. The power co-op currently supplies electricity, cable, telephone and internet to Dillingham, Aleknagik, Manokotak, Clark’s Point, Portage Creek and Ekuk.

Based on flow data at Nuyakuk Falls, which the United States Geological Survey has monitored since 1953, the co-op said that it is likely a hydroelectric generator could replace diesel altogether. By diverting a quarter of the river’s flow just above the falls for the generator and returning the water to the Nuyakuk River at the bottom of the falls, a run-of-the-river generator could produce 72,800 megawatts annually. Cooperative members currently utilize 25,000 megawatts a year. "This would make the Nushagak drainage completely independent for its electricity needs. We would no longer be dependent on the price of fuel for our standard of living,” said Bob Armstrong, Nushagak Cooperative electric operations manager.

In Bristol Bay, the push for alternative energy is about cost. The average cost for residential electricity in the United States this January was about 12 cents per kilowatt-hour. For homes that get their power from Nushagak Cooperative, it is about 17 cents per kW. That is after taking into account that State of Alaska pays part of residents’ electric bills in rural areas through Power Cost Equalization. The rate is more expensive for homes that use over 500 kW monthly and for businesses—between 38 and 43 cents per kW.

By switching to renewable energy, the co-op hopes to significantly reduce the cost of electricity in the region. It is refraining for estimating how much that savings would be until more research establishes the project’s feasibility and environmental safety. "We looked to doing this in a way that would have a very small impact footprint on the environment," said Armstrong. "This
community [Dillingham], as well as all the rest in the Nushagak drainage, are very dependent on the fishery, obviously. So we don't want to do anything that harms that. We want to do something that enhances it and keeps more of the money from the salmon in the communities, rather than shipping it out on the diesel barges, which is what happens now."

The project is still in early stages. At the end of March, Nushagak Cooperative, submitted an application for a preliminary permit to the Federal Energy Regulatory Commission. It would be the first of many permits and permissions the co-op must acquire as it initiates studies for feasibility and possible impact, including fisheries studies, water quality studies and wildlife studies. Another barrier to entry for the hydroelectric project is the Wood-Tikchick State Park statutes. Currently, project construction and many of the necessary studies are not allowed at Noyakuk Falls. The Wood-Tikchick Management Council met in Dillingham at the end of March to discuss the project for the first time.

"There are a couple of options to make it legal," Ethan Tyler, director of Alaska's Division of Parks and Outdoor Recreation, explained. "At this point I don't know what would be best, and I think that community engagement would probably be the best way to ascertain that." The council offered tentative initial support, voting unanimously to support studies under consideration that are consistent with park purposes. The cooperative estimates that the project would cost $120 million to construct and that it would save over $147 million over 40 years. If the project proves feasible, Nushagak Cooperative hopes to have the hydroelectric generator installed in six years.

(More hydro in Alaska.)

Kodiak moves toward electric heat with planned hydro expansion
By Kayla Desroches, KMXT, April 4, 2018, ktoo.org

Kodiak is powered by almost 100 percent renewable energy through wind and hydro power. Most homes and businesses heat with fuel oil, but the local utility sees a shift to electric. To meet the growing demand, the Kodiak Electric Association (KEA) is planning a new project to boost the energy potential of Kodiak's hydroelectric reservoir. Kodiak Island Borough projects manager Matt Gandel stands in front of two fuel oil boilers at the Kodiak middle school that are taller than he is. "We replaced the boilers at Peterson [Elementary School] a few years ago. They're probably half of this size, and you get the same kind of efficiency," he said. Gandel says the typical life of a boiler is between 20 and 30 years, and these ones are pushing 35 years old.

He says they'll switch out one of the boilers with an electric boiler in May. "The electric boiler that will be here is more sophisticated than these fuel boilers," he said.

The Kodiak Electric Association is paying to install electric boilers in the middle school, high school and the Kodiak Fisheries Research Center as part of the expansion of its Terror Lake hydroelectric project. The expansion will catch snow melt and rain and transport it to the Terror Lake reservoir to increase its energy potential. When it's complete in 2020, the diversion will produce excess power and KEA will direct the energy to public buildings. The utility struck a deal with the borough for a 10 percent discount on the excess hydropower for at least the first few years of the hydroelectric project expansion. KEA president and CEO Darron Scott says the agreement benefits the borough, the school district, and the utility. "We get to utilize our surplus power, the
community gets to benefit from a lower cost of heating source, and we get to have cleaner air to boot," he said. **Scott sees electric heating as the future in Kodiak.**

He says a lot of new construction uses technology like electric boilers or heat pumps, which are now capable of functioning at even lower temperatures. "You don't have the potential of an oil leak at your house, you don't have as significant a maintenance on the electric systems as you do on the fuel oil systems, and you're hopefully gonna be saving money and more consistent costs over time," he said. Fuel prices rise and fall and Chris Rose, the executive director of the Renewable Energy Alaska Project in Anchorage, says the market is unpredictable. "We have no control over the price of oil. Some kind of geopolitical event could occur and, all of a sudden, oil prices shoot over to $100 a barrel again."

Rose says cities with lower electricity costs like Kodiak are good candidates for the transition to electric heat if the utility can handle the increased demand. KEA's expansion of the hydroelectric facility will help Kodiak do just that in the long run. The diversion should boost the annual hydropower production by about 33 million kilowatt-hours, which is roughly 25 percent more energy. KEA plans to start construction in June.

(Getting near the finish line.)

**Red Rock Hydroelectric Project Nearing Powerhouse Milestone Over Next Few Months**
April 5th, 2018, by KNIA/KRLS News - Andrew Schneider, kniakrls.com

Despite a harsh winter and cold start to spring, Ames Construction crews at the Red Rock Hydroelectric Project are nearing a significant milestone now heading into year four of work. Vern Cochran with Missouri River Energy Services tells KNIA/KRLS News the powerhouse structure on the downstream side is almost enclosed, which will allow workers to progress faster on completing the interior of the building and the power turbines. "Our big feat that's going to happen in the next week or two is that we're going to be topped out on our walls, so that's a big milestone for us and then we can start putting the roof on, and once the roof goes on, then we can start installing all of our turbine components and electric components inside," he says.

He says they plan to ramp up construction on the intake structure later this spring and through the summer as well. Overall, after some delays related to weather and permits, Missouri River Energy Services estimates the Red Rock Hydroelectric power plant could be operational by Fall 2019. When completed, it could provide enough electricity for approximately 18,000 homes.

(There's no such thing as an uneconomical hydro project. Energy prices always fluctuate.)

**Energy Prices Pause Hydropower Project On Payette River**
By FRANKIE BARNHILL • APR 5, 2018, boisestatepublicradio.org

The Black Canyon Dam was built in 1924 on the Payette River northeast of Emmett. The two original generators create 10 megawatts of power and help protect against flooding. The Bureau of Reclamation was planning to install a third power plant at Black Canyon, but the project is now on hold. "The hydropower at this point is out of the picture, until market rates improve favorably," says David Walsh with the Bureau of Reclamation. "Meanwhile we'll proceed with the safety improvements we had outlined originally." Walsh says the expense of building the
third power plant outweighed the possible benefits of power generation at the dam given the current cost of energy. The bureau still plans to make safety updates at the almost 100-year-old facility.

Hydropower supplied nearly 60 percent of Idaho’s electricity in 2016.

(Don’t like the way you operate.)

Hancock County residents protest Brookfield’s dam operations

APRIL 5, 2018, mainebiz.biz

Brookfield Renewable Energy Group’s operation of the Union River Dam is drawing fire from Ellsworth residents and conservationists. Residents and conservation groups said dropped water levels in lakes along the river are affecting native fish, Maine Public reported. Brookfield is in the process of renewing its license with the Federal Energy Regulatory Commission to operate its power plant for another 30 years. The current license allows the company to draw down water levels at Graham Lake by nearly 11 feet.

"The pregnant three-foot eels trying to come back through the dam, trying to go through a turbine, it's terrible mess down there, it's slice and dice," said Ed Damm of Bar Harbor, who owns a camp on Graham Lake, where water is stored and released by a dam to power the turbines of the Union River Dam, four miles downriver. Brett Ciccotelli, a fisheries specialist with Downeast Salmon Federation in Columbia Falls, said the licensing process is a chance to resolve obstacles preventing sea run fish from getting into the river. The Ellsworth City Council voted Monday to apply for intervenor status in the FERC dam applications. A Brookfield statement said the company will balance regulatory requirements, environmental impact and obligations to stakeholders. Brookfield acquired the Union River dam in 2013 along with eight other dams in Maine. As of 2017, Brookfield Renewable Power (NYSE: BEP), headquartered in Toronto, owned more than 215 hydroelectric dams worldwide, including 38 in Maine. Brookfield operates in 30 countries, and oversees renewable energy including wind, hydro, pumped storage and biomass. It also oversees real estate, infrastructure and private equity investments, with $250 billion under management and 70,000 operating employees.

(Getting in the hydro business.)

Sheridan starts utilizing hydropower technology

April 5, 2018, thesheridanpress.com

SHERIDAN, WY — The first hydropower facility in Montana-Dakota Utilities’ four-state circuit went online earlier this year in Sheridan, and city officials estimate it will generate enough power in a year’s time to supply clean, renewable power for 100 homes. The idea for the project dates back to early 2000. Studies showed significant decreases in cost for construction each time the city of Sheridan considered the project, causing the city to hold off on implementing a micro hydro turbine. Finally, at the end of 2017, SOAR, renamed Canyon Hydro, created and installed the micro hydro turbine at the Beckton Hall Vault site west of Sheridan. The design decreased significantly in size from original designs, allowing it to fit better in the city’s current underground facility. Now, it hums along quietly as water flows through the machine, reducing pressure on its way to the Sheridan plant.
Canyon Hydro designs each turbine specific to the location and water flow levels. “They had to look at our flows and go, ‘OK, what’s our peak but more importantly what’s our low flows and will it operate at that level,’” city of Sheridan utilities director Dan Roberts said. “This turbine will operate down to 1.5 million gallons per day.” Anything on or above 1.5 million gallons per day will generate power for the city. MDU connected the generator to its existing grid on Big Goose Road and increased its capabilities from single-phase power to be able to facilitate a three-phase generator. In addition, MDU created a purchase power agreement for hydropower for the first time in its history. The agreement establishes power buyback that the generator produces on a monthly basis. “It was new ground for us as far as the purchase power agreement. We had to work through that,” MDU electric superintendent Jim Sorenson said. “It’s not something you do every day, so our staff in Bismarck (North Dakota) was very supportive and very helpful in putting this all together in a timely manner so [the city] could meet their grants.”

MDU bases the payback to the city on peak demands that the generator produces during the month, as well as payback on kilowatt hours generated. Roberts said the city receives $0.02.1 per kilowatt on power generated and $15.18 for maximum power produced during MDU’s peak times each month. If the hydro turbine produces its capacity of power — 240 kilowatts — during MDU’s monthly peak, the city will receive approximately $3,643.20 on top of regular power payments. “The capacity payments in our calculations serve to be as high or higher than our generated power payments,” Roberts said. “So it behooves us to really generate power during MDU’s peak-hour needs. That’s what [MDU] likes to see us do as well because it helps benefit the operation of their system.”

While the city considered implementing additional hydro turbines throughout the system, projects at the Big Goose or Sheridan plants were not cost-effective at the time. With fast-improving hydro turbine technology, though, possibilities remain for future implementation. The feasibility of the Beckton Hall project was heavily aided by the Drinking Water State Revolving Fund loan program, which loaned approximately $1.25 million to the city with 0 percent interest and 50 percent principal forgiveness. Roberts anticipated the city paying back the loan within 12 years, cut down from the initial projection of 20 years, because of the profits coming from the project through MDU. The city also saved in capital construction costs in the size reduction of the turbine. “All those factors worked in our favor on top of the funding aspect,” Roberts said. The potential for future installations of hydropower technology in Sheridan’s water system will likely reside in pipelines, where companies have created energy recovery systems that fit and produce power in the small space. Following the first year of implementation, the city will be able to review revenues generated through the new turbine and determine if similar projects could be implemented in the future.

Other Stuff:

(NEWSER) – Bill Gates says he’s done using the terms “developed” and "developing" to describe the nations of the world because they’re too limiting. “It’s hard to pick up on progress if you divide the world into rich and poor countries,” he writes in a blog post. The Microsoft-founder-turned philanthropist says he is adopting a new view from late author Hans Rosling (Factfulness) that divides the world into four basic income groups. As it turns out, most people in the world live in Level 2, getting by on between $2 and $8 a day. Here are the four:

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu
• Level 1: This is extreme poverty, with people living on less than $2 a day. They probably walk in bare feet, sleep on dirt floors, must fetch their water, and cook over an open fire. About 1 billion are in this level.
• Level 2: About 3 billion are in this category, surviving on between $2 and $8 a day. Life is typically a little easier with a gas stove, mattresses, a bike (perhaps to fetch water), and shoes. Children are able to go to school instead of working.
• Level 3: In this category, people live on between $8 and $32 a day. Think running water, a refrigerator, maybe a motor bike. Kids might even be able to finish high school. About 2 billion are in this category.
• Level 4: The rest of the world, about a billion people, spend $32 or more per day. They probably have a car, a high school education, and can take the occasional vacation.

Click for the full post:
https://www.gatesnotes.com/Books/Factfulness?WT.mc_id=04_03_2018_10_Factfulness_BGmedia&WT.tsrc=BGmedia

Business Insider notes that the World Bank uses a similar breakdown of categories.

This Is the Place to Be for Millennials
WalletHub takes quality of life, affordability into account
By Arden Dier, Newser Staff, Apr 10, 2018, newser.com

(NEWSER) – As a whole, millennials are doing pretty well financially. But those in certain states are much better off than others, according to WalletHub. It compared affordability (the cost of a Starbucks latte was taken into account), education and health, quality of life, economic health, and civic engagement in all 50 states and DC to decide the best and worst states for those in their early 20s to early 30s. The top five in each category, with a score out of 100:

Best:
1. District of Columbia: 67.5
2. North Dakota: 65
3. Minnesota: 64
4. Massachusetts: 62.5
5. Iowa: 62.4

Worst:
1. New Mexico: 31.1
2. West Virginia: 31.7
3. Mississippi: 34.6
4. Nevada: 35.6
5. Alabama: 35.6

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