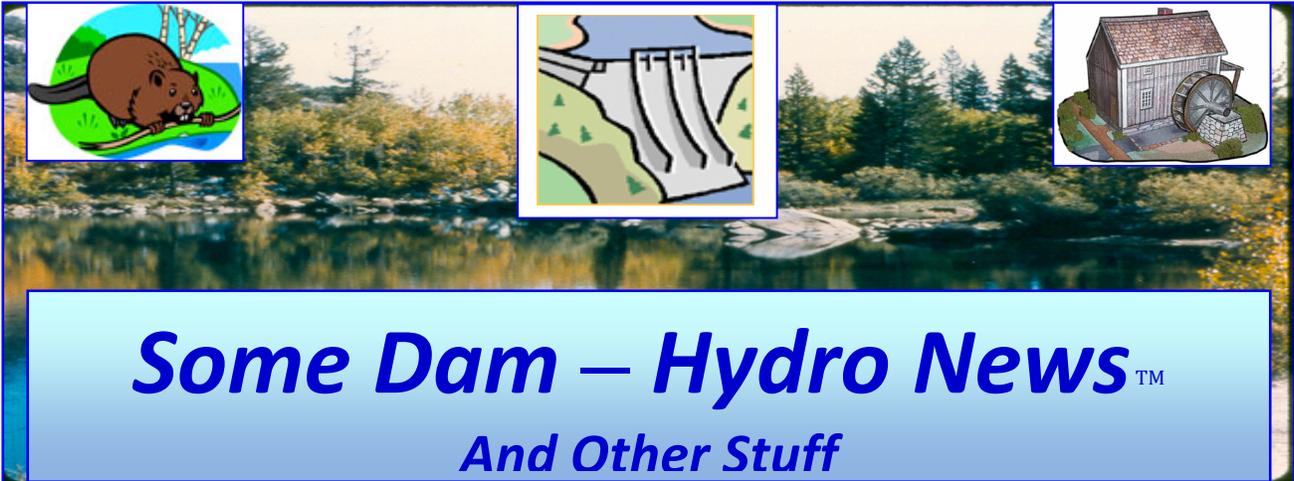


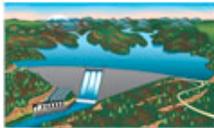
6/8/2018



Quote of Note: *“There is no such thing as public opinion. There is only published opinion.” - Winston Churchill*

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

“Good wine is a necessity of life.” - -Thomas Jefferson
Ron’s wine pick of the week: 2013 Dry Creek Vineyard US Red Blend "Meritage"
“No nation was ever drunk when wine was cheap.” - - Thomas Jefferson



Dams:

(Nothing like more duplication.)

U.S. Senate bill would require independent review of Oroville Dam

By Risa Johnson. 5/26/18, orovillemr.com

Oroville, CA >> The U.S. Senate pushed forward a bill on Thursday that would require an independent risk analysis of the Oroville Dam, following a meeting last month between Butte County supervisors and Sen. Dianne Feinstein. The bill directs the Federal Energy Regulatory Commission to brief House and Senate committees on FERC’s response to the independent study of the Oroville Dam spillways. It would also require that independent consultants nominated by the U.S.



Society of Dams prepare their own risk analysis during the 2019 safety review of the dam

operated by the state Department of Water Resources. The fiscal year 2019 Energy and Water Development Appropriations bill was approved by the U.S. Senate appropriations committee and now heads to the Senate floor before final reconciliation with the U.S. House of Representatives. This is a result of the main spillway splitting open in February of 2017, requiring utilization of the never-before-used emergency spillway and culminating in the evacuation of about 188,000 residents of Butte County and other communities downstream.

Sen. Feinstein, D-California, who is a ranking member of the Senate energy and water development appropriations subcommittee, said it was an important time to take another look at dam safety around the county. "Everyone said the Oroville Dam was safe, but it clearly wasn't," Feinstein said in a Butte County press release. "I worry that the technical and engineering assumptions that everyone agreed on 50 years ago when these dams were built may no longer be accurate — exactly as we saw when Oroville's spillway failed. Our bill directs the Federal Energy Regulatory Commission to both take a closer look specifically at Oroville, as well as to apply the lessons of Oroville to dam safety reviews nationwide." Steve Lambert, chairman of the Butte County board of supervisors, and supervisor Bill Connelly had a chance to meet with Feinstein in Washington, D.C. in April on the county's annual federal legislative advocacy trip. Lambert said they had a "thorough and thoughtful" discussion. "Butte County sincerely thanks Sen. Feinstein for her support in holding FERC and DWR accountable for public safety issues related to the facilities," he said. "This is a step forward in providing a stronger local voice in the FERC process and spotlighting the safety of our communities as a priority." Connelly also thanked Feinstein for fighting to fund an independent review of the dam. "It's a big deal to get an independent study," he said. An independent forensic review of the spillway crisis released earlier this year pointed to "long-term systemic failure" on the part of DWR and the dam industry at large to address problems with original design and construction and insufficient maintenance and repairs. A board of consultants, whose members were appointed by DWR, is reviewing the repairs to the dam, which is required by the California Water Code and FERC. The Division of Safety of Dams, which oversees design, construction and maintenance of state dams, is an arm of DWR.

(People love the sound and view of flowing water.)

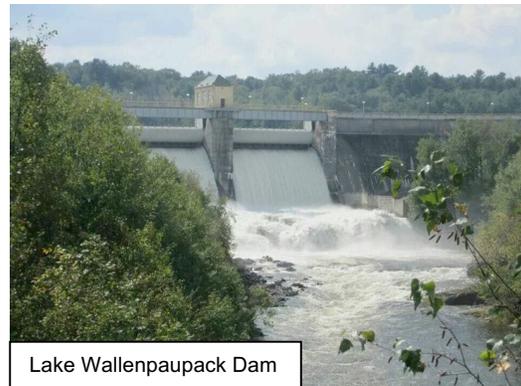
Lake Wallenpaupack Dam Release Draws Crowd

MAY 19, 2018, BY ALLEN VICKERS, wnep.com

PALMYRA TOWNSHIP, PA -- Extensive rainfall forced an energy company in Wayne County to spill excess water from Lake Wallenpaupack on Saturday. Water could be seen flowing straight from the Lake Wallenpaupack Dam near Hawley. Even in the rain, this water release drew a crowd at the lookout on Route 502 in Wayne County. "To see the spillway here, I have never seen it, so I wanted to check it out," said Dennis Knapp of Honesdale.

People like Chuck Green, who have lived near the dam for a while, say this is something to see. "It doesn't happen very often, we have been here for almost 20 years and I never saw it start."

Brookfield Renewable is the energy company that owns the lake. A company spokesman said it had to spill the lake water because a generator failed, and because the rain threatened to raise the water level in the lake. The company said the spill protects people who live along the lake's shore. Rob Fletcher took his son chase to see the dam open up for the first time since 2011. "Family time spent time together to see cool things," said Fletcher. Viewer video shot from Ledges Hotel near Hawley shows just how fast the water was moving. Downstream, a fox and a raccoon were swept away by the rushing water, but they ended up on some rocks. A larger



Lake Wallenpaupack Dam

almost 20 years

crowd came to the bridge near the hotel to see the water channeled to the Lackawaxen River. "Control the water level at the lake for the amount of rain that they get so if they get a lot of water they can store it in the lake by not having it full," said Green. **Because of unexpected changes Brookfield Renewable wants people to be careful around Lake Wallenpaupack.** Officials at the energy company expect the controlled water spill will finish up by Monday, in Wayne County.

(Oh, oh, it happened a long time ago.)

Heritage Moments: The Kinzua Dam and the broken treaty with the Seneca Nation

By JEFF Z. KLEIN, (NIAGARA FRONTIER HERITAGE PROJECT) • 5/21/18, news.wbfo.org

It was nothing less than the forced displacement of almost 700 people, and more than 50 years later the memory of it still haunts those families and their descendants. Since 1794 members of the Seneca Nation had lived on the Allegany Reservation and the adjacent Cornplanter Tract, lands covering some 30,000 verdant acres in southwestern New York and northwestern Pennsylvania. **The U.S. government pledged the land to the Senecas via the Treaty of Canandaigua, signed by 59 sachems and war chiefs and by the official agents of President George Washington — and affirmed by Washington himself.**

"Now," read the treaty, which officially recognized the land rights of the Haudenosaunee Confederacy, "the United States acknowledge all the land within the aforementioned boundaries, to be the property of the Seneca nation; and the United States will never claim the same, nor disturb the Seneca nation, nor any of the Six Nations, or of their Indian friends residing thereon." But a century and a half later, the U.S. government did indeed disturb the people residing thereon. The Army Corps of Engineers decided to build a flood-control and hydroelectric dam across the Allegheny River — one that would inundate one-third of the Senecas' reservation. The government took control of the land via eminent domain. The construction of the Kinzua Dam had begun.

Johnny Cash sings about the Kinzua Dam with Pete Seeger and June Carter, 1966. **The Senecas protested. Led by their president, George Heron, they proposed an alternative site for the dam that would not flood ancestral lands; took the government to court; and lobbied Congress and President Dwight D. Eisenhower, then his successor, John F.**

Kennedy. But the Army Corps rejected the alternative plan. The courts ruled in favor of the government, and the Supreme Court declined to hear the Senecas' appeal. Finally, President Kennedy refused to stop the project. "I have now had an opportunity to review the subject and have concluded that it is not possible to halt the construction of Kinzua Dam currently under way," JFK wrote to the Seneca Nation in an August 1961 letter. "I hope you will convey to the members of the Seneca Nation the desire of the Federal Government to assist them in every proper way to make the adjustment as fair and orderly as possible. I pledge you our cooperation."

By 1965 the Senecas, their homes in Coldspring, Quaker Bridge, Shongo, Onoville, Red House, Cornplanter, SunFish, Bay State, Old Town and Bone Run bulldozed or burned, **were removed to new villages on the New York side of the reservation.** Cemeteries and religious sites were flooded and covered over by the reservoir — Lake Perfidy, the Senecas mordantly called it. So blatant was the injustice of the Kinzua Dam that even white Americans, traditionally unmoved by Native American grievances, took notice. The former First Lady Eleanor Roosevelt called it "a shameful thing." The New York Times theater critic Brooks Atkinson wrote, "the consistent harassment of the Seneca Nation constitutes an intolerable stain on the honor of the United States." And Johnny



The Kinzua Dam exhibit at the Seneca-Iroquois National Museum, marking the U.S. government's expulsion of 150 Seneca families from 10,000 acres of the Allegheny Reservation despite a 1794 treaty never to disturb any of the Six Nations "residing thereon."

Cash recorded an album about the injustices done to Indigenous people, "Bitter Tears," that included a song about the Kinzua Dam called "As Long as the Grass Shall Grow."

The Senecas were not the only targets of government relocation schemes. During the same period the Tuscaroras were forced off 550 acres of their land near Niagara Falls by the New York Power Authority and various courts for construction of the Lewiston Reservoir. The Senecas were uprooted from their lands, but they never forgot. Every September they gather for the Remember the Removal Walk, a solemn procession from Red House Bridge to Steamburg Barricade. Local news media commemorate the removal with eloquent articles and TV reports, as do the national media. Moving radio and film documentaries tell the painful story of what happened at the Kinzua Dam. But the most moving words come from the displaced residents themselves, people like Rebecca Bowen, who as a little girl was displaced along with her family. In 2011, Bowen testified before the Federal Energy Regulatory Commission. "Like an occupation force, an army of construction companies invaded our homeland," she told the commissioners. "Our lives were changed forever. The waters that generate the power flow over our old homesteads where the longhouse once stood, the foundations of our churches, our school, our old ballfields, even the graves of Senecas. ..."

(Moving right along. Looks like they're gonna be gone.)

Federal Commission Approves Advisory Panel for Klamath Dam Removal Effort

BY THADEUS GREENSON, MAY 24, 2018, northcoastjournal.com

The Federal Energy Regulatory Commission has approved a proposal from the nonprofit organization formed to facilitate removal of the four hydroelectric dams clogging the Klamath River to form a panel of experts to help guide the process. Mark Bransom, executive director of the Klamath River Renewal Corporation, praised the commission's decision in a press release.



Irongate Dam

"KRRRC is pleased that FERC has approved KRRRC's panel of nationally recognized experts to serve as the (board of consultants) for the Klamath River Renewal Project," he said. "We are confident that this approved (board) will provide fully independent review of the Klamath River Renewal Project, as required by FERC."

The board is comprised of people with expertise in dam construction and removal, engineering, aquatic and terrestrial biology, construction cost estimating, insurance and bonding for large infrastructure projects, according to the release. Under the new removal deal reached in February of 2016, dam removal is slated to begin by 2020.

KRRRC Statement on FERC's Approval of Board of Consultants

San Francisco, Calif. – Mark Bransom, executive director of the Klamath River Renewal Corporation (KRRRC), released the following statement today in response to the Federal Energy Regulatory Commission's (FERC) approval of KRRRC's proposed panel of experts to serve as Independent Board of Consultants (BOC):

"KRRRC is pleased that FERC has approved KRRRC's panel of nationally recognized experts to serve as the BOC for the Klamath River Renewal Project. We are confident that this approved BOC will provide fully independent review of the Klamath River Renewal Project, as required by FERC.

"Due to the broad scope and unique nature of the dam removal project, FERC required KRRRC to convene a BOC. Drawing from FERC's pre-approved list of engineering and construction experts, and adding resources in fields of river restoration and insurance, KRRRC submitted its proposed makeup of the BOC to FERC on March 22, 2018. FERC has now approved the proposal and established procedures for the BOC's work, including public participation.

"The scope of the BOC review extends to all aspects of the proposed dam removal process, including financial feasibility. The first task the BOC will undertake is to review the project's cost estimates, as well as the proposed insurance and bonding coverages. Over the course of the project, we anticipate that the BOC's

additional reviews will enhance design and construction plans and may lead to construction efficiencies and cost savings.

"The individuals on the BOC have expertise in dam construction and removal, engineering, aquatic and terrestrial biology, construction cost estimating, insurance, and bonding for large infrastructure projects. Members of the BOC include:

- **Dan Hertel, PE (Engineering Solutions, LLC):** Mr. Hertel has a 35-year background in the construction of dams, pipelines, tunnels, and other water resource projects. He is an expert in dam construction, heavy-civil construction, and cost estimating. Primary areas of specialization include construction cost estimating, constructability review, construction management, and value engineering. Experience includes oversight of estimating operations including project selection, risk assessment, personnel assignments, constructability analysis, cost estimating, contract review, and bid review. Dan is currently serving on the FERC Board of Consultants for the Anderson Dam Seismic Retrofit Project.
- **James Borg, PE (D&H Concepts, LLC):** Mr. Borg has more than 43 years of domestic and international experience in water resources and has served as project manager and project engineer on spillway, dam, and canal rehabilitation projects; project manager on build-operate-transfer and design-build project developments for construction contractors; and has prepared hydropower development layouts and conducted constructability reviews for the evaluation of project feasibility. James has experience serving as a hydraulic structure expert on an Independent Board of Review for two FERC-licensed hydro projects and an international treaty arbitration assignment.
- **Craig Findlay, PhD, GE (Findlay Engineering, Inc.):** Dr. Findlay's 40 years in the dam safety, water resources and geotechnical engineering profession include a broad variety of consulting and project engineering experience, more than 33 years of which have included involvement with dams and hydroelectric projects. He has served as technical lead or lead geotechnical engineer on hundreds of dam-related projects and serves on ongoing and past Boards of Consultants and Review Panels.
- **Mary Louise Keefe, PhD (R2 Resource Consultants, Inc.):** Dr. Keefe has participated in and/or managed aquatic ecosystem-based projects for the past 27 years. She brings broad experience from working with many different species and habitats located at a variety of water resource projects across the country, including California, Alaska, Oregon, Washington, Montana, Mississippi, Pennsylvania, West Virginia and in Manitoba, Canada. Dr. Keefe has experience with FERC. Earlier in her career, she spent 7.5 years at the Oregon Department of Fish and Wildlife Research Section studying Endangered Species Act listed salmon and steelhead.
- **Ted Chant, PE (Chant Unlimited):** Mr. Chant has over 40 years of experience performing a full range of management functions in both large and small hydroelectric development and water control/management infrastructure projects in Canada and the United States. Specific experience involves hydroelectricity construction risk identification and mitigation, constructability review, cost certainty, execution planning and management (safety, cost, quality, and schedule), continuous improvement and value optimization.
- **Robert Muncil, ARM (Cool Insurance Agency, Inc.):** Mr. Muncil is a licensed insurance broker and an Associate in Risk Management, with over 35 years of experience in the hydropower industry dealing with insurance, bonding, claims and evaluating risks. He is a frequent panelist and speaker at national conferences on the hydroelectric power industry and has published several articles about insurance and risk management issues related to the hydropower industry. Mr. Muncil advises his clients through all phases of their projects, from construction to operation, and is supported by over 100 insurance professionals."

(History in the making.)

May 26, 2003: The day Hope Mills dam broke

By Rebekah Sanderlin, Staff writer, May 26, 2018, fayobserver.com

Editor's note: This story was originally published May 27, 2003, the day after the Hope Mills Lake dam broke.

HOPE MILLS, NC -- Thunderstorms Sunday night caused the water in Hope Mills Lake to rise dramatically, causing the dam to buckle under the pressure on Monday. Hope Mills was soaked Sunday night and early Monday morning with between 6 and 8 inches of rain, according to the National Weather Service. "It was just more water than the dam could handle," said Hope Mills Mayor Edwin Deaver. Deaver said the pressure on the dam was so intense that the gates could not be lifted. He said cranes were brought in to raise the gates but the cables were not strong enough.



As the dam broke, a water main was ripped off it and a wide swath of Lakeview Road was washed downstream. Carolyn Justice-Hinson, a

spokeswoman for the Public Works Commission, said the 12-inch water main will be out of service indefinitely, but customers will receive normal service. She also said that PWC was watching a 42-inch sewer main that ran alongside the dam, underwater, to see if it was damaged. Justice-Hinson said the lake level would have to recede more before a determination could be made. **While the engorged lake drained, city officials worried about the safety of residents.** Just after 9 a.m. fire department workers decided to evacuate about 30 residents of Happy Valley Retirement Center. They also went door-to-door advising families in 45 homes to leave. **"The fire department came up to the door and told us to evacuate,"** said Joyce Elwood, who lives on Pennystone Drive in the Southwood neighborhood. **"But it just looked like regular rain to us. We've lived there for eight years and this has never happened before."** With her husband and three children, Elwood waited outside South View High School, where a Red Cross emergency shelter was supposed to have been opened for evacuees. They waited in the parking lot for more than an hour before Red Cross workers arrived. The shelter still couldn't be opened because no one had the keys to the school. A shelter was established about 4:45 p.m., just as residents were allowed to return to their homes. Down Cameron Road from Happy Valley Retirement Center, residents of the Creekside Apartments watched as the water slowly crept higher, threatening their homes and possessions.

Helpful neighbors

At 11 a.m., many of Creekside's residents were moving into a neighboring building with vacant units. They helped one another, carrying clothing and furniture across the parking lot between the buildings. "We've got all our clothes out now," said Phyllis Huffman. "We're hoping our neighbors will help us carry out the furniture." Huffman said police officers knocked on her door about 9:30 a.m. and advised her to evacuate. Her daughter, Amanda Huffman, said she had to have her car towed after it was flooded. **Many of the residents in the flood warning area parked their cars and trucks in their front yards Monday.** Lisa McDonald, who also lives on Cameron Road, moved her six horses from a field behind her house to a friend's house. As she loaded the horses onto trailers, McDonald said it was just a precaution, since water had already crept up the creek bank and into her barn. **Across Hope Mills, residents marveled at the conditions.** "It looks like this is going to turn into a big mess," said Jim Smith, a Hope Mills resident whose home was not in danger of flooding. Smith said his home went without water for a few hours Monday, likely after the dam broke and PWC turned off the water.

Chuck Parlett has lived in Hope Mills since 1967 and said he had never seen the water in the lake rise so high -- or get so low. **"I've never seen it all the way up to the cypress trees,"** said Parlett, **"not even after a hurricane."** The same awe could be heard in the voices of officials. **"Sometimes Mother Nature just kicks you in the pants,"** said City Manager Rodney Johnson. **For years there have been indications that the dam was in need of repair. The town took ownership of the dam in 1984 from Dixie Yarn Mills.** Built out of concrete in 1921, the dam had eroded and cracked in several places. Estimates a year ago put the cost of repairing the dam at about \$105,250. The town had already set aside money in the budget to tackle the repairs.

Dam repairs

Since taking ownership, Hope Mills has made numerous, though minor, repairs to the dam. Johnson said that the latest repair plans had only recently been approved by the state and that a date to begin work was to be set during a meeting scheduled for Thursday. "Now we're going to have to expand those plans," Johnson said. "It's going to take a long time for that thing to be repaired." **But for residents of Hope Mills, where the lake sits in the center of the town, the broken dam hardly seemed like a tragedy.** The scene around Hope Mills Lake on Monday looked like any other Memorial Day. Families gathered at picnic tables to eat huge spreads of food. Parents pushed children in strollers along the shore -- though gawking and taking pictures of the carnage. Teenagers congregated in parking lots around pickup trucks. It was almost like any other holiday weekend. **"Folks seem to understand,"** Johnson said. **"But it'll be a disappointment for anyone who was planning to celebrate the Fourth of July by the lake."**

(Trying to mimic the original dam builders.)

Man-made beaver-style dams help restore land in New Mexico

By Olivia Harlow | sfnewmexican.com, May 26, 2018

JEMEZ SPRINGS, NM — In the pastures of the Jemez Mountains, where meadows act like sponges for snowmelt and monsoon rain, lies a small oasis. And in a time of drought, it's this brook stemming from the Rio Cebolla that provides a glimpse of hope for local wildlife and nearby communities. Employees from various departments of the U.S. Forest Service and volunteers spread out along a narrow streambed just north of the Jemez Pueblo last week to construct nine beaver-style dams as part of a long-term restoration project. Under an open sky, outfitted in water boots and mud-splattered T-shirts, they weaved willow tree branches through wooden fence posts planted underwater, then proceeded to stack rocks on the upstream side of the handmade walls.



The goal: to restore pasture land and the environment that surrounds it. “By putting in these structures, it mimics the beaver dams that were here historically,” said Cecil Rich, Fish and Aquatic Programs Manager for the Santa Fe Forest. And by recreating formations that once existed, Rich said, the dams can help replenish vital wildlife habitats — and at an astounding rate. “Immediately,” he said, “it makes the water deeper and improves the floodplains.”

Building the dams is just part of the Southwest Jemez Mountains Collaborative Landscape Restoration Initiative. Since the first eight dams were constructed in October 2017, Rich has gathered workers to plant willow trees and build sets of dams twice this year. He hopes that in June workers will create at least eight more dams, totaling 26 for the year and 34 in total. Already, wildlife is returning to the area where dams were built just a couple of weeks ago — and chewed markings reveal that beavers are among them. “Beavers are definitely in the area,” Rich said. However, he explained that their presence early on could stunt the growth of willows and slow entire development process. “You don’t want them to be too much of ‘eager beavers,’ ” he said with a laugh. Once willows have partially grown in the next five years, the flat-tailed, buck-toothed critter — a keystone species or “ecosystem engineer,” as Rich calls them — will be critical to the area. Yet, the project is “not just for the beavers; it’s for all wildlife,” said Rich, adding that any animal or plant that once thrived here could do so again — and that habitat restoration could specifically save the currently endangered New Mexico species like the meadow jumping mouse. “[The project] will benefit native fish, migratory songbirds, and all kinds of wildlife.”

For Bill Zenger — better known to his friends as “Wild Bill” — the dams are for fish. “The Rio Grande sucker and the Rio Grande chub can really benefit,” said Zenger, a board member at Trout Unlimited, adding that those particular species of fish are currently of conservation concern. “They don’t like roaring water, so they congregate in pools like this.” He pointed with a gloved finger to the clear water pulsing at his feet, willow branches tickling the surface. The drought-thinned path of water — merely a whisper, let alone a roar — meandered in a semi-straight line, between tall grass that had folded over and been pressed by cattle into the ground, forming rounded mounds. Layered mountains scattered in the background, just behind a group of grazing cows. Bridget Everette, a 21-year-old fisheries technician originally from Alaska, said that because there is so little water across the state, cattle — including the estimated 30 cows on the opposite side of the stream during construction — gravitate to any that’s available. But aimless wandering and consistent eating creates sediment, therefore forcing streams to narrow and meadows to dry. Though not the focus the project, Everette explained that the effort is “combating what the cows have done.” Overall, she said the long-term goal is to “prove that areas like this can be restored” and “create an environment that is sustainable and ideal for native fish species.”

Rich — who said he hopes to eventually expand similar projects to the Cuba and Coyote districts — believes that the timing of the project also plays an important role. With the current threat of wildfires, he said that redistributing water as quickly as possible will help reduce the chance of fires traveling to the stream's edge and destroying the entire area. "During drought, the value in restoring wetlands is even greater," he said, adding that the dams contribute to purifying flow and repairing other areas that have been reduced by wildfires. About 1½ miles downstream from the most recent construction, dams built just over six months ago are already surrounded by willow saplings, and large pools gather behind their walls. For Rich, the implementation of these dams is already a game-changer — both in the Jemez, and far beyond the state. "This is an early application of these structures in New Mexico, but it's showing promising results and has captured the attention of other resource managers that deal with water and land management," he said. "It's beginning to show that this type of restoration work may be valuable on a broader scale."

(TVA at work,)

Kentucky Dam embankment construction project underway

By DAVID ZOELLER, paducahsun.com, 5/28/18

Contractors for the Tennessee Valley Authority recently began work on a construction project to bolster the western earthen embankment of Kentucky Dam. Construction of the berm made of sand, gravel and stones on the downstream slope of the Kentucky Dam embankment is expected to take about two months.



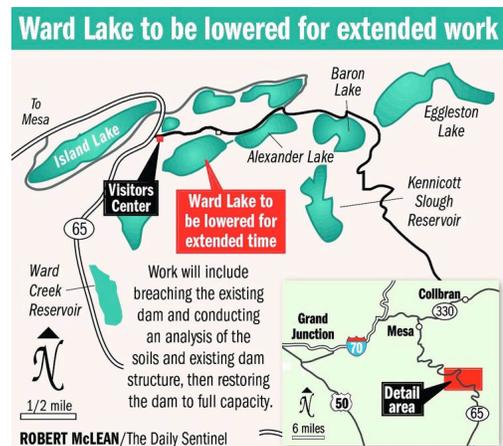
The completed berm will be about 400 feet long and 10 feet high. The estimated cost of the project is \$800,000. "It's a relatively small project as far as capital projects go," said Scott Brooks, TVA spokesman. "It's not because there's any structural issues with the dam. It's basically making a safe dam, safer. "We did a seismic study on all of our dams over the last few years and found if there is an earthquake, the concrete structure wouldn't have any issues, but there's a potential for part of the earthen dam to have some sinking. It's above the water line, but because of the study we decided we wanted to reinforce that part of the earthen dam by adding this berm," Brooks said. In addition to the berm construction, work also will be done to improve downstream surface drainage. The construction is not expected to affect highway or boating traffic near the dam.

(A fixer upper.)

Ward Lake dam on mesa to be breached

By GARY HARMON, 5/28/18, gjsentinel.com

Ward Lake on Grand Mesa, CO will be partially drained next month for two years of work on the reservoir dam, which the U.S. Forest Service says poses a safety concern. Enough water will remain in the reservoir for fishing and non-motorized boating, the Forest Service said. Work will include breaching the existing dam and conducting a geotechnical and forensic analysis of the soils and existing dam structure, then restoring the dam to full storage capacity. The Forest Service expects the reservoir, also known as Deep Ward Lake, will return to normal water levels after the snowmelt and run-off in 2020. Heavy equipment will be active at the dam in June for breaching and testing activities, and again in the summer of 2019, when the dam will be



repaired. Ward Lake campground is expected to remain open during the project. Visitors should refrain from approaching the construction area because of safety concerns, the Forest Service said.

(They never stop because they are on a roll. Their numbers are suspect because they're talking about removing over 1100 dams per year on the maximum side. Their estimate for dam removal seems way too low.)

Study finds big savings in removing dams over repairs

May 28, 2018, Portland State University, phys.org

A new study by Portland State University researchers finds billions of dollars could be saved if the nation's aging dams are removed rather than repaired, but also suggests that better data and analysis is needed on the factors driving dam-removal efforts. The study, published online in May in the journal *River Research and Applications*, analyzed the best available national data to compare the trends and characteristics of dams that have been removed with those that remain standing. The researchers expect that if trends continue, by 2050, between 4,000 and 36,000 dams will be removed.



The study found that a high-end cost estimate of removing 36,000 dams would be roughly \$25.1 billion, a significant savings over the estimated rehabilitation costs. The American Society of Civil Engineers estimates more than \$45 billion would be needed to repair and upgrade roughly 2,170 high-hazard dams—those that pose the greatest threat to life and property if they fail. The Association of State Dam Safety Officials estimates it would cost \$64 billion to rehabilitate all of the U.S. dams that need to be brought up to safe condition, according to the study. "I think it's time for a re-invigorated public process around managing the risks dams and aging dam infrastructure pose to public safety throughout the U.S.," said Zbigniew Grabowski, a Ph.D. candidate in PSU College of Liberal Arts and Science's Earth, Environment & Society program and the study's lead author. "It's difficult to assess the actual public safety hazards and the most cost-effective ways of mitigating those hazards because the data on dams and dam removals has not been systematically compiled in a way that allows for robust analysis by government agencies or independent researchers." The study found that hydroelectric and water-supply dams were the types most disproportionately removed, a finding that suggests more nuanced conversations about what drives the removal of dams is necessary.

Grabowski said the choice between removing or rehabilitating dams is often framed as a cost-benefit tradeoff between the ecological, social and economic impacts of dams. "Yet we should also be looking at how including the public in dam safety decisions might increase the number of dams that don't make sense to rehabilitate," he said. Among the study's recommendations:

- More detailed data needs to be made public and data collection on removed and rehabilitated dams needs to be standardized to allow for more robust comparative research and better-informed decisions at the national, state and local levels
- Dam policy officials and researchers need to take an interdisciplinary approach and draw knowledge from dam safety engineering, ecological restoration, social science and technology as well as the communities affected by dams and their removals

Explore further: Dam removal study reveals river resiliency

More information: Zbigniew J. Grabowski et al. *Fracturing dams, fractured data: Empirical trends and characteristics of existing and removed dams in the United States*, *River Research and Applications* (2018). DOI: 10.1002/rra.3283 <https://phys.org/news/2018-05-big.html>

(Imminent is a serious word,)

Evacuation orders canceled in North Carolina after officials deem Lake Tahoma Dam safe

By Renee Duff, AccuWeather meteorologist, May 30, 2018, accuweather.com

Heavy rainfall led to a landslide that compromised the Lake Tahoma Dam in western North Carolina early Wednesday morning. The National Weather Service issued a flash flood emergency for central McDowell County, including the town of Marion. "This is an extremely dangerous situation," the warning said. "To save your life, please heed all county evacuation notices and take action to leave the vicinity immediately!" Heavy rainfall flooded Riverbreeze Campground in Marion, North Carolina. (Twitter/@Z_Lowder14) "Floodwaters have reached levels not seen since the September 2004 floods associated with Hurricanes Frances and Ivan," the NWS said. "This is the most significant flooding McDowell County has seen since 2004." Areas downstream of Lake Tahoma Dam, including residences and businesses along U.S. 70 from Lake Tahoma Road to U.S. 221 Business near Garden Creek, were evacuated Wednesday morning. The evacuation order was canceled as of 10:15 a.m. EDT Wednesday, after Lake Tahoma was deemed safe after an inspection.



The evacuations were initially recommended by the dam's engineers, according to the McDowell County Emergency Management, who called the event a Class 1 emergency. Residents are now permitted to return to their homes in McDowell County, but officials urge them to use caution. The flooding is being blamed for a structure collapse in Marion shortly after 2:00 a.m. EDT Wednesday. A portion of Interstate 40 was shut down in McDowell County due to a mudslide. Several cars were trapped as the mud and debris overtook the roadway. No injuries were reported. Flash flooding was not restricted to McDowell County as water rescues and road closures were reported throughout western North Carolina on Tuesday night. The area was hit hard by as much as 4-6 inches of rainfall late Tuesday. The rain struggled to soak into the ground that has been soaked with above-normal precipitation this month. Asheville, North Carolina, which usually picks up 3.66 inches of rain during May, has received 13.26 inches as of Tuesday, May 29.



Hydro:

(Those that pollute should pay.)

Exelon sues MD over 'unfair burden' posed by Conowingo Dam requirements

By Karl Blankenship, May 25, 2018, bayjournal.com

The owner of Conowingo Dam on Friday challenged conditions Maryland placed on the hydroelectric facility's continued operation, saying the pollution cleanup ordered by the state imposes an "unfair burden" that would cost "orders of magnitude" more than the dam is worth. Exelon Corp. filed an appeal asking the Maryland Department of the Environment to reconsider its decision in late April requiring the



company to pay up to \$172 million annually to reduce nutrient and sediment pollution flowing past the dam and to make other changes in the dam's operation to improve fish habitat and water quality in the lower Susquehanna River and Upper Chesapeake Bay.

The Chicago-based energy company simultaneously filed suit challenging the MDE decision in U.S. District Court for the District of Columbia and the Maryland Circuit Court of Baltimore City. Exelon said it went to court at the same time it asked the MDE to reconsider its decision because of the "seriousness of the issues at hand." "The dam itself does not produce any pollution," Exelon said in a statement issued Friday. "Rather, the science clearly shows that the pollutants that travel down the Susquehanna River, from New York and Pennsylvania, are the source of the nutrients and sediments that flow into the Bay." At issue is how to resolve one of the more intractable problems facing Bay restoration efforts. For most of the past century, the 94-foot dam has been trapping sediment and nutrients that would otherwise reach the Chesapeake. But the reservoir behind the structure has reached its capacity, and the once-trapped pollutants now flow into the Bay just 10 miles downstream. The state-federal Bay Program partnership has estimated that it will require an annual reduction of 6 million pounds of nitrogen and 260,000 pounds of phosphorus to offset the impact of the dam's lost trapping capacity. That would be roughly an additional 5 percent reduction for a river where nutrient control efforts are far behind schedule.

Bay Program partners plan to write a new cleanup plan to offset that additional pollution, but they have not indicated how those reductions — which come on top of the obligations states already face to meet cleanup goals — would be paid for, or who is responsible for implementing them. Exelon is seeking a new 50-year operating license from the Federal Energy Regulatory Commission to continue generating power from Conowingo, one of five hydroelectric facilities along the lower Susquehanna River. But as part of the licensing process, Maryland has to issue a certification that operation of the dam will not degrade water quality. Maryland issued that certification April 27, but it imposed numerous conditions it said were needed to mitigate water-quality impacts from the dam. Along with the requirement that Exelon fund nutrient pollution control practices, it called for other actions, such as additional efforts to curb debris that flows downstream and changes to dam operations that the state says affect downstream habitats for fish and wildlife.

In issuing the water quality certification, MDE Secretary Ben Grumbles said that the requirements were part of "a holistic approach, working with Exelon and our fellow watershed states, to meet our Bay restoration goals and help launch a restoration economy." But in its filings Friday, the utility countered that the state's nutrient reduction requirement alone could cost more than \$7 billion during the 50-year license period, expenses that "exceed, by orders of magnitude, the economic value of the Conowingo Project as an operating asset." Exelon contends that requiring a dam owner to remove pollution originating from upstream sources would have "precedent-setting implications for the hydroelectric industry." The company called it "unprecedented" for a state to make such demands on a hydro facility.

"The health of the Chesapeake Bay is a shared responsibility, and we need to engage multiple states and stakeholders in an effective long-term solution," Exelon said in its statement. The utility also objected to additional requirements sought by Maryland for the control of trash and debris at the dam, which it also asserts comes from upstream sources. In response, the MDE issued a statement saying it will "vigorously defend our comprehensive Conowingo plan to restore the river and the Bay. The Hogan administration is committed to using science, law and partnerships for environmental progress throughout the entire Chesapeake Bay watershed and the Conowingo plan is at the heart of our multi-state strategy to deliver the results Marylanders expect and deserve." Alison Prost, the Chesapeake Bay Foundation's acting vice president for environmental protection, defended the state's action. "For decades, the Conowingo Dam has generated millions of dollars for its owners, who benefit from a public resource," she said. "It is completely reasonable that Maryland now require them to help mitigate the pollution caused by the dam's operation."

(Watch the video!)

VIDEO: DAM INTERESTING - OZARK'S BAGNELL DAM USING ROBOT FOR REHAB

Privately funded restabilization project using new technology to secure 1931 dam

<https://www.constructionequipment.com/video-dam-interesting-ozarks-bagnell-dam-using-robot-rehab>

May 25, 2018, constructionequipment.com

The hydroelectric Bagnell Dam on the Osage River in mid-Missouri is responsible for holding back the 600 billion gallon Lake of the Ozarks and creating 722,000-MWh of renewable electricity per year. Designed in the 1920s by Stone & Webster, Bagnell is an unreinforced gravity dam with three sections. With high-profile failures such as the service spillway collapse at California's Oroville Dam fresh in the public's mind, the 2,453-ft-long, 148-ft-tall gravity dam's owner, Ameren Missouri, has committed to a \$52-million stabilization project that will see 67 post-tension anchors added to Bagnell Dam along with 17,000 cu yd. of new concrete. General contractor MC Industrial has had to work in extremely limited staging areas, float a crane on a barge to set 67 new anchors, and figure out a way to prevent bug holes in new vertical concrete pours. The robot handled the exterior concrete demolition. Read this fascinating article describing how innovative thinking and great cooperation are bringing this project together in ENR's New Concrete,



<https://www.enr.com/articles/44480-new-concrete-anchors-stabilize-bagnell-dam>



Water:



Environment:

(How do you replace lake oriented recreation areas?)

Dam removal leaves need for new recreation sites

By GERRY O'BRIEN, H&N Editor, 5/29/18, heraldandnews.com

The Klamath River Renewal Corp., the nonprofit charged with coordinating the removal for four hydro-electric dams on the Klamath River, is seeking public comment



on new recreation sites along the river — after the dams are out. The KRRC notes that reservoirs such as Topsy, behind the J.C. Boyle dam, will become a river, as will the Copco Reservoir, once water levels are lowered. That will leave current recreation sites high and dry, but create more opportunity for riverside sites. The KRRC is seeking comments by Wednesday, May 30, on site proposals, but more comments will likely be taken after a draft plan is written. The comments will be rolled into a larger document to be present to the Federal Energy Regulatory Commission later this summer.

Some of the land that is now under reservoir water owned by PacifiCorp — the utility that owns the dams — will be turned over to the states and may, in turn, be handed over to the counties for development of recreation sites and boat launches. Anna Murveit, KRRC outreach and communication official, and others are having Skype calls with tourism officials, tribal members and recreational outfitters who use the river, soliciting comments on what to do with the land that will be left after the reservoirs are drained. “We want to hear their ideas on what would be the best locations for boat launches, take out spots and campgrounds among other things,” Murveit said. “We want to prioritize those sites and draw up selection criteria.” The KRRC recreation group is to submit its draft plan by July 1. All of this is dependent on FERC approving the license transfer of the four dams from PacifiCorp to the renewal corporation and then the decommissioning of the dams for removal. It’s part of the 2016 Klamath Hydroelectric Settlement Agreement. Funding for the project comes from PacifiCorp customer surcharge which totals \$200 million, plus California Proposition 1 which has set aside \$250 million. The timeline calls for decommissioning to start in 2020 at the earliest.

“The news of the day is that KRRC hopes to contract with local firms to do: Native seed collection; invasive exotic vegetation eradication; development of vegetation test plots; nursery plant propagation and groundwater monitoring,” Murveit said. “These opportunities are for firms to contract with KRRC, not direct hires through the KRRC. We are working on information to share on these RFPs (requests for proposals) and may have it in the next couple of weeks.” Cost estimates are being developed and will be part of the July 1 plan submission. “We’re trying to ensure as many local jobs go to the local communities,” she said. Early last week, KRRC held a Skype call with Discover Klamath, Klamath County Chamber of Commerce and Siskiyou County economic development leaders on recreational site locations. (A list of current and proposed sites and amenities is posted in PDF format on the Herald and News website alongside this story). Officials noted that while the counties have a master plan for tourism, it is too early speculate what recreational sites might prove best once the water is drawn down.



Other Stuff:

(Here’s an idea we hope works.)

Boyan Slat's Ocean Cleaning Device Sets Sail This Summer

MAY 14, 2018, viralnova.com

When Boyan Slat was 16 years old, he found himself coming across more plastic than fish while diving in Greece. It was then that he decided to dedicate a high school project to investigating ocean plastic pollution and how he could make a difference.

At 18 years old, he told a TED talk audience that he was going to develop a passive system to clean up oceans using ocean currents. Then, in 2013, he founded the non-profit entity, the Ocean Cleanup, whose mission is to develop advanced technologies to rid the world's



oceans of plastic. "Once plastic enters the marine food web, there is a possibility that it will contaminate the human food chain as well. Efforts to clean and eradicate ocean plastic have also caused significant financial burdens," The Ocean Cleanup website explains. Now, thanks to millions in crowdfunding, his organization will launch devices to help clean up the Great Pacific Ocean Patch, a swath of ocean between California and Hawaii where about 600,000 miles are covered in plastic and garbage.

The Ocean Cleanup system contains a U-shaped screen and floaters made from high-density polyethylene. It can trap garbage as small as 1 centimeter. The floaters allow the screen to stay buoyant as it drifts with the natural currents of the ocean. Ships collect the trash and bring it to land to be properly disposed of or recycled. **"The speed the plastic arrives at our moving systems is substantially lower than at a fixed structure having a positive impact on our systems' capture efficiency,"** the website says. What The Ocean Cleanup claims will be the "largest [ocean] cleanup in history" will begin in the San Francisco Bay in July, where they will start on a 120-meter section of the Northern Pacific Ocean before moving on to a 500-meter section. They hope to launch 60 devices between Hawaii and the north-west coast of the U.S. by 2020.

"The assembly is going on really well. The first segment, which is 120meters [long] has been put together and will be towed out for a tow-test in the [San Francisco] Bay area next week," spokesperson Erika Traskvik said. "The second system might be deployed early next year, but then after that, it could go fast. So we think that we could get up to 60 systems by 2020."

(via Shareably) **Slat hopes that his device can eradicate all ocean debris and that oceans will be plastic free by 2050. Here's hoping he'll meet these goals!**



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