6/6/2014

Some Dam – Hydro News™ And Other Stuff

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Quote of Note: *"Competition does a much more effective job than government at protecting consumers." — Thomas Sowell*

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"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: **2010 Castello Banfi Italian (Tuscany) Red "BelnerO"**
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson

Dams:

Dam safety act heads to President's desk

midhudsonnews.com, 5/23/14

Washington – The Water Resources Reform and Development Act, sponsored by Congressman Sean Patrick Maloney (D, NY18) has passed in the Senate and is now on its way to the President's desk for his signature. A previous measure expired in 2007, and Maloney introduced this bill to give communities the financial support they need for dam safety. "It's $70 million over five years to help with safety inspections, engineering reports and related activities to make sure dams are safe," Maloney said. There are some 100 high-hazard dams out of 800 total in the Hudson Valley.

(Some dam history!)

Forgotten sacrifices: Grand Coulee Dam memorial found in Colville

Daniel Person Special to The Spokesman-Review, spokesman.com, 5/25/14

Grand Coulee, WA – By most accounts, the last life claimed by the Grand Coulee Dam was that of Howard Gumm. The day he died, July 27, 1984, the Teamster was hauling dirt along Lake Roosevelt in an effort to stabilize shores near the dam when the slope Gumm was working on

gave out. He, along with his massive truck and 1.3 million cubic yards of dirt, sloughed into the lake. At his memorial, his son Randy said, his father's Thermos, hardhat and lunchbox stood in proxy of the body. Those possessions had floated to the surface of the lake following the disaster, but his body has never been found. Before Gumm, there had been 81 men killed while working on one of the most massive public works projects this nation has ever seen, which began in New Deal earnest in 1933. Heralded as the Eighth Wonder of the World, the dam turned 670,000 acres of desert shrub-steppe into fertile farmland and provided the electricity that turned the state of Washington into a vital industrial center during World War II. Yet a modern traveler to the dam would be hard pressed to find any evidence of the sacrifices made to see it completed. No monument or plaque exists to honor the men who died creating it; until recently, no comprehensive list even existed of the men's names and how they died. That by itself may register as a simple if unfortunate oversight. But in fact, the lack of a memorial at Grand Coulee is the result of a strange chapter in the dam's history: In 1938, a monument did exist with names of those who'd died up to that point, standing along what was then the main thoroughfare through Grand Coulee. It was 10 feet of Georgia granite, with room for 75 names, and commissioned by the local American Legion. A beautiful tribute, by all accounts. But the monument stood there for only two years. In June 1940, the people of Grand Coulee found the granite pillar, all seven tons of it, gone, the concrete pedestal all that was left to indicate it was ever there to begin with.

From his official car, President Franklin Roosevelt inspects the dam in October 1937. He is on the far side in the back seat.

Susan Dechant, 69, has become an expert on the men who died building Grand Coulee Dam. Who they were, what they did, how they were killed. Now when people come to the dam with questions about a relative they think died at the job site, they're often told to call Dechant. "It was the laborers that were pretty much the ones being killed," Dechant said, "knocked off the dam, crushed by equipment." "I've got a file of what they were dying of and it was nasty," she adds. Along with the falls and run-ins with equipment, men died in explosions, were drowned, buried in slides, and electrocuted. One man died of heat exhaustion. Seventy-eight men died working on the original dam. Three more died building the third powerhouse, where work started in the late 1960s. Howard Gumm would make number 82. Lynne Brougher, public information officer at the dam, said it's important to put the deadly conditions "back into the context of the 1930s." "You didn't have OSHA (Occupational Safety and Heath Administration), the workers didn't have hardhats. A lot of times they didn't have safety lines," she said. "It was just a whole different mindset back then than it is today." She also points out that at the height of construction, 8,000 men may have been on the worksite on a given day.

The deadliest years were 1936 and 1937, according to data collected by Dechant. Each of those years, 17 men died, or about one every 21 days. Dechant said most of the deaths got a line or two in the local papers, if that. "So-and-so was killed doing such-and-such. That was it." George Hunter, a jackhammerman, had his back broken by a chunk of clay. Gerald F. Coble, a 32-year-old signalman, was struck by a heavy steel bucket. Ronald H. Tegmeier's death in 1938 got a little more attention, given his notable background. Tegmeier, a former nationally known marathon swimmer from Tacoma whom the Wenatchee Daily World described as "200 pounds of young Tarzan," was working as a lifeguard at the dam, ready to rescue anyone who fell into the river while working. Tegmeier, the paper said, had no fear of the "surging, swirling" waters of the Columbia at Grand Coulee. He'd gained a name for himself on the work site when he swam from Keller Ferry to the dam site in three hours, a distance of 25 miles. He'd fallen into the rapid river twice before while working, and both times had "come out smiling." But his final day, as he was patrolling the waters below a cofferdam on a motor boat, his motor gave out and his boat was sucked into whitewater. That day, he never emerged. "Yesterday that giant river was angry," the

Daily World concluded. Modern historians have cast doubt on the most hyperbolic statements made about the dam – during the 1948 presidential campaign, Grand Coulee was all but credited for giving America the atom bomb before Germany. But there's no doubt the dam's electricity was instrumental in the burst of production the Northwest saw over the course of World War II.
While initially the dam's primary goal was to irrigate the Columbia Basin Project, the war forced operators to switch gears and focus on producing power. "When WWII hit, in December (1941), it was pretty obvious that Grand Coulee could support the war effort. Power was going to be needed and there was a concerted effort to get generators in place at the dam to support the effort," said Brougher, the dam's spokeswoman.

The first power started flowing in 1941, and by 1942 the dam was slaking the thirst of aluminum plants across the Northwest. Along with shipyards, the aluminum was sent to Boeing to produce planes like its Flying Fortress, the B-17 bomber. According to historian William Joe Simonds, in 1940 the Northwest had no aluminum production capacity. By the end of the war it was producing a third of the nation's supply, nearly all on Grand Coulee juice. But planners had grander plans yet for the dam. In 1943, a generator that was slated to be installed at the Shasta Dam in California was diverted and sent to Grand Coulee. While it wasn't publicized then, the reason for the switch was because of the huge amount of energy that would be needed to produce plutonium at Hanford. "People who died building the Grand Coulee Dam were serving their country," said Randy Gumm, who still lives in Grand Coulee. "That dam helped fight a war."
So where's the monument honoring the sacrifice of those who died? As it turns out, Colville. Dechant said she just can't let the story of the monument go, which she's slowly uncovered by wading through newspaper records and interviewing the last of the generation that remembers what happened to that huge chunk of granite. For Dechant, it all started six years ago with her first passion, genealogy. Living on an old homestead along Sherman Creek in Kettle Falls, she began researching the families who'd first settled there. In doing so, she came to respect the huge impact the Grand Coulee Dam had on the area, as the Columbia River backed up and flooded properties near the river. Pulling on that string, she came across a curious story in the Colville Examiner about a dispute between a monument maker in Colville and the folks in Grand Coulee over payment for a large tribute made for those who died. It was the kind of story that stuck in the historian's mind, but she didn't look into it further. She had too many other projects to pursue. Then, in 2006, she took a tour of the Grand Coulee Dam's third powerhouse.
At the end of the tour, someone in her group – not at Dechant's prodding – asked the guide if there was any sort of tribute to the people who died building the dam. The tour guide said there was not. Afterward, Dechant pulled the man aside to tell him he was correct, of course, but …
"They didn't know anything about the monument," she recalls. "He was very interested."
That got Dechant thinking it might be worth uncovering more of the story. Six years and counting, here's what she's figured out so far: In April 1938, the Grand Coulee American Legion commissioned Colville monument maker John Citkovich to build the monument. They wanted it ready to be unveiled on Memorial Day, and Citkovich had the granite shipped to Spokane by train from Georgia. Working around the clock, he finished the piece, 10 and a half feet tall and six feet wide at the base, in less than a week. The names of the dead were cast onto small bronze plates and screwed into the rock. He delivered the monument, "shrouded in secrecy" according to news accounts, on May 25, 1938. He also had a bill: $1,725. In today's dollars, that works out to about $29,000. No small amount, especially during the Depression, but there's no evidence that the price tag caused sticker shock. It certainly didn't dampen the Memorial Day party thrown that year at Grand Coulee, which featured an appearance by the governor and free barbecue, along with the unveiling of the monument. As the Spokane Daily Chronicle noted, construction on the dam didn't stop for the holiday; rather, visitors were invited to marvel as men holding jackhammers dangled against the cliffs, loosening rock to make way for more dam. By that weekend, 49 men had died on the project. But after the food was gone and the governor headed back to Olympia, things quickly soured between Citkovich and the Grand Coulee American Legion. The Legion had paid the monument-maker a $200 retainer, but by June the next year, Citkovich hadn't received a dollar more. The city and civic organizations begged Citkovich for more time, and he obliged. He believed in the cause, he said, and wanted to help honor "the heroism of those who have given their lives to make possible the largest structure ever built by

man." Another year passed. Still no money had been paid. Finally, the Legion offered to settle with Citkovich for $500. No dice, Citkovich said. If he was going to sell the thing for a bargain, he'd rather have it in his own community. Citkovich's son, Jack Citkovich, died in 2010, but before he did he told Dechant about the daytime raid he got to tag along with as a boy. His father brought the 14-year-old, two other men, and a big hoist on a flatbed truck. And some guns.
"We expected trouble so we took rifles along, but no one challenged us and we drove up to the monument, loaded it up and just drove off with it," he remembered. It was taken back to Colville and dropped where it stands today: In front of the Stevens County Courthouse. The plaques with the names of those killed at the dam were removed and probably donated to a metal drive for the war. New names were attached, those of Stevens County residents who'd died fighting for the country. To this day, a plaque that states the monument is dedicated to the men who died at Grand Coulee remains on the monument, but is covered up by a smaller plaque saying it was dedicated to Stevens County's war veterans. Dechant, who's also done extensive research into the men now listed on the monument in Colville, said she doesn't judge Citkovich for taking back the monument, nor Stevens County. The country was just coming out of the Depression, after all, and he had a right to be paid. But there may still be a villain in this tale. While it's not certain why the American Legion wasn't able to come up with the money to pay for the monument, the most likely scenario seems to be embezzlement. Around the same time the payment problems came to light, the commander of the Legion disappeared. "The money disappeared about the same time he did," Dechant said. "The assumption is he took it." Now that she knows the full story, Dechant is willing to tell anyone who will listen about the "Grand Coulee Mystery." Earlier this year, she led a field trip of civic leaders from the Grand Coulee area to Colville to see the monument that once stood near the dam, and has given lectures in the area about it. Her motive, she said, is to add another, happier, chapter to the saga of the Grand Coulee monument. "It needs a better ending," she said. "I feel strongly they need to be remembered for what they did. It's a huge sacrifice that benefited millions of people. Still does." And while nothing has been decided, there are now people living near the dam on board with the idea of doing something to honor the dead.
"There's nothing by the government or otherwise to celebrate their lives," Coulee Dam Mayor Greg Wilder said from his office that faces the dam. "Nothing." However, it's an open question where the money for a monument might come from.

Brougher said the federal Bureau of Reclamation supports Dechant's efforts, but has strict rules regarding what it can spend money on. The bureau "generally does not construct monuments and that sort of thing," she said. "While we're very interested in (Dechant's) work … I'm not sure we could actually contribute to erecting the monument. But it would be nice to see in the community here." Wilder is often outspoken in the area about what he sees as misuse of hotel tax dollars in the area. Those taxes are meant to go to projects that will attract more tourism to the area, and he sees a monument as having that sort of potential. "It's the kind of project that people will come to see, if it's done right," he said. "More than just a piece of stone. Wrap it around something that people will really care about." Wilder says when the city begins writing its budget for next year, he's going to ask the council to see if there's money that could be put toward something. However, that's no sure thing at this point. And one thing's for sure: folks around here are done buying monuments on credit.

(Some more history)

Rare Montana flood photos show devastation of 1964 dam collapse

David Murray, greatfallstribune.com, May 24, 2014

Eloise Erickson grew up outside of Valier, at a farm on the western shore of Lake Frances in Pondera County. In 1964, her father, Paul Bruner, learned of the collapse of Swift Dam while visiting his wife at the hospital in Conrad. Bruner shot some of the few existing photographs of the Swift Dam flood as the water raced down Birch Creek, sweeping everything away before them. “They were telling people in the hospital, ‘Nobody’s in danger or anything like that,’ but the dam went out,” Erickson said. “My dad happened to have his camera with him. So he got in the car and immediately went to Birch Creek.” Bruner drove north on Highway 358 to a hillside on the Earnest King Ranch overlooking Birch Creek. By the time Bruner arrived, the stream had already risen to engulf the bridge abutments below him. Over the next 20 minutes, as Bruner shot photographs in the rain, the waters rose another 20 feet and destroyed the bridge. “He said you couldn’t believe it,” Erickson recalled. “The water was churning and there were big trees that would just tumble in the water. He watched the bridge float away, and then the Kings’ house.”

Eloise Erickson stands next to a rock slab that was part of the original 1912 Swift Dam which failed on June 8, 1964. Boulders weighing as much as 80-tons were pushed more than half a mile when the dam collapsed. The current Swift Dam is a 205-feet high concrete dam that was completed in 1967.

Erickson, who was living in Ethridge with her husband, Art, at the time of the flood remembers staying glued to nonstop broadcasts from the Shelby radio station, much as people watched television during the 9/11 attacks. “KSEN was a godsend,” Erickson said. “We had the radio on all the time. You were listening to see if they found anybody and things like that. They broadcast 24 hours a day, getting messages to the community and the airplanes and the helicopters, and anyone on the ground who had a radio and could talk to them. It just went on for days. You didn’t think it was ever going to end.” “They turned the Valier School gymnasium into an emergency relief center where they were feeding people,” she said. “If people didn’t have a place to stay, they gave them a blanket and they could stay there.” In the days after the waters receded, the community rallied to search for the bodies of the 19 people killed in the flood on Birch Creek. Paul Bruner was among hundreds who volunteered for the recovery mission. “He just told about how much water and mud there was,” Erickson said. “How you couldn’t find anything — you couldn’t relate to where you were at because it didn’t look the same. The trees were all gone. It just washed everything away.” One of the missing and presumed dead was Ernie Lauffer. “They found his pickup, but they couldn’t find him,” Erickson recalled. “They had ground crews slowly walking over the area to see if they could find him. Someone saw the sun spark on a piece of metal, so they stopped and looked. “Ernie had this big, beautiful ring, and the sun hit his ring. That’s how they found his body.” In the years following the Swift Dam disaster, Bruner helped build a memorial honoring the 19 people who died on Birch Creek on June 8, 1964.
The monument is located on the east side of U.S. Highway 89 about 14 miles west of Valier. Paul Bruner’s name is etched upon a plate at the memorial’s base. More online. To view a photo gallery, go to gftrib.com

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(There’s so many things wrong with this, it would take a book to respond!)

10 Things You Should Know About Dams

By Peter Bosshard, Policy Director, International Rivers, huffingtonpost.com, 05/27/2014

1. 50,000 Large Dams Are Clogging the World's Rivers:
About 50,000 dams with a height of 15 meters or more and millions of smaller dams have been built on the world's rivers. Some of them date back centuries, but most were built after World War

II. About 5,000 dams have a height of 60 meters or more; another 350 such giants are currently under construction.

2. Dams Are Changing the Face of the Earth:
Dams have fragmented two thirds of the world's large rivers and flooded a land area the size of California. Their reservoirs contain three times as much water as all the world's rivers, and constantly lose close to four Niagara Falls to evaporation. Dams trap 40 cubic kilometers of sediments every year, and starve deltas of the silt that protects them against the intruding sea.
3. Dams Provide Important Services:
Dams generate 16% of the world's electricity and irrigate food crops for 12-15% of the world's population. To a lesser extent, dams have also been built for water supply, flood protection, navigation and tourism purposes. Most dams have been built for irrigation, but 80% of the water they store is used for hydropower.
4. Dams Kill Fish:
Dams block the migration of fish, deplete rivers of oxygen, and interfere with the biological triggers that guide fish. They also reduce the ability of rivers to clean themselves. Due to dam building and other factors, the population of freshwater species declined by 37% between 1970-2008 - more than the populations of any other ecosystems. Tropical freshwater populations declined by a stunning 70%.
5. Dams Are Changing the Climate:
Dams are not climate-neutral. Particularly in the tropics, organic matter rotting in their reservoirs emits methane, an aggressive greenhouse gas. Scientists have estimated that reservoirs account for 4% of all human-made climate change, equivalent to the climate impact of aviation. The floods and droughts caused by climate change in turn make dams less safe and less economic.
6. Dams Displace People:
Dams have displaced an estimated 80 million people, with 23 million alone in China. Displacement robs people who are already poor and marginalized of their resources, skills and cultural identity, and impoverishes them further. Dams have also negatively impacted about 500 million people living downstream. The benefits of dams often bypass the people who sacrifice their livelihoods for them.
7. Dams Can Put Human Rights at Risk:
Most dams that displace large populations are being built by authoritarian governments. In Burma, China, Colombia, Ethiopia, Guatemala, Sudan and other countries, dam builders have often responded to opposition with serious human rights violations. In the worst dam-related massacre, more than 440 indigenous people were killed to make way for Guatemala's Chixoy Dam in 1982.
8. Dams Are Expensive:
Large dams belong to the most expensive investments many governments have ever made. An estimated 2000 billion dollars has been spent on dams since 1950. Due to planning errors, technical problems and corruption, dams experience average delays of 44 percent and cost overruns of 96 percent. Such massive overruns make them uneconomic.
9. Dams Don't Last Forever:
Sooner or later reservoirs silt up, and the cost of maintaining dams becomes bigger than their benefits. In the United States, more than 1000 dams have been removed at great cost. When dams are not properly built or maintained, they can break. In the world's biggest dam disaster, the failure of China's Banqiao Dam killed an estimated 171,000 people in 1975.
10. Better Solutions Are Usually Available:
In 2012, governments and businesses installed 75 gigawatt of wind and solar power, compared with 30 gigawatt of hydropower. Such alternatives fare even better when social and environmental impacts and transmission costs are included. The International Energy Agency has proposed that

60 percent of the funds needed to achieve energy access for all should go to local renewable energy projects.

(Expensive addons.)

More Than $161 Million Needed for Arkansas River Low-Water Dams

May 28, 2014, by Juan Sanchez - ktul.com

City council members released a draft providing an estimated price tag for adding low-water dams along the Arkansas River in Tulsa County.
An estimated $161,700,000 is needed to place dams in Tulsa, Jenks and Springs, according to the draft findings released by the Arkansas River Infrastructure Task Force. The group has been meeting since December 2013 to look at the options and costs of putting water back in the river.
"We've been talking about this for 50 years," City Councilor G.T. Bynum previously told KTUL. "I'd like to see us quit looking for somebody else to do this and just take our destiny in our own hands and take care of it ourselves."
Eleven meetings were held to present the facts and issues associated with redeveloping the Arkansas River. City councilors believe that placing four low-water dams in Tulsa, Jenks, Sand Springs and Bixby will help accomplish their goals.
"Construction of low-water dams...would serve diverse needs, from attracting residential and retail development to supplying water to cooling towers for electricity generation," the draft describes.
Each dams' individual price tag and associated costs was provided in the report, except for the one that has been proposed in the Bixby area.

5. The estimated costs of the low-water dams, including healthy contingencies, are as follows (in 2014 dollars):

Zink Dam	
Low-Water Dam Construction	$44,700,000
Less City of Tulsa Infrastructure Relocation	($2,700,000)
Less Gathering Place East Bank Improvements	($6,500,000)
Zink Dam Subtotal	**$35,500,000**
South Tulsa/Jenks Dam	
Low-Water Dam Construction	$42,200,000
Pedestrian/Maintenance Bridge	$11,000,000
South Tulsa/Jenks Dam Subtotal	**$53,200,000**
Sand Springs Dam	
Low-Water Dam Construction	$61,300,000
Pedestrian/Maintenance Bridge	$11,700,000
Sand Springs Dam Subtotal	**$73,000,000**
TOTAL	**$161,700,000**

In addition to providing costs and benefits of the dams, the task force outlined potential sources of funding for the river's redevelopment. Among them include:

- Sales tax renewal upon expiration of Vision 2025
- Looking over previously pledged or new state and federal grants
- Receiving funds from the Muscogee-Creek Nation and other tribal nations
- Private grants from various corporations and foundations

"The main concern was what's the best way to move this forward, who do we want at the table, who can contribute to that decision to help us create a proposal and a really responsible and conclusive way," Bynum stated in a previous interview with KTUL. Sources of potential long-term maintenance funding also was provided in the draft findings, according to the report. Those options included annual appropriations from participating communities and endowments from sales tax funds and corporate or foundation grants. The Creek Nation is already planning their development of the river with the Margaritaville project, but also want to be involved in these decisions. "We are obviously very interested in developing the river. We are going to develop

along the river. We are here to see is there is some place that we fit in," Local Government Affairs for the Creek Nation Vic Vreeland said.

(Some people see the benefits from dams!)

Conowingo Dam an asset to the community [Letter]

Letter to The Aegis, May 27, 2014, touch.baltimoresun.com

Editor:
Some of my fondest memories are from my time spent at the Conowingo Dam. As someone that has spent a lot of time at the recreation areas around Conowingo Dam and seen its operation firsthand, a recent Aegis editorial about sedimentation behind the dam got it wrong.
The dam is one of the best recreational places in the entire state and is important to the bay's ecological health. The fisherman's wharf is a great spot to observe the many fish species of the Bay, including bass, shad, catfish and walleye. In addition, the fish lifts have transported more than 1 million migratory fish annually to the Conowingo Pond, according to Exelon, the dam's operator.

I agree that the pollution in the Chesapeake Bay is an important issue to address, but Conowingo Dam is not creating that pollution - it's actually preventing the silt and sediment created further upstream from harming the Bay. It is misguided to demand Exelon pay for its cleanup, and the dam's relicensing should not divert our attention from the actual task at hand: a regional solution to cleaning up the Chesapeake Bay and its tributaries. I support Conowingo Dam and we need to relicense it so that people like me can continue enjoying it for decades to come.
Stephanie Campbell
Bel Air

(Fixed the problem!)

Mill Creek dam upgrades result in improved safety rating

By Andy Porter, May 27, 2014, union-bulletin.com

Walla Walla, WA— One of the major structures in the Mill Creek Flood Control Project has been given an improved safety rating.
The Mill Creek diversion dam recently received a “low urgency” classification from the U.S. Army Corps of Engineers after completion of assessments and risk reduction measures. The dam had been classified in 2009 as “high urgency” because of potential seepage and erosion of its embankment, foundation and abutments during high flows. Engineers also cited potential concrete spillway structural instability under certain conditions. In a release, Corps officials said that while there was no evidence in 2009 to suggest an emergency situation existed at the diversion dam, steps were still taken to reduce risk. These included work on the structure itself, additional studies and analysis, updating emergency plans and supplies and other measures. The dam diverts water from Mill Creek to the Bennington Lake storage reservoir. It is one of two dams in the Mill Creek Flood Control Project. The second is the 3,050-foot long, 120-foot high storage dam that holds water in Bennington Lake.

The Bennington Lake dam has also been upgraded after an evaluation of the structure in late 2008 put it in the “urgent and compelling category” for repairs. This was due to potential dam seepage and piping issues within the foundation of the dam when the lake was more than 17 percent full for an extended period of time. The structure’s classification was upgraded in 2009 to “high urgency” after additional data gathering and a preliminary Issue Evaluation Study showed risk for dam failure under normal operations was not as high as originally estimated. The classification was upgraded again in 2011 to “moderate urgency” after the Issue Evaluation Study was completed and showed there was a low likelihood of dam failure and a low estimated loss of human life due to dam failure. Corps officials said “currently there is no evidence to suggest an emergency situation exists or is about to occur” regarding the structure. The Mill Creek Flood Control Project was spurred by a disastrous flood in 1931 which caused millions of dollars in damage to Walla Walla’s downtown and adjacent areas. Congress passed legislation in 1938

which created the project and the Corps was assigned the task of design and construction. Mill Creek storage dam, which created Bennington Lake, was completed in 1941 and the entire project, including the Mill Creek diversion dam and the channel through the city of Walla Walla, was completed in 1942.

Hydro:

(It must be time to buy votes!)

U.S. Senate Passes Bill Helping Canton Hydropower Project

By Ken Byron, courant.com, The Hartford Courant, May 23, 2014

Canton, CT — Legislation that could be of great help to a planned hydropower project for dams on the Farmington River has been passed by the U.S. Senate, something that has never happened before. That bill was introduced by U.S. Rep. Elizabeth Esty in 2013 and was one of the first things she did upon taking office. The U.S. House of Representatives approved the measure last year and Laura Maloney, a spokeswoman for Esty, said on Friday the Senate passed it on Thursday night. She said the bill now goes back to the House because of minor changes made in the Senate. The legislation would reactivate two lapsed federal licenses to use the dams for hydropower and give them to the town. Earlier attempts to get the legislation passed were unsuccessful and town Chief Administrative Officer Robert Skinner said on Friday it has never gotten through the Senate. "This project is a win-win—empowering our local communities and moving our state towards a clean energy future," Esty said in a statement. "I'm proud that our efforts have brought this long overdue project on track to becoming law."

The hydropower project has been in the planning stages for more than five years. U.S. Sen. Chris Murphy introduced similar legislation when he was in the House and helped get Esty's bill through the Senate this time. "These two dams are already a beloved and long-standing symbol of the Farmington's Valley's rich history," said Murphy in a statement. "With this important bill passing the Senate today, we can help make them a symbol of the Valley's future as well—retrofitting them to provide clean energy to power thousands of Connecticut homes and businesses." Officials say the dams are expected to produce nearly two megawatts of power, enough to power more than 1,500 homes. Despite support from Murphy and Esty, town officials have had difficulty moving forward. Because of that, town officials are looking for a private company that can work with them on the hydropower project. Skinner said three companies have responded to a request for proposals to partner with the town. He said representatives of those firms will be interviewed on May 27 and a recommendation on which one to hire given to the board of selectmen in June. The town wants to use a dam on the Farmington River in Collinsville and possibly another one further downstream in Avon and Burlington for hydropower. Both were owned by the former Collins Company and generated electricity for the company's ax factory in Collinsville. That factory closed in 1966 and the dams have not been used for hydropower since then. Skinner said the three companies that have expressed interest in working on the hydropower project are The Citizens Energy Corp. and New England Hydropower Co. LLC, both of Massachusetts, along with Gravity Renewables of Rhode Island. The firm chosen for the project would provide much of the funding needed for studies and then construction. In addition, it would get the various federal and

state permits the project needs, Skinner said. Those would include environmental studies mandated by the legislation that the Senate passed on Thursday.

(Guess you can thank the drought for this! Don't know what there is to celebrate since the cost of electricity probably went up!)

FOR THE FIRST TIME EVER, NON-HYDRO RENEWABLES OUT-PRODUCE HYDROPOWER

WIND NOW ACCOUNTS FOR ALMOST 5% OF U.S. ELECTRICAL GENERATIONWHILE SOLAR DOUBLES OUTPUT

For Immediate Release: Thursday – May 22, 2014, ethicalmarkets.com
Contact: Ken Bossong, 301-270-6477 x.11

Washington DC – For apparently the first time ever, during the first quarter of 2014, electricity generated by non-hydro renewables (i.e., biomass, geothermal, solar, wind) exceeded that provided by conventional hydropower. This is according to data in the latest issue of the U.S. Energy Information Administration's (EIA) "Electric Power Monthly," with preliminary data through to March 31, 2014. Non-hydro renewables provided 53.16% of the net U.S. electrical generation from renewable energy sources for the period January 1 – March 31, 2014 while hydropower provided the balance of 46.84%. This reflects an increase of 11.3% in electrical generation by non-hydro renewables compared to the first quarter to 2013 as well as a decline of 4.5% in hydropower's output – possibly contributed to by the worsening drought in California. Notably, electrical generation from solar photovoltaic and solar thermal grew by 103.8% while wind expanded by12.6%; biomass also increased – by 2.2%, but geothermal dipped by 3.3%. Electrical generation from all renewable energy sources combined, including hydropower, was 3.29% higher during the first quarter of 2014 compared to the first three months of 2013 and accounted for 13.09% of net U.S. electrical generation. Hydropower accounted for 6.13% of net U.S. electrical generation for the period, followed by wind (4.82%), biomass (1.46%), geothermal (0.39%), and solar (0.29%)*. "For more than a decade, renewable energy sources – led by wind and solar – have been rapidly expanding their share of the nation's electrical generation," said Ken Bossong, executive director of the SUN DAY Campaign. "The most recent data affirm that the trend is continuing unabated."

(We need rain in more places than CA!)

Drought diminishes hydroelectric power in Texas as river authorities restrict release of water

The Associated Press, May 24, 2014 - dailyjournal.net

Austin, Texas — Hydroelectric power in Texas has all but dried up as the state's drought continues, according to a statewide review of generation sources. The amount of hydropower generated across Texas dropped 24 percent from 2012 to 2013, the Austin American-Statesman reported (http://bit.ly/1p4V7Uy). Only a fraction of the state's energy needs come from hydroelectricity but the downturn is yet another consequence of the drought. "You can really see the impact of drought over time," said Robbie Searcy, a spokeswoman for the Electric Reliability Council of Texas, which operates the state's energy grid. Apart from an energy emergency, hydropower is rarely used in Texas anymore, with coal and natural gas-fired power plants producing most of the state's electricity needs. As a young congressman, Lyndon B. Johnson worked to establish a series of dams to control flooding in the Austin area. The power generated by the water rushing through those dams was delivered to the Hill Country, vastly improving the standard of living for what was then among the poorest areas in the U.S.

Half a century ago, the Lower Colorado River Authority's hydroelectric capacity made up about half of its overall generating capacity. Today it's a mere 5 percent, according to Ryan Rowney, vice president for water operations. In 2011, the LCRA generated 221,069 megawatt-hours of hydroelectricity. Last year, it generated only 69,118 megawatt-hours. An average household uses about one megawatt-hour per month. Currently, the authority only releases water for fish and

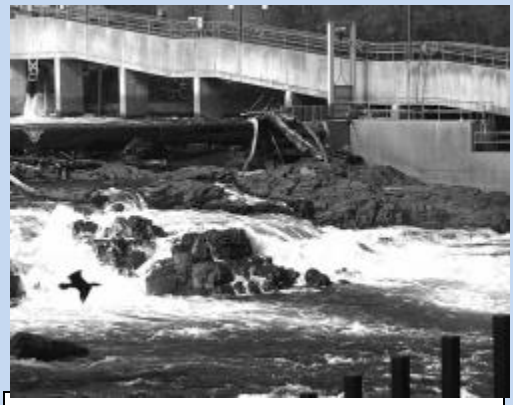
wildlife and some mandated irrigation needs, and has impounded billions of gallons of water that used to be released to farmers downriver. The combined storage of Lakes Travis and Buchanan, the chief reservoirs for Central Texas, has dwindled to 35 percent of capacity, and customers may have to cut water use 20 percent by midsummer if the drought continues.

(It's hard to make the fishery agencies happy!)

Weather to determine if Saco River dams lowered

By Ben Meiklejohn Staff Writer, courier.mainelymediallc.com, 5/29/14

Saco/Biddeford, NH – Brookfield Renewable Energy Group may open the gates at two dams it owns on the lower Saco River in early June. Operators of the Cataract Hydroelectric Facility will study whether changes in the river flow help the passage of American shad during the fish's spawning season. A letter was sent on May 22 informing riverside property owners that water levels above Springs and Bradbury dams would be lowered by approximately four feet for a two-week period if the river drawdown is implemented. Matt LeBlanc, the company's environmental specialist, said the drawdown may only be done if river flow conditions reach a rate of 3,000 cubic feet per second or less at the dams. As of last week, water passed through those points at a rate of 6,200 cubic feet per second. LeBlanc said excessive rain could render the study undoable this year. If lowered, the river should regain its normal levels by the beginning of July. Tom Milligan, the city engineer for Biddeford, said a permit from the city is not required to conduct the drawdown. However, Milligan said the city has talked to company representatives about the study's impacts upon sewer outputs, mill buildings and boat launches.



The West Channel Dam has a Denil structure to allow for fish to pass through the dam. Matt LeBlanc, environmental specialist for Brookfield Renewable Energy Group, said constructing Dentil structures might also be a possibility for the Springs and Bradbury dams upriver. A drawdown of the two upper dams may be conducted next month to study whether American shad will pass through when the gates are lowered. (Ben Meiklejohn photo)

The U.S. Fish and Wildlife Service, National Marine Fisheries Service, Maine Department of Marine Resources and Maine Department of Fisheries and Wildlife have approved the drawdown. LeBlanc said the biggest impact the drawdown would have on residents is that boat launches at Rotary Park in Biddeford and Diamond Riverside in Saco would be unusable for two weeks. Also, private dock owners should wait until after the drawdown periods to dock or moor their boats. "Get the boats out of the water," LeBlanc said. "Although, this might be a good opportunity to build a dock." LeBlanc said the company is committed to helping American shad and other species pass through the dams, according to a 2007 agreement between the company and various federal agencies. LeBlanc said the Springs and Bradbury dams have had fish locks to help fish pass through since 1997. The fish locks trap fish and, using elevator mechanisms, transport them beyond the dams. While the fish locks have proven "very successful" for river herring and Atlantic salmon, LeBlanc said the shad have stayed away from them. "The river herring move wonderfully through the passage facility … but the shad—they don't like it," LeBlanc said. "Shad are so finicky. They're fragile and picky." According to the 2007 agreement, Brookfield Renewable Energy Group must work towards devising a viable option to provide for fish passage through the Springs and Bradbury dams. Since the fish locks don't work for shad, the company captures shad at East Channel Dam and transports them by truck for release at Diamond Riverside Park, upriver from Springs and Bradbury dams. The company uses two trucks with 1,000-gallon fiberglass insulated oxygen-injected circulation tanks. The fish are captured, put into holding tanks, passed through a chute into the trucks and then transported to the release location. "It's very efficient," LeBlanc said. Despite these efforts, LeBlanc said the federal and state agencies don't consider

transporting shad by truck to be a viable option for fish passage. The drawdown study will help the company to determine whether opening the dam gates will be a possible option for shad to pass through the dams. To measure its success, LeBlanc said shad captured at East Channel will have radio tags with antenna inserted into them before they are returned to the river. When the fish pass Springs and Bradbury dams, the signals will be received by land-based antenna and the radio telemetry data will help the company determine the effectiveness of the drawdown. Even if successful however, LeBlanc cautioned that an annual drawdown may still not be the best solution. The data will be shared with the various agencies and discussions will be had about the best way to proceed, including the possibility of installing more traditional fish passage structures. American shad can swim at approximately eight feet per second. A river flow of 4,000 cubic feet per second equates to a current in which an American shad could hold its own, said LeBlanc, which is why the drawdown would aim to reach a rate of 3,000 cubic feet per second. LeBlanc said biologists have determined that the lower Saco River spawning habitat for the shad has a capacity to support 25,000 shad. The river population is currently between 3,000 and 6,000, he said. The East Channel and West Channel dams – which stand downriver from Spring and Bradbury dams – have traditional Denil fish ladder structures, where fish may pass through the dam using incremental steps of pools of water. Although the shad don't use the fish locks at Springs and Bradbury dams, LeBlanc said the Denil structures work well for them. Even if the drawdown is successful, LeBlanc said there is no guarantee that the method will be used regularly. "The public may not support an annual drawdown of the river," LeBlanc said. In a report to the city council April 1, Biddeford City Manager John Bubier said there had also been discussions about removing dams that are not used for energy production. LeBlanc said East Channel Dam is the only dam of the four dams at Cataract Hydroelectric Facility that produces energy. In regards to removing dams, Bubier wrote in his report, "As you might imagine, we expressed concern over this idea." Brookfield Renewable Energy Group is not "particularly interested" in removing the other three dams however, LeBlanc said. Bubier also asked to be kept informed each step of the way during the drawdown period. LeBlanc said residents would be given notice if the drawdown begins. Should weather conditions prevent the drawdown from occurring, LeBlanc said residents would also be informed.

Water:

(Dramatic effects of the drought – worth a look!)

http://www.dailymail.co.uk/news/article-2639026/Satellite-images-capture-mud-choked-half-Lake-Powell-grip-drought.html

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Environment:

(Mmmm! Interesting. Building dams just keeps getting more complicated.)

Otters provide a lesson about the effects of dams

by Sarah Zielinski, May 29, 2014, sciencenews.org

Hydroelectric dams can be massive modern marvels that provide electricity to thousands of people. They can also be environmental and cultural nightmares, when the lake that fills behind them drowns thousands of acres of land where animals and people once lived. That reservoir, though, might offer a decent tradeoff, providing lots of suitable habitat for a different set of animals. But it's not that simple, at least for endangered giant otters in the Balbina Hydroelectric Reservoir in Brazil. The otters live in one of the world's largest hydroelectric reservoirs, but there aren't as many of the animals as would be predicted by space alone. And that's because the quality of habitat created matters as much as quantity, report Ana Filipa Palmeirim of Universidade Federal do Rio de Janeiro in Brazil and colleagues. They published their findings in the June Biological Conservation.

The giant river otter, one of South America's largest carnivores, is endangered and has been on the decline in part because of habitat loss. But a new study finds that simply adding lots more water and shoreline won't guarantee a huge increase in otter numbers.
Joachim S. Müller/Flickr (CC BY-NC-SA 2.0)

The Balbina dam was built on the Uatumã River in the Amazon rainforest near the northern border of Brazil in the 1980s. When water flooded the area behind the dam, it created a vast, shallow lake dotted with more than 3,500 islands. Water-covered area increased by a factor of more than 60, from 52.4 square kilometers to 3,287 square kilometers. Shoreline increased by almost nine fold, from 1,532 kilometers to 13,682 kilometers.

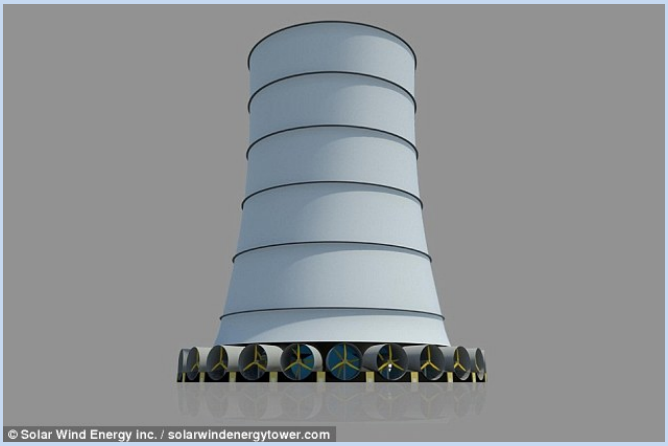
Palmeirim and colleagues regularly surveyed giant otters at dozens of locations across the lake from September 2001 to September 2010. They also radio-tagged a couple of otters in 2012. They used that data to estimate the population of otters in the lake. The researchers didn't have good data for the otter population in the area before the lake formed, but a nearby tributary, the Pitinga River, provided a good proxy for the pre-lake habitat and otter population. The researchers used that information to estimate that the otter population in the Balbina reservoir had doubled, from approximately 140 to 280 animals, in the 25 years since the dam was put in place. But with the increase in available habitat, there was room for 1,250 giant otters. And otter density fell, from 1.05 dens per kilometer to 0.24 dens per kilometer. "The mismatch between habitat area and giant otter population expansion at the Balbina reservoir is unlikely to result from an inherent time-lag in otter population growth and dispersal," the scientists write. Female otters start reproducing at age two, and there would have been around four generations of giant otters produced in the quarter-century since the reservoir was formed. That's plenty of time for the population to have increased to more than 1,000 otters. What the otters are missing is not suitable habitat but enough food. Giant otters eat about 10 percent of their body mass in fish every day. But a big lake does not ensure lots of fish. When the Balbina reservoir was first formed, it drowned more than 160 million trees. In the first few years of the reservoir's existence, those trees provided a surge in nutrients that fed the food web. But that nutrient surge petered out, and fish diversity declined, a trend that's been found in other Amazon hydroelectric reservoirs. The Amazon is already home to 154 hydroelectric dams; 21 are now being constructed and another 227 are in planning stages. Often these dams create large, shallow lakes (like Balbina) that are huge sources of greenhouse gas emissions. And though they can bring much-needed electricity to remote regions, the amount of land drowned does not always match the amount of energy produced. Balbina, for instance, produces a mere 250 megawatts. (Brazil's current electricity capacity totals 121,000 megawatts.) With the world's need for energy continuing to rise, it seems that nations are not going to stop building dams anytime soon. But the new otter research shows the need to consider the complexities in how ecosystems respond to these structures.

Other Stuff:

(Ironically, you need water to make it work!)

A tower of power: Bizarre half-mile-high structure could produce as much electricity as 100,000 wind turbines

Permission has been granted to build the Solar Wind Energy Tower
This huge structure will be based near the city of San Luis, Arizona
The tower is half a mile tall and will be built in the middle of the desert
To generate power water is sprayed in and 'heavy air' is circulated
This can apparently produce as much power as the Hoover Dam
By Jonathan O'Callaghan, 23 May 2014, dailymail.co.uk



Wind turbines and solar panels have often been touted as the solution to the growing energy crisis, but could the answer really lie in the movement of water and air? That's what one company based out of Maryland thinks - The Solar Wind Energy, Inc. has recently been given permission to build a giant downdraft tower. Known as the Solar Wind Energy Tower, it would stand nearly half a mile (0.8 kilometres) tall and generate as much power as the Hoover Dam.

The tower works by spraying water in at the top, making air heavy and causing it to fall, which causes 120 huge turbines to turn at the bottom. At peak operation, during a particularly sunny day, the tower can apparently produce 1,250 megawatt-hours - roughly equivalent to the power output of wind turbines spread over 100,000 acres. But the main advantage of this system, according to the company, is that it can run day and night and it does not rely on particular weather, such as wind or sunshine, to operate. Downdraft technology is not entirely new, but the company claims they have an innovative new patent that makes it more feasible. One of the biggest drawbacks was the sheer size and cost of attempting to construct such a tower. But now they have been given permission to begin the funding and operation of the project in San Luis, Arizona.
The company also hopes to export the technology to other countries including Chile, India and the Middle East.

One possible stumbling block could be the cost of the project, which is estimated to be about $1.5 billion (£890 million). However, Solar Wind Energy have been granted preliminary funding by National Standard Finance, which should make the project feasible. On their website, the company outlines their goal of eventually building multiple towers and providing a new source of renewable energy. 'Each Tower will be constructed on location using conventional materials, equipment and techniques, associated industries, as well as local workers in the surroundingtown or city,' they write. 'Each location will benefit significantly from the creation of professional manufacturing, construction and transportation jobs, in addition to having a high efficiency energy resource close by – providing clean renewable energy at a cost more favourable than nuclear plants with no negative impacts to the environment.'

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