

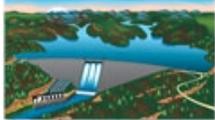
Some Dam – Hydro News™ And Other Stuff



Quote of Note: תנן ט%\$, טכש# טש\$ נ' ש' תש# שחש#% ! טש#ט\$ ת ק כ נ' צכ ' ת' ש# ק ת נ' - "טכש# טש\$ נ' כ' קש יכ צש נ' #

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"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: 2015 Boen Pinot Noir "Russian River Valley"
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Dams:

(Beavers at it again.)

Beavers cause flooding concerns in Reno; residents can't get help

By Kim Burrows, December 30th 2016, mynews4.com

RENO, Nev. (News 4) — **Leave it to beavers. The critters are causing some Reno residents to worry about flooding. And there's little that can be done about it.** Lindie Mitchell bought her house along Steamboat Creek, on the south side of Reno four-and-a-half years ago. The water that is just a few yards from her house helped convince her to buy the house. "It was a small tiny little creek," she said. But now the stream is much wider and pools in places, including right next to Mitchell's house. She said several beavers built dams and changed the water flow. Debris is now backing up behind the dams. "It's very fast and rapid. It flows over the



beaver dam and it's frightening. It's rising and rising and rising every time, a little bit more," Mitchell said. When there's a strong runoff, water flattens vegetation on the banks. Mitchell is scared one time the water will flood her property or her house that sits without a foundation. Mitchell said she's tried to get rid of the dams herself. "We try to pull it out and they just build it up within 24 hours," she said. The land across from Mitchell's house, including a portion of Steamboat Creek, is privately owned. And the owner listed in county records died more than a decade ago. The attorney who represents the trust said this is the first time he's heard about beavers causing a potential flooding problem. He said he would look into the problem. Mitchell said she's called a half-dozen city, county and state agencies for help. "I haven't gotten any answers for anything," she said.

News 4 also had a difficult time getting answers. Other calls like this have come into Washoe County. "No, Washoe County doesn't go out and do that type of things. We don't go out and trap, we don't issue those types of permits," said Dwayne Smith the Washoe County Director of Engineering and Capitol Projects. Ironically, the county has faced the same problem -- beavers damming up a stream that threatened to flood a water treatment plant. "We started asking who takes care of the beavers," Smith said. The Nevada Department of Wildlife said it too has received questions from the public about beavers. "Generally people will come and say, 'Hey, will you come get them and move them elsewhere?' It's not really an option. We don't relocate beavers in Nevada," Jessica Heitt, the Nevada Department of Wildlife Urban Wildlife Coordinator, said. NDOW said the only option to remove beavers is to hire a professional to trap them. It's open season from Oct. 1 through April 30. "If it's outside of the season they have to apply for a depredation permit," Heitt said. But NDOW would have to sign off on that permit. "We would usually go out and investigate the area and go and make sure there's a significant amount of damage before we ever issue a permit." A state water engineer and NDOW just visited Steamboat Creek and both said they didn't see an imminent flooding concern because of the beavers. They consider the case closed. So Mitchell's only option may be convincing the owner to trap the beavers or at least get his permission to hire a trapper. "You just got to know you chose to live on a waterway so you are going to have the beavers and many other critters," Heitt said.

(They're after this one too.)

EDITORIAL

Our View: Lots to unwind if Glen Canyon Dam shuttered too soon

Dec 30, 2016, azdailysun.com

Believe it or not, massive hydroelectric dams do not last forever.

And in the case of Glen Canyon Dam, the end might come as soon as the year 2036. That's the earliest that the federal government has said it might stop managing the dam for power and water storage. By then, it would be 72 years old. On the other hand, federal officials could change their minds and extend the life of the dam another 20 years. Or they could hand it over to the Navajo Nation or any number of Colorado River Basin states that might want to foot the mounting bills for dredging and structural upkeep along with downstream management obligations in the Grand Canyon.

Glen Canyon Dam, unlike its older and bigger sibling, Hoover Dam, farther downstream near Las Vegas, has long been an underachiever. It is anchored in porous sandstone, meaning

Lake Powell loses a lot more water to leakage than just to evaporation. And the silt that washes from the Rocky Mountains upstream reduces water storage and eventually will reach the base of the dam, threatening the structural integrity and operational efficiency of the dam. Downstream, the Colorado River runs cold and clear instead of its pre-dam lukewarm and muddy. That has changed the entire ecosystem at the bottom of the Canyon, and scientists are at a loss over how to put the genie back in the bottle. They have tried electrocuting invasive brown trout to protect the native humpback chub and introduced insect pests to devour the invasive tamarisk along the shoreline.



Periodic high-flow releases from Lake Powell attempt to dislodge sand deposits around the mouth of the Paria River to reestablish beaches lower down the river. But to date, those measures and more have done little to resuscitate the pre-dam ecosystem. Nonetheless, various tribes, states and power companies recently signed off on a 20-year extension on federal dam management, which is good news for the city of Page and others who depend on consistent management of lake levels to attract tourists. **Once the dam is decommissioned (its estimated maximum lifespan is 85 to 100 years), lake water presumably would be released and Page's tourism industry would have to reorient itself toward a landscape of deep river canyons.**

For now, though, Page in its current configuration has at least a 20-year lease on life. The coal-fired Navajo Generating Station, which in part depends on nearby Page for employees and support services, is set to retire its final power unit in 2044. Technically, NGS is not dependent on an operational Glen Canyon Dam. But it uses Lake Powell for steam production and cooling water, and its electricity powers the pumps that bring Colorado River water via canals to Phoenix and Tucson. Drawing water directly from the river might work in the spring, but not during dry periods. **In other words, once a mighty dam goes up, taking it down – figuratively speaking – is no simple task.** The web of dependencies that Glen Canyon has created after 52 years is complex. If we were allowed to bet, we'd put money on that 2036 management deadline being extended. By then, there might even be a way to increase the dam's lifespan so that the city of Page is still around to celebrate its own centennial in 2057.

(Well, I'll be!)

dam-dam candy dispenser

Made by wkkpatrick, 1/1/17, thingiverse.com



(Who knows what they'll find?)

Shielded Native American Sites Thrust into Debate Over Dams

Federal Columbia River System Cultural Resources Program tracks some 4,000 historical sites

By KEITH RIDLER, Associated Press // Jan 1, 2017 // AP Story, flatheadbeacon.com

BOISE, Idaho — **A little-known federal program that avoids publicizing its accomplishments to protect from looters the thousands of Native American sites it's tasked with managing has been caught up in a big net.** The Federal Columbia River System Cultural Resources Program tracks some 4,000 historical sites that also include homesteads and missions in Oregon, Washington, Idaho and Montana. Now it's contributing information as authorities prepare a court-ordered environmental impact statement concerning struggling salmon and the operation of 14 federal dams in the Columbia River Basin. A federal judge urged officials to consider breaching four of those dams on the Snake River. **"Because of the scale of the EIS, there's no practical way for us, even if we wanted to, to provide a map of each and every site that we consider,"** said Sean Hess, the U.S. Bureau of Reclamation's Pacific Northwest Region archaeologist. "There are some important sites out there that we don't talk about a lot because of concerns about what would happen because of vandalism."

Fish survival, hydropower, irrigation and navigation get the most attention and will be components in the environmental review due out in 2021. But at more than a dozen public meetings in the four states to collect feedback, the cultural resources program has equal billing. Comments are being accepted through Jan. 17. The review process is being conducted under the National Environmental Policy Act, or NEPA, an umbrella law that covers the well-known Endangered Species Act. Thirteen species of salmon and steelhead on the Columbia and Snake rivers have

been listed as federally protected species over the past 25 years. But NEPA also requires equal weight be given to other laws, including the National Historic Preservation Act, which is where the cultural resources program comes in. Among the 4,000 sites are fishing and hunting processing areas, ancestral village areas and tribal corridors. "People were very mobile, prehistorically," said Kristen Martine, Cultural Recourse Program manager for the Bonneville Power Administration. Some of the most notable sites with human activity date back thousands of years and are underwater behind dams on the Columbia and Snake rivers. Celilo Falls, a dipnet fishery for thousands of years, is behind The Dalles Dam on the Columbia River. Marmes Rockshelter was occupied 10,000 years ago but now is underwater behind Lower Monumental Dam on the Snake River.

"If we're breaching dams, it would definitely change how we manage resources," said Gail Celmer, an archaeologist with the U.S. Army Corps of Engineers. U.S. District Judge Michael H. Simon ordered the environmental review in May after finding that a massive habitat restoration effort to offset the damage that dams in the Columbia River Basin pose to Northwest salmon runs was failing. Salmon and steelhead runs are a fraction of what they were before modern settlement. Of the salmon and steelhead that now return to spawn each year, experts say, about 70 to 90 percent originate in hatcheries. Those opposed to breaching the Snake River dams to restore salmon runs say the dams are an important part of the regional economy, providing irrigation, hydropower and shipping benefits. Meanwhile, several tribes said they are better able to take part in the review process than they once were. "Tribes have not had much opportunity to participate in these things because they didn't have professional staff or trained people," said Guy Moura of the Colville Confederated Tribes in Washington state, noting the tribe employed four people in its cultural resources program in 1992 but now has 38. "With growth in size, there also came the evolution of what was being done."



Bonneville Dam

The tribe at one time had a large fishery at Kettle Falls, on the upper part of the Columbia River, but it was inundated in the 1940s behind Grand Coulee Dam. Dams farther downstream on the Columbia prevent salmon from reaching the area. Also among the 4,000 historical sites is Bonneville Dam, one of 14 dams involved in the environmental impact statement. Bonneville Dam is the lowest dam in the system at about 145 miles from the mouth of the Columbia River. It started operating in the 1930s and became a National Historic Landmark in 1987.

(Guess they don't want any dams. Where's the water going to come from? What about that title?)

No dam way

January 3, 2017, aspentimes.com



Does the city of Aspen really believe it will need to build two huge dams in wilderness areas to supply water to future Aspen? Does it believe it will be allowed to build them even if it doesn't need them? No on both counts. Here's how one knows. The oppositions to these dams filed in water court by the U.S. Justice Department say, in part, "Because (the city of Aspen) does not hold a valid right to use or occupy national forest system lands, and the U.S. Forest Service lacks authority to authorize development of

Maroon Creek Reservoir within the Maroon Bells-Snowmass Wilderness Area, the (city) cannot complete the (project) within a reasonable time." Moreover, in September, the acting district ranger for the Forest Service told the City Council that only the president of the United States could authorize building those dams. Does the city contemplate sending a militia to seize Forest Service land? No. Does the city plan to hold the president hostage until he grants the right to build the

dams? No. How does the city think it's going to get to enter Forest Service land with heavy equipment and crews and build dams the Forest Service won't permit? It doesn't have a clue. **The city doesn't think. It just throws money at stuff until (maybe) the citizens finally say "enough already."**

This is yet another "it has a life of its own" boondoggle courtesy of City Hall. In addition to staff time, the city has paid perhaps hundreds of thousands of dollars to outside lawyers and consultants to keep alive a project that has zero chance of ever happening. **The insanity of this project is demonstrated by asking one question: If the city of Aspen were serious that it expects to need a huge new source of water and the U.S. government has told the city "no way, no how on those dams," wouldn't one think the city would have been working on alternatives? But they haven't.**
Maurice Emmer, Aspen, CO

(Factoid – This one is hard to answer. There are many opinions.)

The oldest surviving and standing dam in the world is believed to be the **Grand Anicut, also known as the Kallanai**, an ancient dam built on the Kaveri River in the state of Tamil Nadu located in southern India. It was built by the Chola king Karikalan, and **dates back to the 2nd century AD.**

(Needs some fixin'.)

Work continues on Terminus Dam

By Sheyanne Romero, Jan. 4, 2017 | visaliatimesdelta.com

Tulare County, CA is seeing more water than usual and it's not just coming from the skies. **The Army Corps of Engineers, the agency that oversees Lake Kaweah and Kaweah Terminus Dam, began releasing water last week and will continue into next week.** The lake can hold 185,000 acre-feet of water and is releasing of 900 cubic feet of water per second in order to allow repairs to be made to the Terminus Dam tower, which flooded in April 2016. **A busted section of pipe has created months of work for the Army Corps.** Phil Deffenbaugh, manager of Lake Kaweah for the Army Corps, said it is still unknown when repairs will be completed. "It's a hard answer to give," he said. "But it's progressing well."



According to Deffenbaugh, water levels need to be at 600 feet above sea level for work to be done on a portion of the pipes. That work is expected to be done this week. **The dam was completed in 1962 by the Army Corps to provide flood damage reduction and water conservation, according to officials. Energy production was added in 1990 with the construction of the Terminus Power Plant.** The hydroelectric plant generates about 40 million kilowatt-hours of electricity annually — comparable to 67,000 barrels of oil. As of 2004, the largest fusegates in the country were placed in the Lake Kaweah spillway. It's common to release water two to three times during the winter months, said Mark Larsen, general manager of Kaweah Delta Water Conservation District. While the Army Corp is aware of the need to save water, it's also thinking about the main purpose of the dam — flood control. "During the winter months, the Army Corps calls the shots," he said. "Yes, farmers would rather have water released in the summer time. In reality, there is much more water in the watershed than the lake can hold." Deffenbaugh said water levels at the lake are right where they are supposed to be for this time of year. But more water being released is contingent on rainfall. "It all depends on the storm," he said. "How much demand the rain creates downstream and the conditions of the lake due to the storm."

Scott Borgioli, chief meteorologist with WeatherAg, predicts rain totals could hit 2-plus inches of throughout the Valley between now and Monday. "Mountain, foothill rivers, creeks and streams will be running high and fast," Borgioli said, "Stay out of the area and away from the water." The strongest storm system is expected to hit the Valley Saturday. "For the mountains, the potential is there for a foot or more of rainfall," Borgioli said. "High rain totals will also extend into the foothills." More rain could mean more water for Tulare County farmers. In November, The California Department of Water Resources released its initial projection of water allotment for 2017 — 20 percent of their full allotment. "With the storms coming there is a lot of promise," Larsen said. State allotments tend to increase by the end of winter depending on rain and snowfall totals. Initial projections for 2016 were 10 percent but water districts received 60 percent.



Hydro:

(Plugging away.)

Plans for hydroelectric project keep churning

Application processes continue for proposal at Wickiup Dam

By Hilary Corrigan, The Bulletin, Dec 30, 2016, bendbulletin.com

Longstanding plans to add a small hydroelectric project at Wickiup Dam are still around — but a little uncertain. In 2011, Wickiup Hydro Group LLC — a subsidiary of Idaho firm Symbiotics LLC — sought a license from the Federal Energy Regulatory Commission to build an approximately 7 megawatt facility at the Bureau of Reclamation dam outside of Bend, OR. A megawatt equals 1 million watts, about enough electricity for 750 homes. Wickiup Dam and reservoir were built as part of the Bureau of Reclamation's Deschutes Irrigation Project in 1949. The irrigation project also includes Crane Prairie and Haystack reservoirs. Wickiup Reservoir provides irrigation storage for North Unit Irrigation District. The proposed "run-of-reservoir" hydroelectric project would operate when water flows fall within certain ranges, without changing reservoir operation, according to the application. The project could cost about \$18.4 million. Its electrical energy would be marketed to local electric utilities serving Central Oregon.



Among other facilities, plans call for a 50-by-50 foot powerhouse to hold the turbine generator units and control equipment — a connection to a nearby existing transmission line that extends to the Bonneville Power Administration's existing Pringle Falls substation. North Unit Irrigation District had agreed not to pursue its own project at the site and has an agreement with Wickiup Hydro Group to be paid about 5 percent of gross revenue from the project's electricity sales each year. The money would help fund the district's operating costs and support maintenance and conservation projects such as installing piping and lining in irrigation ditches and canals, according to Mike Britton, the district's general manager. Britton said he has heard "nothing at all" from the developer in at least a year. "It'd be nice if they would either do something or get out of the way completely," Britton said. "They've been pretty much an absentee partner for quite some time."

According to materials filed at FERC, the firm now handling the application is Northwest Power Services Inc. That firm's filings have a Wasilla, Alaska, post office box listing. But its president, Brent Smith, was also part of Symbiotics. Smith could not be reached for comment. The proposed project appears to be continuing its application process at federal and state agencies. Bridget Moran, field supervisor with the U.S. Fish and Wildlife Service's Bend office, said that FERC has requested an Endangered Species Act consultation from her agency on the project — a signal to

her that both FERC and the project proponent are serious about moving forward with the proposal. A main issue for her agency's review involves the potential for an increased number of non-native fish species to get through the dam, posing a possible threat of greater predation farther downstream of the Oregon spotted frog, a protected animal. A recent settlement agreement reached in a separate legal proceeding on the frog has resulted in changes to flows, storage and release operations — prompting a need for the service to do a little more review of the hydroelectric proposal. The review by Moran's agency will take place in the new year.

Meanwhile, the U.S. Forest Service has set various conditions for the project, including studies and a monitoring plan meant to evaluate impacts to fish populations and how different fish species interact. Those conditions have prompted the Oregon Department of Environmental Quality to call for an updated application for a water quality certification that the project needs. The department expects to get that updated application soon, according to Chris Stine, a hydroelectric specialist at DEQ. "At this point, we are asking for a revised application that accurately reflects the project," Stine said, adding that he recently received a phone message from the applicant saying that it would be submitted. The deadline is Jan. 12, then DEQ has a year to issue a decision either approving or denying the required certification.

(Another opinion.)

Letter: Breaching Snake River dams would cause incalculable harm

DECEMBER 30, 2016, tri-cityherald.com



Breaching of the four lower Snake River dams would cause an incalculable amount of expenditures and environmental

impact. It's amazing the ink is wasted in even printing the suggestion as news. All over a highly disputed and controversial idea to hopefully increase the numbers of a few "worthy" subspecies of fish, so the sport fishing industry can kill them at their leisure and a very small group of people would have the option to eat them as their grandparents perhaps once did.



The impact and costs to re-route the existing private, permitted, irrigation systems over a single winter are staggering. The dams provide flexible baseload or peaking electricity generation on demand, with no CO2 emissions or pollutants. If breached, replacement solar and wind power for the dams would have to have costly and CO2 emitting backup generation for all the times the grid needs electricity. The dams provide many benefits of reliable, affordable electricity at all the times of the day and night that don't coincide with when the wind blows and when the sun shines. Add in the current benefit of navigation and barge shipping, and the issues with breaching the four dams become even more ridiculous. MICHAEL SCRIMSHER, BURBANK HTS.

(Getting new stuff.)

PUD Approves Rock Island Dam Modernization

By DAVE BERNSTEIN, DECEMBER 30, 2016, kpq.com

Chelan PUD Commissioners held a special end of year meeting Friday to approve updated plans for modernization of 4 turbines at Rock Island Dam. In a PUD press release,



General Manager Steve Wright said the board approved an offer from the low bidder, Andritz Hydro Corp. of North Carolina that will save the district's rate payer's \$1.24 million in discounts. The contractor will also complete the work six months earlier than previous estimates. The time frame will help the PUD meet guidelines under its Habitat Conservation Plan.

(Some say it's too big.)

The Grand Ethiopian Renaissance Dam Gets Set to Open

The controversial dam is nearly done, but will drought and lack of grid infrastructure lessen its impact?

By Jean Kumagai, 30 Dec 2016 | spectrum.ieee.org

Construction of the 6,000-megawatt, US billion Grand Ethiopian Renaissance Dam (GERD) began nearly six years ago and is now close to completion. Sometime in 2017, the dam, which sits on the Blue Nile near the border of Ethiopia and Sudan, begin producing electricity. Meanwhile, its vast 74 billion-cubic-meter reservoir will start to fill, a process expected to take anywhere from five to 15 years.



\$5

will

Ethiopia badly needs it. Only about a quarter of its citizens have access to electricity. The country's installed capacity is a dismal 3,200 MW, and the annual per capita electricity consumption is among the lowest in the world—65 kilowatt-hours in 2013, far below even the average of 488 kWh for sub-Saharan African countries and the world average of 3,104 kWh. Without electricity, the vast majority of Ethiopians rely on burning wood, dung, and other forms of biomass, and so deforestation and soil erosion has accelerated. Given the country's natural resources, there is no need for this impoverishment. According to energy experts, Ethiopia has the second highest hydropower potential in Africa, with an estimated capacity of about 45,000 MW. The GERD, as well as the 1,870-MW Gilgel Gibe III Dam completed in 2015, will nearly quadruple Ethiopia's electricity capacity. Excess electricity will be exported to other African countries and even to Europe and could eventually earn Ethiopia about \$1 billion per year, which would make it the largest electricity exporter in Africa. Among the dam's other expected benefits are a steadier flow of water through the dry season and less flooding in the rainy season. That regulating influence could be especially helpful as climate change makes East Africa's rainfall more unpredictable.



But like all big hydropower projects these days, the dam has raised plenty of concerns. Sudan and Egypt, Ethiopia's downstream neighbors, have understandably worried that the flow of the Blue Nile will be curtailed, particularly during the filling of the dam's reservoir. The Blue Nile is the larger of the two main tributaries of the Nile River, and both Egypt and Sudan rely on the river for irrigation as well as electricity. Sudan's Roseires Dam and Sennar Dam on the Blue Nile, which together supply about 80 percent of the country's power, and Egypt's Aswan High Dam on the Nile could all be affected by what happens at GERD.

The Ethiopian government had originally proposed that the three countries jointly fund, operate, and own GERD. Indeed, the dam is so large that it could have easily replaced the other three dams. But according to Salman M. A. Salman, a Fellow with the International Water Resources

Association, Sudan and Egypt ignored that proposal. When Ethiopia first announced the project in April 2011, Salman says, many people were skeptical that such a poor country could pull off something so ambitious. And yet the dam, which is being funded entirely by Ethiopia, is on track to be completed on time and within budget. Once this dam and several smaller ones are completed during the coming years, Salman says, "Ethiopia could well become the hydropower hub for East Africa." Several countries have already agreed to buy electricity from Ethiopia, he notes. For that to happen, the region's electricity infrastructure will need significant improvements. Ethiopia's grid is currently nowhere near large enough or robust enough to absorb even a doubling of capacity. Transmission and distribution networks do not exist in many parts of the country, nor are there sufficient high-voltage links to its neighbors to support electricity exports. That situation should soon begin to change, however. The World Bank is funding the Eastern Electricity Highway Project, which includes a 500-kilovolt, 2,000-MW high-voltage direct-current transmission line between Ethiopia and Kenya, due to be completed in 2018. The Ethiopian government is investing heavily in its distribution networks as well. The Growth and Transformation Plan II, which prioritizes government spending, calls for the installation of nearly 22,000 km of distribution lines by 2020, compared with about 13,000 km in 2015.

Just how much electricity the dam will produce is an open question. The rated capacity of 6,000 MW represents the dam's peak output, says Asfaw Beyene, a professor of mechanical engineering and director of the Center for Renewable Energy and Energy Efficiency at San Diego State University. Most of the time, the river's flow won't be strong enough to allow the dam to generate that much electricity. "The Blue Nile is not a big river," Beyene says. "It's not even in the top 100 rivers in terms of average flow rate." Based on his calculations, 2,000 MW would have been a more reasonable rating for the dam. Back in the early 1960s, in fact, the U.S. Bureau of Reclamation had recommended building a "border dam" of about that size in the same location. But the border dam's proposed reservoir was less than one-fifth of the GERD reservoir's 74 billion cubic meters, and the dam itself was less than half as high as GERD's 155 meters. Of course, building a large reservoir is one thing; filling it, and keeping it filled, is quite another. If the severe drought that devastated parts of Ethiopia in 2016 spreads to the region near the dam, the reservoir will fill very slowly indeed.

The proper sizing of the dam is more than just a numbers issue, Beyene adds. "Because the dam is oversized by 300 percent, the dam's powerhouse as well as new transmission lines will also be oversized, which will greatly inflate construction costs." He questions the fact that the prominent Italian company, Salini Impreglio that is building the dam also did the feasibility study for the dam: "In the United States, that's a no-no; it's a clear conflict of interest." Salini and the state utility, Ethiopian Electric Power, did not respond to several requests for interviews. The price difference for the turbines alone could amount to \$1 billion, Beyene estimates. That money could be better spent on other infrastructure, including facilities to exploit Ethiopia's considerable wind, solar, and geothermal resources. But with construction of GERD nearly finished, there's little chance of scaling back the project now. His hope is that any future projects on this scale will get more scrutiny. "Hopefully, the country will come together and things will change," Beyene says.

(This should be preserved.)

Old Mill continues mission to preserve its history

By Michelle L. Huey, Ruidoso News, January 3, 2017, ruidosonews.com

Locals know the history of Old Dowlin Mill at 641 Sudderth Drive, and none better than Delana Clements. Its history is in her blood. The iconic grist mill was built in 1868 and still remains a historical landmark. The mill was in ruins until Clements' parents Carmon and



Copy obtained from the National Performance

Leona Mae Phillips took it over in the 1950s and brought it back to life as a gift shop. "It's such a fun place, it speaks to you," she said.

Clements continues to keep the mill's legacy alive. It played host to live music, a play, comedy acts, bazaars, church services and dances throughout 2016. She reminds the public the Old Mill maintains a nonprofit status and accepts donations for its preservation. "All donations are tax deductible," Clements said. "We have been able to do some great repairs over the past years. In 2016, we worked on fixing the pond in front. It was cracked and we were losing so much water, we couldn't really run the wheel." inReadShe said they are restricted on what events they can host at the mill because there is no restroom with handicap access. Clements is hoping 2017 will be year they make that happen. "We've had some plans and we're trying to get some estimates to see what our goal will be for that," she said. "Hopefully it can be done this year. As well as maintenance." The upgrade would mean they could host events like meetings, weddings, more dances and the like. "We're just trying to keep on keeping on," Clements said. "That's what my dad used to say." She said she is grateful to the community that has kept them going and is mindful the mill's future depends on continued community support. "People know what a beautiful place Ruidoso is, but we only have the Old Mill," she said. "That is our history. If we don't preserve it. If we don't save it. It's just going to be a shame." To learn more, call 575-257-1090 or visit olddowlinmill.org or their Facebook page. Donations may be made out to the Old Mill Preservation Corp., 313 Spring Rd., Ruidoso, NM 88345.



Water:

(Water will magically appear. Maybe the spillways were dry because there's a drought.)

Face facts: We do not need new dams

JANUARY 2, 2017, fresnobee.com



Dale Matson (letter Dec. 20) agrees with The Bee's editorial board about a dam at Temperance Flat, which is OK, however, merely an opinion. I question the effectiveness of this project. It is obvious that neither Friant or Redinger dams have been anywhere near capacity in years. How many proponents have taken the drive up the river to Mammoth Pool? It hasn't needed the overflow spillway for so long that mature trees have grown in its bed. It would take years of above average rainfall to change

this pattern; this is unlikely to happen. Instead of the shilling of corporate agriculture and its cheerleaders, what about some logical facts of the benefits of this project?



Environment:

(A majestic bird doing its thing.)

OUTTAKES: Bald eagles

By Kevin E. Schmidt, Jan 1, 2017, qctimes.com

My thoughts

Surrounded by a flock of bufflehead ducks, a mature bald eagle snatches a fish from the waters below Lock and



Dam 14 on Thursday, Dec. 22. The Mississippi River is a popular wintering area for bald eagles because of abundant food and open water, particularly at locks and dams and power plants that keep the river from freezing. This provides the eagles with an area to hunt their primary food source: fish. Gizzard shad and other fish often are stunned as they pass through the gates of the dam. This creates an easy-to-catch source of food for eagles.

For more Photos go here” http://qctimes.com/news/local/outtakes-bald-eagles/article_f37f7a10-ffb8-5698-8c6e-a9efd67d0077.html

(Easy pickin’s.)

Researchers explore sea lion feast at Bonneville dam

Sea lions transmit salmon-eating behaviors like a disease

Columbia Basin Bulletin, January 3, 2017, dailyastorian.com

A new study used the same kind of models that scientists use to track disease to instead examine how some California sea lions have learned to prey on salmon gathering to ascend fish ladders at Bonneville Dam. Although sea lions commonly feast on fish, their predation on salmon at Bonneville Dam on the Columbia River poses wildlife management challenges. The sea lions that gather on the Columbia each spring are protected by the federal Marine Mammal Protection Act, while the salmon they are eating are protected by the Endangered Species Act.



In 2008, NOAA Fisheries authorized Oregon, Washington state and Idaho wildlife authorities to begin trapping, removing and sometimes euthanizing sea lions shown to repeatedly prey on salmon at the dam. The removal program was designed to reduce impacts on protected salmon.

NOAA Fisheries recently authorized the states to continue the removals over the next five years. The new study examined the effectiveness of the removal program, employing epidemiological models to assess how the behavior of eating salmon at the dam passes among sea lions. The research concluded that the removal program has successfully slowed the transmission of the behavior among sea lions, but would have been more effective if it had started sooner.

Intervene early

The findings highlight the need to act early “from both a conservation and management perspective to prevent the spread of a detrimental behavior and to minimize the total number of animals removed,” the scientists wrote in the paper published in the journal *Proceedings of the Royal Society B*. “The earlier you start, the more effective you are at slowing the spread, and the fewer animals you have to remove to make a difference,” said Zachary Schakner, who coauthored the study as a graduate student at UCLA and is now Recreational Fisheries Coordinator in NOAA Fisheries’ West Coast Region. The states have removed 166 California sea lions since the effort began in 2008, a small fraction of the number of animals that migrate to the Columbia each winter and spring. The states may euthanize sea lions if no permanent holding facility, such as a zoo or aquarium, can be found.

This year, NOAA Fisheries will review the last five years of the program, and will take the study findings into account, said Robert Anderson of NOAA Fisheries’ West Coast Region in Portland. “What was really new was the combination of behavioral ecology with disease ecology to come up with management recommendations that could make the program more effective,” said Michael Buhnerkempe, coauthor of the research and an assistant project scientist at UCLA. The study examined the association between sea lions known to prey on salmon at Bonneville Dam with other animals that later developed the same behavior, assessing how the behavior

passed among animals. The researchers then modeled various strategies for removing sea lions to determine which were most effective and which required the removal of the fewest sea lions.

Quick response

Just as diseases are easiest to stop when they have affected only a few individuals, so are undesirable wildlife behaviors such as the predation on salmon at Bonneville Dam. The study found that the removal of sea lions would have been more effective, requiring the removal of fewer animals overall, if it had started soon after biologists first realized that sea lions were targeting protected salmon. "If you can do that, you're beating it before it has a chance to explode into more of an epidemic," Buhnerkempe said. "Otherwise it quickly gets out of control."

(This one might not happen.)

New Yellowstone dam challenged over sturgeon worries

By MATTHEW BROWN, Associated Press, January 5, 2017, dailyastorian.com

BILLINGS, Mont. — Wildlife advocates plan to challenge the approval of a new Yellowstone River dam aimed at benefiting Montana and North Dakota farmers that critics say could kill off a dwindling population of a fish species dating to the time of dinosaurs. A bypass channel would be built alongside the concrete irrigation dam near the Montana-North Dakota border to let endangered pallid sturgeon reach upstream spawning grounds. But scientists don't know if the fish would use the channel. Advocates for the few remaining wild sturgeon say betting they would is an unacceptable risk because they could die off altogether if the channel plan does not work. Pallid sturgeon are one of the rarest native fish in the Missouri and Mississippi River basins, have a distinctive, shark-like snout and can live 50 years, reaching 6 feet in length.



Court filing

Defenders of Wildlife and the Natural Resources Defense Council said in a court filing Friday they are negotiating with officials on how to proceed following last month's dam construction approval by the U.S. Army Corps of Engineers and Bureau of Reclamation. The groups have a lawsuit pending over the \$57 million project, which U.S. District Judge Brian Morris temporarily blocked in 2015. Morris must give his approval before construction can begin on the dam that would supply water to about 400 farms that produce sugar beets, wheat, barley, alfalfa and other crops. Bypasses to circumvent dams have been used with mixed success for salmon and other fish populations in the Pacific Northwest and New England, but never for pallid sturgeon. Montana Fish, Wildlife and Parks biologists have said the best option for sturgeon would be to remove an existing rock weir so the fish could pass freely up the river. A government-sponsored peer review panel that examined the Yellowstone dam proposal expressed doubts that the bypass channel would help the fish make their way upstream and beyond the dam. Removing the weir has been rejected by federal officials as too costly. It would require the installation of pumps to provide water to farmers.

Sturgeon release

Tens of thousands of hatchery-raised sturgeon have been released into the Yellowstone River to prevent the species from dying off, but it's still unknown if those fish will migrate and breed in the same manner as wild fish. Female pallid sturgeon do not reproduce until they are 15 to 20 years old. Meanwhile, fewer than 125 wild pallid sturgeon remain. They are all decades-old animals that biologists have warned could soon disappear entirely unless they are able to reach their spawning grounds farther up the river and beyond the proposed dam construction site. About 55,000 acres of

cropland in the two states are dependent on an irrigation system already in place at the proposed dam site. That system uses the rock weir to divert water into canals tapped by the farmers for their fields. The Congressionally-authorized irrigation system was built in 1909.

James Brower, the manager for the irrigation project, said federal wildlife officials already have said the rock weir can be maintained, meaning there's no immediate worry that farmers who rely on it will run out of water. But Brower said a protracted court fight over the dam would end up hurting pallid sturgeon. "People need to realize court delays are definitely going to hurt the fish. We're just talking about theoretical problems beyond that," he said.



Other Stuff:

(And, this is probably just the tip of the iceberg. Don't believe it when they say there's no evidence that they did it.)

Russian Hackers Hit Vermont Utility

Authorities say attackers targeted electric grid

By Rob Quinn, Newser Staff, Dec 31, 2016, newser.com

(NEWSER) – First, the presidential election. Next ...

Vermont's electricity? Officials say hackers connected to Russian efforts to influence the election also targeted Burlington Electric, where malware was found after federal authorities released code associated with the "Grizzly Steppe" group to allow utilities to see whether they had been hacked, the Burlington Free Press reports. "Vermonters and all Americans should be both alarmed and outraged that one of the world's leading thugs, Vladimir Putin, has been attempting to hack our electric grid, which we rely upon to support our quality-of-life, economy, health, and safety," Democratic Gov. Peter Shumlin said in a statement.



The malware was found on a single laptop not connected to the grid system, the Washington Post reports. The utility says it alerted federal authorities as soon as the code was detected. It's not clear whether the hackers had any intention beyond testing their capabilities, but authorities say they are taking the cyberattack extremely seriously. "State-sponsored Russian hacking is a serious threat, and the attempts to penetrate the electric grid through a Vermont utility are the latest example," said Vermont Sen. Peter Healy. "This is now about trying to access utilities to potentially manipulate the grid and shut it down in the middle of winter."

(Population grows and shifts.)

10 Fastest-Growing US States

Utah's on top for percentage increase

By Arden Dier, Newser Staff, Dec 26, 2016, newser.com

(NEWSER) – Compared to the 433,000 residents Texas added in 2016, 60,500 new Utahans might seem like nothing. But the figure was enough to push Utah to the top of the heap of the fastest-growing US states, based on percentage increases in population, per Census data. The top 10:

1. Utah: 2.03%
2. Nevada: 1.95%
3. Idaho: 1.83%
4. Florida: 1.82%
5. Washington: 1.78%
6. Oregon: 1.71%
7. Colorado: 1.68%

8. Arizona: 1.66%
9. District of Columbia: 1.61%
10. Texas: 1.58%

Click for the states with the greatest numeric growth

<http://www.census.gov/newsroom/press-releases/2016/cb16-214.html>

or see the fastest-growing US cities: <http://www.newser.com/story/225359/10-fastest-growing-us-cities.html>

(Going down.)

U.S. Carbon Dioxide Emissions Fall to Lowest Since 1991

By James Taylor, Contributor, Jan 2, 2017, forbes.com

I am president of the Spark of Freedom Foundation.

Opinions expressed by Forbes Contributors are their own.

Energy-related carbon dioxide emissions have fallen to their lowest level since 1991, thanks to natural gas and hydro power gaining a greater share of the U.S. electricity mix. According to the U.S. Energy Information Administration (EIA), emissions through the first six months of 2016 were the lowest in 25 years. Importantly, electricity prices declined by 2 percent compared to 2015 prices. **The EIA reports a 20-percent decline in coal-powered electricity generation during the first half of 2016 compared to 2015.** Natural gas power, by contrast, rose 8 percent and hydropower rose 11 percent. Nuclear power rose by 1 percent.

Wind and solar power production rose during the first half of 2016 compared to 2015, but their increase was dwarfed by the increases in natural gas and hydropower production. U.S. carbon dioxide emissions have steadily declined since 2008, when the fracking revolution dramatically and lowered natural gas prices. Low-priced natural gas can often outcompete coal on an economic front, while also cutting carbon dioxide emissions in half. Before the fracking revolution, coal power stood alone in its ability to provide on-demand affordable energy. In 2008, coal powered approximately half of U.S. electricity. Natural gas has now overtaken coal, powering 33 percent of U.S. electricity in 2016, compared to 32 percent for coal. At the same time, electricity prices in inflation-adjusted dollars are lower now than they were in 2008.

The decline in natural gas prices solved a problem consumers faced when government began taking action to reduce carbon dioxide emissions. Many policymakers saw replacing coal power plants as the most effective means of reducing carbon dioxide emissions. Replacing coal power plants at the end of their shelf life with more expensive forms of power would reduce emissions but increase energy costs. Prematurely closing coal power plants before the end of their shelf life and prematurely building new power plants would add even more to consumer energy costs. This is especially the case when replacing coal power with wind and solar power because wind and solar power costs are so high. Natural gas power plants, however, are relatively inexpensive to build, even in relation to coal power plants. The high electricity prices for wind and solar power are tied to the high manufacturing costs of wind and solar power equipment relative to the small amount of power they produce. For natural gas power, however, the commodity price of natural gas itself is a greater factor than up-front construction costs. With the cost of natural gas power now challenging and often dropping lower than coal, the premature closure of existing coal power plants has not driven a spike in electricity prices like would have been the case a decade ago. This would be a far different story if the fracking revolution had not occurred or if coal power plants were being replaced primarily by wind and solar power.

The lesson from all this is we have been presented with an unforeseen opportunity to simultaneously reduce electricity prices and reduce carbon dioxide emissions (as well as conventional air pollution). Coal power plants at the end of their shelf life can be replaced by lower-cost, lower-emitting natural gas power plants. At just a minimal cost, many existing coal power plants can be closed before the end of their shelf life and replaced with inexpensive natural gas power plants. As has been the case since 2008, electricity prices will fall and carbon dioxide

emissions will decline. This is a win for everybody, regardless of one's views of the asserted global warming crisis and regardless of one's views on the primacy of economic living standards or environmental protection.



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