9/02/2011

Some Dam – Hydro News™

And Other Stuff

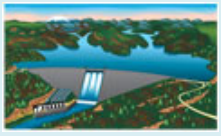
i

Quote of Note: *"The most dangerous thing about power is to employ it where it is not applicable." -- David Halberstam*

"Good wine is a necessity of life." - -Thomas Jefferson

Ron's wine pick of the week: **Val di Suga Brunello di Montalcino 2004**

"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Dams:

Elwha River Dam Removal Historic, But Not Explosive

Tom Banse, 08/19/2011, kuow.org

Port Angeles, Wash. - Seattle's Kingdome collapsed with a bang. Explosive demolition experts also brought down the cooling tower at the former Trojan nuclear plant. But if you're hoping for the same excitement from the upcoming destruction of two big hydropower dams on Washington's Elwha River, you'll be disappointed. The history-making dam removal that begins in September will happen slowly and methodically. The two hydropower dams blocking the Elwha River on the Olympic Peninsula are coming down to restore legendary fish runs. The upper dam on the Elwha will be the highest ever to be purposely removed. Don Laford seems unfazed by the task. He's the Elwha project manager for the construction management company URS. "Most all of demolition of the dam itself will be done with excavators fitted out with hydraulic concrete breakers," Laford says. "They'll break it into sections, dig it out, put it in trucks and haul it away." "There actually is no dynamiting or blasting planned for the dam section itself." That distant roar in the background is the river pouring down Elwha Dam's spillways. It's a thundering torrent now that the powerhouse intakes are shut off. Tearing down both Elwha dams will open 70 miles of prime salmon spawning habitat, much of it in Olympic National Park.

Crane operator Andrew Seid is one of the first workers from the demolition contractor, Barnard Construction Co., to arrive. "I've done a little bit of demolition, but nothing this size," he says. "So it's interesting." Seid hails from Boise. He considers himself lucky to get this assignment. "It will definitely be something a lot of people will know about," Seid says. "So if I tell them in the future, 'Oh, yeah, I was on the Elwha project,' I'm sure it will be a big recognition for me."

Elwha Dam — completed in 1913 — is squat and broad. The other dam is tall and narrow. That upriver dam, Glines Canyon Dam — completed in 1927 — is 210 feet tall, nearly twice as high as its downriver sister. At Elwha Dam, crews will build a temporary diversion upstream so they can deconstruct one side of that dam high and dry. Next the river will be shifted into the new gap while the other sections get torn down. Simultaneously, crews will chip away at Glines Canyon Dam using a different strategy. Don Laford compares it to nibbling kernels off a corncob, back and forth. "The idea of the notches is to let the water out." he explains. "Then the water will drop and then they can go along the dam and take out the concrete either side of the notch. And then put another notch in and go down, down the line." Teardown of the two dams is scheduled to take three years. That's much longer than Pacific Power estimates it will take to remove another big dam, this one on the White Salmon River in southwest Washington. Condit Dam is also nearly a century old and blocks fish passage. This October, contractors plan to blow a hole in the base of the 125-foot tall dam. The lake behind it will drain in one big gush of muddy water, like poking a hole in the bottom of a rain barrel. Afterwards, Condit Dam can be briskly and methodically chopped up. The Elwha dams have more sediment behind them. That necessitates a more deliberate approach says Olympic National Park spokesman Dave Reynolds. "The crux of this project, especially with Glines Canyon, is the amount of sediment that is stored up behind that," he says. "That's the reason for the three year schedule." Reynolds says it's not just the biggest dam removal in history, but also the biggest controlled release of sediment. What's more, the City of Port Angeles draws its drinking water from the Elwha River. There's also a fish hatchery and a low-lying Indian reservation to consider. "It is a long drawn out process, but it's gotta be controlled or else we're going to be in deep trouble," Laford says. If you want to watch the dam removal progress, there soon will be a new overlook trail and a pair of webcams.

(Here's an interesting dilemma. People just like to live near the river!)

Residents asked to move from dam

By Dena Harris Vernon County Broadcaster | August 21, 2011, lacrossetribune.com

Harmony, WI — Marlene Goede has lived in the shadow of the Runge Hollow dam since 1969. Now, officials are asking if she and nine neighbors would be willing to sell or move their homes to help lower the costs of repairing the dam. "It's not a good deal," said Goede's son Lorn Goede, who owns the property and is chairman of the town board. "No one wants to see their house get taken away." Still, the homes are in the dam's breach route and in danger of being wiped out if the dam were ever to break. "No one wants to make a pile of money off this. All are willing to move, but they don't want to suffer a big economic loss doing it," he said. "(They would) like to move out of flood zone. No one is real comfortable living here." The Department of Natural Resources has ordered Vernon County to make repairs after the dam received a high hazard rating. Moving the homes would lower the rating — and cut the repair costs in half to about $10 million.

Natural Resource Conservation Services has offered to assist Vernon County with the planning and engineering to save the county money. "Whether everybody moves out or not, the dam still needs to be fixed," said NRCS engineer John Ramsden. "It just makes it a high or low hazard magnitude of a fix." The dam will maintain a high hazard rating even if just one home remains in the breach route. The county also has the option to remove the dam, which would leave residents downstream without any flood protection, said Mark Erickson, Vernon County resource conservationist. Either way, the clock is ticking on obtaining help funding the repairs. "The DNR is pretty benevolent," Ramsden said. "They haven't been pushy with deadlines for repairs. But the federal funding outlook for the future is not good." Michelle Engh of CouleeCap estimated acquiring the 10 properties would cost about $1.5 million. Eminent domain has not been discussed at the county level. Engh said at this point, the county is figuring out its options before planning repairs.

Platte River dam debate renewed

By Paul Hammel, World-Herald Bureau, omaha.com, August 21, 2011

Lincoln, NE — Boating in the Ozarks this summer, State Sen. Scott Lautenbaugh of Omaha started wondering about how much money Nebraska was losing because of its shortage of large recreational lakes. Eastern Nebraskans seeking big water need to drive to the Lake of the Ozarks in Missouri or Lake Okoboji in northwest Iowa to water-ski, sail or fish. Lautenbaugh concluded that it's time to reconsider a big but controversial idea — damming the Platte River between Omaha and Lincoln to create a 25-mile-long lake for recreation, flood control and hydropower. Backers of the idea, which include former Omaha Mayor Hal Daub, last proposed a study of the multibillion-dollar project five years ago. But it quickly drowned in the Nebraska Legislature amid a deluge of opposition from residents of Ashland, a community of 2,500 along the Platte that would have to be relocated, for the most part, to make way for such a reservoir.

But times change. Lautenbaugh said for the sake of bulking up the state's tax base, keeping young people from moving away and creating a magnet for economic development, it's time to again consider the idea. "It would be such a game- changer for the face of the region," Lautenbaugh said. "It could transform our future." Groans are already rising from Ashland, which sent busloads of citizens to Lincoln in 2006 to oppose a $3 million feasibility study of the idea. "I'm sad to hear this is coming back," Mayor Paul Lienke said. "It may be a game-changer, but when you talk about the community, the families and the lives this would disrupt, it's a tragedy for us." Lienke said where his house is now would be under 30 feet of water if the lake were built. The lake would cost billions, he said, so "rich folks would have a place to boat." "If I wanted to live by a lake, I'd move back to Minnesota," Lienke said. Lautenbaugh, best known for legislation that legalized cigar bars in Nebraska, said he's in the very preliminary stages of determining how to proceed. But he is dead serious. Daub and other supporters of the reservoir informally called "Lake Linoma" were encouraged that the discussion has begun anew. Daub said he had not spoken with Lautenbaugh but also believes that times have changed since the project was shot down in 2006. The state needs ideas that will generate economic development and new tax revenue, he said, and a Nebraska recreation lake more than 10 times larger than West Okoboji Lake would draw businesses, and business leaders, to the state.

Lake Travis outside Austin, Texas, has helped make that city a hub for high-tech businesses, supporters reason, and so could a massive lake in eastern Nebraska that would be lined by resorts, luxury homes and huge marinas. "I recognize that there's some discomfort with this ... but I think this is one of the biggest ideas that would create the most positive future for our state that I can imagine," said Daub, who first raised the idea in 1999. Damming up the Platte in the area of Ashland has been floated on and off since the Great Depression. The Platte is at its narrowest point in the vicinity of Mahoney State Park, and the location, midway between Omaha and Lincoln, has spawned plenty of interest over the decades. The project has always faced multiple hurdles besides its cost — estimated at $2 billion in 2006 — and the task of relocating and compensating multiple landowners. Federal permission would be needed to generate electricity. Multiple studies would be required to assess the dam's impact on endangered species like the pallid sturgeon and other wildlife. Wellfields that provide drinking water to both Omaha and Lincoln would be inundated, and both Interstate 80 and tracks of the Burlington Northern Santa Fe railroad would have to be relocated. In 2006, one state authority on dams gave the proposal odds of less than 1-in-100. But Daub and State Sen. Rich Pahls of Omaha said big ideas, like big reservoirs, often face initial opposition. Pahls said he worked on construction of a large lake near his hometown of Downs, Kan. Today, he said, it's hard to find anyone who still feels that the Glen Elder Dam was a bad idea. "The initial reaction was totally negative, since it took people's land," Pahls said. "Right now, it is providing some incentive for people to come here and fish and hunt." Daub noted that property owners opposed moving out to facilitate construction of the Qwest Center (now CenturyLink Center) along Omaha's riverfront. But negotiations were successful, and businesses were well- compensated, he said. "I think it's very shortsighted to not at least sit down and talk about it first," Daub said. "It may cause a need for a little relocation, but Ashland would become the epicenter of commercial activity for this six-county area." Daub and Jim Krance, a retired Omaha city planner and an avid sailor, worked up a map of the proposed Lake Linoma. The lake would be up to 70 feet deep and back up water westward to Waverly, near

Lincoln, and northward to Highway 92 near Omaha. The pair said a taxing district could be formed to finance construction of the lake. Revenue from sales of hydro-electricity generated by the dam could also be applied to paying off bonds. Daub said general tax dollars would not be needed. Critics of the lake idea doubt that. Jessica Preister, the Ashland city administrator, said that with the state's budget crunch, it's questionable that there's even money for a feasibility study. Lautenbaugh said that he knows money is always an obstacle but that, typically, funding can be found if an idea is worthy enough. Financing the billion-dollar cost of building such a dam, he added, is way down the road. The bottom line, the senator said, is discovering the potential benefits of a Lake Linoma to taxpayers, tourists, developers and job seekers is worthy of a discussion. "How could we not look at this?" Lautenbaugh asked.

(Now here's a headline worthy of the event!)

Musicians booked for Elwha dams removal celebration

By Diane Urbani de la Paz, Peninsula Daily News

http://www.peninsuladailynews.com/article/20110821/NEWS/308219998/musicians-booked-for-elwha-dams-removal-celebration

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(Good Luck!)

Water districts propose dams, hydroelectric plant

By Trina Kleist, Staff Writer, theunion.com

It's a long and bumpy ride to Garden Bar Crossing on the Bear River, moving through tawny hills studded with blue oaks on a little-used dirt road. Past cattle, a field turned for a future vineyard and a small hunting cabin in this remote corner of far-southwestern Nevada County, the tightly packed hills open out to a little valley. Water rushes over dark rocks; bees buzz around purple spikes and fuzzy white balls blooming on tall shrubs of loosestrife and button willow. A white egret, standing at the river's edge, takes flight, leaving the large-mouth and small-mouth bass to be found below the water's surface. Two local land trusts have worked with property owners to protect nearly 6,000 acres of land on either side of the Bear River here. Their work would preserve a pioneer wagon crossing, rock foundations of pioneer-era structures and the remains of a large Native American village in this valley.

An out-of-county water district, teamed up with water districts from Napa County and Southern California, wants to build up to four dams and a hydroelectric power plant at the head of this canyon, covering this valley in 130 billion gallons of water. California's complex legal framework for water rights makes it useful for South Sutter Water District to seek support for the Garden Bar Reservoir from the Nevada Irrigation District and Placer County Water Agency, as the jurisdictions adjacent to the project. South Sutter representatives will present a preliminary study of the proposed reservoir to the NID board at a meeting Oct. 12, NID officials said Wednesday.

See video below (http://www.theunion.com/article/20110825/BREAKINGNEWS/110829890/1001&parentprofile=1053), or click on the dog-eared-page icon to read the preliminary report by project consultant RMC Water and Environment, of Walnut Creek. To read more about the proposed Garden Bar Reservoir project, pick up Thursday's edition of The Union. The package includes:

- NID expected to hear reservoir study report: A description of the project, who is proposing it, and concerns
- Water supply security at stake: Why a small Yuba County agency and its partners want the reservoir, and why local water officials are skeptical
- Expensive water from Garden Bar Reservoir: Summary of a preliminary study, including project costs

http://www.theunion.com/assets/pdf/TU64705825.PDF

(Usually don't include too much from over there in thus Newsletter, but the headline did catch the eye. Like everything in China – big!)

More than 40,000 Chinese dams at risk of breach

More than 40,000 dams in China are at risk of a breach, according to the Chinese government, leaving a quarter of cities exposed to a potential disaster.

By Malcolm Moore in Shanghai, 26 Aug 2011, telegraph.co.uk

"These reservoirs are a major risk and will ruin farmland, railways, buildings and even cities when they collapse," said Xu Yuanming, the director of China's water reservoirs department, to China Economic Weekly, a magazine run by the official People's Daily newspaper. In response, the government has launched an urgent programme to repair and reinforce dams and reservoirs, spending 62 billion yuan (£5.9 billion) in the last three years alone. Officials have promised to make all 87,000 dams across China safe within the next five years. Many of the risky dams were hurriedly built in a headlong rush by the Communist party in the 1950s and 60s to break the cycle of devastating droughts and floods that has plagued China for thousands of years. "There was limited technology at the time, and the economy was not as good, and so the quality of many of the reservoirs and their construction standards are not very high," commented the China Economic Weekly. "The majority of the dams at risk are made of compacted earth and have a life span of around 50 years. They are already beyond their time of service," it added. "More than one quarter of China's cities are downstream from fragile reservoirs; it is like balancing a basin of water on one's head." China's worst accident involving a breached dam came in 1975 in Henan province when waters broke at Zhumadian, killing 26,000 people and affecting a further 11 million. Since the 1950s, an average of 65 dams have burst each year, but almost all of them have been small reservoirs holding less than 350 million cubic feet of water. While Beijing has lavished money on fixing the dams, local governments, many of whom have already stretched and broken their budgets on other lavish infrastructure projects, are more reluctant to undertake serious repair work.

"Hubei Province needs to repair more than 4,000 small reservoirs, and we have to raise 4.4 billion yuan (£380 million) to finish all the projects," said Yuan Junguang, director of dams and reservoirs at the Hubei Provincial Water Resources Department. "It's a huge pressure for us to raise that much money, although we have tried hard," he added. "Many local governments have not included reservoir repair into their fiscal budget, or they allocate a very low sum," said Mr. Xu, adding that if local authorities did not carry out regular upkeep, the dams would continue to be an issue. "If the small holes are not fixed, a big hole will appear," he said. Around a third of the dams are also hydroelectric power stations, the most famous being the giant Three Gorges Dam, which the government now admits is deeply flawed. And while the West has largely stopped building dams, China continues to forge ahead, with another 100 large dams planned or built along the Yangtze river and its tributaries and 43 in the works along the upper stretches of the Mekong river and elsewhere in the country's south west.

***Hydro*:**

Power company to build hydro plant at Red Rock

August 19, 2011, Associated Press, esthervilledailynews.com

Des Moines, IA — A power company is moving ahead with planning and development for a hydroelectric generating plant at Red Rock Reservoir in south central Iowa. Missouri River Energy Services, of Sioux Falls, S.D., says Thursday it will construct and operate the plant, which will be financed and owned by Western Minnesota Municipal Power Agency. Construction is slated to begin in 2013, with the plant operational in 2016. Estimated cost of the generating facility is $220 million, but backers said the project could generate up to $250 million in economic

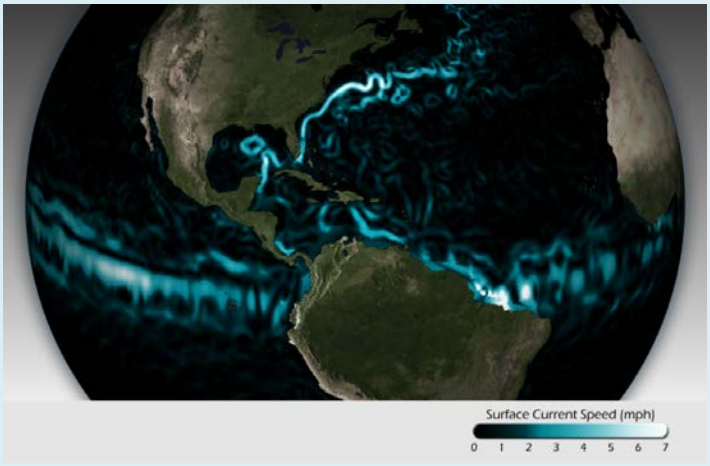
activity for a four-county region. During construction from 2013 to 2015, the project will generate an average of 448 jobs to the area, with a maximum of 732 jobs in 2014.

The dam on the Des Moines River that created the reservoir is about three miles from Pella and is operated by the Army Corps of Engineers. The license for development of the hydroelectric generating facility was granted by the Federal Energy Regulatory Commission. The license was granted to a subsidiary of Nelson energy LLC. Nelson Energy has more than 130 megawatts of hydropower generating facilities under various stages of development throughout the country. The Federal Energy Regulatory Commission granted a license earlier this year. Officials say the design output will be 36 megawatts, enough to power about 1,800 homes. The plant can generate up to 55 megawatts when the water is high. Once complete, it will be the second largest hydroelectric plant in Iowa. The largest is near Keokuk on the Mississippi River. Missouri River Energy Services is a not-for-profit joint action agency that provides long-term power supply to about 60 municipally owned electric distribution utilities in Iowa, Minnesota, North Dakota and South Dakota. Pella recently became a member of MRES and announced plans to retire its steam generating facility in conjunction with purchasing power from MRE

(This is a dream that's been around since – forever! But, not likely to turn into much, if anything. Too many environmental issues, but one never really knows!)

Harnessing The Power Of The Gulf Stream

By Mark Dunphy - Sat Aug 20, 2011, irishweatheronline.com



Hydroelectric generators have been harnessing the power of rivers for decades, and now eyes are turning to the "rivers" within the ocean – currents. Major ocean currents are much more temporally stable than their atmospheric equivalents, and their paths are well charted thanks to measurements from ships, buoys, and satellites. The Gulf Stream, one of the strongest currents in the world, meanders along the U.S. east coast from Florida to New England. Using data from the Jason-2 satellite, its average speed is shown here over the course of 5 days from August 1-5, 2011. Jason-2 is the fourth satellite launched as part of the Ocean Surface Topography Mission, developed by the National Oceanic and Atmospheric Administration (NOAA), NASA, France's Centre National d'Etudes Spatiales, and EUMETSAT.

The altimetry sensor onboard Jason-2 is able to detect changes in the ocean surface height. The slope of the height change allows for a calculation of the surface velocity (i.e., a steeper slope in ocean height yields a faster ocean surface current). The data is combined with ocean surface wind vector data from other satellites to calculate the direction that the surface currents are moving. The high speeds (up to 7 mph), volume of water, and relatively constant location of the Gulf Stream make it an appealing candidate for offshore hydroelectric generation. Florida is currently exploring the idea of anchoring turbines off the coast. As water passes through the turbine, a propeller would spin and generate electric current, much like a wind mill.

Understanding how deep in the water column to position the turbines from day to day requires accurate ocean circulation models, which depend on altimetry data like that from Jason-2. NOAA released the Gulf Stream image as part of American Renewable Energy Day, which is associated with a summit in Aspen bringing together leaders in industry, government, and many other sectors.

(This article is written by someone who does not know the history. The facts are that a Court determined that the Company should pay a very high annual charge for use of tribal lands inundated by the reservoir. The charge was so high that the Company decided to give up the project to the Tribe because it would no longer be profitable. A dumb decision by the former owner.)

Salish, Kootenai Tribes readying for 2015 takeover of Kerr Dam

By Vince Devlin of the Missoulian, missoulian.com | August 22, 2011

Polson, MT - The clock has been ticking since 1985, and these days, Brian Lipscomb admits, it seems to tick a little louder with each passing day. Lipscomb, hired a year ago as the Confederated Salish and Kootenai Tribes' first Department of Energy director, is overseeing the tribes' probable takeover of Kerr Dam from PPL Montana in 2015. There's likely to be an arbitration process to determine the price the tribes will pay PPL Montana for the dam - the two sides disagree on that right now by more than $40 million - but CSKT chairman E.T. "Bud" Moran says generations of tribal leaders have worked for this day. And Lipscomb says it will happen. "The tribes negotiated for the right to buy the dam in 1985," he says, "and they have been planning for it since, and saving for that." Lipscomb says the dam sits on tribal land on the Flathead Reservation that is culturally significant to Indian people, many of whom opposed its construction in the 1930s. "From a tribal perspective it was devastating," he says. "There was no tribal government at the time, but it was quite controversial."

Ironically, Lipscomb says, construction of Kerr Dam is what led to the formation of the Confederated Salish and Kootenai Tribes. "It's why the Salish and Kootenai Tribes were one of the first tribes in the nation to organize as a government, and the first to adopt a constitution," he says. The need for the dam, he says, can be traced to another controversial decision: the opening, in 1910, of the Flathead Reservation to homesteading. "(The dam) was an integral part of the Flathead Irrigation Project," Lipscomb says. "They needed to make homesteading economically viable at 80 acres. In order for that to be feasible, they needed electricity to provide for pumping water from the Flathead River to the Pablo Reservoir." At the same time, Lipscomb says, copper smelters 125 miles away were "taking off big guns," and the Montana Power Co. saw an opportunity to profit from power provided to the smelters from a dam on the Flathead River. They formed a subsidiary called Rocky Mountain Power Co. to build Kerr Dam and, Lipscomb says, "told people, 'We'll build a dam and use Flathead Lake as a reservoir. We'll give you the electricity to run your pumps, and sell the rest. The first power line from Kerr Dam, still in place, runs directly to Anaconda and the one-time smelter there.

Lipscomb, a tribal member hired for the new position last September, had been on the job all of one day when PPL Montana offered its first estimate of what the dam price would be in 2015. That initial $55 million estimated conveyance price, CSKT communications director Rob McDonald says, set in motion a five-year process of the tribes acquiring and operating Kerr Dam. The tribes' counter-estimate - both sides are using the same formula set up in the 1985 agreement - is currently $14 million. "The formula is the original cost of construction less depreciation," Lipscomb says. "The accounting is very complex - you're talking 20 different accounts over time." The Federal Energy Regulatory Commission will oversee the arbitration provisions outlined in the 1985 agreement, which came about after the tribes filed a competing license application to the one filed by Montana Power for Kerr Dam when MPC's license came up for renewal in 1976. MPC and the tribes became the first co-license issued for a hydroelectric dam, according to Lipscomb. It kept Montana Power as owner of the dam for the first 30 years of the 50-year license, and gave the tribes the option to purchase and run it exclusively for the second 20 years.

Since that 1985 agreement, of course, deregulation hit. Montana Power ceased to exist, and Kerr Dam was sold to PPL Montana in 1999. While the co-licensees are miles apart on a purchase price, Lipscomb says local PPL Montana employees - they're a part of the Pennsylvania-based PPL Corp. - have been good to work with as the transition begins. "From a hydropower perspective, they're very proud of Kerr Dam," he says. "It's in excellent condition, and I'm impressed with how they've taken care of it knowing full well we'd be taking it over." The takeover will be significant on two fronts according to Lipscomb, a Montana State University graduate who worked for the U.S. Forest Service in Plains and Missoula, managed the CSKT Fish and Wildlife Department from 1992-2002, and spent eight years as executive director of the Columbia Basin Fish and Wildlife Authority in Portland, Ore., before returning home to the Flathead Reservation. "First, after 80 years, it means the tribes will have regained control of a major asset and resource located in the middle of our reservation, on tribal land," he says. "It gives us more control over our own destiny, and lets us manage our own resources." The other is the economic boost to the reservation and Lake County, he says. "We'll have some high-paying jobs for tribal members to fill, both for operating the dam and marketing the power," Lipscomb says. "Probably eight to 12 positions." That's many more than PPL Montana has locally, Lipscomb says - while dam operators live here, marketing and other positions are located elsewhere in the state. "It'll be an economic boost," Lipscomb says. "Right now all the profits from the dam go to Pennsylvania, but the tribes keep profits local." Lipscomb - who presently heads a department made up of himself - is in the process of staffing some key positions, and preparing to train them as 2015 looms closer and closer.

(An article written by someone who preaches nonsense. Hydro projects are uneconomical because the State PUCs and owners expect to amortize them in too short of a time frame. It's been proven that over the long-term hydro projects are always economical. It's the arithmetic that's the problem. The writer's affiliation says it all.)

MAINE COMPASS: Small hydroelectric dams not answer for energy self-sufficiency

Clinton B. Townsend, August 27, 200, kjonline.com

The Maine Compass by Merrylyn Sawyer in the Morning Sentinel and Kennebec Journal on Aug. 20, advocating constructing hydroelectric facilities at some 700 small dams deserves a thoughtful response. I understand Sawyer's desire to see the state of Maine become energy self-sufficient, but small hydroelectric projects are not the answer. There is no shortage of capable entrepreneurs in Maine engaged in the operation of small hydro-electric facilities. That no projects have begun in recent years speaks volumes: Those entrepreneurs would have found opportunity if it existed, and would have developed hydroelectric sites if the economics were favorable. But the economics are not currently favorable, have not been favorable in recent times, and offer no prospect of becoming favorable in the future. Almost 40 years ago, the federal government sponsored a program that required utilities to subsidize non-conventional energy generation, including small hydroelectric facilities, by paying a premium for the energy. Old dams were upgraded, and new dams were proposed. The program eventually fell of its own weight, because the utilities had to pay more for the energy than they could get from re-sale. Their economic losses mounted, and the program was repealed.

Small hydroelectric generation in Maine has a long record of economic failure. Here are some examples:

- The dam on the Pleasant River in Columbia Falls in Washington County never generated enough to repay its construction cost. It could not even pay its real estate taxes. Eventually it was removed.
- The dam at West Winterport on Marsh Stream became uneconomic when the federally prescribed subsidy was repealed. It was removed by the owner.
- The dam on the Souadabscook Stream in Hamden could not generate enough to pay for the required passage of anadromous fish, and was removed by the owner. The same was so for the town-owned dam in Brownville.

- The dam in Frankfort on Marsh Stream has not generated electricity for the past 21/2 years because the operator cannot raise funds to repair the damaged turbine.

Entrepreneurs who look at existing dams as potential hydroelectric sites have demonstrated reluctance to invest. A typical example is the Gardiner Paper Board Dam on Cobbosseecontee Stream in Gardiner. It has had a series of owners, all interested in its hydroelectric potential, but none has made the investment. Sawyer states: "The cost of refurbishing the dams and adding good fish ladders would not seem prohibitive, given the scale of the projects." She has it backwards. Small scale dams have difficulty making money. "Good fish ladders" are expensive to design, to construct and to operate. The "scale of the projects" is the key -- a small or even medium-sized stream simply does not have the flow to generate sufficient energy to be a sound investment. Larger dams have failed to generate sufficient electricity to justify keeping them in place. When the Smelt Hill Dam on the Presumpscot River blew out in a flood, it was not replaced by the owner. The Madison Electric Works Dam on the Sandy River was removed because it could not support the renovations necessary for fish passage. The dam at Fort Halifax on the Sebasticook River was removed by Florida Power and Light for the same reason. The owners of these dams were all hard-headed businessmen. Their decisions were based on economics. Dollars and sense, if you will. Lastly, "good fish passage" is an ideal that frequently is not realized. The fishway at Columbia Falls simply never worked. The fishway at the Brunswick Dam on the Androscoggin River cited by Sawyer does not pass shad, one of the key species of anadromous fish. Fish migrating upstream often do not find even functional fishways, and dams kill a high proportion of fish migrating downstream because there is no good way to keep fish from being killed in the turbines. A healthy skepticism is a very useful mind-set when considering a proposal to become energy self-sufficient through the development of small hydro-electric dams. *Clinton B. Townsend of Canaan has practiced law in Skowhegan for more than 50 years. He is a past president of Maine Rivers. He was involved with the removal of the dams at Columbia Falls, Hamden, West Winterport and Brownville.*

Environment:

(The Judge Redden decision explained – hope I understand it now!)

Guest columnist

Judge's ruling on Northwest salmon plan asks for clarity

A federal judge again has asked federal agencies to try harder on the Columbia River system plan to preserve salmon. Guest columnist Terry Flores argues the ruling is not a victory for groups who want to breach dams but a chance for a stronger plan.

By Terry Flores, Special to The Times, seattletimes.nwsource.com

With U.S. District Judge James Redden's recent ruling on the federal Northwest salmon plan, we've seen the usual onslaught of anti-hydropower groups revving up their propaganda machinery, overreaching and claiming "victory" on a ruling that essentially preserves the plan. Even more astounding, they purport to "speak for business" on this issue.

Not so fast.

First, the judge sent the plan for the Columbia River system back to the federal agencies asking for more clarity on a fairly narrow issue — habitat-restoration benefits after 2013. Shouts that the plan is "illegal" or that it was tossed out are a gross overgeneralization. In fact, Judge Redden

gave the go-ahead to federal agencies to continue implementing the plan until 2014 — because it is working, as witnessed by some of the highest salmon returns we've seen in decades. The plan includes new technologies that move salmon safely past the dams, improvements in how fish are produced and managed at hatcheries, and a massive program to restore thousands of miles of habitat to help salmon thrive. The judge did not question the plan's science, which was endorsed by the Obama administration and independent scientists. Nor did he agree to change hydro — or dam — operations; he maintained his own court-ordered water flows already in place. And he did not accept litigants' arguments over what the law requires to protect and recover species — the question at the heart of the legal case. Does this sound like some kind of a wholesale condemnation of the salmon plan by the judge?

Hardly.
Furthermore, the anti-hydropower contingent orchestrated a letter to President Obama signed by a smorgasbord of chefs, specialty-food retailers and commercial fishing representatives (all of whom could better help save wild salmon by not killing, selling or serving them) and eco-outdoor apparel peddlers, purporting to speak for broad business interests on this issue. This is absurd. It has been, and will continue to be, the Northwest's hardworking families and businesses who are footing this plan's bill through their electric rates to the tune of hundreds of millions of dollars each year. Everyone is already paying for this plan, and we all deserve the chance to make it work. Moreover, in their letter, which demands a new "stakeholder" process led by President Obama and Congress to develop a new salmon plan, they seem to have conveniently forgotten the last six years of unprecedented collaboration between federal and state agencies and tribes — probably because they didn't like the result. What we really need is less process and more action — which is why the vast majority of Northwest tribes, states, farmers, ports and businesses have supported the salmon plan. While the theatrics of anti-hydro interests grab headlines, it's a lot more productive to stay engaged with our tribal, state and federal agency partners to do what the judge clearly asked for in his ruling: continue to implement the plan until 2014 and come back to him with more details and analysis on the benefits of habitat restoration in the plan's out years.
Terry Flores is executive director of Northwest RiverPartners, an alliance of farmers, utilities, ports and businesses that promote the economic and environmental benefits of the Columbia and Snake rivers and salmon-recovery policies based on sound science.

Feds issue plan to restore Willamette salmon

Jeff Barnard, AP Environmental Writer, August 22, 2011, chron.com

The top priority for saving Upper Willamette Basin salmon and steelhead from extinction is getting more fish over the dams that control floods in the region, according to the plan issued Monday by federal and state officials. It depends heavily on work the U.S. Army Corps of Engineers is doing to get more fish over the dams on the North and South forks of the Santiam, the McKenzie and the Middle Fork of the Willamette River. "A key piece of the recovery plan is to get chinook and steelhead back up those four watersheds," said Rob Walton, senior policy adviser for NOAA Fisheries in Portland, Ore. "Because (the dams) are so effective at controlling floods, it also means they cut off a lot of habitat where chinook used to go." Dams block 70 percent of historic spring chinook spawning habitat on the North and South forks of the Santiam, about 95 percent on the Middle Fork Willamette, and 15 percent on the McKenzie, said Dave Jepsen, conservation planner for the Oregon Department of Fish and Wildlife.

"If we get 'em up there, the habitat is generally not in bad shape," because most of it is on national forest, Jepsen said. "We've just got to get the fish there." After Willamette Riverkeeper sued, the corps began working to overhaul ineffective systems to trap adult salmon and steelhead and haul them by truck upstream of the dams to spawning areas that have been blocked for generations. "You are really talking about a species greatly reduced in numbers because of our activities in the last 150 years," said Travis Williams, executive director of Willamette Riverkeeper. "It's going to be a long process to bring things back to the point that populations are self-sustaining. I think there is a lot of promise." A new trapping system was built last year at

Cougar Dam on the McKenzie River to replace one that didn't work, and another is under construction on the North Santiam below Big Cliff Dam, said Corps spokeswoman Amy Echols. Jepsen said the next step is to make it safe for the young salmon going over spillways and through power-generating turbines as they migrate to the ocean. It will cost hundreds of millions of dollars and take 10 to 15 years to overhaul all the dams, Echols said. On top of the dam overhauls, the recovery plan is estimated to cost $265 million over the next 25 years. It includes steps to lower water temperatures, improve water quality, and form partnerships with farmers to improve habitat. "A well-run farm or ranch is a better neighbor for salmon than a strip mall or subdivision," said Watson. "With many aspects of environmental protection, we are at odds with the economy. In this case, we are trying to align sustainable agriculture with sustainable salmon habitat."

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9/09/2011

Some Dam – Hydro News™

And Other Stuff

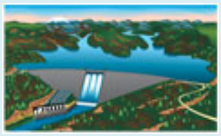
i

Quote of Note: *"You don't lead by pointing and telling people some place to go. You lead by going to that place and making a case." -- Ken Kesey*

"Good wine is a necessity of life." - -Thomas Jefferson

Ron's wine pick of the week: **Matchbook Tinto Rey 2007, Yolo County Dunnigan Hills, CA**

"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Dams:

(You kinda get the feeling that there's some salivating over all that salmon they're going to consume! There is absolutely no mention or recognition that 100 years ago we did not know what we know now about fish passage. Maybe if had we known what we know now, this would have a different outcome. Isn't hindsight wonderful?)

Punching holes in the concrete

By The Oregonian Editorial Board, oregonlive.com, August 27, 2011

The Northwest is about to witness the largest dam removals in U.S. history

The White Salmon River will soon run free for the first time in a century. So will the Elwha. There is no more hopeful, symbolic act of environmentalism than tearing down a dam and letting a river -- and its salmon -- go wild. Crews are boring a tunnel into Condit Dam on the White Salmon. September will see a celebration and the long-anticipated first whacks at two dams on the Elwha. You want more? The four dams on the Klamath River are slated to go next, perhaps starting in 2020.

All these dams should fall. They are high, high walls of concrete built without regard to fish passage. They generate a small amount of electricity that can be reliably, cost-effectively replaced. And together they block scores of miles of rivers and tributary streams that could boost

threatened salmon runs by hundreds of thousands of fish. In every case, it would cost far more to provide fish passage now required by dam relicensing than it would to tear down the dams and replace the electricity they generated. On the Elwha, for example, virtually all of the electricity went to power a single mill, which is now moving to establish its own generation. You're going to hear that breaching the dams on the White Salmon, the Elwha and the Klamath mean it is inevitable that many more dams are coming down, including the four large hydroelectric complexes on the Snake River. Yes, more Northwest dams will fall, but the Snake dams are unlikely to be among them, at least anytime soon. Again, the dams coming down now have no fish passage and generate enough electricity to power a few thousand homes. In contrast, this region has spent tens of millions of dollars providing sophisticated fish passage systems on the Snake dams, and these facilities provide shipping access to Idaho and generate some 3,000 megawatts of electricity, enough to power much of the Portland area. The long-running battle over the Snake dams should not obscure or diminish the significant conservation victories on the White Salmon and the Elwha. Breaching the White Salmon will open up 14 miles of habitat on the river to threatened Lower Columbia chinook salmon and dozens of miles of river and tributaries to prized mid-Columbia steelhead.

Meanwhile, biologists predict that tearing down the dams on the Elwha and reopening 70 miles of tributaries will allow salmon stocks that have dwindled to about 3,000 to explode to more than 300,000 fish. Freeing the river also will re-establish the natural flow of sediment from the mountains to the coast, rebuilding wetlands, beaches and the estuary at the mouth. For decades now biologists have watched salmon swim the five miles up the Elwha until they run headlong into the dam, where they pool at the base, swim in circles, swim downstream and back again, sometimes over and over. In three years, when the dams are cut and blasted away and the river channel restored, salmon will be able to swim deep into miles and miles of the pristine streams of the Olympic National Park to spawn. All this brings to mind a speech former Oregon Gov. Tom McCall gave when he was inducted into the Northwest Steelheaders hall of fame. "If the salmon and steelhead are running, then as far as I am concerned, God knows that all is well in his world," McCall said. "The health of the environment is good if the salmon and steelhead are around. It is that simple."

(And, you thought everyone hated dam builders!)

With Trouble on the Range, Ranchers Wish They Could Leave It to Beavers

Critters, Once Reviled, Gain Popularity With 'Believers'; a Good Rodent Is Hard to Find

By Joel Millman, online.wsj.com, August 30, 2011

Clyde Woolery wants his beavers back. Mr. Woolery's ranch on Beaver Creek outside Kinnear, Wyo., has been beaver-free for decades, but he could sure use their help now. A small beaver colony, he says, would engineer dams that raise the water table under his pastures, opening up drinking holes for his cattle. So the 64-year-old rancher put himself on a waiting list this year hoping state officials would bring him a beaver or two. Wyoming's Game and Fish Commission periodically plucks the rodents from drainage culverts. It's a bit of a turnabout in these parts, where beavers have long been considered something of a nuisance—blamed for everything from damming irrigation canals and gnawing fruit orchards to just generally wreaking havoc with agriculture. In many states, it's legal to shoot a beaver on private land. In Oregon, the Beaver State, the nocturnal creatures can be designated as "predators." But their slick skill set is what many landscapes now need, says a cadre of pro-beaver ranchers and environmentalists who work on behalf of people like Mr. Woolery.

These beaver backers have a simple creed: Trapping, not killing, "nuisance" beavers, they say, can add value to wilderness reserves and farmland by increasing their water content. That, in turn, restores fish habitats and native plants, which allow bigger species like moose, cougar and elk to thrive. "We call ourselves Beaver Believers because we found beavers do restoration work better than people," says Celeste Coulter, stewardship director at the North Coast Land Conservancy, a Seaside, Ore., group that urges developers to set aside land for beavers. "We can spend $200,000 putting wood into a stream, cabling down logs. Sometimes it works and

sometimes it doesn't," she says. "Put in a colony of beavers and it always works." The believers' beavers come from places like Tumtum, Wash., where Amanda Parrish checked beaver traps one morning early this month by the Spokane River. "Hey, we got one over here!" shouted Ms. Parrish as she peeled back brush to check a trap she and her partner, Joe Cannon, laid the previous evening. Caught inside a stainless steel "suitcase" trap, its rubbery tail and hindquarters sloshing in the rushing stream, a six-pound pup calmly nibbled willow twigs, seemingly oblivious to the humans and their mission. Ms. Parrish, 25, is the team leader for The Beaver Solution, a program run by Spokane's Lands Council, a nonprofit group. The group scours lakes and streams in eastern Washington for beavers, relocating several dozen a year. Dave Boswell adopted eight beavers from the group last summer and is pleased with their work at Mountain Meadows, his ranch near the Idaho-Washington border. "It's fun to have a functioning beaver colony," says the Spokane real estate attorney. "They dam up the creek, and they impound the water, so it doesn't all flood out in the spring and dry out in the summer." That's the wish this season of many Western ranchers, some of whom have been badgering the Lands Council for critters. Justin Burnett, a rancher in Richards, Texas, desperately wants beavers.

He blames low creek levels for a "red water" virus that is killing his Angus herd. "Since we are in an extreme drought and there are no beavers to keep the water level sufficient, the water is stagnant and becoming deadly," he wrote the Lands Council. "The creek is constantly getting shallower. I just need beavers back at my ranch." But pairing property owners who don't want beavers with others like Mr. Burnett who do isn't easy. States license exterminators to eradicate beavers—it's called "lethal control" in the Beaver State—but few specialists do live trapping or guarantee beaver will survive relocation. Moreover, ferrying live rodents, including beavers, across state lines is forbidden in much of the U.S., and even within states without a permit. According to Spokane's Lands Council, nearly half a million beavers swarmed over eastern Washington in 1810, when Europeans first settled near Spokane. The beavers' abundance drew rival gangs of French, British and American trappers hunting for pelts. Ultimately, over-trapping occurred, which upset nature's balance. Storage ponds that filled in behind beaver dams turned into marshes, then grasslands, which withered during summer and stopped supporting the willow and alder stands beavers require for food and building material. "Nowadays, you can pretty much bet in a place named Beaver Creek, or Beaver Pond, there are no beavers. They've been trapped out," says Ms. Parrish of the Lands Council. Case in point: Mr. Woolery. The rancher was angered when poachers wiped out the beaver colonies along his stretch of Beaver Creek in the 1970s. He thought his beavers would come back on their own, but they didn't. In the 1980s he realized his water table had dropped. He worked hard to get his cattle to stop eating willow so groves could rejuvenate and bring his beavers back. But so far, that hasn't been enough. The lone beaver he trapped on his own two years ago swam off to build a lodge on a neighbor's ranch downstream, surmises Mr. Woolery, "or else he got himself eaten by a bear or coyote." Livestock sales in Wyoming generate a fee that the state uses to help pay hunters to rid the range of problem wildlife, like beavers. "October's a busy month," Mr. Woolery says, sounding optimistic. "I'm hoping someone will trap a beaver alive, and send him to me."

(Flood control dam doing its job well. It will be interesting to see how much flood damage was prevented. No word so far from the anti-dam crowd!)

Hop Brook Dam Reports 50-Foot Pool Level Following Irene

Dam reached sixth-highest pool level ever.

By Ronald DeRosa, September 2, 2011, naugatuck.patch.com

While Tropical Storm Irene dumped around five inches of rain on the region, Hop Brook Dam still reported a lower water level when compared to the heavy rainstorm that pummeled Naugatuck in March. The level hit 50.4 inches, which is the sixth-highest recorded since the dam was put into operation in 1968, according to statistics provided by Jack A. Keenan, of the U.S. Army Corps of Engineers, which manages the dam. In March, the dam saw it second highest pool ever at 57.4', just a few inches shy of the top all-time record, 57.7' in June of 1982. In March this year the dam reached a high level following a rainstorm which coupled with melting snow from the heavy winter.

1. June 1982, 57.7', 53%.
2. March 2011, 57.4', 53%.
3. June 1984, 55.4', 47%.
4. Jan. 1979, 50.7', 36%.
5. April 1987, 50.5', 36%.
6. Aug. 2011, 50.4', 36%.
7. April 2007, 47.8', 31%.
8. March 1983, 47.3', 29%.
9. Jan. 1976, 47.2', 29%.
10. June 1973, 47.0', 29%.

Keenan said the Army Corps is using computer models to assess just how high the river would have been had the dam not been there, as well as a dollar figure on damages prevented. "Once we get the dollar figures, people usually can appreciate that," he said. "They get a better feel for the payoff (of having the dam)." The dam was constructed in the years following the Flood of 1955, an historic weather event in Connecticut history that left scores dead across the state and damage across the Naugatuck Valley. It controls water levels into the Naugatuck River, with rainwater funneling into a lake at Hop Brook Park, Keenan said. Already, the high water levels - captured in the attached pictures earlier this week - has receded down, Keenan said. "We wait for the main stem of Naugatuck to recede, to get below flood stage, once there is some room in the river we can start to increase our outflows from the dams," he said. When the then-Hurricane Irene hit on Sunday, the river had exceeded flood stage. This had even caused the Naugatuck Police Department to close the Maple Street Bridge for a period of time as the waters nearly breached the deck of the bridge. If the dam were not in place, however, the Naugatuck River would have risen "significantly higher," Keenan said. The water levels would be several feet higher, and the river "would have been above flood level for much longer." He said the Naugatuck River is considered one of the "flashiest basins" the Army Corp deals with in the region. Because it is surrounded by hills, rain moves much quicker and the rivers tend to rise and drop at a faster rate, Keenan said.

Defense against terrorism a priority at Flaming Gorge Dam

Flaming Gorge Dam » A hovercraft is the latest tool to protect the facility.

By Nate Carlisle, The Salt Lake Tribune, Sep 02 2011

Flaming Gorge Dam - It is not New York or Los Angeles, but it has still received millions of dollars for security. It is not a nuclear power plant or airport, but it is considered a critical piece of infrastructure. It is not a military base, but it has 24-hour police protection, security cameras, motion sensors and this winter it will receive a hovercraft to patrol and defend it by land and water. It is Flaming Gorge Dam, in the corner of Utah that meets Wyoming and Colorado. In a policy that has mirrored more high-profile locations around the country, the federal government has spent millions of dollars since the Sept. 11, 2001, terrorist attacks protecting a dam on the Green River best known for some of the finest trout fishing in the world.

The Bureau of Reclamation has paid the Daggett County Sheriff's Office $4.77 million since 2002 for police protection at the dam, with a new contract between the bureau and the county to be signed this fall. There have been one-time costs, too. The bureau has bought everything from the cameras and sensors to the buoys that keep boats from approaching the dam to hybrid SUVs driven by Daggett County deputies. Other federal agencies have contributed, too. The FBI helped coordinate anti-terrorism drills at the dam in 2003 and 2009. Daggett County is using a $100,000 grant from the U.S. Department of Homeland Security to purchase the hovercraft. "It was

extremely important to secure these facilities even if they're in remote locations because the remoteness doesn't mean they aren't accessible and the impacts they have are tremendous," said Larry Todd, a retired deputy commissioner of the Bureau of Reclamation. It is unclear just who or what is menacing the dam. Neither documents The Salt Lake Tribune obtained through the Freedom of Information Act nor interviews with state and federal authorities identified a specific threat against the dam since 9/11. Just reaching Flaming Gorge Dam requires an effort. It's a 3 ½ hour drive from Salt Lake City. Only one road, U.S. Highway 191, goes in and out of the dam. From the right spot in Wyoming, the dam is just as accessible by boat as by car. "We haven't had any specific threats that I'm aware of, and that's good," said Steve Hulet, the manager at Flaming Gorge Dam. "That's why we have security. Security is working."

Richard Volpe, a special agent with the Bureau of Reclamation who also is part of Utah's Joint Terrorism Task Force, points to the February arrest of a Saudi national living in Lubbock, Texas. The FBI has said the man was trying to buy ingredients for explosives and had a list of targets that included several dams and reservoirs in Colorado and California. "The tangible thing you get out of security is nothing happens," said Volpe. "Nothing happens and people ask why you're spending all this money." Azamat Sakie, an assistant lecturer at the University of Wyoming who studies comparative politics and terrorism issues, finds a low likelihood of an attack against Flaming Gorge Dam. Of course, the terrorists weren't terrorists but actors in a security drill held at the dam on June 2, 2003. SWAT teams with the FBI and other law enforcement agencies had to regain control of the dam while paramedics treated the victims. A similar drill was held May 6, 2009. The drills reflected just one of the scenarios envisioned by security experts, said Larry Todd, who before his retirement from the Bureau of Reclamation in 2008 oversaw security at dams.

Bureau of Reclamation dams had only basic protections before 9/11. Todd said there was one security officer in Denver for all of the bureau's dams. At Flaming Gorge Dam, visitors used to be able to walk unescorted along US 191, park their car on the curb beside the visitor center or dock their boat just feet from the visitor center's door. Today, pedestrian traffic on the highway near the dam is prohibited, barriers keep cars about 30 paces from the visitor center and buoys prevent boats from approaching the dam. The visitor center dock has gone unused for almost 10 years and this summer it was submerged in water. Visitors can still go on a tour, but they are subject to a search. After the terrorist attacks in New York, Washington, D.C. and Pennsylvania, al-Qaida "was the big thing" concerning the bureau, Todd said, but the bureau soon identified other types of terrorists that concerned it. The bureau underwent what Todd considers a thorough process of identifying security liabilities at its dams, as well as the potential for damage downstream if a dam were to be attacked. "We really became concerned about the potential for a lot of different kinds of disabling; how an attack may not just disable but what kind of impacts those would have," Todd said. "Could there be flooding downstream? Could there be economic impacts? Power impacts?" Besides retaining water that will eventually be used for irrigation and industrial and culinary uses, Flaming Gorge Dam generates electricity for communities as far away as Nebraska. The most significant security episode for the dam in the last decade happened 3 miles away at a Bureau of Reclamation warehouse in Dutch John. In November 2004, a bureau employee found telephone lines and communication lines were cut outside the warehouse. Reports from the Daggett County Sheriff's Office and the FBI refer to the damage as vandalism, but the FBI categorized the episode as an act of domestic terrorism. Plaster casts were made of the tire tracks found outside the warehouse, according to documents obtained by The Tribune. Agents measured the width between the tracks to determine what model vehicle made them. Old soda bottles and beer cans found in the vicinity were collected as evidence. Then a sheriff's deputy mentioned that a Dutch John resident had lost his job at the dam under what the documents describe as "unfavorable circumstances." The man in 2006 pleaded guilty in federal court to a felony count of damaging communication lines or systems. A judge ordered him to serve 36 months of probation and pay $1,566 in restitution.

Hydro:

Investigation looking into hydropower project at Montana dam

brighterenergy.org, 8/29/11

The Bureau of Reclamation is carrying out investigations at Clark Canyon Dam in Montana until early October, to determine the viability of a hydropower development. The Agency, part of the US Department of the Interior, said it is working on the investigations with Symbiotics, LLC, a hydropower developer based in Bend, Oregon, which is now part of Riverbank Power. Clark Canyon Dam is located on the Beaverhead River, about 20 miles south of Dillon, Mont. Completed in 1964, the Reclamation-owned dam is operated and maintained by the East Bench Irrigation District. Symbiotics was issued a license in August 2009 through the Federal Energy Regulatory Commission to develop hydropower at Clark Canyon. The developer began its federal licensing for a run-of-river hydroelectric project on Clark Canyon Dam back in 2004. The project is anticipated to have an installed capacity of 4.75 MW from two turbine/generator units, with average production of 16.5 GWH annually.

Irrigation district's hydropower project moving forward

heraldandnews.com, August 30, 2011

One of the Klamath Basin's largest irrigation districts is one step closer to building a hydroelectric generation facility on a canal in the Klamath Reclamation Project. The U.S. Bureau of Reclamation has determined that the Klamath Irrigation District's proposed facility, where the A Canal splits into the B and C canals, would have no significant environmental impact. The project now goes to public review. Dave Cacka, chairman of the district's board of directors, said the district is planning to start construction of the 900-kilowatt facility this fall and have it operational by the 2012 irrigation season. The power generated would be sold to the grid and provide revenue for the district. "We're moving forward as we speak," Cacka said.

(You have to wonder if someone from Utah really understands doing business in a place near Altoona, PA. The 1st thing to do is become a Steeler fan.)

Utah firm plans Antis hydroelectric plant

September 3, 2011, By Greg Bock, The Altoona Mirror, altoonamirror.com

Tipton, PA - A Utah company has taken the first baby steps toward the construction of a hydroelectric power plant in Antis Township. Symbiotics Energy LLC, a Logan, Utah, hydroelectric engineering firm, submitted a preliminary permit application to the Federal Energy Regulatory Commission on Aug. 9, according to the commission. The preliminary plans call for a pumped storage hydroelectric project to be situated between Bellwood and Tipton and require the construction of two dams. Symbiotics, doing business as Bellwood Hydro LLC, proposes building two reservoirs, an upper and a lower, that would generate power using a tunnel that would take water from the upper reservoir at 12,000 cubic feet per second down a 2,570 foot-long and 30-foot in diameter "power tunnel" that connects to a vertical shaft. The water would power three turbines, each rated at 250 megawatts, before draining into the lower reservoir, the company outlined in its preliminary application. Power would be generated eight hours each day during peak times, and water would be pumped from the proposed 120-acre lower reservoir back to the 101-acre upper reservoir for 16 hours each day during off-peak times, according to the company.

The power generated would be about 1,972 Gigawatts per year, the company estimated, and a 7.3-mile 500 kilovolt transmission line would also be erected to connect to the electric grid. Symbiotics CEO Vincent Lamarra did not return a call Friday for comment, and at least one area conservation group already believes it's a bad idea. Stan Kotala, spokesman for the Juniata Valley Audubon Society, said the more than 600 members of its group in the Altoona area oppose the project, one he said is a way to make money selling energy during peak times while using just as much, although at a cheaper rate, during off-peak times.

Environmentally, there are at least three major concerns, Kotala said. "This project would inundate a mile of high-quality trout stream in Mulligan Hollow, directly affecting Tipton Run, a Class A high- quality trout stream," Kotala said. "This project would inundate 200-plus acres of forest in a designated Blair County Natural Heritage Area." The project would also require more than 200 acres of State Game Land 158, "land that was set aside for wildlife conservation and public recreation," he said. The state Game Commission is unaware of any plans to build the project on state game lands, agency spokesman Jerry Feaser said. Whether the project ever actually comes to fruition depends on many factors, including whether the company gets a permit to study its feasibility and whether it can line up the laundry list of federal, state and local permits and permissions, state Department of Environmental Protection spokesman Kevin Sunday said. Nothing will be done by the state until Symbiotics applies for its full permit, and state regulators were aware of the plan and had met this week to discuss it, Sunday said. According to the plan, that's at least three years away, and FERC spokesman Craig Cano said the company would have three years to prepare for a full permit for the project should it receive the green light on its preliminary permit application.

Symbiotics noted that it expects to spend between $2.5 million and $3 million over the next three years to see if the project is financially and economically viable and if water rights, easements and other requirements can be met. Cano said FERC has already informed the company that its preliminary permit application has several deficiencies, particularly details of its proposed dams and a more detailed map of the area where the dams are planned. Symbiotics will have until mid-September to address those concerns. Because the tributary on which the proposed hydro plant is located enters Tipton Run downstream from the Altoona Water Authority's treatment plant, the plant will have no effect on authority operations, authority General Manager Mark Perry said. "As little as I know about it at this point, I'm not seeing any concerns," Perry said. Antis Township Supervisors' Chairman Ray Amato said he doesn't approve of gas drilling, but the project will bring some jobs to the area and that's why he's not fighting it. He said his biggest concern is township roadways sustaining damage. The supervisors will have to adopt some ordinances to protect its roadways, he said. Mirror Staff Writer Greg Bock is at 946-7458. Staff Writers William Kibler and Amanda Clegg contributed to this story.

Water:

(Hurricane Irene Flood flows at hydro project – Quechee, VT. This video is amazing! I've been to Quechee Gorge, but can't recall where the hydro powerhouse is located – I think downstream.) Click on link:
http://www.youtube.com/watch?v=2flGnMmSIRI&feature=related

(A 500-year flood is unbelievable. Residents just don't appreciate the magnitude of an event of that sort. Many people would be flooded by a 100-year flood. If there were not pre-releases before the storm, the dams may have had to release flows to prevent failure at the height of the

storm – not good! You can't win in these situations. People always blame the dam and fail to look at the sky.)

State: Blame Irene for flooding

Lowering of dams before storm defended

Written by, Matt Manochio | Staff Writer, dailyrecord.com, Sep. 1, 2011

Hurricane Irene unleashed a rush of floodwaters in parts of Morris County, NJ where flooding has never been an issue. That led to speculation by residents of communities such as Denville and Parsippany that Irene's impact was worsened by the release of water from lakes and reservoirs that protected people living upstream, but not them. Not so, says John Moyle, the state's top dam expert, who said most of the problems were caused by a 500-year-flood and not anything done by man. "That is an allegation that is made by a lot of the residents downstream," said Moyle, who is the state Department of Environmental Protection's chief of the Bureau of Dam Safety and Flood Control. In Denville, where 350 homes were affected by flooding, water was released from Shongum Lake in Randolph. Water from that lake flows into two other lakes before reaching the Rockaway River. Moyle said two Denville lakes — Indian and Estling — had a controlled release of water into the Rockaway River prior to Irene. Moyle said water then was released from Shongum, which is upstream, and that its water flowed into the two Denville lakes. Still, Moyle said the controlled releases didn't cause record flooding in Denville. "All of them released it before ... all of them lowered before the heavy rains, so the flood flows would've passed before," Moyle said. In Parsippany, at least 430 Lake Hiawatha residents were unexpectedly evacuated Sunday night after the Rockaway River overflowed a retaining wall on River Road.

Janine Cibellis, whose mother's Parsippany home was severely damaged by the flooding, said the community felt in the dark about the release of water from the Boonton Reservoir, which straddles Parsippany and Denville and provides drinking water to Jersey City. "It's spurring a lot of anger and confusion among people who were affected by this second phase of flooding on Sunday night," she said. United Water Jersey City, which owns the Boonton Reservoir, released water into the Rockaway before Irene hit. But some residents' anger may have been heightened by misinformation from a police alert that the utility also released water during the storm, sending a rush of water into the Rockaway. Rich Henning, a United Water spokesman, said the company released water from the reservoir prior to Irene hitting New Jersey, but never during. "We did not," Henning said. "Because you don't want to contribute to any kind of flooding situation." United Water made phone calls Sunday night to notify officials downstream of a high water level, according to a letter from John A. Hroncich, United's operations manager, sent to Parsippany Mayor James Barberio. "Within an hour of the notification, we made a second call to indicate that the high water level moderated and flows into the Boonton Reservoir were beginning to decline," Hroncich wrote. "Apparently the second message did not get communicated and many residents received incorrect information." Cibellis said she attended a community meeting where United Water representatives explained their actions, but even that failed to quell their emotions. Moyle again said the controlled release is not to blame. "The key is we had a 500-year flood event on the Rockaway River, and that, unfortunately, is why we had the devastating damages there," he said.

Beth Skyler Barry, executive director of the Musconetcong Watershed Association, said the Musconetcong River did overflow and flood areas of Washington, Hackettstown, Bloomsbury and Finesville, all in Warren County. "I do know that people downstream on the Musconetcong were upset to find that water was released ahead of the storm," she said. "It's done all the time. I'm not in a position to say whether or not the additional water coming down was some kind of tipping point for down-streamers." Prior to the storm, water from Lake Hopatcong was released into Lake Musconetcong, which flows into the Musconetcong River. Skyler Barry said she's spoken to longtime area residents who said "they haven't seen this kind of flooding since 1955." She said there's a difference between this August and those of past summers: There was a lot of rainfall prior to Hurricane Irene. "I think that the critical factor here was the fact that we had a saturated ground," Skyler Barry said. "Typically in a pretty dry state, the reservoirs are waiting to be filled, the ground ready to (absorb). This is what a typical August would look like. There was nothing

typical about the level of our rivers and streams and tributaries, and there was nothing typical about this complete saturation of groundwater."
(Interesting start of California water history. As old mill water wheels go, this was one of the larger ones ever built in the U.S.)

Half Moon Bay once had its own flour mill

hmbreview.com, Sep 1, 2011, Dave Cresson


Replica-Half Moon Bay Museum

Among the strangest of Coastside stories is how Half Moon Bay's old mill played a key role in the creation of the city of San Francisco. The water used to power the Spanishtown mill's water wheel led to developing San Francisco's gigantic Hetch-Hetchy aqueduct system.
Here's what happened: San Francisco was an outpost for the Spanish, and later, the Mexicans. In 1849 it became the gateway for the Gold Rush. The city was growing at a furious pace. As gold became harder to find, the magnetism of the West attracted the American pioneering spirit. The West offered the opportunity for a new life and land ownership. Thus, the city continued its growth as California became American territory. San Francisco had only small springs for fresh water. Early on, water became scarce. The Spring Valley Water Company, its owners, executives and political allies, were quietly trying to solve San Francisco's most critical problem. Thirty miles or so to the south, the Mexicans who had owned and governed California until 1848, scattered to ranches on enormous land grants. One such grant was named San Benito. Americans called it "Spanishtown." It began life as a ranchero, owned by the Miramontes family. Today, it is Half Moon Bay.

In 1860, Melvin Halstead and his brother built a mill in Half Moon Bay, on the banks of Pilarcitos Creek. It was near the town's Main Street, just behind the large Miramontes adobe home. Today's Mill Street that intersects Main gets its name from the mill. Pilarcitos Creek was a big water source, as it drops out of the coastal mountains into Spanishtown. The sturdy little mill stood upon the bank of Pilarcitos Creek and used the power of that stream to turn its large, 32-foot water wheel, providing the power needed to grind the grist into flour. Immediately after as the Halsteadt brothers began to produce their flour, representatives came to them offering to buy their property and the mill. Some say the offer was presented by the local, wealthy politicians, James Denniston (Denniston Creek, near El Granada is named after him), and Josia Ames (Amesport is named after him). However, the real buyer was the Spring Valley Water Company, an enterprise well connected financially and in California politics. The company was really interested only in the water rights - not in the Halstead's mill. Once the legal framework for water rights was completed, Spring Valley brilliantly engineered an aqueduct system, and built two dams, one small and one quite large, in the coastal mountains. Most of the water that had been coming entirely to Spanishtown was now piped miles away - off to San Francisco. That was only the first step in San Francisco's historic water program. Pilarcitos was merely a pilot program - an experiment. Its success led to a much bigger solution. Spring Valley next dammed all of the valley formed by the San Andreas Fault. The San Mateo Dam formed what we know today as Crystal Springs Reservoir. Yet even that was but another small step compared to their final effort.

Needing still more water to keep up with its growth, the city of San Francisco built the great dam and water transport system known today as Hetch Hetchy. City engineers dammed water in the Sierra Nevada Mountains, piped it all the way across the state into Crystal Springs, and then on to San Francisco. After decades of negotiations, San Francisco finally purchased the Spring Valley Water Company in 1930 for $40 million, bringing all of the company's lands and other assets into public ownership, and unifying the water supplies, which would fuel the region's growth. Today, Pilarcitos Reservoir is part of the San Francisco regional water system serving the city of San Francisco and 1.7 million people in the Bay Area. Also included are the residents of Half Moon Bay, El Granada, and Princeton, although Half Moon Bay still gets much of its drinking water from Pilarcitos Canyon. Because the Spring Valley Company bought Halsteads' mill, we

now buy water from San Francisco. But Mill Street remains, and it reminds us of this peculiar footnote to the history of San Francisco and Half Moon Bay.

Environment:

Whitewater work moves down to Alabama side of Chattahoochee River

By Mike Owen, ledger-enquirer.com, Aug. 28, 2011

Phenix Dam

After more than a decade of work behind the scenes, the effort to bring whitewater rafting to Columbus will move to the banks of the Chattahoochee River and then out into what will become the course itself this week, supporters of the project say. Beginning this week, visitors to the river downtown will begin to see material, machinery and manpower showing up on the Alabama side of the river just below the Eagle & Phenix Dam. Batson-Cook, the construction company handling the project, will begin site prep work by building a temporary road down to the river from the 13th Street Phenix City RiverWalk entrance. Seeing the physical work begin will be a tremendous milestone in a process that began in the late 1990s, said John T. Turner, a W.C. Bradley Co. executive who has been a standard-bearer for the project since its infancy. “If those of us who started working on it in ’98 had known what we know now, this thing would never have happened,” Turner said, laughing. “It’s been a real experience.”

The initial work will involve making the natural channels match a model that was developed for the project, according to Richard Bishop, president and CEO of Uptown Columbus. After the run on the Alabama side is crafted, work will move to the run on the Georgia side, then work on removing the dam will begin late this year or early in 2012, he said. There is some urgency to get the two runs completed so the dam can be breached and removed, Turner said. The Eagle & Phenix Dam was built to have about a 50-year lifespan, and it’s over 100 years old now. The structure is about 14 feet wide, but divers recently discovered a 10-foot-deep cavity in the dam, he said. And it’s leaking badly. “We feel a real sense of urgency to go ahead and get to work because that dam is not in great shape,” he said. “That’s obvious from the water you see shooting through it. “If that dam were to fail before we can do the work downstream, we’re not sure we’ll be able to do that work, because we’d be trying to work in a class 4 rapid. And that’s just not something you’d want to attempt to do.” For the work to be done, the river has been directed through the powerhouse gate of the old Eagle & Phenix Mill, now a luxury condominium complex. But when Georgia Power is generating, the flow will exceed the capacity of the power house, so water will regularly come over the dam. Workers will know exactly when that will happen, but others might not, warned Columbus Fire and EMS Assistant Chief Robert Futrell.

“My advice to people is just to stay out of the river,” he said. “The river is so unpredictable. Conditions in the water can change so quickly that an area that might be safe now, five minutes from now can be totally unsafe.” As unpredictable as its currents can be, the river’s bottom is apparently just as hard to, well, fathom. Part of the preparations for working below the dam involved sending scuba divers down above the dam to determine the nature of the riverbed, now buried under sediment that settled over practically the entire 20th Century. “The most important task from an engineering point of view is to make sure that we understand what the true bottom of

the river is," Turner said. "As you would expect, at the base of the dam, there's a good bit of material. Some of it is rock, some of it is sediment." One thing they learned was that sometimes an old-fashioned approach is best, he said. "What early surveys of the bottom showed was not the true bottom," Turner said. "Some of our first methods, which were some of the more sophisticated, were actually not the best methods. We used side scan sonar, sonar depth finders, even ground penetrating sonar. We've found that it's not enough. We've had to go down with divers and long rods to try to find the true bottom." When the Eagle & Phenix section of the project is completed, the process will more or less be repeated upstream at the City Mills Dam, Bishop said. Organizers hope to have the $23 million, 2.5-mile project complete by late 2012 or early 2013. The sooner the better, because Columbus is one of three sites listed to host the International Canoe Federation's 2012 Canoe Freestyle World Cup in late August and September of 2012. Bishop said those plans have not been finalized. "We'll be in contact with the committee in the next few weeks," he said. Though work will begin this week on the Alabama side, a formal groundbreaking ceremony is planned for Sept, 22 on the 1100 block of Bay Avenue between the Chattahoochee Riverwalk and the Synovus building.

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9/16/2011

Some Dam – Hydro News™

And Other Stuff

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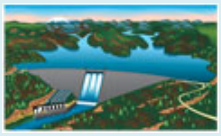
Quote of Note: *"We judge ourselves by what we feel capable of doing, while others judge us by what we have already done." -- Henry Wadsworth Longfellow*

"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: **Charles Krug Cabernet Sauvignon 2008**
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Dams:

(Very expensive to remove dams. Once they're gone, they're gone forever. That's the decision the locals have made!)

Cold-water fishing should benefit from removal of Brown Bridge Dam on Boardman River

By The Grand Rapids Press, September 04, 2011, Erin Crowell | The Grand Rapids Press, mlive.com

Michigan anglers are excited about the planned removal of Brown Bridge Dam on the Boardman River, one of three non-operating hydroelectric dams to be dismantled and removed in Grand Traverse County. Cold-water fishing should benefit, they say. The last day for public comment was Aug. 25 on the partial drawdown of Brown Bridge Pond, the next step in Michigan's largest dam removal project. "Brown Bridge, for most fishermen, is the most clear-cut and exciting dam that the project will remove," said Brian Burroughs, executive director for Michigan Trout Unlimited. "There's nothing but good things that will come from Brown Bridge. It should make a great fishery downstream from that dam." According to the 2008 Boardman River feasibility study, downstream water temperatures are approximately 10 degrees warmer because of the dams. Returning the river to its cold water habitat will allow other species of fish, such as brook trout, to repopulate. "The simplest way to think about it is a river system is

defined by water flowing, it carries water, sediment, nutrients and allows organisms to move downstream and upstream," said Burroughs. "When you put in a dam, you essentially shut that off and create a lake habitat."

Members of the Boardman River Project Implementation Team say they are awaiting the Michigan Department of Environmental Quality approval of a partial drawdown permit for Brown Bridge and Sabin Ponds scheduled to happen sometime this fall.
"(MDEQ) will review any comments submitted by the public before approving a drawdown permit," said Rick Westerhof of the U. S. Fish and Wildlife Service, one of several local and national agencies that comprise the project's implementation team. "There weren't too many concerns expressed at the public meeting," Westerhof said about the Aug. 15 Brown Bridge and Sabin ponds drawdown public hearing held at the Boardman River Nature Center. State and federal officials say the primary concern is the amount of sediment that has accumulated in Brown Bridge Pond. A short-term influx of sediment into the stream flow can damage fish spawning grounds and negatively impact water, habitat and food quality, according to the Michigan Department of Natural Resources. Built in 1921, Brown Bridge Dam is the impoundment farthest upstream. It is owned by Traverse City. Other dams slated for removal include Boardman and Sabin, which are both owned by Grand Traverse County.

The plan calls for a 13-foot drawdown at a rate of 6 inches per day, to the permit application submitted to the MDEQ. Using a slow and controlled drawdown should prevent a considerable amount of sediment from heading downstream, "to the point where it won't be a concern," Westerhof said. To date, approximately $3.4 million in grants has been secured for the estimated $5 million project to remove the Brown Bridge and Sabin dams. In August, the implementation team announced a $1 million grant awarded to the Conservation Resource Alliance from the National Fish and Wildlife Foundation for the removal of Brown Bridge Dam. The grant comes from the public-private partnership, "Sustain Our Great Lakes," a national and federal project to restore and protect fish, wildlife and habitat in the Great Lakes basin.

(Score: Flood Control Dams - 1 ~ Hurricane Irene - 0. And, we have to remember – this is not the largest rainfall that could occur. What about the Probable Maximum Precipitation?)

Flood control dams protected downstream towns

By Susan Smallheer, Staff Writer, rutlandherald.com, September 4, 2011

North Springfield — It could have been worse. Thanks to a series of flood control dams built in the wake of hurricanes in the 1930s and '40s, many Vermont towns downstream of the dams were spared even worse flooding. "I like to think our dams prevented a lot of damage," said Mike Curran, operations manager for the Upper Connecticut River Basin for the U.S. Army Corps of Engineers. "Springfield would have been inundated," he said, noting the heavy damage upstream on the Black River to the towns of Ludlow and Cavendish and roads in Weathersfield. Curran oversees the operation of five flood control dams in Vermont and two in neighboring New Hampshire near Keene, N.H. While towns along the West River such as Newfane and Jamaica were hard hit, it would have been even worse without the dams, he said.

In Vermont, the dams are holding back almost record levels of water, while in New Hampshire, the dams are about 20 percent above normal, Curran said Thursday. Surprisingly, the levels at the dams in Vermont were not setting records, Curran said. Those record levels were set in the early spring of 1987, when a combination of warm weather, record snowfall and two rainfalls set records at North Springfield, Ball Mountain in Jamaica and Townshend Dam. Those dams used their spillways in 1987 to avoid topping off the dams. The two other dams in the network, at Hartland and Post Mills, set records back in 1973 or 1969, he said. Hartland, which is located on the Ottauchequee River, was at 122.8 feet, while the normal level is 35 feet, or 57 percent capacity. Townshend Dam peaked at 86.5 feet, at 78 percent capacity. Union Village dam, which is located on the Ompompanoosuc River in Thetford, was built in the 1940s, he said.

Once the Connecticut River crested, the flood control dams started "dumping" water, Curran said, and the reservoirs have already dropped several feet since Tuesday night, when releases began. "We started opening up, essentially dumping water, on Tuesday," Curran said. "Until it crests, we hold water, until the Connecticut River starts to recede." In general, he said, the Vermont dams are 65 to 70 percent full. Springfield received 7.5 inches, he said. Ball Mountain got between 6.5 and 7.5 inches, and Townshend about the same. Union Village received 4 inches, as did Hartland, he said. Curran said that the North Springfield dam reached 80.5 feet, and was 71 percent full. It hit 95 feet in 1987, he said, consulting his records. Ball Mountain, which is in a narrower valley, is at 160 feet, while the normal elevation is 60 feet, he said. Ball Mountain dam peaked at 177.5 feet on Tuesday, while the spillway is at 211 feet. "We have 100 feet of additional water there," he said, taking up 71 percent of the dam's capacity. All the dams, he said, are designed to hold almost 6 inches of storm runoff. While it rained more than 6 inches, Curran said some of the rain was absorbed by the soil, and since it is still the growing season, trees and other vegetation absorb a lot of moisture. The 1987 floods came while the ground was still frozen and there were no leaves on the trees to draw up moisture. "It will be a good week and a half to get down to normal," said Curran, and a full two weeks for the Surry Mountain and Otter Brook dams in New Hampshire, because the downstream channels are not as large. He said there is a lot of debris in the reservoirs, mostly trees. "I hope we don't have any houses," said Curran, noting the wood would be removed from the reservoir, piled up and eventually burned. Its value as firewood is not great because it is covered with silt, he said. Curran said that the trees that are underwater should survive the 10-day bath, but that any grassy areas will have to be reseeded. He said that three flood control dams had been built on the Winooski River on the western side of the state, including the Waterbury dam and reservoir. They have been turned over to the state, he said. He said it would be several weeks before the Army Corps does any calculations on water flow to determine what effects the dams helped prevent.

(Sounds like good news. The failure of the electronic monitoring devices shows that there is a better way to measure rainfall at a dam because it's clear that predictions are not reliable. The problem is that no one uses the alternative monitoring. If the extra 6 ½ feet of reservoir surcharge had happened at a dam vulnerable to that rise – failure could have been the outcome. Fortunately, Gilboa Dam had the right stuff.)

DEP submits post-storm report on Gilboa Dam

empirestatenews.net, 9/06/11

Albany – The New York City Department of Environmental Protection has submitted a post-storm incident report on Gilboa Dam to the State Department of Environmental Conservation, based upon inspections and engineering analysis by outside and in-house dam safety experts. The report concludes that the Gilboa Dam, which was structurally safe beforehand and undergoing a scheduled $350 million upgrade, weathered the heavy rain associated with Hurricane Irene and remains safe and structurally sound. DEP's report to the State DEC is attached to this press release and will be posted on DEP's website. The report states that the dam at no point had leakages; that it incurred no significant erosion or damages; and that it was structurally sound before, during and after the storm. The dam did incur some minor damage to non-structural components of the kind that would be expected with a storm of the intensity of Hurricane Irene—such as the damage to one of the steps of the side channel of the spillway. DEP will continue to assess the Gilboa Dam's condition and to take necessary response actions.

Ahead of the storm, DEP released 2.8 billion gallons of water through siphons and diverted 2.4 billion gallons from the reservoir to the Ashokan Reservoir. Leading into the storm, the National Weather Service predicted that rainfall would cause Schoharie Reservoir to crest at elevation 1131.4 feet. Based on that prediction, DEP began enhanced monitoring at the dam. On Sunday, August 28, the drainage area to Schoharie Reservoir received unpredicted rainfall of over 14 inches in some locations in the watershed, and these extraordinary flows raised the water level to an unprecedented peak of 1,137.95 feet between 2:35 p.m. and 2:55 p.m.—nearly one and a half feet higher than the previous record set during a storm in January 1996. Storm-related impacts on the reservoir and the dam triggered DEP's Emergency Action plan that has been in place since

2005. DEP did not believe at any point that the dam was in danger of imminent failure but higher-than-predicted amounts of rain coupled with the loss of electronic monitoring devices due to the storm increased the potential risk to communities below the dam. To protect the public, the plan requires an area-wide evacuation until extraordinary conditions—like last weekend's storm—have abated, and until any potential impacts to the dam are assessed. DEP's experts began assessing the dam on Sunday, August 28, and completed a preliminary assessment on August 29, when it de-activated the emergency action plan. DEP's experts continued assessments throughout the week.

NRCS Watershed Dams Protect Arkansas Communities by Reducing Flooding

Posted by Reginald Jackson, NRCS Arkansas, on September 7, 2011, blogs.usda.gov

The flooding from this year's spring rain storms caused millions of dollars worth of damage to homes, businesses and crops in Arkansas. But some flooding was reduced or minimized, thanks to 207 small and medium-sized dams built by USDA's Natural Resources Conservation Service (NRCS), in partnership with local watershed districts. These earthen dams provide an average annual benefit of $30.3 million from the reduction in flooding and the associated economic impact and property damage. In years like this one, with significant flooding averted, their value is much higher.

In 1960, NRCS (then the Soil Conservation Service) along with the Washington County Soil Conservation District, city of Lincoln and Arkansas Game and Fish Commission, developed a watershed protection and flood prevention work plan for the Muddy Fork of Illinois River Watershed to address persistent flooding. Between 1962 and 1975, four dams were constructed in this watershed. Let's look at two of them. These two dams are situated upstream of Prairie Grove, creating the Budd Kidd and Prairie Grove Reservoirs. They help to reduce flooding of Muddy Fork Creek along the western edge of Prairie Grove, and together they provide about 3,700 acre-feet of floodwater storage. NRCS has estimated that during a 100-year flood (a level of flooding expected to happen, on average, about every 100 years), the peak water level on Muddy Fork Creek, where it passes by Prairie Grove, would be reduced by about 2 feet as a result of the dams' ability to store and more slowly release flood waters over several days. Budd Kidd Reservoir also provides recreational opportunities for hunters and fishermen, and Prairie Grove Reservoir is an essential source of drinking water for Prairie Grove. Both Budd Kidd Dam and Prairie Grove Dam were originally designed as "low hazard" dams because of the absence of downstream development—when they were built, dam failure would probably not have led to loss of life or significant economic damage. But over the years, increased development downstream has created increased risks. Consequently, both dams are currently rated as "high hazard" by NRCS and the state of Arkansas. This rating mandates that the dams be able to store water during a larger flood event. The dams will need to be modernized in the near future, but in the meantime, they continue to do their job and protect Arkansas communities—as we saw earlier this year.

(Exploring and extracting natural gas nay be a good idea, but not near dams. The FERC had a policy that NO drilling could take place within a project boundary and never near a dam. Don't know what the policy is now!)

Fracking near dams could cause catastrophic event per US Army Corps Engineers

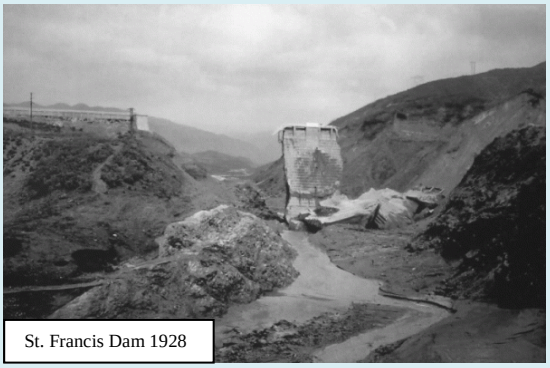
by TXSharon on September 8, 2011, texassharon.com

The Grand Prairie Mayor said, "…scary as hell." Apparently he and the Grand Prairie Council, like so many others, allowed the drillers to tell them what is safe. Now that's just plain dumb. Because, although fracking and walking both end in ing, they are nothing alike. One is a natural process of human development and the other is like setting off bombs underground then pumping mysterious and dangerous chemicals into the earth. So, the US Army Corps recommends a 3,000 foot setback to protect dams from fracking. Yet Fort Worth has a mere 600 foot setback,

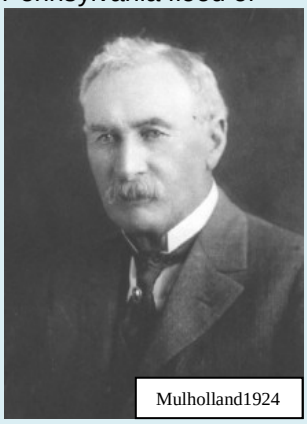
which is often waivered down to 200 feet, from residences. What might fracking do to foundations, buildings and bridges?
(An ominous reminder that everyone should read. This article doesn't need much highlighting because it's one BIG highlight. The scary thing is that the Country has become so poor that we can't seem to find the money to do what needs done unless we borrow it from China. Not sure about the last sentence too! And, typical Columbia University couldn't resist straying from the point of the article – dam safety!)

Safety Be Dammed: High-Risk Dams on the Rise

by Benjamin Preston | 9.9.2011, blogs.ei.columbia.edu


St. Francis Dam 1928

In the still hours just before midnight on March 12, 1928, thousands of people slumbered in the handful of agricultural communities nestled along the Santa Clara River in Ventura County, California. Tony Harnischfeger and his family slept quietly in a small house at the foot of the St. Francis Dam, a 195-foot high concrete gravity arch dam built on one of the Santa Clara's tributaries to store water for Los Angeles. The stillness did not last. Harnischfeger, the dam's keeper, had noticed a muddy leak at the base of the dam the previous day, but William Mulholland, chief engineer of the Los Angeles Bureau of Water Works and Supply (now the L.A. Department of Water and Power) inspected the leak personally and said the mud was most likely from a freshly graded access road near the dam. Several days later, authorities were still unsure of how many people perished when the dam suddenly collapsed in the middle of the night. Bodies and bits of houses washed out into the Pacific Ocean by the 12 billion gallon deluge floated ashore as far afield as the Mexican border. To this day, no one knows the exact death toll, but more than 400 were found, some decades later. The St. Francis Dam catastrophe wasn't the first big dam failure in modern history nor was it the last, but its proximity to a population corridor made it one of the worst. More than 2,000 people died in the Johnstown, Pennsylvania flood of 1889, when the South Fork Dam collapsed, and nearly 200,000 perished in 1975 when China's Banqiao Dam failed. Today, there are more than 84,000 dams in the U.S. alone. Almost 30,000 of America's dams were built before 1960, but many of the largest ones, built more recently, are aging and in need of repair. Most dams are privately-owned and stand less than 50 feet high, but nearly 1,700 U.S. dams are more than 100 feet high. Although dam safety legislation has ramped up since a string of catastrophic dam failures in the 1970s, the number of high risk dams needing repairs has actually increased over the last decade as dams age and government budgets dwindle. Dams once situated in desolate places far from populated areas now have communities parked within their potential impact zones, but because of the sheer number of them, maintenance has been difficult to keep up with.

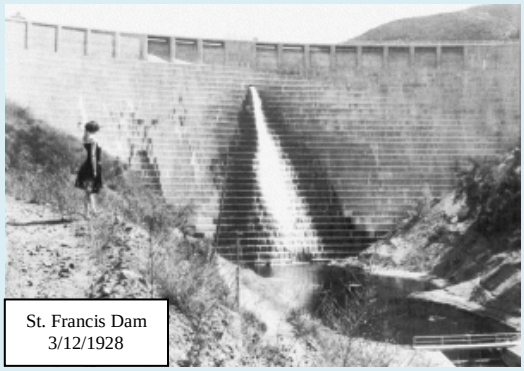

Mulholland1924

Whether you are for or against dams, it's difficult not to be impressed by the sheer scale of the larger ones. They can hold back billions of gallons of a river's water, supplying cities and vast agricultural regions with the essence of their survival and success. If a better way exists to provide a huge and burgeoning global population with drinking and irrigation water, it hasn't become mainstream enough to replace dams as a method of water storage. Despite the immediate practicality of using huge reservoirs as the key component in widespread water distribution systems, numerous biological problems have been caused by disrupting the flow of rivers. Pelagic fish are cut off from their spawning streams hundreds of miles inland. Spikes in mosquito populations, along with attendant disease outbreaks, accompanies slow-moving reservoir water. NASA geophysicist Dr. Benjamin Fong Chao said that redistribution of the world's

water weight, caused by dams, has actually speeded up the Earth's rotation by 0.2 millionths of a second per day over the past four decades. Some scientists and engineers dedicate their lives to solving these problems, and as Water Matters' Renee Cho noted in her post last week, removing poorly-sited or inefficient dams has become a popular way to undo the errors of the past and reduce the number of problems needing solving. But if a threat to human life can be viewed as a biological problem, slipping dam safety fits the profile.


Teton Dam 1976

It's difficult to imagine a colossal structure like the Hoover Dam failing, and the likelihood that it would ever happen in fairly low. But Hoover Dam is maintained by the federal government, which still has a reasonably robust program in place to account for maintenance costs. Smaller dams managed by state and regional agencies don't always have the same funding available for maintenance. According to the U.S. Army Corps of Engineers National Inventory of Dams, more than 57,000 U.S. dams are privately owned. Out of 14,000 high hazard dams–a few of which are federally owned–half lack an emergency action plan in case of a catastrophic failure. Luckily, America's newer dams were constructed using improved technology and advanced geologic site study techniques. The St. Francis Dam would not have been built in San Francisquito Canyon had data from modern geology been available. Plus, while the American Society of Civil Engineers and the Association of State Dam Safety Officials push for more emergency action plans to be instituted, a FEMA-administered National Dam Safety Program provides incentive grants to states for training and research.


St. Francis Dam
3/12/1928

But that's just in the U.S. Viewed in a historical context; dam construction is a sign that an industrializing nation has made it. In China, South America, and other parts of the world, the number of dams is exploding as developing infrastructure becomes more robust. Hopefully, governments in those places will take an active and interested role in ensuring that dams are well-sited and designed from the beginning. Americans are likely to see more poorly-sited and silted-in dams removed over the coming decades, but federal, state, and local officials have their work cut out for them if we're going to continue using and maintaining the essential ones left behind.

With so many people now dependent upon dams for drinking water supply and food production, maintaining them should be one of our top priorities. But perhaps it's time for a fundamental shift in the way we think about dam construction, development and maintenance. A dam costs a lot of money throughout its service life, so picking a good site the first time is essential. At the same time, keeping development away from dams is important, too. Regardless of economic pressure from the real estate market, it doesn't make much sense to build in areas where a dam failure could cause a terrible catastrophe. Nothing built by man or nature is immune to the forces of chance. No matter how well designed or ideally sited, any dam could suddenly spill its contents violently onto a sleepy, unsuspecting landscape.


Kaloko Dam HI

***Hydro*:**

(Looks like a juicy deal. Who'd a thunk hydro was worth so much. It's amazing what people will like when they make a buck from it.)

Ceremony Set for Cushman Hydro Project Agreement

masoncountydailynews.com, 04 September 2011

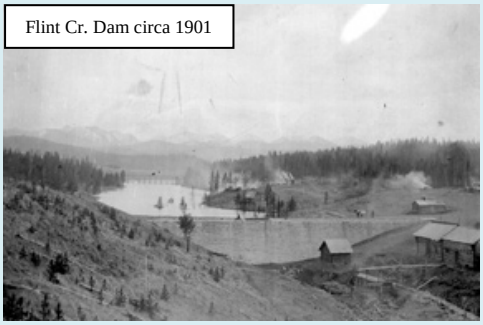
Tacoma Power and the Skokomish Tribe will jointly host Friday to celebrate the transfer of land and money as part of the settlement agreement for the Cushman Hydroelectric Project license. The celebration will take place at Lake Cushman Park in the day-use area beginning at 11 AM. The agreement ended years of litigation, enabling the utility to operate its project with a 50-year license and creating a partnership with the tribe. Tacoma Power will provide the Skokomish Tribe $12.6 million in cash payments, 7.25 percent of the value of electric production from the Cushman No. 2 powerhouse, and transfer of land valued at $23 million including Lake Cushman Park, the 500-acre Nalley Ranch and Saltwater Park on Hood Canal.

Flint Creek dam to resume producing hydroelectric power in Granite County

Turning on the juice: Flint Creek dam

By George Plaven of The Montana Standard, Mtstandard.com | September 5, 2011

Philipsburg — For the first time in more than 20 years, Granite County is turning on the juice at its two-megawatt hydroelectric dam on Georgetown Lake. The Federal Energy Regulatory Commission finally issued license to the project last year after a lengthy process, and negotiations are under way to sell the power to NorthWestern Energy. Once an agreement is reached, work will move forward to once again produce hydroelectricity off the dam's flow into Flint Creek. A ruptured flow line last stopped generation in 1989. Ben Singer, project engineer with Hydrodynamics, Inc. of Bozeman, said it is expected to go back online by fall 2012. Crews must install a new pipeline from the dam to a new powerhouse down Flint Creek Pass and at the end of a Forest Service campground road. The new powerhouse will be located next to the old powerhouse, which is slated to become a historical site. In all, the job is estimated to cost $3.5 million-$4 million, and residents can then expect improved quality in their electricity. "Being we're out on that rural line, our power will maintain voltage out there," Singer said. "It should be fairly consistent and reliable." As owner of the facility, the county will initially bring in 10 percent of the gross revenue on sales to put toward operations and maintenance of the dam. Maureen Connor, Granite County commissioner, said it is "stupid" not to generate electricity off the dam, as has been done in the past. "Montana needs electricity, and we have a small source we were using before and should be using again," Connor said.



Flint Cr. Dam circa 1901

Past Production

Original construction on the Flint Creek dam started in 1890 to generate electricity for local mining interests. The former Montana Water, Electric Power and Mining Co. began operating the dam full time in 1901. FERC issued a major license to the Montana Power Co. in 1940 to operate the


Flint Cr. Dam Today

hydroelectric generation for 50 years. Montana Power decided to surrender the project when the flow line ruptured 22 years ago, and Granite County took over. However, it too filed an application to surrender its previously acquired federal license, believing rehabilitation would be too expensive. Needing to generate electricity, as well as some non-tax revenue for the facility's upkeep, they contracted with Hydro-dynamics in 2001 to rejuvenate the process. Nine years later FERC issued the current license, with provisions addressing wildlife, water quality and historic preservation concerns. "Pretty much every aspect of the project was put under the microscope," Singer said. A major trigger-pull moving forward was the Energy Policy Act of 2005, where U.S. Sen. Max Baucus, D-Mont., and former U.S. Sen. Conrad Burns, R-Mont., capped the federal land use fee at Georgetown Lake. "The project was beyond economically unfeasible before that," Singer said.

Construction Coming

Hydrodynamics cannot begin new construction until it reaches an agreement to sell the energy to NorthWestern Energy. NorthWestern spokeswoman Claudia Rapkoch confirmed they are working toward a purchase. Singer is optimistic the contract will be finalized soon, possibly within a matter of months, but likely not in time to go full-bore on work before the snow starts falling. Next construction season they plan to replace roughly 6,400 feet of stave on the steep hillside running down the Flint Creek Valley. The pipeline then transitions to wrought iron approaching the powerhouse, totaling 7,700 feet. They will also install a new $800,000 Pelton turbine and generator unit at the powerhouse. "It's almost anti-climactic, to see the light of day coming," Singer said. Though not quite over the hump yet, Commissioner Connor said the county is pleased to see its efforts coming to fruition. "Like the commissioners who set this up, I share their vision in recognizing how important water is to us," she said.


Wood Stave needs some work

Balancing Interests

While the county does have a right to store water in Georgetown Lake for generating electricity, it must balance that with other interests, Connor said. Specifically, downstream irrigators also have a right to the water, and lake homeowners have a stake in protecting their recreation and property values. There will be no change in flow for hydropower, Connor said. Generation is based on whatever water is there but does direct what is kept or released from the dam. "We want to maintain the custom and culture around here," she said. "This little river is where the water is being used for our agricultural economy." Tourists also come to Granite County to enjoy boating, fishing and camping on the lake, and Connor said they are intent on balancing all those interests. George McClain, a cattle rancher in the upper Flint Creek Valley, said he does not believe the hydroelectric generation will affect his water use. McClain supports reviving hydroelectric production, so long as it further generates revenue and jobs to support the facility. "I think it's a good idea," he said. "It's got to generate some sort of community honey."

(Click on the "here" link for a list of projects. It's a laudable goal to want to generate 80 % of our electricity with "clean" energy, but it's also a fantasy!)

16 R&D Projects Across 11 States to Advance Hydropower in U.S.

September 6, 2011, energy.gov

Today, Secretary Chu announced that the Energy Department is funding 16 projects that will make hydropower production even more efficient, cost-effective and environmentally friendly. These research projects will help advance hydropower technologies – providing clean power to Americans while creating jobs. Hydropower technologies capture water's potential energy via a

turbine to generate electricity. It is the nation's largest, most reliable, and least expensive source of renewable power generation. Companies, universities, national laboratories, and local governments spread throughout 11 states will receive nearly $17 million over the next two to three years to develop technologies that produce hydropower more efficiently and reduce costs and possible environmental effects of hydropower development. The funding announced today will support research, development and deployment of advanced and pumped storage hydropower technologies. The projects will move the nation closer to achieving the goal of generating 80 percent of our electricity from clean energy sources by 2035.

The projects cover a wide range of topics, from extracting energy from irrigation canals and low height dams to using reservoirs for energy storage, to deploying a fish-friendly turbine. The 16 projects fall under one of four approaches to advancing hydropower in the United States:

- **Sustainable Small Hydropower:** Ten projects to research, develop, and test hydropower technologies that can be deployed at existing or constructed waterways.
- **Sustainable Pumped Storage Hydropower:** Two projects to spur deployment of advanced pumped storage hydropower, a method that can be used for generation during peak electrical demand times that involves moving water between reservoirs at different elevations.
- **Environmental Mitigation Technologies for Conventional Hydropower:** Three projects to develop innovative conventional hydropower technologies that will help decrease possible environmental effects such as fish mortality.
- **Advanced Hydropower System Testing at a Bureau of Reclamation Facility**: One project to support system tests of conventional hydropower technologies at a Bureau of Reclamation canal drop near Madras, Oregon.

The awards were made by the Department's Wind and Water Power Program. Read the full list of award winners here and check out Water and Wind Power Program website for more information.

(The Queen of England is a hydro lover! Usually, I don't use articles from over there, but this one was too hard to pass up. Will they serve tea and crumpets at the christening? Looks like their approval process is about as long as it is in the U.S. Cheery-O!
Conversions: £700,000 = $ 1.1 million and 790,000 kilos = 1.7 million lbs.)

The Queen goes green: hydroelectric turbines arrive at Windsor Castle

The Queen has taken delivery of two giant hydroelectric turbines that will help meet the Royal Family's attempts to power Windsor Castle using economic sustainable energy.

08 Sep 2011, telegraph.co.uk

The 40-tonne Archimedes' screws were put in place on Wednesday by crane at Romney Weir on the River Thames, just a few miles from her favourite royal residence. The turbines are made in a factory in Holland at a cost £700,000. It is estimated that, together with other equipment, they will cost a further £1 million to install. It is estimated the turbines will reduce carbon dioxide emissions by 790,000 kilos per year. The turbines, which have the appearance of a screw, were developed by the Ancient Greek mathematician and engineer Archimedes of Syracuse. He invented the screw to raise low-lying water so it could irrigate land at the top of a slope, but its modern namesake is turned by falling water from the weir. It is connected to a gearbox and generator to produce electricity.

In 2009 plans to "power" the castle by renewable energy were halted but now Royal advisers believe the time is right embrace renewable energy. The Archimedes Screw turbines, supplied by Southeast Power Engineering Ltd, will be ready to operate from November. The company is working in partnership with the Environment Agency, which is leasing the weir. A Buckingham

Palace spokeswoman said: "I can confirm that the royal household now has an agreement in place to purchase the energy generated by the hydro scheme, implemented by SEPEL. "We have been looking at this for a number of years. It is one of a number of green initiatives introduced at royal residences by the Queen and the Duke Edinburgh." Palace sources said on Thursday that it was not clear whether they will be able to power the castle entirely by green electricity immediately. It could happen by next year, they added. Community groups and developers were invited by the Environment Agency to set up hydropower schemes on River Thames weirs ranged down the river through Oxfordshire and Berkshire. In Berkshire, the agency teamed up with Windsor and Maidenhead council to investigate schemes at Marlow, Boveney and Boulters weirs, while work is already under way to generate electricity at Osney and Goring weirs in Oxfordshire.

Weirs were originally built to control water levels for navigation and flood risk purposes but can now take advantage of new technology to provide energy, the EA said. Hydro-power works by using flowing water to drive turbines to generate electricity. Barry Russell, the agency's hydropower project leader, said "This is a great opportunity for developers and community groups to get involved in generating clean, green electricity in an environmentally sustainable way. "Weirs are an untapped source of energy and the Environment Agency is keen to ensure hydropower fulfils its potential as a small but useful renewable energy source, whilst protecting the environment." David Dechambeau, the director of EPIEL, has said he was "over the moon" to have the Queen as a customer. He first approached the Royal Household in 2007 about developing hydroelectric power for the Castle. Officials were "very keen" on the idea, he added before taking four years to get approval. The Agency, which issued the permits had never previously leased its property to a private company and officials wanted to ensure that the project would not affect navigation, flood control and wildlife.

(Good hydro article! And, unlike solar and wind, we have a real chance of creating jobs in the U.S. instead of China.)

Can Hydropower Deliver?

It's about jobs, emissions

Ken Silverstein | Sep 13, 2011, energybiz.com

If jobs are the Obama administration's first priority then one of its early stops is at the gates of the hydropower sector. There, two federal agencies have announced $17 million in funding over three years for research and development to advance the renewable energy source. Hydropower has an edge. It is clean and the technologies to improve performance exist. But if it is to expand its national footprint, though, its advocates must emphasize their commitment to sustainability before they raise funds or endorse new legislation. With that in mind, the industry says that it stands ready to deliver.

"Developing hydropower resources can create jobs and bolster the U.S. manufacturing supply chain," says Linda Church Ciocci, executive director of the National Hydropower Association. "An available, reliable, affordable and sustainable energy source, the industry now employs as many as 300,000 workers. With the right policies in place, hydropower could expand that workforce to more than one million cumulative jobs by 2025."

Globally, the hydropower market is worth $56.5 billion a year, says a report by business information provider Visiongain. That translates into a 19 percent market share. In the United States, the figure is between 7-9 percent, or roughly 100,000 megawatts. The hydropower association says that this country can do better and raise that by 30,000-60,000 megawatts over 15 years. Where will it come from? The conventional way to produce hydroelectricity is through dams. But the amount of power is contingent upon the speed of the water that turns the turbines. Dams can increase the velocity by raising the water level. But they leave big footprints and can

cause local populations to disperse. Investors, meantime, are skeptical because the permitting process is slow and costly. Perhaps the most fruitful activity will come from those smaller so-called run-of-the-river facilities. They generate power by redirecting the river's flow using distributed hydropower units that include underwater watermills. While such technology is dependent on stream flow and access to power lines, it does not require the construction of dams that block water and kill off aquatic life.

Favorable Policies

Indeed, several hundred permits are now pending with the Federal Energy Regulatory Commission (FERC), with many of those being granted preliminary approval. Most of those would be run-of-the-river units. “Even with the practical limitations of run-of-the-river hydroelectric generation, the technology proves to be more reliable and efficient than both wind and solar, especially in the Midwest,” writes Marc Gerken, chief executive of American Municipal Power in Ohio. “Run-of-the-river hydroelectric projects — projects using the energy of water flowing over existing dams — achieve capacity factors of 55-60 percent.” The company, along with its partners, is now constructing four hydroelectric projects at existing dams on the Ohio River, Gerken adds. It has also just been granted FERC approval to build a fifth site. Altogether, the 129-member municipal entity will own and operate about 400 megawatts. The administration is focusing its efforts on improving both run-of-the-river technologies as well as the reservoirs that may use pumped storage that releases the water to create electricity when it is most needed. That increases reliability.

Beyond improving the technologies that generate hydropower, the U.S. Department of Energy and the U.S. Department of the Interior want better environmental performance. That is, hydropower is sharply criticized for damaging aquatic and wildlife habitats, which has prevented the growth of the sector. “By improving and deploying advanced hydropower technologies, we can maximize our use of this proven clean energy resource, create jobs, and reduce our reliance on fossil fuels,” says Energy Secretary Steven Chu. “Hydropower can be used to store energy to help utilities better integrate other sources of renewable energy like wind and solar into the grid.” The administration says that hydropower can play a major role in helping the country generate 80 percent of its energy from renewable sources by 2035. But the hydro association says that favorable legislation is needed, notably tax parity with other green sources. Currently, hydro developers receive about half the tax credit given to wind and solar developers. Hydro operators are ready to step up. In the Northwest where most such power is generated, developers say that they are displacing natural gas usage and in turn, preventing the release of harmful emissions. The additional funding for research, along with tax code revisions, will help, they add. The goals, after all, are job creation, emissions controls and meeting future energy needs.

Water:

(Excerpts - Sometimes too much water is not a good thing. One report stated that at the downstream Conowingo Dam the flow and water level will reach to within one foot of that which occurred during the flood caused by Hurricane Agnes in 1972.)

Rising Susquehanna Forces Closure of Holtwood Hydroelectric Plant

fox43.com, Press Release, September 8, 2011

Holtwood — In anticipation of expected flooding on the Susquehanna River, PPL has shut down the Holtwood hydroelectric plant in Lancaster County, evacuated plant workers and secured the construction area for the plant's ongoing expansion project. "The decision was made for the safety of our workers because the Susquehanna River is expected to flood the Holtwood plant," said David Fuge, Holtwood plant manager. "The potentially hazardous river conditions have put

even greater focus on the safety of employees and contractors," Fuge said. "All of our employees and contractors have left the area and are safe." The site has been secured to minimize damage to equipment, and PPL Holtwood is monitoring the weather and river flows and will determine when it is safe for employees to return to the plant when the floodwaters recede, he said. ------.

PPL is adding 125 megawatts of hydroelectric generating capacity at Holtwood, which will more than double the existing capacity of the 101-year-old plant on the Susquehanna River in Lancaster County, Pa. The $434 million project is scheduled for completion in 2013. --------.

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9/23/2011

Some Dam – Hydro News™

And Other Stuff

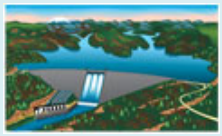
i

Quote of Note: *"Everything I did in my life that was worthwhile, I caught hell for." - - Earl Warren*

"Good wine is a necessity of life." - -Thomas Jefferson

Ron's wine pick of the week: **Sean Minor "Four Bears" Pinot Noir Carneros 2009**

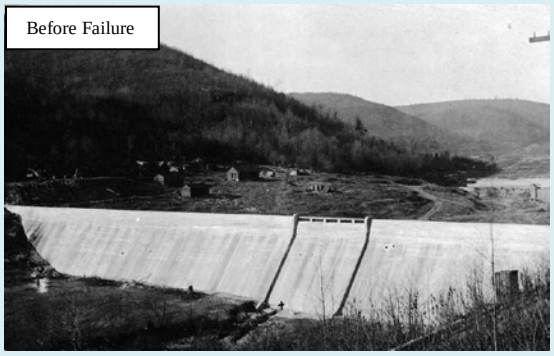
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Dams:

(History sometimes serves as a good reminder. September 30 of this month marks the 100th anniversary of one of the rarest of dam failures, a sliding failure of a concrete gravity dam. Imagine a gravity dam only 20 feet thick at the base and 50 feet high. Even the original design of 30 feet thick wasn't enough!)

Austin Dam



Austin Dam was a dam in the Freeman Run Valley, Potter County, Pennsylvania, which serviced the Bayless Pulp & Paper Mill. A failure of the dam in 1911 caused significant destruction in the valley below.

History

In 1900, Bayless Paper chose to construct a paper mill in the Freeman Run Valley. By 1909, the company realized that occasional dry seasons required a more reliable water source. After finding a small earthen dam to be inadequate, the T. Chalkey Hatton firm built a large concrete dam across the valley. The dam was 50 feet (15 m) high, 540 feet (160 m) long and cost $86,000 to construct.[1] It was designed to be thirty feet thick, but was built only twenty feet thick.[2] Within only a few months of its completion, problems were detected. The dam bowed more than 36 feet (11 m) under the pressure of the water it was holding and the concrete started cracking. The bowing was alleviated by using

dynamite to blast a 13-foot (4.0 m) space for the excess water to spill over. The cracking was claimed to be normal because of the drying cement.


After Failure

On September 30, 1911, the dam failed and destroyed the Bayless Pulp & Paper Mill as well as much of the town of Austin. The damage was approximately $10 million. It also resulted in the deaths of 78 people. The paper mill and dam were subsequently rebuilt, but the mill was lost in a fire in 1933. The new dam failed in 1942 with no loss of life. The dam was not replaced after the second failure. A documentary about the dam disaster, featuring narration by Willie Nelson, was created by Mansfield University of Pennsylvania professor Gale Largey in 1999. It includes interviews with five survivors along with original newsreel footage.[3] In 2011 Largey produced a 272 page book based upon over 150 news accounts from as far away as Hong Kong and Japan. Unique stories from the respective newspapers are featured as well as hundreds of original photos along with nine editorial cartoons that appeared in various newspapers. The book is of special interest not only for historians, but also reporters and photojournalists. It is a coffee-table style publication rich with images. It provides insights on the social dynamics that lead to the disaster as well as those that followed. Info at www.galelargey.com

1. ^ a b c d e f Wise, Eric (2005-09). "The Day Austin Died". *Penn Lines* (Harrisburg, Pennsylvania: Pennsylvania Rural Electric Association) **40** (9): 8–11. Archived from the original on 2009-09-20. http://www.webcitation.org/5jv9MIoAV. Retrieved 2009-09-19.
2. ^ "Flaws in Austin Dam. Only Twenty Feet Thick, Though Plans Called for Thirty.". *New York Times*. October 31, 1911. http://select.nytimes.com/gst/abstract.html?res=F40F10FD3E5D16738DDDA80B94D8415B818DF1D3. Retrieved 2010-11-07. "The recent disaster at Austin, Penn., resulted from alleged failure to carry out the original plans for the construction of the dam, according to a statement given out to-day by the State Conservation Commission."
3. ^ Largey, Gale. "The Austin Disaster 1911: A Chronicle of Human Character". http://www.galelargey.com/documentary_austin.htm. Retrieved 2009-10-30.

(Related information)

Austin Dam, Pennsylvania: The Sliding Failure of a Concrete Gravity Dam

Daniel F. Martt[1], Abdul Shakoor[2] and Brian H. Greene[3]
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[2] Department of Geology, Kent State University, Kent, OH 44242
[3] U.S. Army Corps of Engineers, Geotechnical Branch, 1000 Liberty Avenue, Pittsburgh, PA 15222

The Austin Dam, a concrete gravity structure, failed catastrophically on September 30, 1911, less than 2 years after its construction. Several engineering evaluations of the failure have been made since immediately following the disaster. Engineers involved in the construction of the dam recognized early on that the dam failed by sliding on its rock foundation. The dam was constructed on interbedded sedimentary rock, and its foundation was taken to a depth of approximately 4 ft. (1.2 m). Although studies of the orientation of the failed blocks of the dam and other site evidence pointed to a sliding failure, no detailed quantitative studies have been done. Recent test pit excavations showed that the critical interface for sliding was a sandstone/shale contact located at a shallow depth below the base of the dam. Stability analyses based on shear-strength tests of the different interfaces of the foundation (concrete/sandstone, sandstone/sandstone, sandstone/shale, and shale/shale) showed that the dam was safe against a bearing capacity failure, but unsafe with respect to sliding and overturning. The lowest factor of safety of 0.6 corresponded to the sandstone/shale interface, as stated above. The major factors believed to have contributed to the failure include low shear strength of the foundation materials, inadequate provisions for reducing the uplift pressure, and weak concrete. The project stands as the sixth worst dam failure in U.S. history in terms of loss of life, and this case history provides numerous lessons with regard to dam safety. **Other sites to look at:**

http://www.pabook.libraries.psu.edu/palitmap/AustinDam.html
http://www.familyoldphotos.com/pa/coll2/austin-flood.htm
http://watsonfarmroad.com/Austin%20Dam%20Pics.htm

(Knowing PMF estimates, the estimated flood level is probably too high. If there ever was a situation that said that the Weather Service precipitation estimates which are over 50 years old should be reviewed – this is it, because this may be an expensive effort. Other such reviews have indeed lowered PMF's.)

TVA details plans for modifying four dams

By Hugh G. Willett, September 15, 2011

Louisville, KY — TVA officials met with the public Thursday to detail plans for modifying four area dams to better withstand an historic weather event as residents expressed concern about the impact on their property. The open house was held at Louisville Town Hall to gather public comments and provide information on a series of proposed modifications to Cherokee, Fort Loudoun, Tellico and Watts Bar dams. The modifications are designed to protect TVA infrastructure, including nuclear power plants, from a probable maximum flood (PMF). Such a flood might occur once every thousand years or more. TVA is facing a Nuclear Regulatory Commission mandate to provide PMF protection for nuclear plants on the Tennessee River, including the Bellefonte plant in Alabama, which was given a green light for completion by TVA's board in August, said TVA spokesman Bill Sitton.

It was during the recent flood modeling required by NRC for the Bellefonte plant that TVA concluded the local dams were not high enough to prevent overtopping during a PMF. According to Sitton, options include leaving the "sand baskets" currently providing protection for the dams in place and maintaining them. The baskets, which have been criticized as unsightly since being installed in 2008, can last about five years before replacement, he said. The second option involves permanent modifications in place of the "sand baskets" with concrete floodwalls and earthen embankments. Such modifications might be constructed by the 2013-2014 timeframe, Sitton said. A third option includes removing the temporary structures now on the dams and constructing some kind of protective structures elsewhere on the river, perhaps closer to the nuclear plants themselves, he said. Diagrams of the proposed modifications were available for the public at the Louisville event. Also available were options for public comment that included a comment box for written input, a laptop computer to provide online feedback and a stenographer capable of recording verbal feedback. TVA will prepare an environmental report on the impact of the proposed solutions later in the fall, followed by another public comment period. TVA will use the information from the environmental report and the public comment to make a decision on the proper course of action in early 2012. State Senator Randy McNally, R-Oak Ridge, who was at the Louisville event. He said he has been in touch with a group of Tellico Village residents concerned about the TVA proposals. "I want to make sure they get their questions answered," he said.

The concerns of the Tellico Village residents are primarily focused on the modeling methodology used by TVA, McNally said. According to Mike Eiffe, a TVA engineer in charge of flood modeling, there is a difference of opinion between his organization and some of the Tellico Village residents regarding how the PMF is calculated. "They are still dissatisfied with our projections," he said. Some of those who have complained about the PMF calculations would like to see TVA use a more likely event — maybe a 250- or 500-year flood instead of a 1,000- or more year flood — to calculate the risk. By definition, the PMF that TVA has selected has a very little chance of occurring. The parameters for protecting the nuclear plants are set by the NRC, Eiffe said. "If we can't convince NRC that we can handle such an event, they are going to say turn the lights out," he said. "There is little room for negotiating." Louisville Alderman Joe Gallagher attended the event because he said many local residents have concerns about whether the TVA dam modifications would affect their lakeside property. He said he was glad to hear that TVA would not raise the water levels in the lake. "I'm relieved, some residents were afraid this was going to have a dramatic effect on the shoreline," he said.

(Sometimes you just gotta say – NO!)

Army Corps of Engineers worried about the impacts of fracking on dams

September 15, 2011, switchboard.nrdc.org

In late July the Dallas Morning News reported that the U.S. Army Corps of Engineers has declared a 3,000-foot buffer around its dams and water-control structures in most of Texas and several other states, within which it will not allow new wells, drilling pads or pipelines. The News also reported that the Corps has a national team studying potential risks to dam safety from minerals extraction, including the potential risk that fracking could cause shifts along natural faults and weaken dam foundations, whether extracting large volumes of gas beneath or near a dam might make rock and soil subside, and whether injecting fracking waste into underground disposal wells can trigger earthquakes. The News quotes two dam safety experts. I am pasting the quotes below because the article is only available with subscription:

Bruce Tschantz, professor emeritus of civil and environmental engineering at the University of Tennessee and first chief of dam safety at the Federal Emergency Management Agency: "Until the science involving any short- and long-term relationship between hydraulic fracturing and foundation destabilization, dam safety and reservoir stability is better understood, it is my general opinion as a hydraulic engineer that we should approach hydro-fracturing in the vicinity of these structures very cautiously." Stephen Wright, professor of civil, architectural and environmental engineering at the University of Texas: "It seems reasonable that the corps is researching this issue. I am pleased that the corps takes the position of placing public safety of paramount importance. I hope everyone would be as conscientious."

(Looks to be in sad shape – huh?)

Dam removal process to begin

By Art Bukowski, September 16, 2011, record-eagle.com

Traverse City, MI — Work is set to begin next week on a massive dam removal project along the Boardman River. After countless meetings and years of discussion, crews are scheduled to take the first steps in a plan to remove Brown Bridge, Sabin and Boardman dams. The Michigan Department of Environmental Quality this week issued drawdown permits, and officials expect to begin lowering the water in Brown Bridge and Sabin ponds on Monday or Tuesday. "It's very cool," Traverse City Manager Ben Bifoss said of starting work. "This has been a multi-year process involving many state, federal and local agencies." Brown Bridge Dam is owned by the city, while Grand Traverse County owns Sabin and Boardman. Plans also call for significant improvements to city-owned Union Street Dam.

Hydro:

(Bad news for pumped storage development in CA)

Red Mountain storage dam project on hold indefinitely

Written by Chris Caskey, The Union Democrat, September 09, 2011, uniondemocrat.com

A proposal by two Central Valley utilities to build a storage dam near Don Pedro Reservoir is on hold indefinitely. The Modesto and Turlock irrigation districts have petitioned the Federal Energy Regulatory Commission to surrender their preliminary permit for the almost $2 billion Red

Mountain Bar Pumped Storage project. The districts notified FERC in a letter dated Sept. 6 that they do not plan to move forward on the project. Michelle Reimers, a spokeswoman for TID, said on Thursday that current economic conditions "did not support the timetable for investment" that the licensing process for the station would require.

TID and MID, co-operators of Don Pedro, filed jointly for the permit, though Reimers said Turlock is the lead agency for the project. "As partners, both TID and MID continue to believe pumped storage is an important resource for the electric industry and that the Red Mountain Bar Project has great promise and is an excellent site for development," she stated in an e-mail. "At the appropriate time, we believe the project will be an asset that can provide great benefit to our ratepayers and the region as a whole." The proposal called for pumping water uphill from Don Pedro to a smaller reservoir that would power a hydroelectric dam while the water runs back into the lake. The electricity generated at the smaller dam could power as many as 500,000 homes on MID and TID's power grid during peak demand, according to estimates from last year. The districts were looking to build the dam about three miles east of the lake. The smaller reservoir would have a capacity of approximately 2 percent of Don Pedro's 2 million acre-feet of water. TID and MID filed for the preliminary permit in February 2010. Tuolumne County then filed a motion with FERC to intervene in the process, seeking a place at the table since the project was proposed inside the county. In the motion, County Counsel Gregory Oliver stated that the project had the potential to affect recreational opportunities on the lake, affect fire and law enforcement resources and impact the environment. County officials wanted to be involved in the process to mitigate such impacts, according to the motion. On Thursday, Oliver said the federal commission granted Tuolumne County its request to intervene, though Oliver said he doesn't believe that was a major factor in halting the project. If the utility districts eventually file for another permit to build the pumped storage project again, the county will request intervention, Oliver said. "We weren't necessarily opposed to the project. We had concerns," he said. "They have a right at a future date … to come back to the table and try to get it permitted again."

(The word "jobs" has become the National word. The State must be reading some magic tea leaves if they think they are going to attract thousands of jobs. I guess they don't read the papers. How cheap will the electricity have to be? They can't, for instance, ever match the cheap power from hydro in New York or the Northwest.)

Jobs may hinge on fight over hydropower license

Stanly officials in fight over aluminum maker Alcoa's control of Yadkin River.

By Bruce Henderson, Saturday, Sep. 10, 2011, charlotteobserver.com

The prospect of new jobs has raised tensions in Stanly County over Alcoa's control of the Yadkin River. The 250 jobs promised by a steel-recycling company that Alcoa will partly own, come with an implicit catch: that Stanly officials stop fighting the aluminum maker's renewal of its federal hydropower license. No deal, county commissioners said this week. Alcoa shut down the aluminum works in Badin that was once the county's largest employer, and the county argues it no longer deserves to make millions selling hydroelectric power. While Alcoa has pledged to recruit hundreds of new jobs to fill the Badin Works, 45 miles northeast of Charlotte, county officials envision thousands of jobs created with cheap electricity if the license were in local hands. Commissioner Tony Dennis said Alcoa tried to use the Clean Tech jobs to lure Stanly into dropping its fight. "It was a bad deal for the county and the state of North Carolina," he said. "That's all it was, a show. We welcome the jobs, but we're not going to be held hostage over something that has nothing to do with it."

Other Stanly residents say they're tired of four years of fighting between the county and Alcoa. A rally in support of Clean Tech, the company offering new jobs, was scheduled last night in Albemarle. "Enough is enough," said Vanessa Mullinix, a former Alcoa worker who organized the rally. County commissioners "have just about depleted us on New York lawyers and lobbyists, and they have nothing to show for it." Alcoa ran the Badin Works for nearly a century, at its peak employing nearly 1,000 workers and earning a place on the county seal. But the complex largely shut down in 2002, and closed for good a couple of years ago. Since 2007, the company and

county commissioners have sparred over the hydro license. Then-Lt. Gov. Bev Perdue joined the debate, asking that federal regulators delay issuing the license. Legislators tried, unsuccessfully, to create a state trust to manage the hydro project. State regulators last December revoked a water-quality permit that Alcoa needs to renew its federal license, citing an "intentional omission" in the company's application. Alcoa's appeal is scheduled for hearing in a state administrative court in February. "The governor wants these high-paying Clean Tech jobs in North Carolina and is hopeful that a resolution can be reached quickly that addresses Stanly County's concerns," said Chris Mackey, Perdue's press secretary. Clean Tech says it is interested in moving into part of Alcoa's old complex and hiring 250 workers to recycle scrap metal and make silicon metal at an average wage of $55,000 a year. A key is the company's long-term ability to buy large amounts of electricity - including Alcoa's if its license is renewed. County officials gave assurances last spring "that a path forward would be available," said Dave Stickler, a Clean Tech board member. "So far we have not seen that path forward."

The offer is part of 750 jobs Alcoa has pledged to recruit to fill the old Badin Works, now a business park, if Stanly drops its opposition. The company said it will invest millions of dollars in infrastructure. One firm, which recycles electronic components, has moved into the 123-acre complex. The company now has about 30 employees and hopes to grow to about 200 workers within a year. A county official said Alcoa also offered to reimburse the $4.8 million Stanly has spent on lawyers in Raleigh and Washington fighting renewal of the hydro license. "We made a very substantial offer to Stanly County that we believe would transform its economy," said Alcoa spokesman Michael Belwood. "We do not have an agreement and at this point those jobs hang in the balance. Time is running low and we need to act." Belwood said it's uncertain whether negotiations with the county will continue. The county says talks aren't over. "Our board understands the need and wants jobs and investment," said County Manager Andy Lucas. "At the same time, our board understands the value of water in terms of job production and cheap energy. That has value, too."

PWSA to conduct hydroelectric study

Aims to minimize city's $5.5 million yearly electric costs

September 10, 2011, By Joe Smydo, Pittsburgh Post-Gazette, post-gazette.com

With annual electric costs totaling $5.5 million, Pittsburgh Water and Sewer Authority has decided to study the feasibility of building a hydroelectric power station on the Highland Park Dam. The authority board voted unanimously Friday to spend about $10,000 on the study, to be performed by California-based Tetra Tech Inc. "From our standpoint, it's just a minimal investment to look at some options that are out there," state Rep. Dan Deasy, D-Westwood, the authority chairman, said. "If it's feasible, we'll move forward." The authority spends about $5.5 million annually in electric power for its treatment plant and several pumping stations citywide. Mr. Deasy and Tom Palmosina, the authority's co-interim executive director, said a hydroelectric station could reduce, but probably not eliminate, electric costs. No timetable for the study was given.

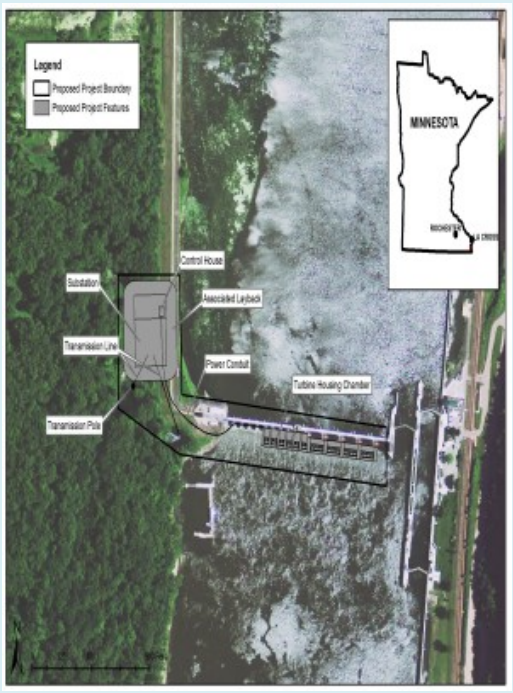
If the authority decides to proceed with a hydroelectric power station, it would have to seek permission from the U.S. Army Corps of Engineers, Mr. Deasy and Mr. Palmosina said. The authority doesn't operate any hydroelectric power stations now, but some authorities and utilities do. For example, First Energy Corp. operates a hydroelectric station on the Kinzua Dam and Allegheny Reservoir in Warren County. It has a top capacity of 400,000 kilowatts per hour, according to the Corps of Engineers. PPL Corp. operates a hydroelectric plant in the Pocono Mountains and another near Lancaster. In 2010, the company announced a $434 million expansion of the Lancaster-area plant. When completed in 2013, the plant will be able to supply power to about 200,000 homes, the company said. For about 10 years beginning in the 1980s,

Allegheny County tried to build hydropower stations on the Allegheny River at Natrona and on the Ohio River near Edgeworth. Those projects never materialized, but there are hydro stations on the Allegheny at Freeport and Templeton, Armstrong County, according to the Port of Pittsburgh Commission.

(The locals don't seem too keen on this project)

Draft license application for hydroelectric dam at Lock and Dam 8 made public

by Matt Johnson, matt.johnson@lee.netlacrossetribune.com | Posted: Friday, September 9, 2011



The draft license application for a proposed $77 million hydroelectric dam at Lock and Dam 8 near Genoa includes an environmental analysis that says recreational fishing will not be significantly impacted. The application to receive a license for the project was prepared by Symbiotics, LLC, for its wholly-owned subsidiary Mississippi 8 Hydro, LLC, of Logan, Utah. The draft license application, dated Aug. 31, 2011, was sent to the Federal Energy Regulatory Commission. The project is designated FERC No. 13010 and comments on the draft license application are requested by November 30, 2011. Comments are to be sent to Erik Steimle, Symbiotics LLC, 2950 SE Stark St, Ste 110, Portland, OR, 97214, e-mail: erik.steimle@symbioticsenergy.com. The draft application says the preliminary plan calls for the installation of 28 electrical generation turbines downstream from gates at the lock and dam. There would be 12 turbines downstream from Tainter gates at the dam and 16 gates downstream from roller gates. The easternmost roller gate and the four westernmost Tainter gates would not have turbines installed downstream from them. Symbiotics draft application said this configuration was determined after examining two other plans.

"Leaving the easternmost roller gate and four westernmost Tainter gates free of turbines would provide for better flow conditions in the river for transportation and wildlife and eliminate the need for a submerged dike and relocation of the Clements Fishing Barge," according to the application. Each of the VLH turbine units would have a 500 kilowatt capacity. The turbines have a blade diameter of 13 feet. Annual electrical energy production is projected to be 42.5 gigawatt hours. If the average home uses 10,500 Kilowatt hours of electricity per year, according to Department of Energy estimates from 2007, the electricity provided by the hydroelectric dam would theoretically be enough to power 4,050 homes per year. The draft license application says that the hydroelectric dam would cost $8.1 million to operate annually. The generation station would connect to a nearby transmission line. In the draft license application, Symbiotics concludes that fishing conditions won't be significantly changed. "Project operation should not impact recreational fishing," according to the application. "Tainter gates 12 through 16 located nearest to the western shore were intentionally not used to avoid impacts to the fishing barge, which would have needed to be relocated downstream to accommodate addition of project features. Although some mortality of downstream migrating fishes will occur due to turbine passage, rates are expected to be very low due to use of the VLH turbines and is not expected to impact fishing quality based on conditions at similar sites on the Ohio River." The application includes considerable information on projected fish mortality and entrainment rates. The most affected species of fish is believed to be gizzard shad. But the application said, "Fishing quality remains excellent just downstream of the Greenup Locks and Dam in Kentucky despite operation of a

hydroelectric project there for about the past 40 years. Anglers take advantage of a fishing platform located just below the hydro turbines where disoriented shad and minnows provide abundant forage for sport fishes such as striped bass, blue catfish, and sauger."

The application included a study of water flow and possible sediment issues due to the addition of the hydroelectric dam. The study was conducted by Mitch Peters and Daniel Gessler. The study includes numerous projections of how a hydroelectric dam would impact water flow both above and below the dam. "Changes in flow patterns through the range of modeled flows are localized to the area just upstream and downstream from the dam," according to the study's summary. "Sufficient mixing occurs by the time that flow reaches the floating fishing dock so that velocities and direction of flow are similar between the existing condition and proposed management schemes." Sediment build up downstream is expected to be most acute just below the dam apron, where an increase of 3.5 feet of sediment could be seen over time, according to the study. "The model does not show significant changes in the erosion and sedimentation in the navigation channel," according to the study. "The area downstream from the proposed turbine flow chambers will be armored to prevent erosion and downstream migration of sediment."

The application includes scores of different correspondence received by Symbiotics that is critical of how the pre-application document for the project was handled and the project itself. Those responding to the project said putting the hydroelectric dam in the Upper Mississippi River Refuge would be counterproductive. Byron Clements of Genoa, owner of the Clements Fishing Barge and Captain Hook's Bait and Tackle in Genoa said periods of high water flow, ice and weeds will all shut down turbine operations for long periods of time. "I have spent the last three weeks studying the VLH turbines and I have come to some shocking conclusions," Clements wrote. "This entire exercise is a nightmare for those of us involved in habitat and restoration projects. Are the hundreds of millions spent in EMP funds all for naught? Now we can agree to kill fish and halt migrations? How has Symbiotics even reached this level toward approval?... All tests were done on downstream migration. With further study I realize it's because it's 100 percent impossible for a fish to go upstream through this VLH turbine." The application had an error listing Genoa City as the nearby village adjacent to the project. Genoa City is located just east of the city of Kenoshaon the Wisconsin/Illinois border. The municipality impacted is the village of Genoa in Vernon County.

(This is a case to watch. It turns on some really interesting legal stuff.)

Justice Dept. says U.S. Supreme Court should overturn PPL river-rent ruling

By Mike Dennison, The Billings Gazette | Posted: Monday, September 12, 2011

Helena, MT — The U.S. Justice Department, siding with PPL Montana in the company's legal battle over whether it must pay rent to Montana on its hydroelectric dams, says the U.S. Supreme Court should overturn a $41 million state court ruling that went against the company. In legal arguments filed with the nation's high court last week, the U.S. solicitor general said the Montana Supreme Court erred in 2010 when it declared that the rivers at PPL Montana's dams are "navigable" and therefore the riverbeds are owned by the state. The Montana courts didn't properly analyze the sections of river in question, and should be required to re-examine whether those specific sections are navigable, possibly at a trial, said U.S. Solicitor General Donald Verrilli. If a river section is found to be navigable when Montana became a state in 1889, then the state owns the riverbed. Verrilli also suggested that if the proper analysis occurred, the courts might find that sections of rivers underneath 10 Montana dams owned by PPL are not navigable, and therefore the state doesn't own the riverbed and can't charge for its use. "When a discrete and substantial segment is not navigable at statehood, the state does not take title to that segment, whether or not the segment could be portaged," he wrote.

The federal government's recent brief is diametrically opposite from its position in May when it weighed in on the side of the state of Montana. The U.S. Justice Department said then that the Montana Supreme Court's decision doesn't warrant a U.S. Supreme Court review because its

rulings in the case "are largely fact-specific and do not conflict with any decision of this court, another state court of last resort or a federal court of appeals." The U.S. Justice Department's latest brief is one of several filed last week on behalf of PPL. Farm, water rights and electric power industry groups, as well as the company itself, also filed arguments, asking the U.S. Supreme Court to overturn the Montana Supreme Court's decision. The state of Montana will file its arguments Oct. 27 and the U.S. Supreme Court may listen to oral arguments in the case later this year. Judy Beck, a spokeswoman for state Attorney General Steve Bullock, said Monday the office is "disappointed and disagrees with the position taken by the solicitor general," and will address the U.S. government's and the company's arguments in its brief next month. PPL appealed the long-running case to the U.S. Supreme Court last year and the high court agreed in June to hear it. The case originated with a 2003 lawsuit filed by several parents of Montana schoolchildren and then taken over by the state.

The suit argued that the riverbeds under hydroelectric dams are state-owned, school-trust lands and that dam owners must pay compensation for using state property. PacifiCorp. and Avista Corp., each of which owns a hydropower dam in western Montana, settled the case and agreed to annual payments for using the riverbed. PPL, however, chose to fight the issue in court. State courts ruled against PPL and said the company owed $41 million in use fees from 2000-2007. The judgment has been increasing by 10 percent a year since 2007, but PPL hasn't paid anything while the court challenge proceeds. The fees are for 10 dams that PPL owns on the Madison, Missouri and Clark Fork rivers, including five dams near Great Falls, two on the upper Missouri, two on the Madison and one on the Clark Fork at Thompson Falls. The U.S. solicitor general said the Montana courts didn't use the proper test when determining whether the rivers at the dams are navigable. Each distinct section of the river should be examined, he said, rather than declaring that the river on each side of the section in question is generally navigable and therefore the entire bed is owned by the state, he said. Verrilli also said the state can't claim that portaging around a lengthy section of the river — such as the 17-mile-long Great Falls stretch of the Missouri, where five of the dams sit — makes that part of the river navigable. "This court has long considered navigability for (riverbed ownership) on a segment-by-segment basis, because navigation on one part of a river does not necessarily establish that the remainder is navigable for title purposes," he wrote.

(Click on the "New hydropower" link in article for map locations – hovering over a site gives details. Some argue that the estimates of hydropower potential are a bit generous. Nevertheless, the good sites should be developed post haste. We're talking energy and no new dams. BTW, low head hydro is NOT less efficient, it just can't produce as much power because the power output is proportional to the hydraulic head or height of dam – duh!)

As dams come down, a look at new hydropower

Cassandra Profita | September 13, 2011, news.opb.org

As utilities are knocking out the dams across the Northwest, several federal agencies are investigating the potential for developing new hydropower at existing facilities across the country. The announcement from the Obama administration about grants for hydropower projects in the Northwest reminded me of a report that came out earlier this year listing 192 sites across the country that have the potential to deliver new or additional sources of hydropower. There are a dozen in the Northwest, including existing dams that don't currently produce hydroelectricity:

- **In Oregon:** Wickiup Dam, Emigrant Dam, Haystack, McKay Dam, Arthur R. Bowman Dam, and Scoggins Dam
- **In Washington**: Kachess Dam, Cle Elum Dam, Easton Diversion Dam, Keechelus Dam, Scootney Wasteway and Sunnyside Dam.

View New hydropower? in a larger map

The study also identified 52 canals and tunnels that the Bureau of Reclamation wanted to investigate further for low-head hydropower potential. One quick note, as one commenter pointed out on the Think Out Loud blog, low-head hydro – which draws power from waterways that drop less than 30 feet – isn't a new concept. But a smaller "head" makes for less efficient hydropower

generation. The feds are now investing in new technologies that can make low-head hydro more efficient, more cost effective and more fish friendly. And that's not the only kind of new hydropower the feds are looking at. As U.S. Bureau of Reclamation hydropower advisor Kerry McCalman told me: "We're looking at what we can do with the stuff we already have. What's out there that we can use to generate power?"

In March, the Bureau released the results of its review of 500 agency facilities. The study revealed an additional 225 megawatts of hydropower capacity in existing dams and irrigation systems – enough to serve about 400,000 customers – that could be developed cost-effectively and with minimal environmental impacts. But the volume of power per facility is less important than the role it can play in the broader power mix, McCalman said. Additional hydropower would be especially helpful in serving "peak" power needs on the hottest days of the summer when everyone's running their air conditioners and on the coldest days of the winter. "The way hydro is typically marketed is to provide peaking energy," he said. "So, the real benefit of this hydropower is it keeps the nation from having to build larger, usually fossil based resources to provide peaking energy. So by building hydropower we can offset a lot of energy production that would be more carbon based and prevent greenhouse gases. That's there the real benefit of these facilities comes from." I asked McCalman who would develop this new hydropower, and whether they would get renewable energy credit for doing it. He said it depends on the facility. In some cases, the Bureau has the authority to develop hydropower and would be looking to partner with a utility or private developer. In other cases, the developer will have to apply to the Federal Energy Regulatory Commission for a permit. There are already applications into FERC to add hydropower to three dams in Washington: Cle Elum, Kachess and Keechelus. The Bureau's facility review was initially launched in response to interest in new hydropower from non-federal entities – particularly irrigation districts. The agency is assuming the money to develop the hydro will come from other government agencies or the private sector. Renewable energy portfolio standards in Oregon grant credits for new hydropower, offering an incentive for utilities to look into some of the Bureau's facilities. "I think we're seeing more interest in development in the states and regions that have put some focus on small hydro in their RPS," McCalman said.

A second phase of the Bureau's study of hydropower potential is focusing on canals. A report on the agency's review of 400+ canals in 17 Western states should be out around the end of this year. "We've built most of the large projects in the nation, so we're really focusing on smaller hydropower, off-channel, canal drops and irrigation canals and conduits," said McCalman. "Right now, hydropower is the largest renewable energy source in the United States. And there's certainly more potential out there."

(And, now the battle begins. The alternatives {Click on the links in blue in last sentence of article} are all not going to even make a dent except for natural gas and we need that too, not as an alternative. Ship that south! Looks like some great dam sites to me.)

Coalition for Susitna Dam Alternative: The Alaskan equivalent of China's troubled Three Gorges Dam not a wise choice

yubanet.com, Sep 14, 2011

Sept. 14, 2011 - On July 25, 2011, the Governor of Alaska, flanked by a dozen state legislators, signed a bill to begin creating a dam on the glacier-fed Susitna River. The Susitna Dam would be the eighth tallest on earth, the biggest in America since the 1966 Glen Canyon Dam. The Susitna River, the fifth largest river in the United States by volume, descends from the Mt. McKinley-topped Alaska Range through one of the planet's remaining great wild landscapes. The reason to build the Susitna Dam is to make electricity. Most of Alaska's electricity now is produced from natural gas, a minimally-polluting

source. Alaska holds enough recoverable natural gas to meet its electrical needs for at least 200 more years. In addition, geothermal and tidal power plants are already in development, each source with almost limitless potential for electricity amidst Alaska's 30-foot tides and accessible magma. It'll take five to ten years for those technologies to begin to bring results, but the dam will take twelve to fifteen. So why even imagine a preposterously massive dam in Alaska's heart 45 miles from an active earthquake fault on a wild river of dense salmon runs where visitors from around the world come to experience grandeur? Why create a 22,000 acre reservoir that will flood caribou migration routes and grizzly bear habitat? Why spend 6 or 8 billion dollars for something that's unnecessary with so many other sources of electricity available? The Governor of Alaska's answer is, "It's time to hit the ball down the fairway, to go big or go home." Our answer is that there are better alternatives (see Dam Alternatives). The Alaskan equivalent of China's troubled Three Gorges Dam is not a wise choice (see Dam Problems).

(A goldmine might be stretching things a bit, but developing hydro is always a good thing especially when no new dams are needed to do it.)

Arizona officials back bill to streamline rules for small hydropower plants

cronkitenewsonline.com, Sept. 14, By Cassondra Strande, Cronkite News

Washington – Arizona is “sitting on a hydropower gold mine” but needs the government to streamline regulations to turn that power potential into a reality, a Phoenix lawyer told a congressional subcommittee Wednesday. Robert Lynch was one of two Arizonans testifying in support of the “Bureau of Reclamation Small-Conduit Hydropower Development and Rural Jobs Act of 2011,” which they said would help generate clean energy, as well as income to help water districts pay their bills. The bill is aimed at prompting private-sector development of hydropower plants on federally owned canals and pipelines, said Rep. Paul Gosar, R-Flagstaff, one of the sponsors of the measure. It would exempt small plants — those generating less than 1.5 megawatts — from requirements of the National Environmental Policy Act, among other changes. “Hydropower is a … clean, renewable, emissions-free source of energy that provides low-cost electricity and helps reduce carbon emissions,” said Gosar, who also said such projects could create jobs in rural areas. The bill was heard before the House Natural Resources Subcommittee on Water and Power, of which Gosar is a member. Grant Ward, a former general manager of the Maricopa-Stanfield Irrigation and Drainage District, testified Wednesday on behalf of the Family Farm Alliance. He said his district has the potential for 14 to 17 units hydropower units that could generate up to 2,200 kilowatt-hours, enough to supply electricity to more than 550 homes or power six or seven deep-well pumps for irrigation. But he said the district spent two years trying to get answers from federal agencies, often getting conflicting information that stymied the project.

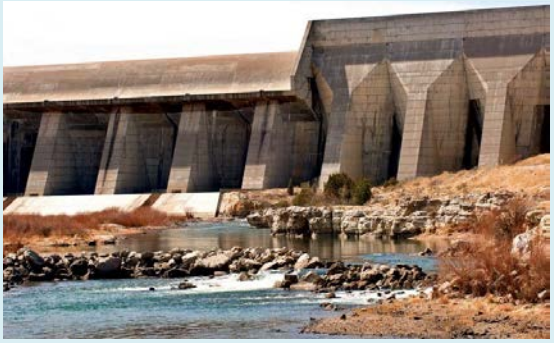
Lynch, who represented the National Water Resources Association at the hearing, said the bill would eliminate waste and red tape and lead to the creation of jobs. “We are literally sitting on a hydropower gold mine waiting for the needed clarifications and streamlining that will cut costs and make this program more attractive,” Lynch said. A Bureau of Reclamation official testified that while the agency supports the intent of the bill, it has problems with some of the specifics. David Murillo, the bureau’s deputy commissioner of operations, said his agency opposes the move to exempt small projects from the environmental regulations. “The department believes that environmental protections should continue to apply in the context of new construction undertaken on federal lands,” he said in prepared testimony. He noted that the bureau and the Federal Energy Regulatory Commission, which also has the power to approve hydropower licenses, have several agreements in place to clarify authority over the process. He said language in the bill that would specify a bureau power resources officer as the lead point of contact on a project could remove field-level employees, who have the best knowledge of the situation, from the process. Murillo said the bureau remained committed to “potential new hydropower projects that provide a high economic return for the nation, are energy efficient and can be accomplished in accordance with protections for fish and wildlife, the environment or recreation.” But Gosar said current regulations “create manmade shortages, which in turn lead to high unemployment and increased water, energy, and food prices.” Ward said the benefits of hydropower are too great not to take

action that will clear the way for more projects. “In the middle of the 110-degree summers in central Arizona, we can use the systems to reduce the requirement from the electrical district so they can avoid overloads,” he said. “We can also generate some income from the sale of the power to offset operational costs to the district.”

Hydropower plant eyed at Pueblo Dam

Southeastern district group putting together a bid to Bureau of Reclamation.

chieftain.com, September 16, 2011, By Chris Woodka



Local water providers are preparing to make a bid on developing hydropower at the Pueblo Dam.

The Southeastern Colorado Water Conservancy District, Colorado Springs, Pueblo Board of Water Works and Fountain are planning on making a bid for a hydropower plant just downstream of the dam. All of the partners are Southeastern district members and other partners could be added. “We’re putting together a partnership to try to win the award,” said Jim Broderick, executive director of the Southeastern district told the district’s board Thursday. “I think this is an opportunity for the district.”

The plant would require an environmental review. It is not decided what organizational structure the group would use to build the hydropower plant. A preliminary report shows the group would make a profit on a plant generating anywhere from 4 to 8.6 megawatts of power. The cost of building the plant would be $11 million to $18.7 million, and state loans, government incentives and grants would be available to pay much of the cost, said Lindsay George of the Applegate Group. Western Area Power Administration has first right of refusal under the Bureau of Reclamation’s Lease of Power Privilege process. Bids are being accepted through Oct. 21. George said the most logical customer for the power is the Southern Delivery System, a water pipeline project whose partners include Pueblo West, Colorado Springs, Fountain and Security. The SDS Juniper Pump Station will be constructed nearby. About 2 miles of transmission lines are envisioned.

Hydropower at Pueblo Dam was envisioned from the beginning of the Fryingpan-Arkansas Project, and studies have looked at everything from 2 to 27 megawatts. George presented proposals for various sizes of power plants, explaining that the most efficient range would be in the 4 to 8.6 megawatt range. The plant would hook onto the North Outlet Works river connection that is now being built as part of SDS. The connection includes one pipeline that goes to the Juniper Pump Station and another that would serve as the primary feed for the Arkansas River. The feed to the hydropower plant would use direct flows to spin turbines. There are also outlets in the center sections of the dam, which provide water to the river during high-flow periods. They are in use now while the North Outlet Works is being constructed. The hydropower plant would only be able to run from about April to September, when river releases are high enough to run turbines. The larger the turbine, the more flow is needed, so a 4-megawatt unit would run at 63 percent capacity, and an 8.6-megawatt unit at 46 percent, George said. Regardless of who is chosen to build the proposed power plant, it cannot interfere with water pressure to SDS. All of the options being studied by the Southeastern partnership would mean a slight reduction of pressure to SDS, but not significant, George said. “We still have some fleshing out to do, but nothing that would kill the project,” Broderick said.

Water:

(Tropical Storm Lee on Sept. 9th sent a lot of water down the Susquehanna River, PA)

Holtwood hydroelectric plant soon will be back on track

By Tim Mekeel, Staff Writer. Intelligencer Journal, Sep 12, 2011, lancasteronline.com

With floodwaters receded, the Holtwood hydroelectric plant is expected to be back in operation in a week or two, PPL said Monday. The Susquehanna River facility was shut down and evacuated late Thursday afternoon, with about 100 workers leaving the site. The decision to temporarily vacate the 108-megawatt facility was based on the predicted crest of the river, swollen by rains from Tropical Storm Lee. It was the first time since Tropical Storm Agnes in 1972 that the plant was evacuated. Workers returned to the site Friday afternoon to begin cleaning up mud and debris left behind when the floodwaters retreated. They found "no appreciable damage" to the facility, PPL said. Once the cleanup and "a thorough inspection" of equipment are completed, Holtwood will resume generating electricity, PPL said. PPL also said that the ongoing $434 million expansion of Holtwood is resuming, now that the floodwaters have backed off. That undertaking, which will add 125 megawatts of capacity, remains on schedule for completion in 2013.

Environment:

(Now, this is a disaster – 20 years has gone by and now this is where things stand.)

Planning Elk Creek's Future

September 14, 2011, By Ron Brown, kdrv.com

Elk Creek, Ore. -- More than 20 years after work was stopped on the Elk Creek Dam in northern Jackson County, the Army Corps of Engineers is asking the public's help planning for the future. A public meeting is hoping to get public input on how to use some 3,600 acres of land once planned to be a reservoir. Elk Creek Dam was supposed to the third leg of the three-dam Rogue Basin project, including Lost Creek and Applegate Dams, but Elk Creek Dam was only half built when a court stopped the project in 1988; that left acres of crushed rock and a concrete dam core, which was notched three years ago. Now, the Corps of Engineers is looking to create a new master plan. A meeting at the Upper Rogue Community Center seeks public comment on possible uses for the land, with Elk Creek flowing through it. 25 years ago, Elk Creek Dam was a huge construction site. Many people in Southern Oregon anticipating the day when Elk Creek Dam would be finished and this would be a reservoir; that's not in the foreseeable future now, at least not until Congress appropriates the money. Now, the Corps of Engineers is looking for other ideas on how to manage this property. The Corps has already taken comments from state and federal agencies. The comment period ends September 30th.

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9/30/2011

Some Dam – Hydro News™

And Other Stuff

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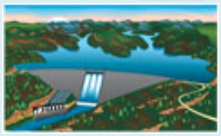
Quote of Note: *"Intelligence is the ability to adapt to change." -- Stephen Hawking*

"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: Valle Reale Montepulciano d'Abruzzo 2007
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson



Dams:

(Small dam – big problems! This just an example of what needs done to literally thousands of dams and there's no money to get it done. This Country is in trouble.)

Lake Joseph dam fix to happen in autumn

By Leonard Sparks, Times Herald-Record, 09/17/11, recordonline.com

Forestburgh, NY — The long-delayed repairs to the dam at Lake Joseph are expected to finally happen this fall after years of threats by the Department of Environmental Conservation and the indictment and imprisonment of a former landowner. Homeowners on the lake expect the DEC to issue a permit as early as next week for the project, whose estimated $750,000 cost is being shared by homeowners and the firm that owns hundreds of undeveloped acres around the lake. "We're very, very excited here at Lake Joseph," said Barbara Baranyay, president of the Lake Joseph Homeowners Association. "It's been a long time coming." Bids are due Wednesday for the project, which is expected to take six weeks. The winning contractor's work will include widening the 40-foot spillway to 60 feet, stabilizing the dam's walls with steel rods and raising the walls by 5 feet.

The Army Corps of Engineers built the 229-foot-long, 22-foot high dam in 1905 to supply hydroelectric power to an old monastery and to expand the size of the lake, which is fed by Black Brook. Its problems date to 1979, when the Corps of Engineers determined its spillway capacity was inadequate. The DEC documented additional deficiencies in 1976, including inadequate structural stability and seepage from joints between the stones. The department ordered the dam,

which it has designated "high hazard," repaired in 2007. Uncertainty over the repairs frightened potential buyers concerned about the prospect of shelling out a large chunk of money for repairs. "It was a disaster in terms of anyone who needed to sell their home," said Baranyay, who has lived at the lake for eight years. Some blame the delay on Philip Barry. The investor from Brooklyn was convicted of stealing millions from clients and using the money to buy 2,000 acres of land in Sullivan County, including Lake Joseph. Barry defaulted on numerous promises to repair the dam, said Baranyay. The process gained new impetus when one of Barry's lenders, Republic Lake Joseph LLC, won title to 800 acres after an auction held in October 2009 to benefit Barry's creditors. Lake Joseph property owners have contributed $10,500 per lot to fund the repairs, with the balance, about $250,000, coming from Republic, said Ken Dowling, one of Republic's partners. "We had great cooperation from the homeowners," said Dowling. "We were both victims of this guy."

(It's a good bet that the dam won't be built, but stranger things have happened.)

River interests collide — Oneida dam issue coming to a head

By Devin Felix | September 18, news.hjnews.com

Preston, ID — It's been seven years since the Twin Lakes Canal Company applied to put a dam on the Bear River in the Oneida Narrows area, but the company is as determined as ever to see a dam built. And just as determined are the individuals and organizations fighting to prevent it. Canal company representatives say the dam, which would be located about a mile up the river from Idaho State Highway 36, is necessary to provide enough water for farmers in Franklin County to use their land to its full potential. They also plan to use the dam to generate hydroelectric power, which they would sell to pay off the costs of the dam and fund projects to enclose their canals, minimizing water loss.

Opponents say the dam would ruin and remove miles of beautiful river and land enjoyed by thousands each year for a wide range of recreational purposes. They say it would be ecologically detrimental, harming wildlife in the area, particularly cutthroat trout, which would be unable to migrate up or downstream past the dam. At least 10 different organizations have filed formal protests to the canal company's dam request. Now, after years of applications and studies, protests and petitions, a decision on the fate of the river could be just a few months away. Parties on both sides of the issue will have a chance to make their case at a hearing before an administrator in the Idaho Department of Water Resources, tentatively planned for March of 2012. (The exact dates of the hearing, which will be held in Pocatello, have not been decided). That administrator, watermaster James Cefalo, will then rule on whether or not to grant the canal company the water right it needs to build a dam. If Cefalo sides with the Twin Lakes Canal Company representatives, they'll be one step closer to getting their dam. They'll still need approval from the Federal Energy Regulatory Commission (FERC), which must approve any new energy production project in the country.

The arguments for

The main purpose for the dam is to provide more irrigation water to farmers. "Our reasoning for building it has not changed from day one until now. It's still that we need the water, and we've got land that isn't getting adequate water," said Clair Bosen, president of the Twin Lakes Canal Company. "That was our reason for doing it in the beginning, and it's still our reason." Wes Beutler, a director in the canal company, grows potatoes, wheat, alfalfa and beans in Franklin County. He said he left 10 percent of his land unplanted last year because there wouldn't be enough water. Some years, farmers in the area leave as much as one-third of their land unplanted, Bosen said. In order to build the dam, the company has applied for a water right on the Bear River. Bosen emphasized that his company does not want to take any water rights that

already belong to anyone else. The company has applied for winter water, which goes unused and runs to the river's end point in the Great Salt Lake during the months when no farming is taking place. In order to claim a winter water right, a right-holder must be able to store the water and draw on it later — and that's what the reservoir would make possible.

Currently, the water the Twin Lakes Canal Company delivers to its more than 230 shareholders comes from Mink Creek. At the driest part of the year, the company leaves very little water in Mink Creek, but it would leave more water in the creek if it gets its reservoir, making it more suitable for cutthroat trout and other fish, Bosen said. Another motivation behind the dam is to enable the canal company to enclose its water-delivery system in pipe, eliminating waste. Beutler said about half the water the company delivers to its shareholders is lost to evaporation and seepage as it runs through canals between where it is taken from Mink Creek and the farmers' fields. Enclosing the water delivery system in pipe would drastically reduce the amount of that loss. However, putting all the company's canals into pipes would cost $45 million to $50 million dollars — much more than the company has to spend. Other than seeking some kind of grant — an idea the canal company is opposed to — the only way the company could afford it would be to borrow money to build the dam and install the pipes, then pay back the loan using the funds from the power generated by the dam, Bosen said.

The arguments against

Those opposed to the dam believe any benefits it would provide do not outweigh the potential damage it would do to the environment of the river and the loss of the recreational opportunities in the area. A study carried out in 2009 by the Utah State University Institute for Outdoor Recreation and Tourism surveyed visitors to the Oneida Narrows stretch of the Bear River — including the narrows and the existing Oneida Reservoir. It found that about 70 percent of those who visit the area for recreation use the river and land that would be inundated if the dam were built, and that those people visited the area an average of six times per year. And they use it for a broad range of purposes, including fishing, boating, kayaking, swimming, camping, bicycling and others.

"The Bear River, for all its 500 miles, has no other place that is so ruggedly beautiful, that you, as a member of the public, can actually get into the river, drive by the river, walk by the river anywhere you want to," said Star Coulbrooke, a Smithfield resident who runs the Oneida Narrows Organization, which is protesting the canal company's application. Also among those who have filed formal protest against Twin Lakes' dam proposal are environmental conservation groups including the Greater Yellowstone Coalition, Bear Lake Watch, Great Salt Lakekeeper, Idaho Rivers United and Trout Unlimited. Kevin Lewis, conservation director at Idaho Rivers United, said the dam would be detrimental to Bonneville cutthroat trout in the area because it would prevent them from migrating up and down the river, and there is no plan for allowing fish to bypass the dam. Bosen responds that the question of trout migration is unimportant because PacifiCorp's dam farther up the river already prevents trout movement. The U.S. Fish and Wildlife Service has filed a request to be included in the proceedings as the Idaho Department of Water Resources considers the dam application, citing concern that a dam in the Oneida Narrows area could impact the Bear River Migratory Bird Refuge, located downriver in Box Elder County, Utah. Energy company PacifiCorp has also filed a letter of protest. PacifiCorp owns and operates a dam about four miles above the site where Twin Lakes hopes to build the dam. PacifiCorp spokesman David Eskelsen said the company is not necessarily opposed to a new dam being built, but it filed a protest to make sure it was part of the proceedings and could monitor whether Twin Lakes' dam would interfere with its own dam. "We've sought assurances from Twin Lakes that their activities would not affect our rights and obligations," Eskelsen said. The Idaho Department of Fish and Game has also filed a letter of protest, though a representative said it is not necessarily opposed to Twin Lakes Canal Company getting the water right and building the dam. The department filed a protest because it is the only way to ensure it could give input during the hearing process, said Cindy Robertson, natural resources program coordinator for the department. The Fish and Game Department will continue to study the issue and will testify at the hearing in March, giving its view of what the effects of the dam might be on wildlife in the area,

Robertson said. The department has not yet determined whether it will take a stance on the issue.

Will the decision follow history?
People on both sides of the issue are convinced that they have a strong case. Lewis pointed out that there has been a trend in the U.S. over the past few years toward denying and even removing dams in rivers. He also pointed out that an earlier attempt to dam the river failed. In 1992, the IDWR denied an application by the S & F Power Company to build a dam in the Oneida Narrows. Bosen said his company has a stronger case than S & F, which was only interested in power generation and not in irrigation improvements. He's so confident the IDWR will rule in his favor that the canal company hasn't even considered a back-up plan if it doesn't, he said.

(The anti-dam crowd is far more passionate than the pro-dam crowd and that's a problem)

On a divisive dam, a snippy bit of graffiti

Mel Melcon, Los Angeles Times / September 19, 2011, latimes.com

An anonymous band of artists paints a huge pair of scissors and a long dotted line on obsolete Matilija Dam near Ojai. The message? Tear the thing down already. For years, an alliance of environmentalists, fishermen, surfers and officials from every level of government has called for demolishing the obsolete structure, which was built in 1947.

(Good news/bad news. Cost is lower, but customers still pay the first $299 million.)

Salazar: Klamath dam removal will cost far less

Marcus Wohlsen, Associated Press, September 19, 2011, timesunion.com

San Francisco (AP) — The cost of removing four dams on the Klamath River in California and Oregon will be far less than first believed, Interior Secretary Ken Salazar said Monday as he worked to rally support for several massive federal water projects. An environmental report to be released Thursday will show that the proposed removal project will cost about $290 million, not $450 million as initially estimated, Salazar told an audience at the Commonwealth Club in San Francisco. "We today have real hope for a healthier basin and stronger economy on the Klamath," Salazar said. The dam removal proposed for 2020 is part of an agreement to restore historic salmon runs while maintaining irrigation for the region's farmers by dismantling the hydroelectric dams. Three of the dams are in Northern California and the fourth in Southern Oregon. More than 550,000 Oregon customers of Portland-based dam owner PacifiCorp are paying an extra 2 percent per month on their electric bills to cover the cost of dam removal. The utility's 40,000 California customers will soon start to see the same surcharge. The drastically lower cost will not mean lower utility bills for those customers, since PacifiCorp is on the hook for the first $200 million the removal will cost under the terms of the removal agreement, said Bob Gravely, a company spokesman. The state of California has agreed to cover any costs above the first $200 million.

The dams generate enough electricity to power about 70,000 homes. PacifiCorp was confident alternate sources to make up for the loss power could be found by 2020, Gravely said. The draft environmental impact statement will show that removing the dams will cost about 50 jobs, all tied to generating electricity at the dams, Salazar said. Removing the dams would create about 4,600 jobs, including about 1,400 for the dam removal itself and between 70 and 695 farm jobs owing to a more reliable water supply, he said. An advocacy group for the region's farmers said they believed the number of farm jobs created by the dam removal would be even higher "We believe that the draft EIS numbers underestimate the jobs and gross income that farming and ranching provides to the (Klamath) Basin," said farmer Steve Kandra in a statement issued by the group, Partnership to Restore Stability and Prosperity to the Region. The report will show that Coho salmon will reclaim nearly 70 miles of historical habitat and steelhead 420 miles, Salazar said.

The secretary said he planned to make a final decision by March 2012 on how to proceed with the dam removal plan.

Hydro:

(Here's a political view in the fight for the ALCOA hydro projects in NC. If this view is right, then the question is – why should we have private ownership of any energy? You decide! I wouldn't touch that argument with a 10-foot pole!)

Sen. Fletcher Hartsell's Position on Re-Capturing APGI's Dams

Sep-16th-2011, insidestanly.com

Following is an editorial written in the Lexington Dispatch by N.C. Senator Fletcher Hartsell of Cabarrus County. It appeared today.

Earlier this year a factory that makes wooden popsicle sticks moved from China to Canada. A factory leaving China where labor is cheap — whoever heard of such a thing? What happened? The answer is straightforward: China is facing an energy crisis and rationing of electricity and, in addition, shipping costs are soaring due to high oil prices. As The Toronto Globe and Mail reported succinctly, "When the price and availability of energy starts to dominate your business plan, you say goodbye to your inexpensive Chinese labor force, and pack up and leave." Inexpensive energy — like hydro-electricity — is the key to the economic future. Energy equals jobs. That is why the state reclaiming its water rights to the Yadkin River from Alcoa Corp. equals jobs.

Decades ago, during the Great Depression, when the nation was straining to spread electric power to every part of the country, New York set up a public trust — the New York Power Authority — to build dams and produce hydro-electricity. In North Carolina, we followed a different model. We allowed private industries to use our rivers — like the Yadkin — if, in exchange, they would build dams to generate hydro-electricity for their mills and factories. So, in 1915, aluminum magnate Andrew Mellon and his Alcoa Corp. was granted the use of the Yadkin River and built dams, using the cheap electricity to smelt aluminum in Badin. Years later, in 1958, when Alcoa needed a new federal license to continue to dam the river, North Carolina agreed due to the jobs provided by Alcoa's smelter. As a result, Alcoa has controlled 38 miles of the Yadkin River and up to 940,000,000 kilowatt hours of hydro-electricity for nearly a century. Now, Alcoa's license to use the river is up. Naturally, Alcoa wants another 50-year license from Washington. But that model no longer works for North Carolina. In fact, it puts Alcoa's interest in direct conflict with ours. Alcoa's goal — like any reasonable corporation's — is to sell the electricity it generates for the most profit. The state's goal — if it controlled the river — would be equally simple: To use the river to generate inexpensive hydro-electricity to bring manufacturing jobs to North Carolina.

For example, the New York Power Authority controls five times more hydro-electricity than The Yadkin Hydro-Electric Project. It uses that energy to create 352,000 jobs. Do the math: We can generate 1/5 of the electricity of the New York Power Authority. That translates into approximately 70,000 jobs. So reclaiming our water rights to the Yadkin River is the greatest job opportunity our state faces. Alcoa has proclaimed that this is an egregious government "taking" of its property. But the federal government did not give Alcoa or sell Alcoa the river. It licensed the use of the river to Alcoa for 50 years. In fact, the land — the riverbed — beneath Alcoa's dams doesn't belong to Alcoa. It belongs to the people of North Carolina. In addition, this arrangement wasn't forced on Alcoa. They agreed to it voluntarily— and for good reason. A 50-year license allowed Alcoa to make enough money to pay for its dams with a profit leftover — even after it closed its aluminum smelter. For three years, Alcoa and the state have fought a battle over who will control the water rights to the Yadkin River for the next 50 years. Now Alcoa is recruiting jobs to the old smelter site and asking the state to support them in their efforts toward getting the new license. But is that a good deal for North Carolina?

After all, if we use our hydropower as successfully as the people of New York State, the Yadkin River can bring our state as many as 70,000 jobs. We are in the beginnings of a global water crisis. A wise and literate people would not give up their water rights. Their self-sufficiency and dignity depends on being in control of their water resources. Now it is time to ask the Federal Energy Regulatory Commission to have Alcoa honor their contract; they agreed to a price and terms in the 1958 license. Our Republic and our free markets cannot operate if contracts are not honored.

(Here's the ALCOA response – it's your call on who think is right! I'm not getting' in the middle of this donnybrook anymore!)

Alcoa issues response

Ray Barham, Relicensing Manager, Alcoa Power Generating Inc., September 20, 2011, the-dispatch.com

Editor: With a green company interested in bringing 450 jobs and a $300 million investment to Stanly County, Sen. Fletcher Hartsell believes the county should continue its fight with Alcoa over the relicensing of the Yadkin Hydroelectric Project and let those jobs walk away. He would rather hold onto the hope that the federal government will eventually seize Alcoa's privately owned dams and turn them over to the state. Then, Sen. Hartsell says, North Carolina can use that energy to create up to 70,000 jobs sometime in the future. Unfortunately, there are a few significant problems with Sen. Hartsell's approach:

- First, the Federal Energy Regulatory Commission has already said that a government takeover of Alcoa's dams is "not a reasonable alternative" and will not be considered further. Such a takeover is unprecedented — it has never happened before and would require an act of Congress — and costly. In the unlikely event of a takeover, it could cost North Carolina taxpayers more than $500 million at a time when we are making drastic cuts to education, reducing services for seniors and laying off state employees.
- Second, Sen. Hartsell's hope for 70,000 jobs is based on faulty assumptions that don't add up. He cites a report from the New York Power Authority about job creation and tries to apply the same ratios to North Carolina. Using Sen. Hartsell's logic, Duke and Progress Energy could create more than 11 million jobs with their power generation capabilities — enough to employ every man and woman in North and South Carolina.

Alcoa has been working hard to recruit new jobs to its former Badin Works plant. Electronic Recyclers International, the nation's leading recycler of electronic waste, opened a regional recycling facility in Badin this summer that will employ 200 people. Now, Clean Tech Silicon & Bar is ready to start construction on a $300 million project that will employ 450 people with wages between $40,000-$55,000. This is a tremendous opportunity for a county with unemployment near 12 percent, and it will bring immediate jobs to Stanly County. Alcoa remains hopeful that it can reach an agreement with the Stanly County commissioners to bring real jobs to the community right now. It is time for us to work together to make a positive difference in Stanly County.

(Now, why do you suppose the author of this article makes the gratuitous statement the developer "quietly" filed the application? No one does that! I guess they shoulda stood on the dam with a megaphone! Not much as a dam, but the hydro project is based on river velocity anyway!)

Study of hydropower site near fabridam to cost planner $325G

By Marcia Moore, The Daily Item, September 17, 2011, dailyitem.com

Shamokin Dam — A Houston-based company has quietly filed for a preliminary permit to study the feasibility of producing hydropower on the Susquehanna River near Shamokin Dam.
Lock & Hydro Friends Fund VII filed for the application with the U.S. Federal Energy Regulatory Commission last

month. Few were aware of the company's proposal to place two concrete walls attached to the downriver side of the fabridam, a 40-foot-wide module containing six generating units and a switchyard. The project would produce hydropower to be sold to a local utility. Shikellamy State Park Manager Frank Nanna recalled an inquiry being made four years ago about plans for a hydropower generator at the fabridam, but nothing more. "I think it's a good idea, if they can harness energy produced by the dam," Shamokin Dam Borough Manager Ed Hovenstine said. "In theory it seems like the right thing to do."

Because the fabridam is only a temporary structure that's inflated between May and October, Hovenstine said he's not sure how much power the company will reap from the proposed plant. Neither Lock & Hydro managing partner Wayne Krouse or Mark Stover, vice president of corporate affairs at subsidiary Hydro Green Energy, could be reached Friday for comment. Hydro Green Energy is developing new, low-impact hydropower generation at existing non-powered dams and is developing 28 "low-head" hydropower projects in 13 states. The company's projects will provide enough annual power for approximately 161,000 homes and annually avoid 2.2 billion pounds of carbon emissions. In its application for the Shamokin Dam project, the company estimates the feasibility study will cost $325,000 for engineering, legal, financial advisory and other consulting services. The planned operation would be installed and operated "without affecting the existing operations of the dam" and all power produced from the river would be emissions-free and create no waste materials.

Pumped-storage system helps handle power demand

September 18, 2011, By Greg Bock, The Altoona Mirror, altoonamirror.com

At the edge of the tailwater of the Kinzua Dam on the Allegheny River in Warren County sits a hydroelectric generating station. But the Seneca Pumped-Storage Hydro Generating Station isn't powered by the water flowing through the dam, like the more familiar hydroelectric projects such as Hoover Dam, but rather from a 2 billion gallon reservoir perched some 800 feet above, among the trees of the Allegheny National Forest. "Pumped-storage hydro is a different animal," said Mark Durbin, spokesman for the facility's operator, First Energy Generation Corp. Durbin pointed out the station can generate 451 megawatts of electricity, but only for 10 hours a day. It then takes 14 hours to pump water back up to the perfectly round upper reservoir, about the size of a small NASCAR track, to start the process again, he said. Symbiotics Energy LLC has proposed a similar project in Antis Township.

How it works

Durbin said First Energy Generation makes money on the difference between the cost of pumping the water during off-peak times and selling the power generated during peak times, although doing so requires careful management of the station and understanding of the sophisticated energy trading market. The station also uses more electricity than it generates, so at a glance it might seem absurd. But for those in the business of keeping the lights on, it's a valuable asset that helps the utility make money and meet the fluctuating demands of the power grid, noted civil engineer Rick Miller, who works for the Nebraska-based firm HDR Inc. Pumped-storage hydropower isn't so much a way to generate power as a way to store it, explained Miller, who has 30 years' experience in hydroelectric power. Balancing the power supplied to the grid isn't as easy as turning a switch on and off. With two daily periods of peak demand - one in the morning and one in the afternoon - followed by lower demand overnight, he said, pumped-storage is a way to manage the amount of power feeding the power grid, particularly as renewable energy sources like solar and wind become more prominent. "Too much voltage in the lines causes bulbs to burn brighter and ceiling fans to turn faster," Miller said. "It's a constant balancing act."

Wind and solar power are unreliable power sources that produce according to the weather and time of day, Miller noted. In the Pacific Northwest, he said, wind turbines often turn best at night, when actual demand for electricity is at its lowest. Pumped-storage stations, he said, complement these emerging energy sources because such unneeded power during nonpeak times can be used to pump the water at a pumped-storage facility so it's ready for when power producers must

meet surges in demand during peak times. "Pumped storage is really the most effective way to back up and store intermittent renewable energy," said Stan Kocon, vice president of Sales and Marketing for Voith Hydro Inc. in York, a manufacturer, planner and implementer of hydroelectric systems that employs 550 people in Pennsylvania. Kocon said interest in hydropower is very strong worldwide right now, with a resurgence in pumped storage projects due in large part to the proliferation of renewable energy power-generating facilities.

Not happy with the proposal

With the filing of a preliminary permit application with the Federal Energy Regulatory Commission, a Utah-based energy firm has shown its intentions of exploiting the construction of a pumped-storage station in Antis Township, an idea that doesn't sit well with local environmental watchdogs. Stan Kotala, conservation chairman of the Juniata Valley Audubon Society and executive board member of the Moshannon Group of the Sierra Club, said both groups are "unconditionally opposed" to Symbiotics Energy LLC's proposed Bellwood Pumped Storage Hydroelectric Project. Kotala pointed out that most of the more than 221-acre project would sit on what is now State Game Land 158; would affect the state-designated Class A High Quality trout stream Tipton Run by inundating a mile of one of its tributaries, a High Quality trout stream in Mulligan Hollow; and destroy important migratory bird habitat. "It's absurd," Kotala said. He said the project's planners haven't contacted the Pennsylvania Game Commission about the proposal and noted such a project constitutes a large-scale industrial site with no redeeming factors that outweigh the environmental consequences. Kotala said the planned reservoirs, 101 acres and 120 acres, would not support aquatic life because of the "wildly fluctuating water levels." Public lands, Kotala said, should not be used for such a project when there are other streams, particularly ones affected by acid mine runoff, that could be put to use. Kotala said the fact the facility would offer no net gain to power production and "the only thing that would be generated is money for the owners" was another reason the conservation groups were against it. Symbiotics did not respond to repeated attempts for comment on the project.

Proponents see the benefits

Those who work in the hydropower business said in order to maximize green energy initiatives such as solar and wind, pumped storage is a key component that, if put in the right areas, will leave a small environmental footprint. Miller, who has served as past president of the National Hydropower Association, the industry's leading lobbying and advocacy group headquartered in Washington, D.C., pointed out that most pumped-storage projects considered today are "closed loop" systems that have scant effects on the local environment. Even the initial filling of the reservoirs, he said, has little lasting effect on groundwater supplies. Miller said while more pumped-storage projects are needed as more and more solar- and wind-power generating systems come online, getting financing for such ventures is extremely difficult. The expense is between $1 billion and $2 billion for each project, and government funding options are few and far between.

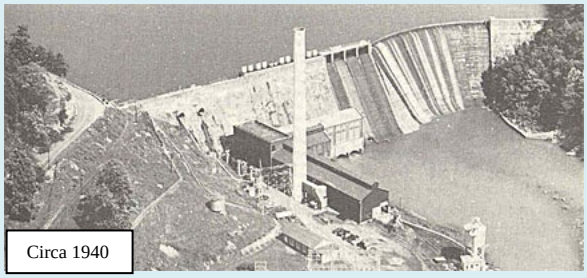
A long road to approval

Linda Church Ciocci, current executive director of the hydropower association, added that while any energy development has environmental impacts, FERC's lengthy licensing process ultimately brings stakeholders in any project together to work through whether a particular site is right for a pumped-storage project. It takes up to five years to get through the FERC process of feasibility studies and planning, and if a license is granted for a project, it can take an additional five years to build - given the multiple federal, state and local levels of regulations a developer would need to navigate. Ciocci said this adds to the difficulty of securing financing, because return on investment is at least a decade away, something she said current lobbying efforts with Congress and FERC are working to correct. Ciocci said NHA would like to see a more streamlined licensing process to get pumped-storage projects built in a more reasonable time frame. That, she said, would help developers get financing and better estimate construction costs and get more of these much needed energy sources up and running. "If we're really serious about building renewable energy, we can't do that without pumped storage," Ciocci said.

(Another 100 year anniversary)

TVA celebrates 100 years of hydropower at Ocoee Dam

brighterenergy.org, 9/20/11


Circa 1940

The Tennessee Valley Authority will be celebrating a century of hydroelectric production at the Ocoee Dam No. 1 on Saturday (September 24). The public is being invited to join the celebrations on the day, at a free, family-friendly community day from 10 a.m. – 2 p.m. (EDT) in the park adjacent to the 100-year-old Ocoee Dam No. 1, off U.S. Highway 64 near Benton. One of the first hydropower projects in the Tennessee Valley, Ocoee Dam No. 1 was completed in 1911 by the East Tennessee Power Company.

TVA acquired the facility and Ocoee Dam No. 2 in 1939, and then built Ocoee Dam No. 3 in 1942 during World War II. In 1990, Ocoee Dam No. 1 received a major modernization. A section of river below Ocoee Dam No. 3 was the whitewater venue for the 1996 Olympics. “Ocoee Dam No. 1 pre-dates the formation of TVA, and 100 years after it went into operation, it is still producing clean, low-cost hydropower for the region,” said John McCormick, senior vice president of TVA River Operations. “This dam changed the standard of living, the economy and the recreational opportunities in this area as it shaped the Ocoee River. The Ocoees are both a natural wonder and a playground for families and outdoor enthusiasts.” The Ocoee No. 1 Powerhouse has five generating units that can produce 24 megawatts of electricity, enough to power about 14,000 typical homes in the region. The dam is 135 feet high and 840 feet long. It provides flood storage capacity of 19,000 acre-feet in Parksville Reservoir, which has 109 miles of shoreline with numerous public recreation amenities. The Tennessee Valley Authority, a corporation owned by the U.S. government, provides electricity for 9 million people in parts of seven southeastern states at prices below the national average.

Raleigh seeks hydroelectric facility at Falls Lake Dam

Newsobserver.Com, SEP 20, 2011, Staff Reports

Raleigh, NC -- Falls Lake could soon generate more than just drinking water for the city. The City Council voted unanimously today to inform the Federal Energy Regulatory Commission that the city intends to develop a hydroelectric facility at the dam. Council members also instructed the city's staff to search for a consultant for the project. That would include final evaluation and possible environmental and regulatory permitting, design and construction services. The consultant also would help the city develop funding options for design and construction of the hydroelectric facility, according to a city press release. In November, FERC awarded Raleigh a preliminary permit to conduct studies and prepare a license application for a facility to harness hydroelectric power from Falls Lake Dam. The lake is a major source of drinking water for the area. A preliminary report concluded the project is feasible under certain economic conditions.

Water:

(It felt like the Probable Maximum Precipitation (PMP). If that’s what a 1000-year rain looks like, then we’re all going to float to the ocean if we ever have a PMP which is supposed to be the 10,000-year rain. That’s why I don’t believe the PMP data!)

D.C. area's recent rainfall might be once-in-a-thousand-years event

By Martin Weil, September 16, 2011, washingtonpost.com

Rain that fell last week in part of the Washington area came down so fast for so long that it might have been a once-in-a-millennium event, according to a report from the National Weather Service. At Fort Belvoir, the weather service said, the three-hour Sept. 8 rainfall from the remnants of Tropical Storm Lee was "an incredible 7.03 inches." That, the weather service said Wednesday, "has less than a 0.1 per cent chance of occurring in any given year." The extremely unlikely event, the service said, is "sometimes called a 1,000-year rainfall." In the Franconia area, 5.47 inches fell in three hours, the weather service said. So much rain in so little time has about a 0.2 per cent chance of occurring in any given year, and is "sometimes called a 500-year rainfall," the service said. In Reston, the weather service said, 6.57 inches was recorded in six hours, making it a "500-year rainfall," too. Figures compiled over 30 days for both Lee and Hurricane Irene also showed high totals in Prince George's County, with 24.13 inches in Largo, 23.98 in Forestville and 21.49 in District Heights.

(I think this one fits under the heading of "Water"! Maybe this guy has never operated a dam because that's what dams can do – adjust to the water available! What does he propose we do – imagine what the flow will be 100 years from now? Usually, something published by Scientific American must be read carefully.)

World's Dams Unprepared for Climate Change Conditions

Dams have been designed for river flows that will soon no longer apply, according to new research

By Julia Pyper and ClimateWire | September 16, 2011, scientificamerican.com

Over the past four years, John Matthews has been traveling the world to better understand freshwater and climate change issues. He found that poor planning is creating one of the biggest water-related threats. "We need to think about managing water in a much more flexible way," said Matthews, who is director of fresh water and adaptation at Conservation International. "Let's not just design for a single future; let's think about multiple possible futures." In a paper published this month in the journal PLoS Biology, Matthews and his co-authors argue that investment and management decisions risk exacerbating climate-initiated changes, which could lead to economic catastrophes.

The conventional method of building dams is fundamentally flawed, said Matthews. Looking at the available data, engineers decide on a flow rate that they feel will optimize the infrastructure project. The problem, says Matthews, is that historical data is not a very good guide to the future of freshwater resources -- particularly now that extreme water conditions have been exacerbated by a rapidly changing climate. According to the United Nations, humans will feel the effects of climate change through the water supply. The hydrological cycle -- which includes surface and ground sources, glaciers, precipitation, runoff and vaporization -- is very sensitive to small climatic shifts. This is a concern not only because water is essential for subsistence, but because it's also the key to economic development. The way humans are managing water infrastructure and conservation, the authors argue, is only intensifying these issues.

Old dams, new realities

"It's not that we need to give up designing; it's that we need a better design and decision making process," said Matthews. "We need to think carefully about how conditions may be shifting, because there are some things that we can say with high confidence are happening because of climate change." Over the past century, dams made in the West have become more mismatched with their ambient climate. The Hoover Dam, for instance, was designed based on a 30-year

period that had markedly higher precipitation levels than today. As a result of a decade of drought, the dam is now operating at only 30 percent of its capacity, said Matthews, and new mechanisms have been added to cope with the lower water levels. When infrastructure plans are based on a set climate scenario, rather than a flexible one, it can be very costly in both human and economic terms, especially in the developing world, the paper argues. Less-developed areas, particularly parts of East and South Asia, are now entering a period of rapid hydro infrastructure development. Since water managers are largely following the West's rigid planning model, these countries are going to have difficulty adapting to changes in water availability. According to the Organisation for Economic Co-operation and Development, 40 percent of all development investments are at risk due to climate change, write authors in the PLoS paper. If a hydropower project fails to fulfill expectations due to the effects of climate change, governments could struggle to pay back loans from development investors.

New dams and power shortfalls

Masses of people could also face prolonged brownouts. Matthews saw this take place in Nepal, where low water levels rendered a brand-new dam project ineffective and cut off the water supply farther downstream. "[Developing countries] are likely to make themselves poorer and make species and ecosystems decline at the same time, and I think that's a huge crisis," said Matthews. The solution is to build new water infrastructure in stages, say the authors of the PLoS paper. Using that approach, managers can adjust their strategy as climate patterns become clearer. Another step is to integrate ecosystems into infrastructure development -- by "building with nature" rather than on top of it, using a system that will be more adaptive. Finally, it's necessary to plan for multiple future climate scenarios by coordinating engineers, economists and conservationists. A collective approach will result in a more robust long-term strategy. If water management practices stay the same and do not account for future risks, then "we're building things based on a hydrological lie," said Matthews.

Environment:

(Is this what it has come too?)

Even Bureau of Reclamation celebrates removal of two Washington dams

BY ROCKY BARKER - Idaho Statesman, 09/18/11, idahostatesman.com

Elwha Dam

Port Angeles, Wash — The celebration of the removal of two dams on the Elwha River in Olympic National Park Saturday had all of the elements of similar ceremonies since the Edwards Dam was bulldozed on Maine's Kennebec River 12 years ago. Politicians gave speeches. Performers sang and danced. People who had worked for years on what had once seemed an impossible dream laughed and cried together. What set this weekend-long party apart was the involvement of the Bureau of Reclamation, the big-shouldered agency that built more 600 dams that made development of the American West possible. Its former Commissioner Floyd Dominy in the 1960s personified the drive to bring rivers under human control to supply irrigation water, hydroelectric power and flood control as he pushed through Congress the last big dams projects such as eastern Idaho's Teton Dam, which failed as it was being filled in 1976. But here was the Bureau of Reclamation's current Commissioner Mike Connor, breathless over the historic removal of the largest dam in the U.S. to date. "Dam removal is not the best option everywhere," said Connor. "But it's the best option here." His agency, which supplies water to 31

rformance of Dams Program: http://npdp.stanford.edu

million people and 10 million acres of irrigated farmland, is reconsidering the costs and benefits of the hundreds of dams it has built since 1902. He's certain that most are going to remain critical for years to come.

But the agency's mission has expanded to restoring rivers and values like fisheries and recreation, and meeting treaty obligations such as those of the Lower Elwha Klallam Tribe, who had waited a century for this day to come. "I hope in the coming decades the Bureau of Reclamation is known as much for river restoration as we are for dam operations," Connor said. The National Park Service has led the Elwha effort, which started when federal power officials recognized they could not relicense the 210-foot Glines Dam in the 1980s because it was within Olympic National Park. Congress approved removing the Glines and Elwha dams in 1994, and the local owners sold them to the federal government. Since the Park Service didn't operate dams, the Bureau of Reclamation took them over, producing hydroelectric power until June, with the revenues going into a fund for the river. A chunk of the Elwha Dam was pulled up by an excavator Saturday as officials, tribal elders, activists and other cheered. "Today is a day of restoration, a day of healing and a day of hope," said Larry Echo Hawk, assistant interior secretary for Indian affairs and former Idaho attorney general. For many people the theme was patience. Sen. Patty Murray, D-Wash., quipped that when she was elected in 1994 she thought the Elwha removals would happen fast. "I just assumed that the dams would be down in 1995," Murray said. Ben Charles of the Lower Elwha Klallam Tribe spoke in his blessing of the "great cloud of witnesses," past tribal members who have longed for the Elwha to be set free. "Answered prayers today, answered prayers," Charles said.


Glines Canyon Dam

Environmental activists, including Tom Stuart of Idaho Rivers United, hope the Elwha dam removal will give a boost to his group's effort to get the federal government to remove four dams on the lower Snake River in eastern Washington. But even though more than 400 dams have come down since the Edwards Dam was removed in 1999, there remains no clear path toward removal of the Snake dams, which still produce a lot of power and provide a barge shipping link between Idaho and the Pacific. Interior Secretary Ken Salazar said every dam is different, and the Elwha is not the Snake. "This was the entire community that came together," Salazar said. Stuart hopes a new collaborative process can be developed in the wake of three court judgments that struck down salmon and dam plans on the Snake and Columbia rivers. But Norm Semanko, executive director of the Idaho Water Users Association, said an agreement on removing the four Snake dams is unlikely anytime soon. "You don't hear chambers of commerce's in Twins Falls and the Tri-Cities in Washington talking about the advantages of dam removal," Semanko said. In the meantime, the uncertainty keeps Lewiston from developing its full potential, and that's not going to change soon. Stuart thinks support for Snake dam removal will change when people see the economic realities. "I've come to realize it's a long- term game," Stuart said. Yet no matter their differences, both sides recognize that the dams are technologies of their places and times. Karl Wirkus, the Bureau of Reclamation's Pacific Northwest regional director in Boise, said so-called "smart grid" electric technology or other breakthroughs could dramatically change our power system. That could make Grand Coulee, his biggest dam, no longer necessary for electric power reliability in the far distant future. "It's not unthinkable," he said.

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