

8/15/2014



Some Dam – Hydro News™ And Other Stuff



Quote of Note: "You can't build a reputation on what you are going to do." -- Henry Ford

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

Ron's wine pick of the week: 2012 Kendall Jackson Pinot Noir "Jackson Estate Outland Ridge"

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



Dams:

(The headline is misleading. The dam is NOT cracked. The crack is in the rock abutment! They are still drawing down the small reservoir. I wondered about the bench! It isn't likely on the dam.)

Dam Cracks Lead to Flash Flood Warning and Panic

By Doug Johnson, Reporter, fox40.com

Twain Harte, CA — Cracks in a dam in Tuolumne County prompted a flash flood warning. The cracks, with water leaking out, were found in the Twain Harte Dam after several in the area report hearing large booms.

Ever since those cracks were found, officials have been releasing water out of the lake upstream of the dam to alleviate some of the pressure. The work in the lake also means it will be



closed for the season and local home owners believe it will lose the nearby town a lot money. Soon after the dam's operator reported water flowing through those cracks, the whole town found out about a potential failure of the dam. "I came down for my afternoon swim, and they stopped me, and what's wrong? 'Well there's a crack in the dam,' yeah right, no really! Oh, okay," said Ken Jardin. Jardin has been going to Twain Harte with his family for 40 years. "For me this is the charm of Twain Harte, I like to swim every day." Engineers are dropping the water level by 10 feet so there's less pressure against the dam. According to the National Weather Service, there is no longer a risk of dam failure or of a flash flood. Tourists say without the lake, they'll have to leave Twain Harte. Those who rent out vacation homes are worrying about cancellations. Still many are appreciating the silver lining, agreeing it could have been worse. "You know at least no one got hurt so that's the main thing," said Jardin. While Jardin knows fixing the dam will be costly, he believes the community will come together. "Hey if they need some money to help pay for it, I'm willing to contribute, and I'm sure everybody else will," he said.

(Have they ever not recommended removal?)

Ballville Dam should be removed, says Fish and Wildlife

By Daniel Carson, August 1, 2014, thenews-messenger.com

Fremont – The U.S. Fish and Wildlife Service has selected incremental dam removal with the installation of an ice control structure as its preferred alternative for the Ballville Dam project, as the agency released its final environmental impact statement Friday.

Fremont City Council will use information from the EIS as it makes a final decision on the dam's fate, likely later this year. The council has repeatedly discussed whether to remove or repair the dam over the past two years.

The Fish and Wildlife preferred option would involve the removal of the Ballville Dam in two phases, with a total estimated cost of \$6,288,216.

According to Fish and Wildlife, additional costs may be incurred if compensatory mitigation for wetland impacts is required as a result of the U.S. Army Corps of Engineers 404/10 permitting process for this alternative. There was \$2 million awarded by Fish and Wildlife through the Great Lakes Fish and Wildlife Restoration Act to the Ohio Department of Natural Resources and approximately \$5.8 million awarded by the Ohio EPA for dam removal.

The agency will accept comments received or postmarked within 30 days of publication of the notice of the Final EIS in the Federal Register. Comments must be received by 11:59 p.m. Eastern Time on the closing date.

The final EIS is available online at <http://www.fws.gov/midwest/fisheries/ballville-dam.html>. A hard copy can be reviewed at the Birchard Public Library.



(Excerpts – hard to believe it's been 30 years.)

PRESS RELEASE, August 1, 2014

PG&E Celebrates 30 Years of Operations at Helms

Fresno, Calif., Aug. 1, 2014 /PRNewswire/ -- Pacific Gas and Electric Company (PG&E) marks 30 years of commercial operation at Helms Pumped Storage Project (PSP) this month. The hydroelectric facility was considered an engineering marvel when it was built and came on line in 1984, and continues to play a vital role today as well in California's clean energy future. Helms operators can take the plant from an idle state to full generation in eight minutes. That ability to quickly ramp up and down plays a key role in integrating intermittent renewable resources such as wind and solar onto the power grid, said John Conway, PG&E Senior Vice President for Energy Supply.

"Helms and our Diablo Canyon Power Plant give us the unique capability to fully integrate a significant amount of clean energy into the power supply while still ensuring that we can meet the energy demands of our customers," Conway said. "When it began delivering power 30 years ago, Helms played a key role for California and our customers. That role has only grown as our electric grid has evolved."

Nestled high in the Sierra Nevada Mountains about 50 miles east of Fresno, Helms features two reservoirs and three hydro pump-generators. The generators can produce a total of 1,212 megawatts of electricity or enough to power the cities of Fresno and Oakland. Nearly four miles of 28-foot diameter tunnels connect the powerhouse and two reservoirs.

During times of high electric demand, water flows downhill from Courtwright Lake at the higher elevation (8,200 feet) through the powerhouse. When there is excess generation online, the pumps can be reversed, pushing the water uphill from Lake Wishon at the lower elevation (6,500 feet) to recharge the upper reservoir.

With nearly 4,000 megawatts of generation, PG&E has the largest privately owned hydroelectric system in the nation, stretching from the Southern Cascade Mountain Range south along the Sierra-Nevada Mountains to Bakersfield. PG&E's hydroelectric system produces enough energy to power almost 4 million average homes. -----.

(How come there's not more articles about building dams? Where would CA be without dams? Well organized!)

Setting rivers free: As dams are torn down, nature is quickly recovering

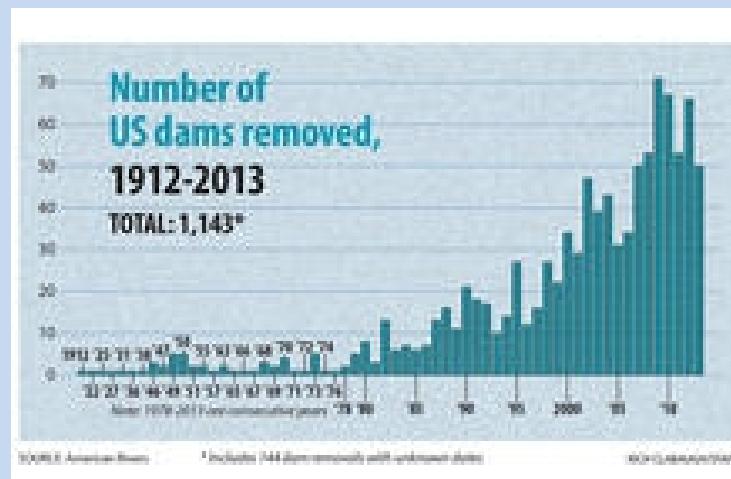
With the removal of many dams, conservationists are seeing the return of the natural bounty that fed Native Americans and astonished European settlers.

By Doug Struck, Contributor August 3, 2014, csmonitor.com

Benton Falls, Maine — "Look underneath you," commands Nate Gray, a burly biologist for the state of Maine. He reaches down to the grate floor of a steel cage perched on a dam straddling the Sebasticook River, and pulls back a board revealing the roiling river 30 feet below. "All you see is fish." Below, undulating in swift current, are the silver backs of thousands of small, sleek river herring called alewives.

Six years ago, there were no alewives here. This summer, Mr. Gray expects 3 million. The fish arrive here, awaiting a lift over the 27-foot high hydroelectric dam in a \$1 million hydraulic fish elevator, because two dams downstream have been demolished. The first "class" of alewives that hatched in lakes upstream after the dam removals are now returning by the millions after four years at sea, eager to spawn. "What you are looking at is a change in the mind-set of humanity toward what wealth is," says Gray.

The demolition of the two downstream dams at Winslow and Augusta, opening a 63-mile run to the sea from Benton Falls, is part of a profound shift of priorities in the United States. Dams, celebrated as a triumph of modern engineering and symbol of man's call to redesign nature, are gradually being torn down. Some are safety hazards; others are too costly to maintain. But the catalyst for most of the demolition is to restore rivers to a wild state.



GRAPHIC US river dams torn down since 1912

Nearly 900 dams, erected to power the country's machinery, store water, irrigate fields, or generate hydroelectric power, have come down in the past 25 years. Each year, about 50 or 60 more are removed, ranging from almost-forgotten rubble obstructions to towering concrete structures. As dams come down, conservationists say they are surprised at how quickly nature recovers. River-watchers are starting to record signs of the natural bounty that fed native Americans and astonished the first European settlers. "We are beginning to recognize the value of what we lost," says Laura Rose Day, who has worked on Maine river restoration for 16 years. "People think dam removals are just about fish. Then they say, 'Oh, I have more eagles now,' and 'Oh, my water quality is better,' and 'Oh, I do like the running river.'" Mike Joslyn is one of those surprised. He works for Essex Hydro at Benton Falls and helps maintain the fish elevator. The alewives surge into a 6-by-6-foot cage that lifts from the lower river every eight minutes. Thirty feet higher, its doors open, and the alewives flash forward, darting through plastic tubing, where each is electronically counted, and then out into the upper reach of the river to continue their migratory dash. Standing beside the mechanism, Mr. Joslyn checks his clipboard. The previous day, he lifted 95,200 river herrings. When he started operating the fish lift, Joslyn admits he thought it was a silly task. Then he went fishing below the dam and found striped bass, another traveler now patrolling the freed river for a meal of alewife. He fought a 39-inch stripers. "Now my attitude is completely changed," he says. "The alewife are important to the habitat."

New England and the Great Lakes region, peppered with dams built for mills and factories more than a century ago, have taken down the most dams, according to American Rivers, a nonprofit advocating river restoration. California and the Pacific Northwest rank next. The largest dam destroyed so far was the 108-foot-high Elwha Dam in Washington, removed in 2011 after a bitter, two-decade battle that pitted native Americans and environmentalists against conservative politicians who balked at the idea and the cost. The dismantling of the 210-foot Glines Canyon Dam, eight miles behind it, is almost finished, and will unlock 70 miles of the Elwha River to Pacific salmon. The Embrey Dam removal on the Rappahannock River in Virginia may have been the most spectacular: Engineers used 600 pounds of explosives to punch a hole in the dam, allowing the river to drain to the Chesapeake Bay. The poster fish for dam removals is the wild salmon, beleaguered but still numerous in the West and nearly gone in the East. They migrate from the sea to find a familiar old river, and – by smell, scientists theorize – work upriver to the farthest headwaters to spawn. River herring, shad, sturgeon, and eel do the same on the East Coast. On the West Coast, the greatest migration is of Pacific salmon and steelhead trout. All are stymied in that journey when they confront a dam. "Fish ladders" – typically a series of successively higher pools – are imperfect. "They will pass from zero to maybe 60 to 70 percent of the fish," says Josh Royte, a biologist who works for The Nature Conservancy in Maine. Hydraulic elevators are used in some places; in other places, fish are netted and trucked around a dam.

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But the decision to tear down a dam is not always about fish; it often involves money and safety. The American Society of Civil Engineers gave dam safety a "D" in its 2013 "report card" on infrastructure, and noted more than 2,000 "high hazard" dams are structurally deficient. "The nation's dams are aging and the number of high-hazard dams is on the rise," the group warned. It is a real threat. In 1972, coal sludge dams on Buffalo Creek in West Virginia burst, killing 123 people. The Canyon Lake Dam in South Dakota broke the same year, killing 238. In 1976, the collapse of the Teton Dam in Idaho killed 11 people. In 1977 a Georgia dam failed, unleashing a flood onto a Bible college and killing 39 people; a dam collapse in Pennsylvania that year killed 40.

Each disaster is an echo of the worst dam tragedy in this country. After pounding rains in 1889, a dam built for wealthy fishermen high above Johnstown, Pa., was breached, sending a 60-foot wall of water crashing over the towns below, killing 2,209 people. Those tragedies put pressure on owners of dams, who are responsible for the upkeep and could be liable for the failure of a dam. Robert Douglas, the conservation manager in Andover, Mass., tracked down a lawn dye company still listed as the owner of an 8-foot-high dam on the Shawsheen River built by a textile baron in the 1920s because he liked the sound of falling water. It had remained, even though it blocked fish and periodically helped flood the downtown. "They were surprised when we called them a

few years ago and said they were the owner of a 100-year-old dam,” Mr. Douglas recalls with a chuckle. The company “was delighted” to give the dam up for removal rather than pay to repair it, he says. Often, removal advocates find dam owners eager to dismantle dams when they are shown the bill for safety updates and maintenance.

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Dams sprouted in the US as the population grew – first to divert water for crops and storage for dry spells, and then for flood control and small manufacturing. Owners of New England gunpowder, grist, and textile mills found dams could increase the power of paddle wheels connected by pulleys to their machines. Streams were dammed by the thousands, and people upstream and down protested, sued, and sometimes rioted when their access to fish or a riverway was blocked. But they usually lost, victims of a perception that putting nature to work was man’s destiny. In the West, the vast and dry expanses cut by mighty rivers led to the era of big dams. The Colorado and Columbia rivers seemed a challenge, mighty but “wasted” flows to be harnessed for man. In 1920, Franklin D. Roosevelt traveled the Columbia River Gorge while campaigning for the vice presidency. “As we were coming down the river today,” he remarked, “I could not help thinking, as everyone does, of all that water running unchecked down to the sea.” By the time Roosevelt became president in 1933, construction of the Hoover Dam – then the biggest hydroelectric dam ever built, rising 726 feet in 3 million cubic yards of concrete – was under way. Roosevelt saw huge dams – what his cousin Teddy Roosevelt, a Harvard-trained naturalist, had praised as “great storage works” – as a way to put starving men to work in the Depression, and to power the development of “practically unused” stretches of America. In a 35-year spurt, until 1965, the massive structures grew: the Grand Coulee Dam and Bonneville Dam and locks on the Columbia River, the Fort Peck Dam on the Missouri River, the Shasta Dam on the Sacramento, the Glen Canyon Dam on the Colorado, and others. The Tennessee Valley Authority diced up the mighty Tennessee River with dams for power. The Army Corps of Engineers harnessed the Ohio and Mississippi, creating dams and locks to keep the rivers placid and the ships moving. The projects were lionized in movie reels, the workers hailed as the brave troops in a grand battle to subdue nature. The resulting hydroelectricity fueled the transformation of the US to an industrial power in World War II. By the 1960s, according to Army Corps history, the US was the second most dammed country in the world. It now lists approximately 80,000 dams higher than six feet, and one estimate puts the number of smaller dams at more than 2 million. “We have been building, on average, one large dam a day, every day since the Declaration of Independence,” remarked Bruce Babbitt, then secretary of the interior, in 1998.

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The modern environmental movement that coalesced in the late 1960s and early ’70s – sparked by Rachel Carson and infused with the rebellion of the times – questioned dams and began to slow their pace. About a dozen were removed annually in the ’80s, but many advocates see the Edwards Dam on Maine’s Kennebec River as their symbolic starting gun. In 1999, the hulking 917-foot-long, 24-foot-high hydroelectric dam was demolished on orders of the Federal Energy Regulatory Commission, which ruled that it impeded fish. It was the first time river restoration won priority over electricity. Like the hydroelectric dam removals that followed, the Edwards Dam power plant was long outdated. Run by three workers, it produced only 3.5 megawatts. Nature writer John McPhee watched the destruction. “The thundering water turned white and the slicks were cordovan glass,” Mr. McPhee wrote in his book on shad, *The Founding Fish*. “The Kennebec River in Augusta, after 162 years in the slammer, was walking.” Dams don’t stop just fish. The flow of sediment and nutrients, increasingly understood as important to the health of the river and land downstream, is blocked. Ponds behind dams are sluggish, deep, and warm, inhospitable for species that like clear, fast, and cool. Salmon are replaced by bass. Oxygen levels in the water drop. Sediments pile up and toxins accumulate. Algae and weeds take over. Birds of prey go elsewhere. “Our goal is to give the river back as much self-control as possible,” says Alison Bowden, an ecologist who works with The Nature Conservancy in Massachusetts. She estimates the streams in that state are plugged with 3,000 dams. “Do we really think we can go back to the 1600s? No. But we want to do as much as we can to return a river to a self-sustaining process.”

"As a general rule, we don't consider removing dams that were built for the purpose of flood control," says Ms. Bowden. But those are few; dams that hold back reservoirs of water, or regulate the passing flow of rivers for hydroelectric production, are not built for flood control. "The general perception among the public is that dams provide flood control, but most don't. The old mill dams, for example, couldn't hold back water if you wanted them to." The majority of dams targeted for removal no longer serve a purpose at all, she says. Not all dam removals have been a success. When the Fort Edward Dam on the Hudson River north of Albany, N.Y., was removed in 1973, tons of pent-up soil with highly toxic PCBs were released downstream, an acute health hazard and cleanup problem, still, 41 years later. And in the West, as drought sucks water levels in reservoirs to record lows, some state lawmakers now are clamoring to build more dams. "It is crucial that we create more storage," says California State Sen. Cathleen Galgiani, a Democrat who wants four new reservoirs at a cost of \$6.2 billion. California congressmen also are asking the federal government to enlarge two existing dams and build two new ones. Rep. Richard "Doc" Hastings (R) of Washington, who thinks salmon have too much leverage, introduced a bill in 2012 to stop studying the removal of a hydroelectric dam or spilling water for salmon without congressional approval. The bill went nowhere, but he told a legislative hearing he wanted to "take back the offensive on saving dams." And Maine Gov. Paul LePage, a Republican who promotes hydropower, said, "I think it's irresponsible for our state or our country to be taking out hydro dams. In fact, we ought to be putting more in," he said in boycotting the ceremony of a dam removal on the Penobscot River in 2012.

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Andrew Goode contends the only dams that have been removed are old; no longer needed for mills, irrigation, or reservoirs; or produce little power. He works for the Atlantic Salmon Federation, a Canadian-headquartered nonprofit trying to save the last remnants of wild Atlantic salmon in North American rivers. Most of those rivers are in Canada; the Penobscot River in Maine is the southernmost wild salmon habitat. Mr. Goode spends more time trying to bring back river herring than salmon. The US government spent 45 years and more than \$25 million trying to restore Atlantic salmon to the Connecticut and other New England rivers, and failed.

"You have a lot of people around here who saw the federal government spend a whole lot of money on one species – the salmon – without much success," he says. "We are trying to fix the problem from the ground up, looking at the whole river." So he picks his battles carefully, Goode explains while inspecting a fish ladder that loops around a fieldstone dam built in the 1700s on Blackman Stream, a swift tributary to the Penobscot. The dam powered a sawmill that is now a museum run by period-costumed actors, a popular destination for school trips. So taking down the dam is "a nonstarter," he says.

When two dam removals downstream opened the lower Penobscot River in 2009, the federation built 17 climbing pools to help fish clear this dam. The eight-inch-long alewives flash as they wiggle over each step. Goode nets one and shows a group of excited schoolchildren. In 2010, conservation officials released 7,000 alewives in a pond upstream. Four years later, exactly on cue, "like magic, we have thousands and thousands of fish return." Goode expects a half-million alewives will return to this one narrow stream. "Alewife are the keystone species of the Maine rivers," he explains. If he can help bring back the alewife and the shad and other species, salmon will have a better chance, he believes. The ecosystem will be healthier, the water cleaner with more nutrients, and salmon will have more cover from predators. Maine's Penobscot River and its veins of streams and brooks historically saw massive migrations of salmon, shad, herring, sturgeon, striped bass, eel, and lamprey. During salmon runs, the riverbanks would be so packed that anglers took turns at the best spots, say old-timers who fished here. Overfished at sea and blocked from spawning grounds, Atlantic salmon were declared endangered in the Penobscot in 2009. Biologists estimate fewer than a half of 1 percent of the historic population remains.

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Hachey's Rod and Fly Shop sits on a hill above where the Veazie Dam stood just north of Bangor until it was removed from the Penobscot last year. Gayland Hachey, a fisherman for seven decades, is surrounded in his small shop by spools of brilliant thread and a rainbow of feathers for tying flies. He says he doesn't expect to see big salmon runs again: "Not in my lifetime." Even with two dams on the river gone, salmon must surmount three more dams to get to spawning.

grounds in the farthest reaches of the tributaries. "Show me a dam on a river, and I'll show you a river without Atlantic salmon," Mr. Hachey says. Under his cash register tray, he keeps "the Green Gremlin," a fly he made with green thread and a mallard's feather. It has a bent hook from the 10-1/2-pound Atlantic salmon he caught in 2007, the first fish of the season, a prize fiercely contested among the members of the Veazie Salmon Club. And, Hachey figures, it was one of the few remaining stragglers that returned to the Penobscot. Now, he says, members of the club compete for cribbage honors. The Penobscot runs wide and fast where the Veazie Dam stood, shushing at the rocks that slow its sprint to the Gulf of Maine. The dam's destruction exposed ancient rapids, and white froth snaps at the air. Removal of the Veazie and Great Works dams came because Bangor Hydro proposed a massive new dam on the river in 1991. "People said, 'enough,'" recalled Ms. Rose Day. "They were fed up. They had been through a significant cleanup of the river, and they saw what it could be."

Groups seeking to restore the river cooperated to create the Penobscot River Restoration Trust, which Rose Day directs, and raised \$25 million to buy three dams. Two have been removed; the third was outfitted with a side channel of modern fish steps. The removals are working for alewives. Chances for Atlantic salmon, still blocked from the farthest headwaters and in danger at sea, are "not even 50-50," Goode admits. "But this is our last, best chance to save the Atlantic salmon in the United States." Some think that is chasing a lost era. In his book "Running Silver," John Waldman describes that loss: "No longer did family members fish the river for food and for market; no longer were these fish on the dinner table; no longer did residents hold festivals celebrating their return; no longer did they matter – and so they were forgotten." The Penobscot native American tribe has not forgotten. They fished the river for 10,000 years. Many of its 2,200 members live on islands in the river. In 1976, they gained federal recognition and fishing rights. Mostly, those rights have been "words on paper," with no fish to claim, says John Banks, the tribe's natural resources director. But he is hopeful. "It took a couple of hundred years to put the river in a bad condition," he says. "It will take a few more years to bring it back. We are seeing ecological improvement. We've seen more eagles come back. Ospreys. The river is coming back to life.

(Just news.)

Alaska Energy Authority Approves \$20 Million Hydro Project Loan

By Justin Doom Aug 4, 2014, bloomberg.com

The Alaska Energy Authority approved a \$20 million loan for a 5-megawatt hydroelectric power plant in the southeast portion of the state. Haida Energy Inc., a joint venture of Haida Corp. and Alaska Power & Telephone Co. (APTL), expects to complete the project on Prince of Wales Island by mid-2016, Emily Ford, an Alaska Energy Authority spokeswoman, said today in a telephone interview. Total project costs are estimated at \$28 million. The loan was awarded to Haida Energy as part of a state program that provides low-rate financing to small communities and tribal governments for energy projects, Ford said. The power plant will serve the communities of Craig, Klawock, Hollis, Hydaburg, Thorne Bay and Kasaan.

(Who said dams only last 50 years?)

Salmon Dam: 100 Years Going Strong

By Joey Martin, Aug 4, 2014, kmvt.com

Rogerson, Idaho (KMVT-TV / KSVT-TV) If you have even seen the Salmon Dam you may wonder about its structural integrity? Years of erosion has made its façade seem a bit sketchy. But according to officials, the dam is doing its job... And doing it well. "The salmon track was built in 1911; it's been operating since then. So we are a little



Copy obtained from the National Performance of Dams Program: <http://npdp.stanford.edu>

over 100 years old now... but it seems to be in good shape." when driving across this structure you may think twice about your fate. But 100 years after construction was complete, the Salmon Dam is holding strong. "In 2003 a group of engineers did a study on it. They took a core sample.. they got the results back. It was, as of 03, just curing completely... the concrete was. We don't have any concerns. The dam seems to be in really good shape." Said John Shetler, Manager of the Salmon River Canal Company.

The department of water resources also checks in on the dam once every two years. With just this last year, giving the dam their stamp of approval. Over the life span of this crucial irrigation resource, only once has an emergency precaution been taken. That was back in 1984. "There was an over-spill of Salmon Dam... it did not erupt, we technically had an over-spill and it went into of course the canyon Said Jackie Frey, Coordinator of the Twin Falls County Department of Emergency Services. "We have a spillway in place that we can divert the water and it's dumped into the canyon. It's not the best option; we've only had to do it once in 100 years. But we do have a plan in place for sure. Said Shetler. When looking at the dam, a century of erosion has made the façade look questionable. But according to the Salmon River Canal Company. **The façade is of no concern to them.** "The outside, that's due to a lot of the salt... sand and gravel that the county puts on the roadway it has eroded the outer of the concrete. But the structure is sound." Said Shetler. A solid structure to help irrigate far into the future. Currently the Salmon River Canal Company and Salmon Dam supply irrigation water for over 12,000 acres of farmland in southern Idaho. From north of Rogerson the just south of Twin Falls. The Salmon Dam reaches it all.

(Not everybody is happy with the settlement!)

Hastings blasts Army Corps of Engineers deal on dams and pollution

By Annette Cary, Tri-City Herald August 6, 2014, tri-cityherald.com

A settlement reached by two federal agencies covering pollutants from Columbia and Snake River dams gives the Environmental Protection Agency unwarranted power, said Rep. Doc Hastings, R-Wash. That the agreement was reached behind closed doors without input of the people of the Northwest who rely on the rivers "is frankly inexcusable," Hastings said in a letter sent Wednesday to Lt. Gen. Thomas Bostick, commanding general of the Army Corps of Engineers. The settlement ends a yearlong lawsuit brought by Columbia Riverkeeper by requiring the Army Corps of Engineers to begin disclosing the amount of pollutants its dams are sending into the rivers. The Corps must apply to EPA for pollution permits, according to the settlement agreement announced Monday. The agreement with the Oregon-based group was negotiated by the Department of Justice and Army Corps lawyers. "This settlement would empower the EPA to enforce stringent National Pollution Discharge Elimination System permit requirements that could slow down or impede the Army Corps' operation or maintenance of the dams," Hastings said in the letter.

"It also sets a host of burdensome and fixed deadline requirements that could lead to even more litigation in the future," he said. The agreement could result in a vast expansion of the EPA's authority over the operation of Army Corps dams nationwide, including the eight federal hydroelectric dams on the Columbia and Snake rivers, Hastings said. Mid-Columbia residents rely on those dams for electricity, irrigation and flood control, plus transportation of commodities. "Incredibly, I understand that no one other than U.S. Department of Justice or Army Corps lawyers were made aware of the terms of this sweeping settlement before it was finalized and signed by a judge," the letter said. The agreement comes amidst the EPA's "Waters of the U.S." proposal, which could shut down a host of water development projects and make it easier for litigious groups to sue to block them, he said. Hastings asked Bostick for an immediate and thorough explanation of the Army Corps' rationale and details of its actions related to the settlement. The explanation should be made not just to Congress but to state, local, tribal and other parties interested in Northwest dams and those that could be effected nationwide by the precedent the agreement could set, he said. Hastings was particularly interested in the Army Corps' explanation of the ramifications of the settlement on other ongoing litigation over the operation of Columbia and Snake river system dams and irrigation projects.

The settlement covers Ice Harbor, Lower Monumental, Little Goose, Lower Granite, McNary, The Dalles, John Day and Bonneville dams. Columbia Riverkeeper said that the Army Corps has been violating the Clean Water Act with unmonitored and unpermitted oil discharges from those dams. As part of the settlement, the Corps may have to switch to a biodegradable lubricant for its dam machinery.

(Is a tailings dam a dam? Good size reservoir, over 30,000 acre-feet.)

Canadian dam fails, over 1 billion gallons of wastewater spilled

By Hope Miller, August 6, 2014 ANCHORAGE – ktva.com

A Canadian tailings pond dam in south-central British Columbia failed to hold back an estimated 10 million cubic meters of water and 4.5 million cubic meters of fine sand early Monday, spurring a water ban for a nearby community and raising concerns that have spread to Alaska.

The amount of water spilled would fill roughly 2,000 Olympic-sized swimming pools, the CBC reported, and prompted a local state of emergency. Wednesday, Mount Polley Mining Corp. was formally ordered to submit clean-up plans to officials and stop further release of mine tailings into waterways. The cause of the breach has not been determined.

Mount Polley, an open-pit copper and gold mine, is located about 370 miles from Vancouver. The Cariboo Regional District in B.C. announced a water-use ban for the area Monday, advising people to only use bottled water until further notice. As of Tuesday, the district advised people to not drink from various creeks and lakes, as well as the Quesnel and Cariboo river systems right to the Fraser River.

Following the dam breach, people expressed concern about this year's sockeye salmon return. The peak migration of sockeye salmon for the Quesnel system — an area potentially affected by the tailings pond spill — will occur later this month, reported the Vancouver Sun. Salmon concerns reached Alaska, as the state has a salmon treaty with Canada that includes the Fraser River. At the moment, Brian Lynch with the Petersburg Vessel Owners Association says Alaskan salmon and fishermen aren't affected. The breach has also fueled worries surrounding other mining projects. Wednesday, Sen. Mark Begich sent a letter to U.S. Secretary of State John Kerry about the dam failure. "This week's failure of the Mount Polley tailings pond dam in British Columbia validates fears Alaska fishermen have regarding Canada's proposed development of large-scale hardrock mineral mines near trans-boundary rivers with Alaska," Begich wrote.



A tailings dam at a central British Columbia mine site has breached, sending an estimated 14.5 million cubic meters of mine waste into the salmon-rich Fraser River watershed. Photo courtesy of Save the Fraser River.



Lynch echoed some of those concerns in an interview with KRBD. Approval is pending for the Kerr Sulphurets Mitchell (KSM) Mine near Ketchikan. Mines have also been proposed near the Unuk, Taku and Stikine rivers.

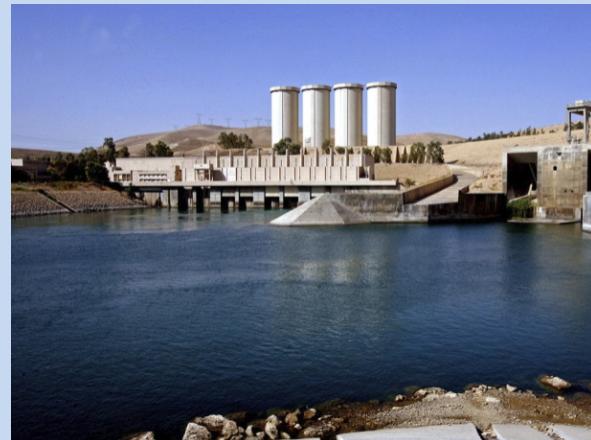
(Using a dam as a weapon?)

Iraq: Militants gain control of largest hydroelectric dam

firstpost.com, Aug. 8, 2014

Baghdad: Militants from the Islamic State group have seized Iraq's largest hydroelectric dam, giving them control of enormous power and water resources and leverage over the Tigris River that runs through the heart of Baghdad. The fighting has trapped tens of thousands of members of religious minorities on a mountaintop. President Barack

Obama approved airdrops of humanitarian supplies for them, but he was still weighing whether to combine that assistance with US airstrikes, officials said yesterday night. Airstrikes would mark a significant shift in the US strategy in Iraq, where the military fully withdrew in late 2011 after nearly a decade of war.



Iraqi volunteers who joined government forces to fight against Sunni jihadist militants of the Islamic State (IS) hold a position at a checkpoint in Udhaim, in the Diyala province, north of the capital Baghdad, after the army regained control of the region on August 6, 2014. AFP. Officials said Obama could announce a decision as early as yesterday night. The officials insisted on anonymity because they were not authorized to discuss the matter by name. Yesterday's dam seizure was the latest in a string of victories by the Sunni radical group as it expands its hold in northern Iraq, driving back Kurdish forces, sending minority communities fleeing and unleashing bombings that have killed more than 90 people in the capital over the past two days. After a week of attempts, the radical Islamist gunmen successfully stormed the Mosul Dam yesterday and forced Kurdish forces to withdraw from the area, residents living near the dam told The Associated Press. They spoke on condition of anonymity due to safety concerns.

The al-Qaeda breakaway group posted a statement online yesterday, confirming it had taken control of the dam and vowing to continue "the march in all directions," as it expands the Islamic state, or Caliphate, it has imposed over broad swathes of territory straddling the Iraqi-Syrian border. The group said it has seized a total of 17 Iraqi cities, towns and targets including the dam and a military base over the past five days. The statement could not be verified but it was posted on a site frequently used by the group. Halgurd Hekmat, a spokesman for the Kurdish fighters, told the AP that clashes around the dam were ongoing and he didn't know who currently had control over it. The Sunni militant group has established its idea of an Islamic state in the territory it controls in Iraq and Syria, imposing its harsh interpretation of Islamic law. Iraqi government forces, Kurds and allied Sunni tribal militiamen have been struggling to dislodge the Islamic State militants and its Sunni allies with little apparent success.



Hydro:

(When it rains, hydro folks smile.)

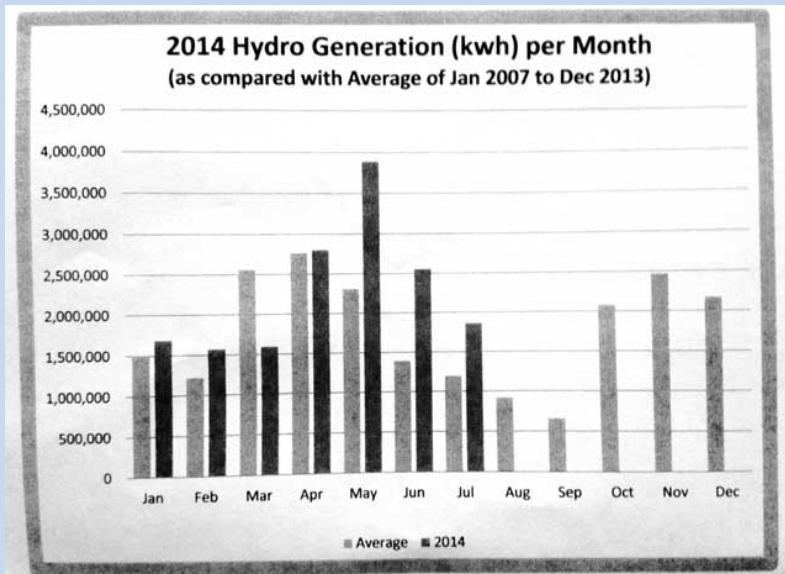
Watertown's Record Hydroelectric Production Streak Continues

August 5, 2014, by Timothy W. Sceee II, Special to Newzjunk.com

Watertown, N.Y. — The city-owned Marble Street hydroelectric plant is continuing its summer streak of above average kilowatt per hour generation, according to a Water Department report issued to the Watertown City Council Monday. In July, steady rainfall throughout the month resulted in a total of 1,863,259 kilowatts per hour with an average of 60,105 kilowatts per hour each day.

Those figures, according to Water Superintendent Michael J. Sligar, represent

an average increase of 155 percent over the monthly average since July 2007. "We got a good soaking rain every week and a good soaking rain every week kept the machines running, even though we had about a week with nothing running," he said. The city's three hydroelectric generators, which sometimes do not run depending on how dry a summer is, only ceased to operate between July 23 and July 28. "It's 1 1/2 times what a typical July would have been and we're certainly pleased with that," Mr. Sligar said. July's kilowatt per hour production, although down from June's 2,555,705 number, was taken as good news to City Council members. "That's been one countervailing force with our budget issues this year and it's worked out to our favor," Mayor Jeffrey E. Graham said. The hydroelectric plant supplies power to the Alex T. Duffy Fairgrounds Municipal Arena, City Hall, the sewage and water treatment plants and other city buildings.



(A little hydro history.)

Gartshore recounts highlights of mill history

fttimes.com, 6 August 2014, By Duane Hicks

The history of the local mill has been tied to the history of hydroelectric power here—a point made clear by former mill manager Jim Gartshore, now president of H2O Power, during a presentation last Thursday evening at the Fort Frances Museum. Gartshore, who was born and raised in Fort Frances, said his earliest memories of the mill included going uptown and getting a cinder in his eye from the coal-fired boilers at the mill, as well as looking at the water rushing through the dam while crossing the bridge to International Falls. He also recalled hearing the mill whistle at 8 a.m., noon, 5 p.m., and 9:30 p.m., along with the sight of pulp trucks and smell of fresh wood—not to mention other smells made by the mill. Gartshore remembered swimming to log booms in the river and diving off them, as well as swimming at the government dock.

And he remembered the mysterious brick building at the corner of Third Street West and Central Avenue. "I always knew there was something going on there to do with electricity but I never knew what," Gartshore remarked. "And as a kid, I just loved electricity. It was kind of a magic building." He also remembered that the mill managers usually were Americans, who had a company house, company car, and got paid to go fishing with customers at a fly-in fishing lodge.

All of these mill things were "very impressive to a kid from McIrvine," noted Gartshore. Perhaps it's no surprise, then, that Gartshore's career took the direction it did. After he graduated from Fort High in 1973, he attended the University of Manitoba, where he earned a Bachelor of Science degree in electrical engineering. Gartshore returned here and started as a project

engineer in 1977 for Ontario-Minnesota Pulp and Paper, eventually becoming mill manager in 1995. In 2002, he left Fort Frances and moved to Montreal to work at the corporate offices of Abitibi. In 2007, he moved to Oshawa and then, in 2011, left the employ of Resolute after a total of 34 years and became president of H2O Power.

Hydro power

Gartshore noted that in order for the two mills here to have power, the power of the river had to be harnessed to supply the mechanical energy for grinding wood and electrical energy to power pumps and lighting. In simplest terms, a hydroelectric generating station produces electricity by harnessing the gravitational force created by the falling of flowing water. Hydro power has been used since ancient times to grind flour, pump water, and perform other tasks. In the late 19th century, hydro power was coupled with water wheels to produce electricity. The construction of the international dam and two powerhouses took place between 1905 and 1909. The original Fort Frances hydro turbines were horizontal units, and were connected to generators and wood grinders. The original capacity of the Fort Frances powerhouse was about 8,000 h.p., or six megawatts. Moving ahead to 1925-26, to when Gartshore's grandfather John Percy Evans worked at the mill and major changes started to take place. The company was planning a major expansion with the construction of the #7 paper machine. The additional power requirements would be supplied by the construction of three generating stations east of Fort Frances: Moose Lake (11 megawatts), Calm Lake (nine megawatts), and Sturgeon Falls (seven megawatts). Gartshore explained that generating electricity was key to the mill's growth before power was available from the provincial grid in the 1950s. "If you wanted to make paper, you had to make your own power," he noted. Moving forward to 1955, when Evans passed away, the Ontario power grid had reached Northwestern Ontario and the mill no longer had to rely on its own power sources. At this time, a large groundwood mill was being built to increase paper production, the Fort Frances powerhouse was rebuilt with eight new units, and the original grinding room was decommissioned. Gartshore summed up this era as "more power, more pulp, more production, more people." In the 1960s, the #6 paper machine was rebuilt and the mill became a seven-day-a-week operation, creating more jobs.

The kraft mill then was built in the early 1970s. Not only did this utilize jack pine in the area, and strengthen the pulp supply for both the Fort and Falls mills, but created many new jobs. This was followed by an extensive rebuild of the #5 paper machine in 1975, including a new former, new press section, new dryer section and calendar, new winder, and new DC drives. In the 1980s, there was an extensive rebuild of the #7 paper machine, with a new former, a new press section, new breaker stack in the dryer section, new winder, and a new DC drive. Engineering and planning for the co-generation facility also began in the 1980s. Gartshore, who was electrical and instrument superintendent from 1981-89, when he became maintenance manager, was included in the planning process. He explained the facility generated both steam and electricity from natural gas. At 110 megawatts, it was large for the time and was one of the first non-utility generators (NUGs). In the 1980s, Ontario Hydro had a monopoly on electricity production in Ontario—and the driving force behind the NUG program was to urge the private sector to build and operate new generation to meet the needs of the province, noted Gartshore. The 1990s was a decade of many changes for the mill here, with the mill owners switching from Boise Cascade to Rainy River Forest Products to Stone Consolidated—the latter of which then merged with Abitibi Price to become Abitibi-Consolidated. Highlights included the Mando gloss project and the peroxide bleaching project to make high bright paper, as well as the addition of new Fuji King debarkers. This also was a decade when the mill won multiple safety and environmental awards. Gartshore became mill manager in 1995—a role which he maintained until 2002. In the early 2000s, Abitibi acquired Donohue, once again increasing its number of mills in Canada and the U.S. This decade also saw the construction of the biomass boiler here to replace the gas turbine and heat recovery generator and power the steam turbine with biomass. From 2002-07, Gartshore and his family lived in Montreal, where he was vice-president of Energy, Engineering and Continuous Improvement for Abitibi-Consolidated. Part of his job included making the biomass project a reality here. In 2007, Gartshore moved to Oshawa to create Abitibi Consolidated Hydro (ACH), which became H2O Power LP in 2011 when Resolute sold its share of

ACH. In meantime, Abitibi had merged with Bowater to become AbitibiBowater—only to initiate the Companies' Creditors Arrangement Act process in 2009 to avoid bankruptcy. It then changed its name to Resolute Forest Products. Gartshore left Resolute in 2011 to take on the role as president of H2O Power. "Talking about the mill, and looking back to the beginning of the mill through the decades, has given me a deeper appreciation of history," Gartshore remarked. This was the fourth instalment in the speakers' series coinciding with the museum's summer exhibit, "Recognizing the Contributions of the Forest Industry." Museum curator Sherry George said the series not only has been very informative but popular, with some of the talks drawing 30 or more people. The first in the series, "Women in Industry," was held June 19. George noted Carla Kibiuk, Shirley Whitefield, and Lori McKay shared some of their more humorous experiences working at various jobs in the industrial environment. Meanwhile, Judy Kaufman, who is still employed in the Woodlands Division at Resolute, explained why she has loved her job as a forester. "A View from the Pilot's Seat," held July 16, featured the personal stories and photographs of mill pilots Ray Cameron, Glenn Canfield, and Gordie Melville. Then on July 22, foresters Don Dickson and Colin Hewitt presented "The Woodlands Story," tracing key points in the history of logging in the area. The next instalment, "Kraft Mill Operations," with former kraft mill superintendents Greg Shaw and Rick Collett, is expected to be held later this month.

(Here's something new!)

First full-scale tidal generator in Wales unveiled: Deltastream array to power 10,000 homes using ebb and flow of the ocean

- The first device will be installed in Ramsey Sound, Pembrokeshire
- It is among the world's first tidal power devices connected to the grid
- After a year of testing, up to nine tidal devices will be installed off St Davids Head in Pembrokeshire to form a 10 megawatt array

By Ellie Zolfaghari, 7 August 2014 | dailymail.co.uk

The first full-scale tidal generator in Wales has been unveiled in an attempt to reduce the UK's carbon emissions.

The device, an underwater turbine mounted on a free-standing base, will be installed in Ramsey Sound, Pembrokeshire.

Its backers say it will be among the world's first demonstration devices connected to the grid to generate green, renewable and predictable tidal power.

The first full-scale tidal generator in Wales, which could produce power for 10,000 homes, has been unveiled

Energy generated by the 400kW demonstration device, which will be installed within weeks, will be used to power 100 nearby homes.

After a 12-month testing period, up to nine tidal devices will be installed off St Davids Head in Pembrokeshire to form a 10 megawatt array.

The DeltaStream device, developed by Tidal Energy (TEL) weighs 150 tonnes, and has a 52ft by 66ft (16 metre by 20 metre) frame.

Cardiff-based Tidal Energy claims its tidal generator is at the cutting edge of green technology, with three separate horizontal axis turbines mounted on a common triangular frame. Cardiff-based Tidal Energy claims its tidal generator is at the cutting edge of green technology, with three separate horizontal axis turbines mounted on a common triangular frame. Each turbine has a 49ft (15 metre) diameter rotor which is connected to a generator to produce electricity both the ebb and flood tides. The DeltaStream device developed by tidal stream technology company Tidal Energy will be among the world's first demonstration devices connected to the grid to generate



green, renewable and predictable tidal power. Capturing tidal power: How DeltaStream works. Each turbine has a 49ft (15 metre) diameter rotor which is connected to a generator to produce electricity both the ebb and flood tides. It does not require expensive drilling into the seabed, the company claims, and has features to minimise impacts on the environment. 'The imminent launch of DeltaStream, and the supply chain that now exists as a consequence of its development, marks the birth of the tidal industry in Wales,' said Tidal Energy's managing director Martin Murphy. 'We remain committed to leading the expansion of the industry and to the creation of green jobs by building on the wealth of expertise present in the UK and the country's plentiful resources.'

The DeltaStream tidal turbine will be installed in Ramsey Sound in Pembrokeshire on the Welsh coast. Strong tides and crashing waves can produce huge amounts of energy – and the UK, with its long coastlines, is in an ideal position to harness this power. Tidal Energy received £8 million funding for the project from the European Regional Development Fund, and match-funded by majority shareholder Welsh renewables company Eco2, which will join forces with TEL to install the further devices. Renewable Energy Association chief executive Dr. Nina Skorupska said: 'Many of our ocean energy members are currently racing to deploy the first wave or tidal farm, with several of these types of devices instead of just one. 'When that happens the sector will move into mass production, costs will fall dramatically, and wave and tidal will be well on their way to becoming major players in the UK energy system.' Overall, the marine energy industry has been forecast to be worth £6.1 billion (\$10.3 billion) to the UK economy by 2035, creating nearly 20,000 jobs.

See video: <http://www.dailymail.co.uk/sciencetech/article-2718987/First-scale-tidal-generator-Wales-unveiled-Deltastream-array-power-10-000-homes-using-ebb-flow-ocean.html>

(Good luck! It took less time in the late 1970's.)

FERC tests 2-year hydropower licensing process

8/7/2014, jdsupra.com, By Todd Griset

Licensing some new hydropower projects in the United States -- traditionally a lengthy process -- may soon become easier, as federal regulators have approved an experimental two-year process that may soon be used to license some projects. The Federal Energy Regulatory Commission regulates most hydropower development in the United States. Under Part I of the Federal Power Act, the Commission considers applications for hydropower project licenses. While the traditional licensure process has resulted in the issuance of thousands of licenses, winning a license for a project can take many years -- and some licensure proceedings have stretched toward a decade. In response to concerns that lengthy licensing procedures stifle hydropower development, last year Congress enacted the Hydropower Regulatory Efficiency Act of 2013. That law directed the Commission to investigate the feasibility of a two-year licensing process for certain projects, develop criteria for identifying projects that may be appropriate for the process, and develop and implement pilot projects to test the process.

In January 2014, the Commission solicited pilot projects to test a two-year process. Two kinds of projects were eligible: hydropower development at existing non-powered dams and closed-loop pumped storage projects. In the notice soliciting pilot projects, the Commission articulated additional criteria for eligibility including:

- The project must cause little to no change to existing surface and groundwater flows and uses;
- The project must not adversely affect federally listed threatened and endangered species;
- If the project is proposed to be located at or use a federal dam, the request to use the two-year process must include a letter from the dam owner saying the plan is feasible;
- If the project would use any public park, recreation area, or wildlife refuge, the request to use the two-year process must include a letter from the managing entity giving its approval to use the site; and

- For a closed-loop pumped storage project, the project must not be continuously connected to a naturally flowing water feature.

Ultimately, the Commission selected a project proposed by Free Flow Power Project 92, LLC: a 5-megawatt project at the Kentucky River Authority's existing Lock & Dam No. 11 on the Kentucky River in Estill and Madison counties, Kentucky. Lock and Dam 11 were originally built from 1904-1906 and support a twenty mile long pool of water 201 miles above the mouth of the Ohio River, but have not previously supported a FERC-licensed hydropower project. The Free Flow Power applicant's request to use the 2-year licensing process was filed on May 5, 2014, so the two years runs through May 5, 2016. The Commission staff has issued a process plan and schedule with interim milestones through February 2016. Compared to a traditional licensure process, the proposed schedule is accelerated -- but will this pilot case remain on schedule? Will the accelerated process satisfy the various stakeholders, including the developer, regulator, neighbors, and public?



Environment:

(Now, they're trying the backdoor to get the Snake River projects!)

Columbia Riverkeeper, Army Corps settle suit over pollution from dams

The Columbia Riverkeeper and U.S. Army Corps of Engineers have reached an agreement in a federal lawsuit to reduce pollution from the eight largest dams on the Columbia-Snake river system.

By Wendy Culverwell, Staff Reporter- Portland Business, Aug 5, 2014, bizjournals.com

Eight dams on the Columbia-Snake river system will get extra scrutiny under terms to settle a suit that alleged the dams were leaking oil and other pollutants into the waterway. The Columbia Riverkeeper sued in U.S. District Courts for Oregon, Western Washington and Eastern Washington. It alleged the eight dams operated by the Army Corps violate the Clean Water Act by discharging mechanical lubricants and other pollutants.

The suits covered four Snake River dams (Ice Harbor, Lower Monumental, Little Goose and Lower Granite) and four Columbia River ones (McNary, John Day, The Dalles and Bonneville). The dams generate energy and provide water for agriculture.

Brett VandenHeuvel, executive director of Columbia Riverkeeper, called the agreement a groundbreaking development with the potential to influence dam operations throughout



the country. "For years, the Army Corps has allowed harmful oil pollution to flow into the Columbia and Snake Rivers, and finally that will stop. With the dams coming into compliance with the Clean Water Act, we will see an end to toxic discharges and chronic seepage of pollutants that have been harming our communities," he said in a written statement. Under the settlement agreement, the Corps will apply to the U.S. Environmental Protection Agency for Clean Water permits, reduce potential pollution by using biodegradable lubricants that meet environmental standards, develop an oil accountability plan and pay \$143,500 to the plaintiffs. The suit was filed on behalf of Lauren Goldberg, the Hood River-based

Columbia Riverkeeper, represented by Brian Alan Knutsen of Smith & Lowney PLLC, a Seattle law firm.



Other Stuff:



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