



7/22/2016

# Some Dam – Hydro News™ And Other Stuff



**Quote of Note:** *“The only people who find what they are looking for in life are the fault finders.” - Foster’s Law*

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**“Good wine is a necessity of life.” - -Thomas Jefferson**  
**Ron’s wine pick of the week: 2013 Quinta de la Rosa Portugal Red "Red Wine"**  
**“No nation was ever drunk when wine was cheap.” - - Thomas Jefferson**



## **Dams:**

(Another place where tragedy can strike,)

### **First responders warn against swimming near Harrison Co. dam**

By Garrett Wymer | Jul 06, 2016, wkyt.com

HARRISON COUNTY, Ky.  
(WKYT) - The area around Robinson Dam may look like a peaceful place to swim. But don't be deceived, first responders say.

Twenty people have drowned at Robinson Dam since the 1970s, according to Re'Jeana Craft, Harrison County's search and rescue chief. Four have died in the last six years. And with five low-head dams like it across the county, Craft says the problem is



growing. "I'm tired of going down there and recovering bodies and seeing the families on the side crying and devastated," Craft said. "It's heartbreaking." Just last month a man drowned after jumping off the dam to swim. It took crews hours to recover his body.

Craft says the danger comes from the hydraulics at the bottom of the dam - the foamy part, where water churns. She explains that when the water rolls over the edge, it - and anything or anyone trapped in it - goes straight down, then comes back up (at the "boil line") and goes right back under. "It just holds you down until it drowns you," Craft said. That is why low-head dams have been dubbed "drowning machines". Several folks at the dam on Wednesday evening told WKYT's Garrett Wymer that it is a well-known hangout spot and a popular party place. Craft says people - even families - just keep coming there. "I've fought back with 'I've done it all my life,' 'I've been here,' 'I've done this before.' You've done it before, but you're playing Russian Roulette with your children," she said. "And they just don't realize that." Craft hopes a forum will help teach folks the dangers and be a first step to stop the drownings. She eventually hopes to have the dams retrofitted with boulders at the bottom to get rid of the hydraulics.

(SOB's, dams shouldn't be used as a weapon. They should be used only for benefits.)

### North Korea Releases Dam Water into South Without Warning

July 06, 2016, learningenglish.voanews.com

North Korea released water from a dam near its border with South Korea Wednesday morning without warning. No major injuries or damage have been reported from Wednesday's opening of the Hwanggang Dam. South Korea moved residents along the Imjin River to higher ground. Officials are worried about flooding in areas already hit with heavy rain. South Korea said it does not believe that North Korea would take part in a "flooding attack." But dam openings have taken place in the past.



A South Korean army soldier standing on a bridge searches for missing people in the Imjin River near the demilitarized zone separating the two Koreas.

In 2009, North Korea released water from the dam without warning. That incident killed six South Koreans who were camping downstream. After that incident, North Korea agreed to tell South Korea before releasing water from the dam. But South Korea's news agency said the North also opened the dam's floodgates two times in May without warning. No injuries were reported in either incident.

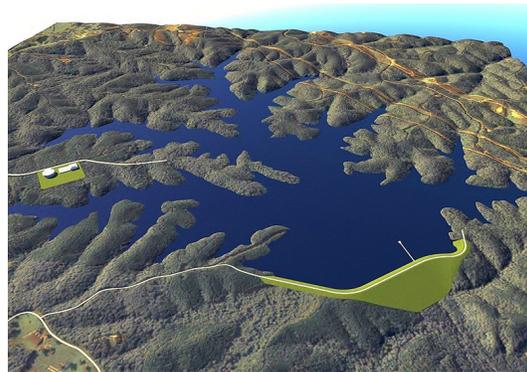
(Nothing is better than getting the job done.)

### Key Funding for Richland Creek Reservoir Project Approved

01 July 2016 | Written by Richard Grant, thedallasnewera.com

#### Paulding, GA Commissioners approve key funding for Richland Creek Reservoir project

Paulding Commissioners recently approved two key funding items for the county's Richland Creek Reservoir (RCR) project after an update from Brown and Caldwell's Kelly Comstock, the project's chief engineer. Commissioners approved the Guaranteed Maximum Price (GMP) of \$86,795,045 with PC Construction for the construction of the Richland Creek Water Supply Program Water Treatment Plant, Reservoir Intake and Pump Station and Etowah River Intake and Pump Station. And on another agenda item to approve the



RCR Program Management Funding Authorization #2 for Program Management Services in the amount of \$4,100,000.

That extends management services with Brown & Caldwell through construction of the site, according to Laura Ashcroft, director of Paulding Water System, who also addressed Paulding Commissioners earlier this month. The BOC approved both items in their voting session later in the day. The approval of these latest items effectively moves the project into its construction phase, with completion expected in 2021. Prior to the voting session Comstock told Commissioners that timber clearing is completed for an entrance road from Hwy 61 and erosion control is installed at the site. Site prep is on-track for an August completion, he said. There are six prequalified contractors, he said, and four of the six [bidders] had requested an extension, which was granted. Bids are due to be presented to the BOC next month. A preconstruction conference also occurred earlier this month. PC Construction, the selected dam contractor, will begin in late August or early September and pipeline construction begins late this year and is expected to complete in about a year, Comstock said. The Finished Water Pipeline and Booster Pump Station are in the design stage and will complete in January. Construction is expected to complete by March of 2019.

The reservoir is designed to yield about 35 million gallons per day and will provide about 3.43 billion gallons of water storage to support Paulding County. Overall the program is on track with the budget, Comstock told Paulding Commissioners. The project's original budget is 40 percent under contract and with last week's approvals the project moves to 60 percent under contract of the \$215 million total, he said. The project will head to the bond market with 80 percent under contract, which will benefit that initiative, he said. Funding is coming from a mixture of county-issued bonds, loans from the Georgia Environmental Finance Authority, and state grants. Per Georgia Environmental Finance Authority (GEFA) guidelines, 100 percent of the project should be competitively bid, which will attract a good bit of local participation, Comstock told Paulding Commissioners.

Comstock said that the Construction Manager at Risk (CMAR) process has been very effective in reducing costs from its earlier estimate of \$98 million at the 30 percent stage down to the \$86 million by 100 percent. Rather than the conventional approach of design, bid, and build, which allows for 100 percent of the design to be completed, The CMAR design was evaluated at 30 percent and later at 60 percent and adjusted accordingly to keep construction costs consistent with design estimates. "The big advantage [of the CMAR process] is you that get the contractor involved during the design process, so you understand what the costs are going to be much earlier on," Comstock commented in an earlier presentation. Recently the county also approved water rate hikes to help with the RCR bonds. "Setting up the rate adjustment ahead of time sets us up to go to the bond market to be able to basically show we've got this in place [and] would allow for more confidence in the county being able to pay those bonds back, which should get us a better bond rate, so a better interest rate for the county," Comstock said. Paulding County has an agreement that runs until 2032 with Cobb- Marietta Water Authority, an independent state-chartered agency, which receives water from Lake Allatoona, a USCOE-controlled reservoir. Atlanta Regional Commission population projections show Paulding growing to 255,000 residents by 2040. Among Georgia's 159 counties, Paulding is the 14th largest.

(Modern tools for dam inspection.)

## **UAH-inspired dam inspection drone proposal one step closer to \$100,000 prize**

By Travis Leder, waaytv.com, Jul 6, 2016

A team of students from UAH, UAB, Auburn University and George Washington University have reached the next round of the Infrastructure Vision 2050 Challenge for their drone which is designed to inspect dams. The Association of Equipment Manufacturers (AEM) announced that five teams, including the team from Alabama, won \$9,000 in the competition's 'Dream Phase'. Those five will move on to the next phase in hopes of receiving a share of the \$100 thousand grand prize.



One team member, UAH and UAB Ph.D. candidate Ali Darwish, says he is thrilled to have made it through to the next round in this highly-competitive competition, and he hopes his team can continue having success in future phases.

"We look forward to building a solution. Right now we are gathering the development tools, hardware and software, and we hope we will build a solution to improve America's infrastructure," Darwish says. Darwish's team is proposing a waterproof dam inspecting drone to address the state's lack of a dam safety program. Alabama is the only state without one of these programs, and Darwish says only two percent of all Alabama dams are properly inspected. The group of students behind 'Team UAH' are looking to use sensors which can report changes in crack gaps. You can look at all the proposals here. Organizers expect to release details on the next phase of the competition later this month.

[\(Better late than never.\)](#)

### Local lawmaker wants legislation on dams after WAAY 31 investigation

By Heather Mathis, waaytv.com, 7/8/16

A local state lawmaker (Alabama) wants to take action after a WAAY 31 investigation into the lack of regulations and safety programs in place for small dams in Alabama. Representative Phil Williams tells WAAY 31 he was shocked to hear our state is the only state in the country without a full inventory of its dams, or a dam safety program in place if one of them fails. According to area engineers, right now small dams on private properties are largely unaccounted for, meaning there's no way to inspect them and see if they are at risk for failing. Williams wants to allocate funds and create a North Alabama study to see if any high risk dams could be putting neighborhoods downstream in danger. "Just to try and find out; do we have something that puts our citizens at risk," Williams said. "North Alabama, we may be the perfect pilot for the rest of state to assess the problem." Rep. Williams hopes after a North Alabama study, it would lead to legislation statewide. To read our full investigation, Danger Downstream, click here:

[http://www.waaytv.com/appnews/danger-downstream-alabama-the-only-state-without-dam-inventory-or/article\\_1d0ab07c-4489-11e6-8c4b-3bd5651120f1.html](http://www.waaytv.com/appnews/danger-downstream-alabama-the-only-state-without-dam-inventory-or/article_1d0ab07c-4489-11e6-8c4b-3bd5651120f1.html)

[\(Beavers do what they do best – build dams.\)](#)

PUBLIC RELEASE: 8-JUL-2016

### Dam good! Beavers may restore imperiled streams, fish populations

Utah State, Eco Logical Research, NOAA, Oregon Dept. of Fish and Wildlife, South Fork Research Publish in Nature's Scientific Reports, UTAH STATE UNIVERSITY, eurekaalert.org

Utah State University scientists report a watershed-scale experiment in highly degraded streams within Oregon's John Day Basin demonstrates building beaver dam analogs allows beavers to increase their dam building activities, which benefits a threatened population of steelhead trout. "Whether or not beaver dams are beneficial to trout and salmon has been hotly debated," says ecologist Nick Bouwes, owner of Utah-based Eco Logical Research, Inc. and adjunct assistant professor in USU's Department of Watershed Sciences. Billions of dollars are spent for varied river restoration efforts each year in the United States, he says, but little evidence is available to support the efficacy of beaver dams. "This may be due to the small scale of the limited research aimed at

investigating restoration effects," Bouwes says. "So, we conducted a large-scale experiment, where the effects of restoration on a watershed were compared to another watershed that received no restoration." Bouwes is lead author of a paper published July 4, 2016, in the journal Nature's online, open access Scientific Reports that details the seven-year experiment conducted in streams within north central Oregon's Bridge Creek Watershed.

Contributing authors are Bouwes' USU colleagues Carl Saunders and Joe Wheaton, along with Nicholas Weber of Eco Logical Research, Chris Jordan and Michael Pollock of NOAA's Northwest Fisheries Science Center in Seattle, Ian Tattam of the Oregon Department of Fish and Wildlife and Carol Volk of Washington's South Fork Research, Inc.



When Lewis and Clark made their way through the Pacific Northwest in the early 19th century, the area's streams teemed with steelhead and beaver. But subsequent human activities, including harvesting beaver to near extirpation, led to widespread degradation of fish habitat. Bouwes says these activities may have also exacerbated stream channel incision, meaning a rapid down-cutting of stream beds, which disconnects a channel from its floodplain and near-stream vegetation from the water table. He notes beavers build dams in the incised trenches, but because of the lack of large, woody material, their dams typically fail within a year. "It's an ubiquitous environmental problem in the Columbia River Basin and throughout the world." Bouwes says. "It sets a chain of ecological effects in motion that result in habitat destruction, including declines in fish populations and other aquatic organisms."

To conduct the experiment, the researchers built beaver dam analogs, known as "BDAs," by pounding wooden posts into the stream bed, and weaving willow branches between the posts, throughout the 32-kilometer study area. "Our goal was to encourage beaver to build on stable structures that would increase dam life spans, capture sediment, raise the stream and reconnect the stream to its floodplain," Bouwes says. "We expected this would result in both an increase in near-stream vegetation and better fish habitat." Beavers quickly occupied the BDAs, resulting in an increase in natural dam construction and longevity in Bridge Creek. "What really impressed us was how quickly the stream bed built up behind the dams and how water was spilling onto the floodplain," Bouwes says. The researchers also documented increases in fish habitat quantity and quality in their study watershed relative to the watershed that received no BDAs and saw little increase in beaver activity. The changes in habitat in the watershed receiving BDAs resulted in a significant uptick in juvenile steelhead numbers, survival and production. "This is, perhaps, the only study to demonstrate beaver-mediated restoration may be a viable and efficient strategy to rehabilitate incised streams and to increase imperiled fish populations," Bouwes says. "With so many streams that need help, we need to look towards more cost-effective and proven means to restore streams, and beavers may be able to do a lot of the heavy lifting for us."

### Disclaimer: AAAS and EurekAlert! are not responsible for the accuracy of news releases posted to EurekAlert! by contributing institutions or for the use of any information through the EurekAlert system.

(A little history.)

## History of the locks-and-dams system

By John Weiss, postbulletin.com, Jul 9, 2016

How the locks-and-dams system came to be on the Upper Mississippi River:

- When the first European explorers came to the Upper Mississippi Valley maybe 350 years ago, the river had a braided channel that would rise with snowmelt and rain and fall when they stopped.

- When European settlers began pouring in in the early to mid-19th century, rivers were the main artery for moving people and goods. The Mississippi, however, wasn't always deep enough; also, railroads were coming on strong and were becoming monopolies.
  - To help it, Congress in 1866 told the U.S. Army Corps of Engineers to start work on a 4 1/2-foot channel; it began work in 1878. The idea was to build wing dams, which are long rock structures built from shore about a third of the way across to force the river, in essence, to push most of the power into the middle, and it would dredge itself. The corps also closed many side channels so the river then had one main channel.
  - In 1907, Congress approved a 6-foot channel, basically by adding to the 4 1/2-foot channel work.
  - In 1914, the Panama Canal was opened, making it easier to move freight from the east to west coasts than from the Midwest to the coasts. That brought a push for locks and dams and a 9-foot channel.
  - In 1922, the federal commerce commission ruled that because railroads had no competition from barges along the Mississippi, the railroads had to dramatically raise their rates. This frightened Midwest business leaders and added more interest in a 9-foot channel.
  - On July 3, 1930, President Herbert Hoover signed the 9-foot-channel bill, beginning the creation of the locks and dams.
  - In May 1937, the dredge William A. Thompson arrived in the Upper Mississippi to begin dredging; it was retired in 2012 and replaced by the William Goetz.
- (Source: John Anfinson in his book "The River We Have Wrought, A History of the Upper Mississippi.")

(I'm thirsty.)

## Repairs at Sturgis dam affect thirsty crops in SW Michigan

By - Associated Press, July 9, 2016, washingtontimes.com

STURGIS, Mich. (AP) - Repairs to a dam in southwestern Michigan are having an impact on farmers who need water from the St. Joseph River. The Kalamazoo Gazette (<http://bit.ly/29rjeqT>) says it's a critical time for corn and potato growers in St. Joseph County, especially because of recent dry weather. Water had to be released to repair a seam at the Sturgis dam. As a result, the level of the St. Joseph River has dropped beyond the reach of pipes used to draw water for irrigation. John Griffith, electric department superintendent in Sturgis, says water levels should gradually rise each day in the week ahead. Farmer Larry Walton says it's still risky for growers who need water, unless more rain falls. Information from: Kalamazoo Gazette, <http://www.mlive.com/kalamazoo>



(You never know what's going to happen.)

## Broken beaver dam strands wedding party

By Jessica Reynolds Staff Writer, 7/10/16, thedailystar.com

A large beaver pond that ruptured Saturday night in the town of Hancock, NY caused flash flooding that left a wedding party stranded for several hours, an official said. No one was injured, according to Richard Knapp, chief of the Hancock Volunteer Fire Department. But the emergency kept a handful of area crews busy for most of the night. At 9:17 p.m., Hancock Fire and EMS were activated for a report of rapidly rising water and flash flooding in the area of 5256 County Highway 28 in Hancock, Knapp



said, which is above the hamlet of Fish's Eddy. Knapp said a "barn wedding" with 130 guests was taking place at that location, and guests were advised to seek higher ground immediately.

Upon arrival, emergency personnel found flash flooding in progress in the area of the intersection of Shea Road and county Highway 28, Knapp said, with the road impassible and covered with 1 to 1½ feet of rapidly moving water. Responding Hancock units were advised of the situation and half of the Hancock resources were re-routed to gain access through the Klondike Road area. Because of the 130 individuals in danger, additional swift water rescue resources were called out, Knapp said, including the Delaware County Emergency Services water rescue boat, and the Deposit, Walton and Sidney Swift Water Rescue Teams and boats. Downsville Fire was also requested to stand by with its boat and swift water rescue personnel. Town and county officials were notified of the flooding and potential road and bridge damage, Knapp said.

After a short time, the water at the intersection of Shea Road and county Highway 28 started to drop, Knapp said, allowing Hancock and Delaware County responding personnel to gain access to the wedding party. An incident command structure was established, and a process for accounting for all wedding guests was quickly implemented, along with a search of the flooded area, he said. Once it was determined that the water was quickly receding and that all 130 individuals were accounted for and safe on higher ground, the additional activated resources were canceled, Knapp said. After assuring a safe exit route, all guests were assisted onto buses that had been provided for the wedding, Knapp said, and they were driven to a safe location. The Delaware County Department of Public Works cleared and reopened county Highway 28 shortly after. The bridge and lower part of Shea Road, however, were determined to be unsafe, with extensive washouts noted. This area was closed off to travel. By 11:15 p.m., the area was cleared and crews returned to their stations, Knapp said. As of Sunday, Shea Road and the bridge had been repaired and were open to traffic again, he added. The cause of the flooding, according to Knapp, was determined to be a large, approximately 4-acre beaver pond that ruptured because of the excessive rain Saturday. "There are quite a few beaver dams around," Knapp said. "That's how some ponds form. And it broke because of the rain. There was just more water than it could hold." The wedding guests were "pretty bewildered" at first, Knapp said, but "they handled it well." Knapp said he would like to thank all the agencies that provided assistance during the event, along with Upper Delaware EMS, Long Eddy Fire Department, state police and Hancock Central School, which was prepared to provide buses if needed. "Everyone did a great job," he said.

(Lucky girl. Should have done something sooner.)

### **Safety measures put in place near dam where girl was rescued**

STAFF REPORT / PUBLISHED: JULY 11, 2016, [thetimes-tribune.com](http://thetimes-tribune.com)

COVINGTON TWP., PA — The utility that owns the dry dam where a girl fell 85 feet and broke her leg Saturday night has replaced the locks on the gates and posted new 'No Trespassing' signs, a spokeswoman said. Pennsylvania American Water is investigating whether to press charges against the 14-year-old Thornhust Twp. girl and her friends who were trespassing at the dam. The dam had been locked but the locks were removed. Spokeswoman Susan Turcmanovich said she didn't know by whom. She warned that the utility's reservoirs are dangerous, remote areas, making rescues difficult. The girl was in the water for about four hours and showed signs of hypothermia on the warm night before firefighters were able to extract her.





## **Hydro:**

(Give everybody that dumped the crap in there a straw and let them suck it out.)

### **Hogan announcements on Conowingo Dam draw bipartisan local praise**

July 7, 2016, by Jon Kelvey, Reporter Carroll County Times, carrollcountytimes.com

Gov. Larry Hogan is asking the private sector for ideas on how to prevent massive reservoirs of sediment from spilling over the Conowingo Dam and polluting the Chesapeake Bay, a decision that at least one Carroll official believes will reduce the tax burden on local residents.

Commissioner Richard Rothschild, R-District 4, also credited the Clean Chesapeake Coalition, of which Carroll has been part, for bringing the issue to the public's attention, though Hogan didn't specifically mention the group during his news conference on the issue Thursday.

Warning in his remarks that years of progress at cleaning up waterways "could easily be wiped out" by a single hurricane inundating the Susquehanna River, the governor announced he is also gathering various state agencies in a new work group to oversee the issue.

Carroll County will pay \$25,000 to remain a member of the Clean Chesapeake Coalition after the County Commissioners voted Thursday to approve the expenditure.

The approval came on the condition that the county will work with the other member counties to identify areas the coalition should be spending...



Millions of tons of sediment have accumulated behind the Conowingo Dam, the lowest of a series on the Susquehanna and the last barrier between much of the Chesapeake Bay watershed and the waterway itself. The dam's sediment reservoirs are at capacity, and the U.S. Army Corps of Engineers estimates that dredging them would cost billions of dollars. "Simply put: This is a growing problem. It's getting worse, and it must be solved," Hogan said Thursday at the news conference overlooking the river. Hogan said he plans to issue a request for information in September, asking private companies for their ideas on ways to efficiently and effectively dredge behind the Conowingo and reuse the dredged material. Rothschild, who has long lobbied for addressing the Conowingo Dam as a source of pollution through his work with the Clean Chesapeake Coalition and who was present at the news conference, was extremely pleased by Hogan's announcement. In January, Rothschild used his State of the County address to lay out the case that numerous federal agencies were misleading the public about the role of the dam in polluting the bay.

"It was a gratifying day for the Clean Chesapeake Coalition and for people that care about the Chesapeake Bay," he said. "The Governor met with the Coalition for 30 minutes prior to the press conference in what he referred to as his first Conowingo Dam Summit, and explicitly thanked the Clean Chesapeake Coalition for 'educating' the public about the sediment problem from the dam," he later said in an email. A spokeswoman for the governor could not be reached Thursday to discuss the role the Clean Chesapeake Coalition played in the governor's plans for the Conowingo Dam. Although Carroll County is landlocked, Rothschild said he believes addressing the dam will eventually alleviate some of the tax burden placed on all counties through requirements for things

such as increased stormwater management facilities. "If we can dredge the dam and intercept more of the pollution up at the dam, then it reduces the amount of pollution we have to take out at the county level and therefore will reduce the cost to county taxpayers," he said. "Carroll County is going to spend something like \$50 million over the next five years on stormwater management. That will take out 5 tons of pollution. During the last tropical storm 19 million tons of pollution flowed through the Conowingo Dam." In his remarks, Hogan also noted that sediment pollution is not just a Maryland problem and that he would like to find ways to persuade neighboring states such as Pennsylvania to help more, another proposal Rothschild fully endorses. "A recalibration of pollution loads assigned to Maryland could save counties billions of dollars," he said.

Sharing in Rothschild's enthusiasm for addressing the Conowingo Dam is Neil Ridgely, a resident of Finksburg, despite his having been a vocal opponent of Rothschild's efforts with the Clean Chesapeake Coalition. In an interview, Ridgely pointed out that the Chesapeake Bay Program has also pointed to the Conowingo as a source of pollution that needs to be dealt with.

Although Hogan did not reference the Clean Chesapeake Coalition in his remarks at the news conference, he did note the work of the Environmental Protection Agency, as well as the Maryland Departments of the Environment, Natural Resources and Planning, which number among the nine agencies that will be included in the governor's newly minted work group.

"There is a real problem with sediment on the Conowingo, it's one of many problems, but it is a huge one," Ridgely said. "I am pleased to hear that the governor has also set things in motion to possibly solve the problem." Ridgely, like Hogan and Rothschild, would also like to see Pennsylvania shoulder more of the burden of protecting the Chesapeake. The area he continues to disagree with Rothschild on is Carroll County's participation in the Clean Chesapeake Coalition, to which the county had contributed a total of \$107,250 in dues as of January. The county approved another \$25,000 in dues for fiscal year 2017 during the spring budget process.

"We are the only county on the 'western shore' of Maryland that pays \$25,000 in dues to the Clean Chesapeake Coalition," Ridgely said. "I am still concerned that we are basically throwing \$25,000 a year away on that organization which is a fraud; it's just a front for a group of lawyers in Baltimore." Commissioner Richard Rothschild, R-District 4, used his five-minute State of the County time slot to address issues in another part of the state, but ones he said are still affecting Carroll taxpayers.

Through direct inquiries and Public Information Act filings, Ridgely determined that the Clean Chesapeake Coalition has no staff of its own and essentially consists only of the Baltimore law firm Funk and Bolton. He believes the tax money Carroll has sent to the coalition has largely been a waste, given that other organizations have also identified the dam as a problem, but now that the governor has taken up the cause Ridgely thinks that "there certainly is no further reason for Carroll to pay another \$25,000 in dues into the organization." Rothschild disagrees, and strongly.

"I specifically asked the governor what he wanted us to do, and said he needed us to 'continue to do what we are doing,'" he said. "The Clean Chesapeake Coalition remains the only organization in Maryland ensuring that science and economics play a pre-eminent role in addressing bay cleanup in a way that protects Maryland taxpayers."

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[\(More hydro is good.\)](#)

## **Notice of Intent: Innovative Technologies to Advance Non-Powered Dams and Pumped-Storage Hydropower Development**

The Energy Department's Water Power Program intends to issue a Funding Opportunity Announcement (FOA) for innovative technologies to advance non-powered dams and pumped-storage hydropower Development. This FOA supports the Water Power Program's HydroNEXT initiative, the development of innovative technologies that lower cost, improve performance, and promote environmental stewardship of hydropower development across two resource classes: existing non-powered dams (NPD), and pumped storage hydropower (PSH). Prospective applicants are encouraged to review the full notice of intent posted to EERE Exchange (<https://eere-exchange.energy.gov/default.aspx#Foaldca70a61c-56e7-4ee8-b8e2-f15dda72317d>) to learn more.

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(Fixin' up the old to get more MWHs.)

## Cube Hydro Carolinas, an Affiliate of Cube Hydro Partners, Reaches Agreement to Acquire Hydroelectric Plants on the Yadkin River in North Carolina from Alcoa Power Generating Inc.

July 11, 2016, businesswire.com

BETHESDA, Md.-- (BUSINESS WIRE)-- Cube Hydro Carolinas LLC, an affiliate of Cube Hydro Partners, LLC, has reached an agreement to purchase and upgrade four hydroelectric power plants located on the Yadkin River in North Carolina from



Alcoa Power Generating Inc. (APGI), a subsidiary of Alcoa Inc. (NYSE:AA). The four facilities, known as High Rock, Tuckertown, Narrows and Falls, total 215 megawatts (MW) and are expected to produce nearly 800,000 megawatt-hours (MWh) of clean electricity per year. Dr. Kristina M. Johnson, CEO of Cube Hydro Partners and former U.S. Undersecretary of Energy as well as former Dean of the Pratt School of Engineering at Duke University, said, "We are excited to expand our presence into North Carolina to operate and upgrade the plants on the Yadkin River. We are committed to being good stewards of these well-run hydropower plants that have a long history of generating reliable, carbon-free electricity."

Ray Barham, APGI Yadkin Relicensing Manager said, "Alcoa has a long history in North Carolina and we are grateful for the strong relationships we've formed over the years. We will continue to promote economic development opportunities at the Badin Business Park and are confident that Cube Hydro will continue our century-long legacy of generating clean, renewable energy and protecting the natural resources of the region."

"We look forward to partnering with local communities as well as state and federal regulators to preserve the natural beauty of North Carolina and increase the clean electricity generated from these plants," said John Collins, Managing Director for Business Development of Cube Hydro Partners. Cube Hydro acquires and modernizes hydroelectric facilities to demonstrate the value of renewable hydropower and reduce our nation's reliance on carbon-based energy. Cube Hydro Partners currently owns and operates 14 plants in New York, Pennsylvania, Virginia and West Virginia with a total capacity of 126 MW and 470,000 MWh annually. When the Yadkin project and other pending acquisitions close, Cube Hydro Partners will operate 19 plants on ten rivers in five states with a combined capacity of more than 373 MW, generating 1.4 million MWh annually, or enough electricity to power approximately 140,000 homes with renewable energy.



### **Environment:**

(New article on an old story.)

## 'Salmon Cannon' helps move fish over dams

By Kate Preaman, yakimaherald.com, 7/8/16

Deep in the Yakima River Canyon, the fish were practically flying earlier this week.

Soaring 100 feet above the river at speeds up to 20 mph, spring chinook were shooting through a tube designed to carry



Copy obtained from the National Perform

salmon over dams in seconds, at far lower cost and faster construction than traditional fish ladders. “We’re pretty excited about the possibility of using this type of technology; it’s such an efficient way to move fish,” said Walt Larrick, project manager with the Bureau of Reclamation, which has pledged to build fish passage at the five dams it operates in the Yakima Basin.

Nicknamed the “Salmon Cannon,” the system is basically a flexible sleeve that seals around each salmon so that only a small amount of air pressure is needed to fling the fish. A biologist at Roza Dam’s fish collection facility feeds them into the tube, and about 35 seconds later they land in a hatchery truck parked 1,100 feet upriver. The technology was developed by Seattle-based Whooshh Innovations, and a smaller system was first tested on live fish by the Yakama Nation’s fish biologists at Roza Dam in 2013. The success of that study and others around the region inspired Reclamation to sponsor this first dam-sized test on about 60 fish over the past three weeks. “The fish just zoom along,” Larrick said of the system. “When a fish goes through a fish ladder, it is burning energy every step of the way, but in this system, its riding.” And the salmon don’t seem to mind the ride.

The Yakama Nation has tracked the survival of every fish that’s traveled through a 40-foot Whooshh tube that connects its collection facility at Roza Dam to a hatchery-bound tanker truck and the success of those fish’s offspring and found no ill effects. “It’s less stress on the fish,” Yakama Nation biologist Mark Johnson said of the short system. And reducing that stress on returning spawners across the region with Whooshh tubes at dams could have big impacts on salmon recovery, he said. “It takes hours to days to get up ladders, so this saves a ton of energy for each fish, which is more energy for heading upstream and more energy for developing eggs,” Johnson said. Initially, Whooshh tested a vacuum pressure system that pulled fish through the tube, but now the fish are pushed by an “accelerator” that creates lower air pressure in front of each fish and more behind them, like a pneumatic tube at the bank, said Whooshh CEO Vince Bryan. “They just glide because there is essentially no friction in the tube,” Bryan said. Pushing also allows the tube to accommodate multiple fish at one time, he added. That’s key to the system’s potential for fish passage, Johnson said. “At Cle Elum Dam, we’d want to see a bank of different-sized tubes so that all the native fishes that want to be able to get up into the lake can,” he said. That vision of fish access — long advocated for by the Yakama Nation — could be a reality in just a few years, Larrick said. When the basin’s storage dams were constructed almost a century ago, they blocked access to mountain lakes and tributaries, and salmon populations, particularly lake-loving sockeye, plummeted.

Plans are in development to restore access by building fish passage onto the existing dams as part of the Yakima Basin Integrated Plan for improved water management in the region.

“In the Integrated Plan, we the bureau made a strong commitment to put fish passage on all the reservoirs, but one of the things that’s driving interest in this is the cost of adult passage is really expensive,” he said. The current proposal for Cle Elum dam is to build a small fish ladder and collection facility, from which returning spawners can be trucked around the dam and dumped in the lake. That alone would cost about \$20 to \$30 million, Larrick said. “If we could do this (Whooshh) for half that or less, and do it in one or two years instead of five or six, that would be great,” he said. This study and the 1,100-foot-long system cost the bureau \$250,000, Larrick said. But installing a similar system at Cle Elum would cost far more, because the transport tube itself is only a small part of the price tag. The equipment necessary to allow fish to swim themselves into the tube is more complicated to construct, Bryan said. It’s basically one step of a fish ladder that attracts and collects the fish before funneling them down toward the tube entrance. Last summer, Whooshh tested a self-entry system at a diversion dam on the White River in Pierce County and “when we opened the gate, the fish would just dive right in,” Bryan said. Even with the entrance system included, Bryan said that of all the project proposals Whooshh is working on, the system is never more than 20 percent of the cost of a traditional ladder. The entry system combined with the 1,100-foot tube will be tested this fall at the Yakama Nation’s Prosser hatchery, Larrick said.

If that test is as successful as the past few weeks at Roza have been, Larrick said he’s optimistic that a prototype could be set up at Cle Elum Dam next summer. The bureau’s focus is on the five

Yakima Basin storage reservoirs that currently lack fish passage, but Bryan said Whooshh's systems could also provide a better alternative to existing ladders at some dams. Ladders take a lot of water to operate and it's usually warm water from the surface of the river above the dam. During last summer's heat wave, that hot water deterred fish from using some ladders, Bryan said. In contrast, the Whooshh system uses just a little bit of water, so it would be easier to pump in cold water from deeper in the river to attract fish to the entrance, where they would then be whisked upstream toward cooler areas, he said. Across the country, Whooshh is designing proposals or planning out about 60 different passage projects, Bryan said. But many of those projects are waiting on the company to get approval from the National Marine Fisheries Service that the technology is safe to use on endangered species. Working with the Bureau and the Yakama Nation to collect the data on long-term impacts is key to that effort, he said. "We need to get the data to prove that this technology is as good or better than the approved way of moving fish," Bryan said. "That will allow us to solve a bunch of problems quickly. We can solve 10 problems for the price of one."

(Tryin' to put another nail in the coffin. Not much talk about the hundreds of thousands of birds and bats killed by wind and solar power.)

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## Hydroelectric dams kill insects, wreak havoc with food webs

AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES, eurekaalert.org

The BioScience Talks podcast features discussions of topical issues related to the biological sciences. Hydropower dams generate more energy than all other renewable sources combined. However, they can also produce dire environmental consequences, including the devastation of aquatic insect populations and the food webs that those insects underpin. A practice called "hydropeaking" is evidently to blame. By altering river flows to meet power-generation needs, hydropeaking generates artificial tides that extirpate insect species. In this episode of BioScience Talks, we're joined by Dr. Ted Kennedy, a research ecologist with the US Geological Survey's Grand Canyon Monitoring and Research Center. In this month's BioScience, he and his colleagues describe the underlying phenomenon and the citizen science project that brought it to light. In our discussion, Kennedy explains his findings and offers possible solutions to the hydropeaking conundrum. To hear the whole discussion, visit this link (<http://bioscienceaibs.libsyn.com/hydroelectric-dams-kill-insects-wreak-havoc-with-food-webs>)



for this latest episode of the Bioscience Talks podcast.

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### Other Stuff:

(Blind rules. Don't forget what got us here.)

## Maintaining low cost electricity vital for Washington's clean tech industries

Jul 9, 2016, maplevalleyreporter.com

Since the construction of Grand Coulee and Bonneville dams, Washington has enjoyed an abundance of low cost, reliable hydropower. It has been one-key competitive advantage for energy intensive industries and now it is vital to our state burgeoning "clean tech industries."

Hydropower, along with nuclear, solar and wind, produce no greenhouse gases; however, solar and wind only generate electricity intermittently. Their production must be augmented by reliable sources which include those using natural gas. Washington's Dept. of Commerce estimates that 90,000 workers in our state are tied to companies which make high tech components for computers, solar panels and carbon fibers. Many of these clean tech plants require large loads of a consistent current of electricity. Even the slightest fluctuation or interruption in power is harmful to production. It is that sensitive.

Over the years, electric utilities realized as our state and region grew, there would be an increased need for new power plants which provided a steady transmission of electricity. Forty years ago, many of our state's public utilities banded together and formed the Washington Public Power Supply System (WPPSS) to build five nuclear power plants. Meanwhile, many investor owned utilities invested in coal-fired plants at Centralia and in Colstrip (MT). Of the five WPPSS projects, four were abandoned and only the Columbia Generating Station near Richland was completed. Today, Columbia produces 1,190 megawatts of electricity, which is about 10 percent of the state's electricity generation. Other PUDs without a hydropower base started looking for other generating sources. For example, Clark Public Utilities, which serves about residential, commercial and industrial customers in Vancouver, installed a new efficient natural gas-fired plant that went into operation in 1997. It generates 40 percent of the utility's energy needs. The River Road Generating Plant is important to help to shape and stabilize the new supply of renewable power because under Initiative 937 — the statewide renewable energy law passed by voters in 2006 — Clark PUD has incorporated wind energy into its power mix. Unfortunately, while Clark PUD is attempting to provide affordable, reliable electricity to its customers and comply with I-937 requirements, Gov. Inslee's new clean air rules under consideration by the Dept. of Ecology, impede the utility's ability to provide a reliable and affordable power supply to its customers. The rule, as first proposed, would have applied to 23 entities producing 100,000 metric tons or more of greenhouse gases per year, including power plants, natural-gas distributors and oil refineries. That draft rule was withdrawn, rewritten and released for comment in May.

Inslee made some accommodations to industries struggling to compete internationally, such as pulp and paper, but held firm on power plants including the River Road Generating Plant. The added costs associated with including natural-gas fired generators in the new rule, impact households as well as industrial ratepayers in southwest Washington, an area hit hard by the last recession. It is home to the state's largest concentration of semiconductor employers employing over 4,000 people. Washington state has recognized the semiconductor industry as one of the state's existing key industry clusters, but semiconductor manufacturers are facing increasing pressure to expand or relocate elsewhere. The Southwest Washington High Tech Council wrote the Inslee Administration requesting an exemption from the new rule or some accommodation. They fear if its members lose this competitive edge in electricity rates, expansion of the local semiconductor industry and recruiting of other semiconductor companies here will be difficult at best, impossible most likely. That is important for the governor and DOE to remember as they push their new rules.

(Not many people would be this lucky.)

## **Black Bear Tangles With the Wrong Ex-Boxer**

**Canadian survives with his fists and his knowledge from the boxing ring**

By Jenn Gidman, Newser Staff, Jul 6, 2016, newser.com

When a 61-year-old Canadian man startled a bear cub while walking his dog Sunday near Sudbury, the tiny "yelp" the baby bear made wasn't endearing. "I knew right away I was in trouble," Rick Nelson tells CBC News. "It's calling for mommy." Sure enough, the mama black bear emerged from the bush in attack mode, and Nelson, who didn't have a rock,



stick, or any other possible weapon nearby, had to resort to what he knew best: boxing. His first swing at the 300-pound-plus beast hit it in the teeth, and the bear retaliated with scratches across Nelson's chest and face. Nelson, who the Guardian says is a former featherweight boxer and bear hunter, combined both skill sets to anticipate the bear's next move. "I knew it would swing first with its left, but it would really come with its right, because most bears are right-handed," he tells the CBC.

And Nelson's second punch was spot-on, nailing the bear right in the snout. It was at that point the cub let out another sound and, either bored of the fight or frightened, started leaving the scene. As Nelson held his breath, the bloodied mother bear decided to follow her baby instead of bringing Nelson back to the mat. His wife, Sheryl, tells the Sudbury Star that when Nelson—who's since been nicknamed "Kung Fu Panda" by his co-workers—and the bear both retreated, "it was like two warriors backing away from the battle." Nelson, meanwhile, concedes, "I really lucked out there," adding that black bears really aren't that dangerous unless you mess with their cubs. The Ontario government concurs, noting on its site that the bears usually stay away from humans, per the BBC.

(Will we get there? What is a water battery if it ain't pumped storage?)

## Clean energy is at a critical turning point, and wind and solar may not be enough

By Chris Mooney, July 7, 2016, washingtonpost.com

Last week at the North American Leaders' Summit featuring President Obama, Canadian Prime Minister Justin Trudeau and Mexican President Enrique Peña Nieto, the three nations announced a goal of generating 50 percent of North America's electricity from "clean" sources by 2025. It's a laudable goal, but it naturally raises a question — how exactly, in the United States, do we get there? A closer look at what the White House and its counterparts actually mean by this proposal shows that for the United States the goal relies on far more than an ongoing boom in wind and solar. It rests



Pacific Gas and Electric's Diablo Canyon Nuclear Power Plant

substantially on hydropower and energy efficiency gains and also includes under the definition of "clean energy" two technologies that are less than popular in the environmental movement — nuclear energy and carbon capture and storage. Yet it is hard to say that nuclear and CCS are booming in this country; it would be more accurate to say that both are struggling at the moment. Thus, the new goal raises a serious question of precisely how we are transitioning toward a future in which far more (and, eventually, all) of our electricity is generated without emissions of carbon dioxide to the atmosphere — and how different types of power generation will slice up this new pie.

Let's start in the easy place. Wind and solar are growing in the United States (and elsewhere), and a doubling of their U.S. generating capacity (or even greater growth than that) by 2025 isn't hard to imagine. We know we are going to be getting a lot more of our future electricity from wind and solar than we do now. That's a very good thing — but even a doubling of wind and solar likely wouldn't be enough to get the United States to 50 percent clean electricity by 2025. The trouble is that in 2015, these sources contributed a little more than 5 percent of all U.S. electricity. They are starting from a relatively low level of penetration, albeit with high growth rates. For just this reason, nuclear's inclusion in the North American plan is a mathematical necessity — it provides about 20 percent of the United States' overall electricity and a far larger percentage of its carbon-free power.

The centrality of nuclear arises in part because unlike wind and solar deployments, nuclear plants generate electricity almost continuously, often generating above 90 percent of their maximum capacity in a year. Solar, in contrast, is much more intermittent. However, unlike wind and solar, the nuclear industry is not in great shape right now in the United States and hardly looks poised for much growth out to 2025. In June the large California utility Pacific Gas and Electric announced plans — in the form of an agreement with labor and environmental groups — to close the Diablo Canyon nuclear plant, whose two reactors provide a stunning 9 percent of the entire state’s energy, by the year 2025. The vast amount of electricity currently generated by Diablo Canyon would be replaced, the company said, with wind, solar, batteries and more energy efficiency. It’s just the latest indicator that the future is cloudy for nuclear. Five U.S. reactors closed in 2013 and 2014, and Diablo Canyon joins the list of numerous other planned closures in coming years. The United States is also expected to add five new nuclear reactors in coming years — one, Watts Bar 2 in Tennessee, is already generating electricity and has sent some to the grid — but it seems poised to end up with roughly the same or perhaps less nuclear generation overall in 2025. Whether the situation worsens even further for nuclear will depend on economic factors, like the price of natural gas, that will be hard to forecast.

And then there’s carbon capture and storage — which basically refers to techniques to keep the carbon emissions from coal- or gas-fired electricity generation, or other industrial processes, from reaching the atmosphere and instead channel them into reservoirs in the ground. Sometimes, that also involves using the carbon dioxide to make a little extra income along the way through enhanced oil recovery. CCS is still a fledgling and quite variable technology, with only a small number of projects around the world operating in the electricity generation sector. Yet it plays a key role in many scenarios that scientists and analysts consult to study how the world can solve its carbon problem while still providing electricity to a growing global population. “The [Intergovernmental Panel on Climate Change] models show that CCS is critical to keeping our global temperature increases within 2 degrees Celsius of pre-industrial levels,” notes Fatima Ahmad, a fellow at the Center for Climate and Energy Solutions (C2ES) who has focused on the CCS space. Indeed, agreeing with this perspective, the International Energy Agency recently found that “CCS needs to increase by an order of magnitude in the next decade” if we are to keep global warming below 2 degrees C. What’s more, CCS is one key element in a technological combination dubbed “bioenergy combined with carbon capture and storage,” or BECCS, that is the leading contender right now for how the world will someday achieve “negative” carbon emissions — or, in other words, pull carbon dioxide back out of the air. We’re already so far gone in the climate change arena that many realists believe a technology like this will be a future necessity. And yet for CCS, if anything, the story is even more challenging than it is for nuclear.

Last year, the Obama administration cut funding for the FutureGen 2.0 project in Illinois, which was supposed to be a key demonstration of the technology. This year, meanwhile, the Energy Department reportedly decided to suspend funding for another CCS project in Texas.

And now, the New York Times is out with a highly critical report about the Kemper Plant in Mississippi, which the paper says has suffered from major cost overruns, though it is still expected to begin operating this year. (Southern Co. has disputed the Times story).

[Intended showcase of clean coal future hits snags] All of which is just part of a broader picture of a CCS industry that could play a key role in fighting climate change — but has a long way to go before that can happen. The challenges are numerous, explains Jeff Erikson, general manager for the Americas region at the Global CCS Institute. “The economics are challenging, on a project basis, unless there is a regulatory requirement or an income stream, or significant government support to make the economics work,” Erikson said. “But right now, why put CCS on a power plant when there’s no mandate to do so?” But Erikson thinks there will still be growth of CCS in the United States and globally and that it will in the future be applied not only to coal-burning power plants but also to natural gas plants and many industrial applications such as steel and cement plants, which also produce carbon dioxide emissions. (The Global CCS Institute currently lists 15 “large scale” CCS projects that are underway around the globe.) CCS and nuclear have much in common — and not just their sometimes contradictory relationship with the environmental movement. They also differ from wind and solar in that plants tend to be gigantic, billion-dollar

projects, making them much more difficult to finance than more flexible and often smaller-scale renewables.  
business

Moreover, both CCS and nuclear would benefit if we put a price on carbon, making its emission to the atmosphere more expensive whether the source was cars or electricity generating plants. But that hasn't happened yet, and the politics of it remain exceedingly difficult. It is notable that, climate change champion though she is, Hillary Clinton has not embraced a tax on carbon among her suite of proposed climate policies, despite its widespread support from economists. In the end, the issue is this: Without a carbon tax or cap and trade system — and with the legally troubled Clean Power Plan not yet operative — what we are seeing is that wind and solar have managed to boom anyway, and started a period of rapid growth. This has been thanks in part to state-level renewables policies in the United States and government tax incentives, but also to some smart business innovators and some advantages inherent in the technologies. But other technologies that many analysts believe will be key to a less carbon-intense future are not faring as well right now.

Should that worry us? Some researchers, like Mark Jacobson of Stanford and his colleagues, argue that the United States can be powered entirely with wind, solar and water batteries by 2050 (assuming we enact the right policies to get there, that is). Obama's economic advisers, meanwhile, recently published a study suggesting that despite their intermittent nature, it will be possible in the future to integrate more and more wind and solar onto the grid thanks to advances in batteries and other technologies. Still, there is hardly a consensus about the right way to reach low-carbon energy goals at the moment, and there are also many who argue that nuclear and CCS will also be essential, for many of the reasons outlined above. It's just that their future seems murky, at best.

(You're not going to get there without hydro. He's got the "I" syndrome.)

### **Development of renewable energy is worthy of our support**

7/10/16 • Dennis Daugaard, Governor of South Dakota,, [tristateneighbor.com](http://tristateneighbor.com)

In the past decade, South Dakota has seen tremendous job creation and capital investment in renewable energy.

Wind power has led the way by contributing more than \$2 billion in direct capital investment and directly creating more than 500 new jobs. Those wind power jobs are in operations and maintenance, construction, manufacturing and many support sectors. In addition, wind projects produce lease payments for landowners and increase the tax base for local governments and school districts.

Wind power provides a secure, domestic and sustainable source of energy for our state and nation. On average, more than 25 percent of South Dakota's power generation comes from wind. Currently in South Dakota and around the globe, wind power is reducing electricity prices. Wind power works well with our baseload power resources such as hydroelectric, coal-fired and natural gas-fired plants. In fact, if the hydropower generated in South Dakota is included, we generate more than 75 percent of our power from renewables.

A diverse energy portfolio such as South Dakota's can help to protect against volatile prices and changing national and global policies. South Dakota today has more than 980 megawatts of wind power capacity, enough energy to power more than 260,000



homes. However, our wide-open spaces have to potential to provide far more power for the citizens of our state and for those in the eastern United States that do not have a great wind resource.

South Dakota is ranked No. 3 in the nation for wind energy development potential, but it is ranked only No. 18 in installed wind power capacity. We have come a long way, but we have the opportunity to improve our rankings by continuing to grow this industry in South Dakota in the years to come. This past year, I supported and signed a bill that provides a new incentive to develop solar power projects by taxing them similarly to how wind projects are taxed. This change makes South Dakota's tax system much more competitive with neighboring states that already have developed solar projects. Although our state's solar power potential is small in comparison to its wind power potential, I still believe we have room for solar development. Recently, I have been encouraged to learn about several solar power projects being developed now in South Dakota. South Dakota has an excellent business environment, as indicated by numerous national rankings. Development of renewable energy will continue to play a crucial role in creating new jobs and growing the state's economy. I will continue to promote the expansion of renewable energy, including South Dakota's excellent wind resource, within our state, given its many economic and environmental advantages. It needs to be part of South Dakota's contribution to the answer for our nation's future energy needs. I hope you can join me in supporting the development of more renewable energy in our state.



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