Some Dam – Hydro News
And Other Stuff

Quote of Note: “Your time is limited, so don’t waste it living someone else’s life.”
- Steve Jobs

Some Dam - Hydro News >> Newsletter Archive for Back Issues and Search http://npdp.stanford.edu/
Click on Link (Some Dam - Hydro News) Bottom Right - Under Perspectives

“Good wine is a necessity of life.” - Thomas Jefferson
Ron’s wine pick of the week: 2014 Kaiken Malbec “Reserva”
“No nation was ever drunk when wine was cheap.” - Thomas Jefferson

Dams:
(Too late for the girl. Somebody take responsibility and just do it.)
Dawt Mill owners plan to remove dam where teen girl drowned
By Wes Johnson, news-leader.com, June 28, 2016

A low-water dam at Dawt Mill that trapped and killed a Springfield teenager Saturday likely will be torn out to prevent future tragedies, according to general manager Ron Harden. Harden said Tuesday afternoon that the Dawt Mill company shares 50 percent ownership of the dam with another person, but the company plans to seek a permit from the U.S. Army Corps of Engineers that would allow the dam to be removed. The dam has been a prominent feature across the North Fork River since it was built in 1892 to power the mill on shore. Harden said the center of the dam collapsed in 2013 after the river eroded the base and water began pouring through the resulting gap. It was in the rushing water of that gap where 13-year-old Chloe Butcher of Springfield became trapped Saturday and drowned. Harden said the gap contains debris and steel rebar, and the Dawt Mill company warns its paddling customers to stay away.

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu
from the dam when they return from floating the river. "We do not allow our watercraft to go through that gap," Harden said. "Safety is our number one concern at Dawt Mill. We've been working with the state to determine what we could do. We were in the process of putting buoys across the river ahead of the dam after the accident happened, but buoys don't work too well in a current."

He said the company is in the process of installing "No Trespassing" signs on the dam to keep people off the structure. It also plans to place "No Swimming" signs in areas leading up to the pool of river water behind the dam. Harden estimated it could cost close to $1 million to try to repair the dam.

"The most feasible thing will be to tear the dam out," he said. "We'll have to submit a plan with the Army Corp and get a permit request that spells out how we plan to do it." Harden said it's possible the entire dam structure might not need to be removed. "It's way early in this process to say exactly what we'll end up doing," Harden said. The teen's death sparked a Marshfield woman to launch a petition aimed at forcing the Corp to repair or remove the dam. Shelly Murry said she created the online petition shortly after Chloe's tragic drowning. As of Tuesday, more than 80 people had signed the online petition. "I would take it to the corps and local officials involved to help pressure them into action," Murry said. "It needs to be sooner rather than later. It's already too late to avoid a tragedy. Chloe isn't the first one to be endangered by it and until it's fixed won't be the last I'm sure."

Although the petition is aimed at forcing the Corps to act, the dam is privately owned and the Corps has no safety oversight or authority to work on the structure, according to Corps spokeswoman Laurie Driver in the Corps' Little Rock office. "We have no authority to repair or replace the dam," Driver said. "Under the Clean Water act, the owner would be required to submit a section 404 permit request with us to repair or remove it. The permit is a Clean Water Act requirement for putting dredging materials into the river. In a broad respect, it's a pollution-control permit," Driver said the Corps, the U.S. Fish and Wildlife Service and Missouri Department of Conservation met with the Dawt Mill owners in 2013 to discuss the dam's safety after flooding damaged it. However, Driver said the owners never filed a permit request to improve the structure. They did file a permit request to extend a boat launching ramp into the river, which the Corps approved, Driver said. "As of yesterday (Monday) we have not received a request from them for a permit to work on the dam," Driver said. Dawt Mill is a popular tourist attraction and paddling destination. According to the company's website, the mill is owned by Dr. Ed Henegar, who bought the property in 1995.

(Flood control at work.)

U.S. Army Corps of Engineers: Dams Prevented Much More Flooding
By CLARK DAVIS • 6/29/16, wvpublic.org

As storms rolled across West Virginia last Thursday unloading water in areas throughout the state, many of the state’s dams were functioning at high capacity. Aaron Smith is a Senior Project Manager with the Huntington District of the Army Corps of Engineers. He said dams like the Bluestone located in Summers county just upstream from Hinton did their job. "A lot of people in Charleston don’t realize that they live downstream from one of the largest dams in the state, Bluestone, which could send waters downstream that could put Charleston under 10-15 feet of water. And that’s an extreme event and I don’t mean to scare people, but it’s an important fact that you need to realize," Smith said.

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu
The Huntington district of the corps controls all seven dams that exist in the state of West Virginia. The ones most effected by the weather event last Thursday were the:

- Sutton dam located on the Elk.
- Summersville dam located on the Gauley.
- Bluestone dam located on the New River.

Jim Schray is the Senior Water Management Specialist at the Huntington District of the corps. Schray said on Thursday of last week things kicked into high gear mid-afternoon. “As we’re watching those dams and watching the gauges downstream we’re starting to see very significant rises and we’re seeing significant rainfall,” Schray said. “So early afternoon we’re basically slamming shut the gates to cut off that water and store it to reduce the floods downstream, so it was very busy. Traditionally on a normal day, I’m running one computer model, on Thursday I was running 6.” Schray said some of the heaviest of the rain fell outside the dams’ control - below Summersville, below Bluestone and below Sutton. He said they were able to catch most of the rain that fell above the dams. “Basically we impound that water in our dam,” Schray said. “If you look at Summersville specifically, the elevation that resulted from this event is the second highest in its history. We stored almost 42 feet of water and we store that water till the downstream stages drop below the damage levels.”

He said they started to see those lower, normal levels on Saturday which led to the release of water at Summersville and Sutton. The controlled release allows the dam to slowly get back to normal levels, so the Corps can be ready in case of another weather event. Schray said when storms exceed the ability of the dam too retain flood waters it’s called a spillway event. In those instances, a dam may have to spill a significant amount of water downstream, and that can cause flooding too. Schray says the state-run Summit Lake Dam above Richwood experienced a spillway event last week. According to Smith and Schray the idea of a dam on the Greenbrier River is one that’s floated around in the past, but there’s never been enough support to make it a reality.

Valley groups, feds seek funds to build Temperance Flat dam
A group of local elected officials and a federal agency to sign agreement
The groups want about $1 billion toward building the dam
The application for funding is due in July of next year

A coalition of local elected officials, water districts, tribal members and the federal government will gather Friday to launch the application process to help build Temperance Flat Dam and Reservoir project. Members of the newly formed San Joaquin Valley Water Infrastructure Authority will work with the U.S. Bureau of Reclamation to complete the funding application for the proposed water project on the San Joaquin River, in the Sierra foothills east of Friant Dam. The two groups will sign a memorandum of understanding Friday outside the Old Fresno County Courthouse overlooking Millerton Lake. Mario Santoyo, executive director of the authority, said the group will be applying for a portion of the $2.7 billion in state water bond funds. As part of the bond, successful projects will be awarded a maximum of 50 percent of the total cost of the project. In the case of Temperance Flat, the expected price tag is $2.8 billion. Santoyo said the authority will be asking for about $1 billion. The remainder of the funds will be requested from Congress. The deadline for the application is July 2017.
Getting the help of the Bureau of Reclamation was critical, Santoyo said. “They have the technical documents and a feasibility report that we will need,” Santoyo said. “We don’t need to reinvent the wheel. If we had to provide that information it could cost between half a million to $1 million.”

The authority was put together for the purpose of applying for major water bond projects. Its members include representatives from Tulare, Fresno, Madera, Merced and Kings counties, along with the cities of Orange Cove, Clovis, Avenal and Huron. Water districts, including San Joaquin River Exchange Contractors Water Authority and Westlands Water District, are included, as is Table Mountain Rancheria. If authorized by Congress, the dam and reservoir would become part of the federal Central Valley Project and create 1.2 million acre feet of new water storage. That’s more than double the current capacity of Millerton Lake.

(Is this the next target? This is getting out of control. The whole SW depends on these dams.)

Is it time to think about removing dams on the Colorado River?

Living on Earth, July 02, 2016 · Writer Adam Wernick (follow), pri.org

The terrible drought afflicting the American West has sparked soul-searching about water management in the region. For the first time in many decades, the viability of dams and other infrastructure that supply water to cities and farms throughout the region has entered the conversation. Abrahm Lustgarten, a reporter for ProPublica, has written a new story about one of the largest dams in the US, Glen Canyon, and a recent push to open up its gates. It’s a remarkable development, he says, given how important the Colorado River dams — Glen Canyon, with its reservoir, Lake Powell, and Hoover with Lake Meade — have been for the development of the West.

In the early 1900s, the US government started building dams up and down the Colorado River to harness its water and distribute it far outside the river’s natural course — hundreds of miles into Arizona and California. The dams, particularly the Hoover Dam, were also intended to control the torrential floods that would come downstream in big water years, "Glen Canyon Dam was built in the 1950s, at the tail end of this building spree," Lustgarten explains. "The upper basin states on the Colorado River — Wyoming, Colorado, New Mexico, and Utah — were worried that the lower basin states — California, Arizona and Nevada — were taking too much water and were growing too fast, and they basically wanted a gate. Glen Canyon Dam was built as their way to hold back water so they wouldn’t have to give more than they were legally required to those states in the south." Now, given the realities of climate change and a drought that shows no sign of abating, the reservoir at Lake Powell may have outlived its usefulness, Lustgarten says — especially given the amount of water that is lost to evaporation.

"The big dams on the Colorado River were built to save water, but because the water is spread over such a large area in such a hot and dry environment, an enormous amount evaporates off the surface," Lustgarten says. "That didn’t matter so much in the past, but as water becomes..."
more and more scarce, that loss is significant enough to make a real difference." Lake Powell loses about 350,000 acre feet of water each year to evaporation. Combined with the amount of water that seeps out the bottom of the lake — an additional 380,000 acre feet — that’s enough to supply about nine million people with water each year — roughly the population of the city of Los Angeles. Lake Mead loses a similar amount and so do each of the reservoirs up and down the Colorado River system, Lustgarten notes. "When you add all that up in a system that is [already] over-allocated every single year, you see an inefficiency that could add roughly 30 percent more to the river's flow."

There are no easy ways to address this inefficiency, Lustgarten says. But what’s changing the discussion is the fact that both Lake Powell and Lake Mead are essentially drying up. "Lake Mead is now about 37 percent full. Lake Powell is just a little bit less than half full," Lustgarten explains. “Both reservoirs still lose an enormous amount to evaporation and they're not functioning at their full capacity, in terms of the power they generate or the amount of water that they hold. So the ratio of inefficiency to benefit has changed substantially over the last decade or so of drought.”

A proposal from an environmental organization called the Glen Canyon Institute suggests combining the two reservoirs. If they are both half-full, their reasoning goes, then empty Lake Powell and combine it with Lake Mead. The region would not lose the water, but send it 300 miles downstream and re-collect it in one full, large reservoir. This would significantly decrease the amount of water lost to evaporation, and increase the power generating capacity of Hoover Dam, which helps make up for the loss of power generation at Glen Canyon dam. An added bonus is the opportunity to restore the landscape of Glen Canyon. Most of the resistance to this idea comes from the upper basin states, according to Lustgarten. They say removing Glen Canyon Dam would require a renegotiation of the Colorado River Compact — a legal agreement to send seven-and-a-half million acre feet of water down to the south every single year — congressional approval and an involved bureaucratic process. What that really means, Lustgarten says, is that they don't want to lose hands-on control over their water.

Legal experts Lustgarten consulted suggest that both the upper and lower basins could share the water out of Lake Mead. "It doesn't have to continue in the traditional role of serving only the southern basins," he explains. "The accounting for the water could still happen at a place called Lee’s Ferry, where it happens now, just below the site of the Glen Canyon Dam." So how realistic is it to think of opening the gates of the Glen Canyon dam in the face of political pressure from states upstream? The short-term answer from deputy secretary of interior Mike Connor, the person ultimately in charge of water in the West, is not very; this is not something that is going to happen anytime soon. Nevertheless, Lustgarten says, a conversation seen as laughable just a few years ago is now taking place in a serious way. The idea of a dam not suiting its original purpose is a topic that can now be broached, he says. Whatever happens, or whenever it happens, the bottom line is that "the Colorado River will never be sustainable until the amount of water the states take from it matches what is naturally available," Lustgarten says. "If that doesn't change, if the states continue every single year to draw more water than flows out of it, then these reservoirs are going to drain. It could take another ten years it could take another two years, but they’re going to drain to the bottom."

(Another 2 cents worth.)

OPINION

Removing Snake River dams is bad for economy and salmon

July 2, 2016, seattletimes.com, by Todd Myers, Special to The Times

AS environmental activists sound alarm bells on climate change, imagine them proposing destroying every wind turbine and solar panel in Washington. Oddly, that is essentially what they have supported by demanding that the four Lower Snake River dams, and all the carbon-free energy they create, be destroyed. Annually, the dams generate about 8.3 million megawatt hours of electricity, or 8 percent of Washington’s energy. That is more clean energy than is provided by all the wind and solar facilities in Washington state added together. The debate about tearing down the dams was reignited with a new push by environmental activists and U.S. District Court
Judge Michael Simon’s ruling that dam destruction must be considered to help salmon. As a member of the Puget Sound Salmon Recovery Council, I share the desire to increase salmon populations across the state. Removing the dams, however, would come with high costs and damage environmental efforts across the state. For example, the Snake River dams make it possible to bring wind and solar into the grid.

The steady and reliable dams balance energy from intermittent sources like wind. As wind becomes a larger portion of our energy supply, the load balancing function of the Snake River dams will become even more important, especially since the wind is often strongest in the middle of the night when our need for energy is at its lowest. Additionally, replacing the carbon-free energy from the dams would have enormous costs. Using data from the U.S. Energy Information Administration, an analysis I completed for an upcoming edition of the University of Idaho Law Review found that replacing the dams would add more than $200 million a year to energy costs. Those costs would have huge impacts. First, it would reduce funding for other projects. The additional $200 million is nearly twice the amount the state Salmon Recovery Funding Board provides annually. What salmon recovery projects would be eliminated with the loss of funding?

Second, it would remove one of the best reasons to move manufacturing and jobs to Washington state — our low electricity costs. The cost for this electricity is one of the lowest in the country and is a major reason REC Solar and BMW’s electric-vehicle-parts plant are now located in Moses Lake.

Supporters claim removal would help increase recreation along the river. Similar claims were made about the removal of the Elwha dams on the Olympic Peninsula. Indeed, according to National Park Service statistics, there was an increase in visitors — for one month. Since then, levels have fallen dramatically and are slightly below the previous year’s level. Clallam County officials report a loss of recreation jobs in the last two years. When I worked at the state Department of Natural Resources, environmentalists repeatedly claimed recreation would replace economic damage from the loss of timber. Those confidently predicted jobs never materialized, but it is the thin reed Seattle environmental groups cling to when they kill the jobs of rural families. That dismissive attitude is not surprising. Many who want dam destruction don’t visit the communities they are impacting. At a forum we held in Spokane last year, the head of the Seattle Earthjustice office admitted he had never been to Spokane despite moving to Seattle 17 years earlier. Unfortunately, these costs to the climate, to salmon recovery and the economy are all ignored by advocates of destroying the dams. Efforts to tear down the four Lower Snake River dams are one more example of how the environmental movement has increasingly replaced the mantra of “think globally, act locally” with a myopic approach that ignores the larger environmental costs of local crusades. Increasing salmon populations has been a contentious and frustrating process; progress has been slow. Helping salmon in the Columbia and Snake rivers, Puget Sound and elsewhere requires a thoughtful approach. We can’t allow frustration and symbolism to override science and the impact on funding for our efforts statewide. Todd Myers is director for the Center for the Environment at Washington Policy Center, an independent policy-research organization.

 Snake River dams: Removal makes sense; Elwha is not a failure

By Letters editor July 5, 2016, seattletimes.com

(Doesn’t think much of 2 cents worth.)
Todd Myers’ Op-Ed arguing against removing the Snake River dams ignored two salient points, which thus weakened his argument. First, he fails to mention that the Elwha River, now a real river rather than a series of stagnant ponds, has washed out a bridge that formerly allowed cars to access a parking lot six miles upriver. Rebuild that bridge, and the number of people visiting and hiking along the river will increase significantly, as will tourist dollars spent in the area. Second, although he says that removing dams will be bad for salmon, he never explains how leaving the dams in place will be good for salmon. He apparently does not even know that salmon runs on the Elwha have improved significantly since dam removal. What we need here is clarity about why we remove dams and the environmental and economic benefits of doing so. Everyone working to remove these outdated and unnecessary dams realizes that restoring the legendary salmon runs on the Snake will promote a healthy fishing business for both the tribes and commercial fishermen. Razing these dams now is just common sense.

(Website is unfriendly. New dams are being built. Not much of a dam out in the middle of nowhere in NM.)

**Dam will let CNM expand, protect downstream areas**

By ZITA FLETCHER, Observer staff writer, 7/2/16, rrobserver.com

Construction is proceeding on the Southern Sandoval County Arroyo Flood Control Authority’s Campus Dam, identified as a key regional facility to protect human life and property. The structure, on the Barranca Arroyo upstream of the Central New Mexico Community College Rio Rancho campus, is intended to protect the campus from storm flooding and reduce the federally designated floodplain by four acres. That will allow CNM to expand its campus buildings. CNM fully supports the project and gave SSCAFCA a drainage easement on 3.2 acres to be used for the dam. The two organizations are collaborating to preserve the arroyo’s natural state and to integrate it into an outdoor classroom area. CNM is building an open space community trail loop, which is designed to connect with the completed Campus Dam. A pedestrian bridge will span the arroyo just upstream of the dam. The flood pool and most embankments will be made of natural elements, blending with the environment and allowing stormwater to merge with the soil. The total construction cost is $1.8 million, provided through a combination of funds from SSCAFCA bonds, the New Mexico Water Trust Board and the Legislature.

“I think the Campus Dam is an example of the kind of success that we should try to achieve with any publicly funded project, which is to create a synergy with other agencies or partners to gain additional benefits for the community,” said Chuck Thomas, SSCAFCA executive engineer. The dam consists of an earthen detention basin with an inlet structure and embankment constructed of soil cement. In the event of a major storm, the downstream surge in the arroyo will be reduced by about two-thirds. Reinforced concrete with energy dissipaters will slow the downstream flow entering CNM property. Diverted waters will remain in the traditional arroyo channel which bisects the campus. Thomas said the dam will reduce the peak flow from a 100-year storm event of 1,480 cubic feet per second (CFS) to about 510 CFS. The term “100-year storm event” does not indicate a recurring centennial storm, but rather refers to the size of storm that has a 1 percent chance of occurring anytime it rains. The 100-year storm is the design standard that we, and other agencies involved in flood control, use as a basis for design,” said Thomas. “In other words, we build our facilities to handle all of the runoff from a 100-year storm that rained over the entire area upstream from the facility.” The dam is scheduled to be finished by the end this month.
**U.S. Army Corps of Engineers awards final rehabilitation construction contract for Center Hill Dam**

Nashville, Tenn. (July 5, 2016) – The U.S. Army Corps of Engineers, Nashville District announces the award of a $42,972,545 contract to Thalle Construction Co., Inc. to build a concrete reinforcing berm downstream of the Center Hill Auxiliary Dam. The contract was awarded on June 27. The work also includes stabilization of a previous rock cut near the main dam. “This final major construction effort will reinforce the earthen auxiliary dam, also called the saddle dam, and reduce the risk of either a seepage or an overtopping failure of this structure. The construction will complete a series of major construction efforts since 2008 to significantly improve the long-term reliability of the dam and to ensure public safety” said Project Manager Linda Adcock. The awarded contract is the third and final major contract for dam safety-related work at Center Hill Dam. "A second, auxiliary earthen embankment, in addition to the main one, was constructed in the 1940’s as part of original construction" explained Adcock. “The auxiliary dam is southeast of the main dam and many folks are not of is location because it is visible primarily by air or boat. The auxiliary dam fills a low area in the landscape in order to maintain the lake; it is an integral part of the Center Hill project.” The foundation of the auxiliary dam has the similar seepage concerns as the main dam.

The main components of work in the auxiliary dam contract awarded today are:

- A 130,000 cubic yard roller compacted concrete (RCC) reinforcing berm immediately downstream of the saddle dam
- Excavation and stabilization of the cut slopes east of the main dam in the area commonly known as the left rim with transport of excavated material to be placed between the existing auxiliary dam and the newly constructed RCC berm

While the contract awarded today will complete the auxiliary dam rehabilitation, the first two major contracts addressed seepage issues at the main dam. The 2008-2010 work included grouting at the main dam and left rim. To complete the main dam improvements, a 2012-2015 foundation barrier wall was then installed through the main dam earthen embankment and deep into foundation rock. State highway 96/141 across the dam is planned to remain open, as well as Long Branch Campground downstream of the dam, throughout the two and one-half year contract.

The Center Hill Dam was identified in 2006 by the Army Corps of Engineers as a high risk dam, primarily due to foundation seepage. “Much of the risk has been reduced by work completed to date,” Adcock said. “The auxiliary dam work is the final leg repair of a three-legged stool”. In addition to this major contract, there will be several small contracts required for site restoration through 2019. To read more on the project, the seepage problem and the fix, visit the Nashville District webpage at http://www.lrn.usace.army.mil/Missions/Current-Projects/Construction/Center-Hill-Dam-Safety-Rehabilitation-Project/. For more information about the U.S. Army Corps of Engineers Nashville District, visit the district’s website at www.lrn.usace.army.mil, on Facebook at http://www.facebook.com/nashvillecorps and http://www.facebook.com/centerhilllake, and on Twitter at http://www.twitter.com/nashvillecorps.
POLK CITY, Iowa — Amidst the serenity of another beautiful day at Big Creek sits a giant solution to a decades-old problem that many are unaware of. “Ever since that gate failed in the late ’90s it’s been broke ever since,” Jeff Rose, of the U.S. Army Corps of Engineers, said. The gate that regulates water flow out of Big Creek is stuck partly open. The opening is large enough to keep Big Creek flowing downstream, but it limits the Iowa Department of Natural Resources or Army Corps’ ability to draw down the water level in case of any emergency with the lake or dam. “(We) keep requesting money and justifying the money, and sometimes you just have to be very, very patient,” Rose said.

Two years ago funding for a $9 million fix was approved. The result was a cofferdam built by Jensen Construction -- a watertight enclosure made of 110-foot-tall giant steel sheet pilings driven down 60 feet into the bedrock under the reservoir. With the cofferdam in place circling the broken gate, the water will soon be pumped from inside the cofferdam out to the lake. This will allow work to begin on a new working gate at the base of a new control tower similar to a system in Saylorville. A temporary pipe that goes over the dam will keep big creek flowing while the new gate is being built. Project manager Ryan Cheeseman, of Jensen Construction, calls it an extremely difficult two-year project. “You're handling large heavy pieces with cranes floating on the water, so there are a lot of variables involved with picking the materials up in the air,” Cheeseman said. Crews had hoped to start pumping water out from inside the cofferdam back in May, but leaks have held them back. Crews now hope to have water pumped out in the next three weeks.

Hydro:
(Nice to be included.)
EPA Includes Geothermal, Hydroelectric Power in Renewables Incentive Program
industrialinfo.com

SUGAR LAND, TX--June 30, 2016-- Researched by Industrial Info Resources (Sugar Land, Texas)--The Environmental Protection Agency (EPA) has included generation of geothermal and hydroelectric power in the Clean Power Plan (CPP) early incentive program. The Clean Energy Incentive Program (CEIP), which also includes solar, wind and energy efficiency projects, would help to stimulate investment in low income communities prior to the CPP mandatory effective date in 2022. Within this article: The number and total value of U.S. hydroelectric capital projects being tracked in the U.S. by Industrial Info, as well as the number and value of geothermal capital projects.

(Just how new is it?)
New technology could improve use of small-scale hydropower in developing nations

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu
CORVALLIS, Ore. -

Engineers at Oregon State University have created a new computer modeling package that people anywhere in the world could use to assess the potential of a stream for small-scale, "run of river" hydropower, an option to produce electricity that's of special importance in the developing world. The system is easy to use; does not require data that is often unavailable in foreign countries or remote locations; and can consider hydropower potential not only now, but in the future as projected changes in climate and stream runoff occur. OSU experts say that people, agencies or communities interested in the potential for small-scale hydropower development can much more easily and accurately assess whether it would meet their current and future energy needs. Findings on the new assessment tool have been published in Renewable Energy, in work supported by the National Science Foundation.

"These types of run-of-river hydropower developments have a special value in some remote, mountainous regions where electricity is often scarce or unavailable," said Kendra Sharp, the Richard and Gretchen Evans Professor in Humanitarian Engineering in the OSU College of Engineering.

"There are parts of northern Pakistan, for instance, where about half of rural homes don't have access to electricity, and systems such as this are one of the few affordable ways to produce it. The strength of this system is that it will be simple for people to use, and it's pretty accurate even though it can work with limited data on the ground." The new technology was field-tested at a 5-megawatt small-scale hydropower facility built in the early 1980s on Falls Creek in the central Oregon Cascade Range. At that site, it projected that future climate changes will shift its optimal electricity production from spring to winter and that annual hydropower potential will slightly decrease from the conditions that prevailed from 1980-2010. Small-scale hydropower, researchers say, continues to be popular because it can be developed with fairly basic and cost-competitive technology, and does not require large dams or reservoirs to function. Although all forms of power have some environmental effects, this approach has less impact on fisheries or stream ecosystems than major hydroelectric dams. Hydroelectric power is also renewable and does not contribute to greenhouse gas emissions.

One of the most basic approaches is diverting part of a stream into a holding basin, which contains a self-cleaning screen that prevents larger debris, insects, fish and objects from entering the system. The diverted water is then channeled to and fed through a turbine at a lower elevation before returning the water to the stream. The technology is influenced by the seasonal variability of stream flow, the "head height," or distance the water is able to drop, and other factors. Proper regulations to maintain minimum needed stream flow can help mitigate environmental impacts. Most previous tools used to assess specific sites for their small-scale hydropower potential have not been able to consider the impacts of future changes in weather and climate, OSU researchers said, and are far too dependent on data that is often unavailable in developing nations. This free, open source software program was developed by Thomas Mosier, who at the time was a graduate student at OSU, in collaboration with Sharp and David Hill, an OSU associate professor of coastal and ocean engineering. It is now available to anyone on request by contacting Kendra.sharp@oregonstate.edu. This system will allow engineers and policy makers to make better decisions about hydropower development and investment, both in the United States and around the world, OSU researchers said in the study.

(More development at locks and dams.)

Study: Potential hydroelectric plant on Ohio River passes hurdle

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu
A proposed hydroelectric plant near the Montgomery Locks and Dam is about to get one step closer to reality, although plenty of work remains in the months and years ahead. Boston-based Rye Development has been spearheading the effort to build 10 hydroelectric plants on the three major rivers in western Pennsylvania. But before any kind of preliminary site work and planning commences, the projects must first clear regulatory and permitting hurdles. One of those hurdles was just cleared when the Federal Energy Regulatory Commission released an environmental assessment of the proposed projects and found they “would not constitute a major federal action that would significantly affect the quality of the human environment.” Craig Cano, a spokesman for FERC, said the staff conducted the study but hasn’t yet given final approval for the projects. A public comment on the study will be available until July 5, after which FERC will issue a final decision.

The environmental assessment is just one of many regulatory obstacles that must be passed, said Don Lauzon of Rye Development. After FERC releases its final decision, his company must secure water quality certifications and other permits, both federally and from the state Department of Environmental Protection. But the most recent FERC assessment is a step in the right direction toward seeing the projects become a reality, Lauzon said. “The journey is still long and challenging, but we’ve had some good progress with FERC,” he said. “The next step is to secure certifications from the state. Once we get our license, then we’ll start working with the Army Corps of Engineers for final designs. There’s still a long way to go.” The local project, which would create 100 jobs if it’s approved, would use 5.1 acres of federal land that abuts the locks and dam on the north side of the Ohio River in Industry. All of the 10 proposed projects would be built and operated similarly. In addition to the Montgomery project, three others are planned in Allegheny County, as well as two in Washington, one in Fayette and one in Greene. The project would include an intake channel and intake structure, a reinforced concrete powerhouse on the north bank of the river, three turbine generator units with a combined capacity of 42 megawatts, a substation and overhead transmission lines. If built, the plant could last for 75 to 100 years. Lauzon said it’s important to realize all the work that’s ahead. But that doesn’t mean he’s not happy that everything is progressing. “It’s exciting,” he said. “We’re really looking forward to partnering with local communities.”

(Too long for a Newsletter, just click on the link. Great photos.)

Photos of the Day: World's Most Productive Hydropower Plant
06/30/2016 - by Tomas Kellner, GE Reports, pddnet.com

https://www.pddnet.com/news/2016/06/photos-day-worlds-most-productive-hydropower-plant

(Looks like a rundown shack.)

Millers River dam work to start Tuesday in Orange
By DOMENIC POLI, Recorder Staff, July 01, 2016, recorder.com

ORANGE, MA — The floodgates of controversy have opened regarding a plan to lower the water level of the Millers River so a hydroelectric plant can rehabilitate its dam.

Copy obtained from the National Performance of Dams Program: http://npdp.stanford.edu
Mini-Watt Hydroelectric has a facility off West River Street and is owned by a corporation of the same name with a Holyoke mailing address, according to town assessor's records and State Registry of Deeds land records. The plant sits on the Millers River by the South Main Street bridge. Orange Town Administrator Diana Schindler said she has been told the work — which must be conducted during summer months — is slated to begin July 5 and last roughly six weeks. She said the water is expected to be lowered to 5 feet below its lowest point.

"It will make (the river) a trickle, basically," she said. The plan, financed by state grant money, is being met with resistance by people concerned about the effects the work will have on the town.

At 4 p.m. on Thursday, she said she had received eight phone calls regarding the project, including one from Congressman James McGovern's office. According to a McGovern aide, the congressmen's office reached out to Orange Town Hall to relay a resident's questions about the project's timing and duration. The aide said the people at Town Hall were helpful and responsive. Schindler said some people are concerned the plan will disrupt Orange's summer tourism business. She explained the town owns a boathouse on East River Street and leases it to Peak North America, an adventure guide company, a few months a year. State energy officials in April announced $1.05 million in grants to support upgrades to three western Massachusetts hydroelectric facilities: Mini-Watt Hydroelectric, Pioneer Hydro Electric Co. in Ware and A & D Hydro Inc. in West Springfield. Mini-Watt Hydroelectric received $500,000 in state aid to stop leaks and modernize equipment, including a fully-automated system that can be controlled via smartphone.

The state previously said the upgrades are expected to increase electric generation by at least 516,000 kWh per year, enough to power 68 average Massachusetts homes.

(Don't know if this is a long-term smart move.)

**EWEB sells Smith Creek dam for $22.1 million to pay down debt**

By Christian Hill, The Register-Guard, JULY 3, 2016, registerguard.com

The Eugene Water & Electric Board has sold its hydroelectric project in Idaho and will use the money from the sale to pay down debt, but it must continue buying power from the dam's new owner at below-market rates for the next three years. The sale of the Smith Creek Hydroelectric Project to Smith Creek Hydro LLC closed Wednesday for $22.1 million. EWEB received its lump sum payment the same day. EWEB will use the sale proceeds plus another $5 million from cash reserves to pay down debt. That's good news for ratepayers. Without a sale, EWEB officials told commissioners late last year, the utility would need to raise its rates to ensure it has enough revenue to pay its debt obligations. Without enough revenue, according to the utility, credit rating agencies could downgrade its bond rating, costing EWEB — and its ratepayers — more money for borrowing.

EWEB also has more power than it needs and is generating less revenue from the surplus power it sells on the market because of low wholesale prices. *Not only are we kind of closing our gap on our*
surplus power resource, but we’re using the proceeds to pay down debt,” utility spokesman Joe Harwood said.

The utility receives most of its power under contract with the “Bonneville Power Administration. It continues to own three hydroelectric projects. One condition of the sale is that EWEB continues to buy power generated from the dam for the next three years. The staff report from late last year noted this purchase agreement “is intended to allow (Smith Creek Hydro) to take ownership of the plant and subsequently find a long-term buyer for the power.” Another utility spokesman, Lance Robertson, said EWEB will pay $3 below the market price for each megawatt it purchases from Smith Creek Hydro and be able to sell that at market price during that three-year period. EWEB also no longer will have to pay about $400,000 a year in contract costs to operate the dam. EWEB projects it will save more than $10 million over five years by paying off the debt and eliminating the dam’s operating expenses. The utility purchased the Smith Creek project, in the Kaniksu National Forest near the Canadian border, in 1993 for about $25 million at a time when the demand and price for electricity was higher. Although the sale price is lower than the original purchase price, Harwood said the utility “made a pretty tidy sum on the power that we sold” on the market over the years. He also said it’s a “buyer’s market” due to the drop in wholesale electricity prices. EWEB acquired the federal license to generate electricity at the dam in 2000. The license is valid until 2037.

Commissioners declared the project surplus in 2014 and put it up for sale. Six companies interested in buying it initially submitted proposals. EWEB narrowed the list to two bidders by February 2015. In November, commissioners authorized staff to finalize the sale with Smith Creek Hydro. One the conditions before the sale closed was for EWEB to receive approval from the Federal Energy Regulatory Commission to transfer its operating license to Smith Creek Hydro. The federal agency approved the transfer five days before the sale closed. Smith Creek Hydro is a Delaware limited liability company formed last year to purchase, own and operate the dam. The joint venture is owned 25 percent by Smith Creek Management LLC and 75 percent by Smith Creek Holdings Inc. Smith Creek Management is majority owned and controlled by Thomas Fischer, the sole owner of Tollhouse Energy Company. The Bellingham, Wash.-based company is developing hydroelectric projects in Washington and Montana. Smith Creek Holdings is tied to Victor Budzinski, chief executive officer of Valard Construction, one of Canada’s largest electric power line contractors. Budzinski is president and chief executive officer of Smith Creek Hydro, and Fischer is its chief operating officer and manager.

(More hydro, better efficiency.)

Southeast Hydro Projects Get $1.2 Billion Boost
By Steven Johnson | ECT Staff Writer, July 4th, 2016, ect.coop

More than $1.2 billion will be directed toward upgrading aging hydropower projects in the Southeast that are important to electric cooperatives, under a pact announced June 28.

The agreement, signed by federal agencies, the Tennessee Valley Authority and the association that represents its customers, is aimed at modernizing projects along the Cumberland River during the next 20 years. TVA purchases power for its co-ops and municipal systems from eight dams that the U.S. Army Corps of Engineers operates along the river, which flows in Kentucky and Tennessee. “Federal hydropower has been a valuable asset to the Tennessee Valley and [the] surrounding region since the first plant was constructed, and
these funds will help maintain the power generation infrastructure," said Jamie James, hydropower rehabilitation program manager for the Corps' Nashville District.

The agreement provides power preference customer funds—that includes more than 150 co-ops and munis in the TVA system—for the rehabilitation, non-routine maintenance and modernization of the Corps' hydropower projects in the Nashville District.

Officials said that's important because the average age of Cumberland River system infrastructure is 58 years. "This [memorandum of understanding] will help sustain the future of hydropower, and it is an excellent example of the cooperation and coordination among federal agencies and preference customers to rehabilitate the hydroelectric projects on the Cumberland River," James said. The coalition behind the memorandum, signed in Chattanooga, Tenn., was seven years in the making as it balanced cost-effective energy for customers with up-to-date equipment for Cumberland River projects, James said. The Southeastern Power Administration joined TVA, the Corps and the Tennessee Valley Public Power Association in the agreement. "We are one big team in this system and it's all working together," said John McCormick, TVA vice president of safety, river management and environmental. "This is a very big day for us because it insures the importance of the [memorandum] and assets that play a key part in sustainability for the region."

---

Water:

Environment:

(Article won't copy. The news site is getting sinister. But, I used my phone and got the article anyway.)

Plans proceed for North Canal fish ladder
Passage at Bend dam looks to help fish move

Copy obtained from the National Performance of Dams Program: [http://npdp.stanford.edu](http://npdp.stanford.edu)
Work could start by winter on a fish ladder at one of the dams on the Deschutes River in Bend, OR a project that could bolster the native redband trout population partly by letting long-separated groups of the fish meet up once again. “We’re playing matchmaker,” Deschutes Watershed Council Executive Director Ryan Houston said Thursday, adding that the effort effectively tells the fish, “Hey guys, you used to know each other 100 years ago, get to know each other again.” Historically, fish have moved about 70 miles along the Deschutes River all the way from the high Cascades to Terrebonne, Houston said, but four dams in Bend block that full route. Various organizations have long wanted to secure fish passage at all of those dams. The dams segment the fish populations, limiting the genetic diversity that helps strengthen the general health of populations and makes them more resilient to disease, drought, water flow and temperature changes and impacts from pollution and climate change. “You basically end up slicing these populations into these small units,” Houston said, adding that the impacts on fish populations can lead to “death by a thousand cuts.” The way the water gets diverted in Bend changes the river’s flows significantly through the year and fish need the ability to move to more favorable habitat and water temperatures, said Brett Hodgson, Deschutes district fish biologist with the Oregon Department of Fish and Wildlife. “Right now, they’re stuck where they’re at,” Hodgson said. “They pretty much are restricted to those sections of the river that they spawn and rear in.” So the populations “are not as strong as they could be,” he said. The southernmost and farthest upstream is the dam at Colorado Avenue, built for the mill ponds to store logs. Fish passage was recently installed at that site as part of the creation of a whitewater passageway, one of the projects funded through a 2012 bond measure. The next dam, heading north and downstream, is the hydroelectric Mirror Pond dam off Newport Avenue. That dam lacks fish passage, and its future is unclear as dam owner Pacific Power backtracks on talks of getting rid of it and a developer has talked of buying it. The next dam through Bend — Steidl Dam at Portland Avenue, also called the First Street Rapids Dam — was built to divert water for the Tumalo Irrigation District and has long had fish passage connected to it. The most northern, downstream dam is the North Canal dam, which diverts water for the Central Oregon, Swalley and North Unit irrigation districts. In 2010, the districts and ODFW agreed to partner in providing fish passage after the districts planned to use water in their canals for hydroelectric purposes, triggering requirements to install fish passage at the North Canal dam off Division Street, where their water is diverted.

“Right now, it’s a complete fish barrier,” Hodgson said. The proposed project, a rectangular, prefabricated steel ladder measuring about 5 feet wide, 5 feet tall and 300 feet long, would stretch in a U-shape on pilings from the top of the dam to the bottom. Houston called it “a stainless steel waterslide” for the fish. The Bend Planning Commission could consider permitting the North Canal dam fish ladder project at an Aug. 8 meeting. The state is most concerned about the redband trout, a type of rainbow trout, although the project would help other types of fish, too. The redband do not migrate to the ocean, but move seasonally to find spawning habitat and sites to spend the winter or different water temperatures. Redband trout are native, meaning they evolved here and have been here for millennia. “Much longer than people,” Hodgson said. The North Canal project proponents expect the ladder to boost not only the fish population, but also fishing. “By having strong fish populations, you’re able to accomplish both those goals,” Hodgson said of conservation and fishing. And as a fish management agency, “We have a goal and an obligation to protect native fish species so that they do not become threatened and endangered,” he said.
Houston noted that native redband trout are naturally born and grow in the river, without hatcheries for reproduction. People visit Bend specifically to catch them. “When people talk about, ‘Hey, let’s go to Bend and go fly-fishing,’ they’re talking about that fish,” Houston said. The department plans to monitor the fish and the effectiveness of the ladder. The project’s approximately $1.6 million cost will be split: $400,000 from the districts, $600,000 from the department and a $689,000 grant that the Upper Deschutes Watershed Council got from the Oregon Watershed Enhancement Board, a state agency that provides grants for waterways and wetlands. But to maximize the investment in the project and to benefit the most fish, “You need passage at all of them,” Hodgson said of the dams. And as alternatives are discussed for the Mirror Pond dam, “We would really like to see fish passage,” he said. Houston noted that water restoration work takes time and costs a lot of money. But he emphasized that three dams on this section of river had lacked fish passage and that now, only one will still block fish from moving freely. He pointed to the ladder project as an example of partnerships that can help achieve a long-term vision of restoring fish passage along the Deschutes. “Mirror Pond has a big light shining right on it in terms of fish passage,” Houston said.

Other Stuff:
(Show me the way.)

Mother duck leads 19 ducklings over dam
By Scott Gross | Jul 04, 2016, kotatv.com

RAPID CITY, S.D. (KOTA TV) Raising one child can be hard enough but try mothering 19! 19 ducklings trailing momma on Rapid Creek. As they float down the creek they come to a little dam. The mother takes the leap but her followers are not so sure it’s safe. Shortly after making the leap, the mother duck works her way back up the dam to lead all 19 all over the dam. Not sure where 19 ducklings came from, but they sure are good listeners!

(At least we made the top 20.

10 Countries With the Highest Quality of Life
Finland bests the rest
By Arden Dier, Newser Staff, Jul 4, 2016, newser.com

Helsinki, Finland. (Shutterstock)(NEWSER) – The US is in the top 20 countries with the highest standard of living—but don’t let that go to your head. The Social Progress Index says that at No. 19, America is a “disappointment” given its huge economy, per Business Insider. The ranking is based on three categories: basic human needs (like shelter and health care), foundations of well-
being (like life expectancy and education), and opportunity (rights, freedoms, and tolerance). Here are the top 10, each with a score out of 100:

1. Finland: 90.1
2. Canada: 89.5
3. Denmark: 89.4
4. Australia: 89.1
5. Switzerland: 88.9
6. Sweden: 88.8
7. Norway: 88.7
8. Netherlands: 88.7
9. United Kingdom: 88.6
10. Iceland: 88.5

or the top 10 "good" countries [http://www.newser.com/story/226129/top-10-good-countries.html](http://www.newser.com/story/226129/top-10-good-countries.html)
This compilation of articles and other information is provided at no cost for those interested in hydropower, dams, and water resources issues and development, and should not be used for any commercial or other purpose. Any copyrighted material herein is distributed without profit or payment from those who have an interest in receiving this information for non-profit and educational purposes only.