10/25/2013

Some Dam – Hydro News™
And Other Stuff

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Quote of Note: *"Try to learn something about everything and everything about something."- Thomas Henry Huxley*

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"Good wine is a necessity of life." - -Thomas Jefferson
Ron's wine pick of the week: **2010 Quinta de la Rosa Portugal Red "douROSA Red Wine"**
"No nation was ever drunk when wine was cheap." - - Thomas Jefferson

Dams:

(If you've never been there, it's worth the visit)

Lewis River: A balance of power, pristine scenery

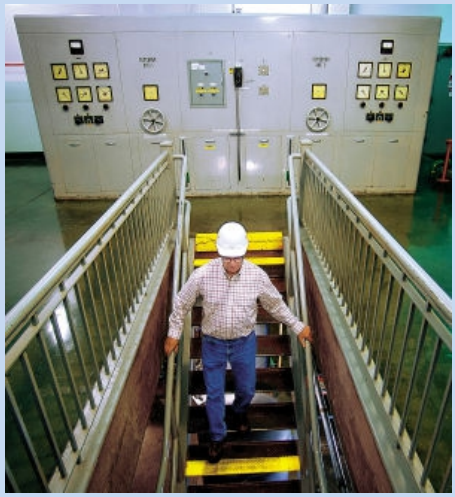
Roger Werth / The Daily News, tdn.com

Few people remember the name Shirttail Canyon — or get to see what's left of it. That was the name formerly given to the steep-sided canyon on the Lewis River where engineers in the 1920s chose to build Merwin Dam, the first of three dams erected on the river. What remains of the canyon, the name of which has long since faded from use, can be seen from the boat launch a few hundred yards downstream. One day this week, anglers worked the river there while construction workers worked on a new fish collection facility

at the dam, which towers 323-feet. The three dams and reservoirs behind them — and the fishing and other kinds of recreation associated with them — make a major imprint on the Lewis. The reservoirs together extend for more than 35 miles and cover 20 square miles of what was once forest. In summer, the waters are popular with boaters and anglers, and families flock to the campgrounds along the shore.

Sections of the Lewis have three distinct personalities.
Upstream of the reservoirs, the upper 50 miles of the Lewis are remote and wild, with hiking trails leading past three picturesque waterfalls on the main channel and even taller ones on tributaries. Hikers and mountain bikers flock to trails, and anglers cast at the clear pools below the falls. The middle section of the river holds the reservoirs and dams that generate the most electricity of any local river. The lazy lowest 20 miles of the river, below the dams, are dotted with homes, though Woodland is the only city along the river. The lower river is popular with anglers (last week, four out of five anglers in boats reported landing a prized fall chinook). The lower river is also home to the 258-acre Eagle Island, which is preserved to protect one of the healthiest stocks of wild chinook salmon in the lower Columbia region. Because the upper Lewis flows through the Gifford Pinchot National Forest and PacifiCorp Energy, which operates the dams, provides boat launches on all three reservoirs, the Lewis is the region's most accessible river.
But the electric heart of the river -- the dams and power houses -- are largely out of sight to the public.

Dam operators try to balance power, fish
Joe LaMere, PacifiCorp's Lewis River production manager, walks by a generator shaft at the Yale Dam powerhouse.
Nobody understands the electricity-generating soul of the Lewis better than Joe LaMere, the production manager for PacifiCorp's three dams. LaMere's office is a few paces away from the operating room for the entire system, which is located at Merwin. The operating room is protected by several levels of security. In the control room, 24 hours a day, at least one operator surveys a wall of 15 big flat screens that monitor river flows, weather and power generation. Video cameras watch for uninvited intruders into the area around the dams — largely deer and raccoons. With a few keystrokes, operators can start up generators miles away or open spill gates on dams to raise the river level. Operators have to balance demand to produce electricity and the dams' ability to hold back waters that could flood downstream areas. In dry periods, they must maintain an adequate flow for fish spawning and migration. "It's really a complicated balance to manage all the competing interests," LaMere said. "For recreation purposes, we do the best we can to keep all three reservoirs as full as we can from Memorial Day to Labor Day," he said.



Although the dams are usually operated from a control station at Merwin, the Yale powerhouse has manual controls such as the ones behind LaMere.
Under terms of its federal license, PacifiCorp must lower the reservoirs for the winter so they can absorb storm runoff and minimize flooding downstream. Some people in Woodland were highly critical of PacifiCorp.'s dam operations during the February 1996 flood, though the utility said the flooding would have been much worse without its intervention. Indeed, historical accounts show that the Lewis used to flood regularly before the dams

were put in. A few hundred yards above the control room, Merwin Dam forms a graceful concrete arc across Shirttail Canyon. Workers are busy near the powerhouse at the base of the dam, installing a $50 million fish collection facility scheduled to be done by May. Adult salmon swimming up the river will be trapped there, and wild ones will be trucked around the dams and planted in the upper Lewis watershed. The new fish-sorting building has a 1930s architectural style to match the dam. A $60 million smolt trap to catch and separate juvenile fish at Swift Dam opened earlier this year. Though the reintroduction of wild salmon and steelhead is a new focus, PacifiCorp already pays for operation of the three fish hatcheries on the Lewis, another requirement of its federal license.

A steady humming inside the Yale Dam powerhouse is a reminder of the generators' massive, 3-foot-thick spinning turbine shafts. The generators are sometimes kept spinning even when they're not producing electricity so that power production can be turned on more quickly. "One of the values of hydroelectric is its ability to start and stop quickly," LaMere said. Operators can twist knobs on banks of control consoles in the power house to operate the generators if need be. "We maintain our ability to operate it manually," LaMere said. "We don't just rely on pushing a button on a computer." PacifiCorp's imprint along the Lewis is much larger than the dams and reservoirs. The utility owns much of the land around the impoundments, about 10,500 acres in all. "All of our property is managed as wildlife habitat," LaMere said. A herd of seven cow elk and one bull are frequently seen near the Merwin control house. A total of 39 company employees, including four fish biologists, are spread out among the dams. The utility has two clusters of housing for employees at Merwin and at Yale —where, obviously, there's electricity. But there's no electrical service at Northwoods, a remote community of cabins at the upper end of Swift Reservoir. In contrast to the complex and highly technical operation of the dams, life at Northwoods has a rustic simplicity.

A quiet life in winter

This time of year, life gets peaceful at Northwoods, a private development with 206 cabins at the upper end of Swift Reservoir. It offers quiet fishing on the reservoir and hunting in the fall. Only a few people stay there through the winter, including caretaker Jim West. Jim West likes living at Northwoods at the upper end of Swift Reservoir, even though few others stay through the winter. "It's real unique up here," said West, who has worked at Northwoods for 18 years. "After elk season ends, it's pretty isolated. There's not many people around." West and an assistant are responsible for maintaining the roads within Northwoods and its water system. Each residence must generate its own electricity or use propane. The homes at Northwoods range from rustic cabins to elegant homes. Most of the owners live in the Portland and Longview areas, West said. "For Sale" signs are numerous — some cabins have been vacant for four years, West said. West keeps an eye out for prowlers. "We've caught a bunch of people up here," attempting to break into homes while the owners are away.

In summer, the Eagle Cliff Store across the road from Northwoods supplies groceries and outdoors gear to campers heading up the road into the Gifford Pinchot National Forest. It also supplies bigfoot searchers from time to time. "Through the years, they've come up and stayed at the store," West said. "It's amazing how many people are really into that stuff." Though no one's spotted a bigfoot yet, wildlife encounters aren't unusual in the area. One afternoon several years ago, a bear sow and two cubs walked through the store's parking lot, West said. Two months ago, a cougar was spotted near one of the Northwoods cabins. "We see a lot of bobcats," he said. "In the winter, bobcats are all over the place." In winters of heavy snowfall, people donate hay and he leaves it for the elk. "There would be 150 of them eating," he said. It's typical to get two or three feet of snow at Northwoods, which is at 1,000 feet elevation. Skamania County keeps the road

from Cougar plowed — most of the time. But West has fired up his snowmobile to drive the 20 miles to Cougar, the nearest town, after a 7-foot snowfall covered the road.
Technology has made the region less isolated. Three years ago, cell phone reception reached the area. One appeal of living at Northwoods is the dock — though it can be high and dry when PacifiCorp drops the reservoir level in fall and winter to store flood waters or during inspection or maintenance on the dam. West described residents' support for the utility as "probably 50-50. A lot of the boaters are upset because they pull it down." PacifiCorp drops Swift more than the lower reservoirs because it's a first line of flood protection, said company spokesman Tom Gauntt.

TDN file

The lower Lewis, below the dams, is popular with anglers. Another concern is the winding Road 90, which is the quickest way to reach Northwoods. It's the only way there in winter because other roads aren't plowed. "The big thing people want is the road improved coming up," West said. "For years it's been hard to get even a fog line put on the road." The Forest Service has agreed to eventually turn over maintenance of the road to the state and Skamania County. West likes to explore the upper Lewis River valley: the waterfalls and the forests along Road 93.
"There's timber up there that's eight feet on the stump," he said. As the rainy/snowy season sets in, West, a bachelor, is happy to be where he is. "I don't have any plans to go away," he said. "It's a little piece of heaven up here. It's definitely God's country."

The Lewis River

Length: 110 miles

Source: The North Fork Lewis flows out of the snowfields and glaciers on the northwest flank of Mount Adams. In summer, hikers can get there via Divide Camp Trail 112 and the Pacific Crest Trail, to a point where you can hop across the river.

Name: The river is named for Adolphus Lee Lewis, an early Woodland-area settler — not for Meriwether Lewis, the co-leader of the Corps of Discovery.

An oddity: Actually, there are two Lewis Rivers. This story is about the North Fork Lewis, the much larger one with three dams. The smaller East Fork Lewis flows into the North Fork just south of Woodland only 3.5 miles above where the joined rivers enter the Columbia River.

Dams and reservoirs:

• Merwin Dam was completed in 1932. It and the lake behind it were named for T.L. Merwin, vice president of the Northwest Electric Co., which built the dam. Merwin Dam is 314 feet tall with 1,300 feet of crest length. Its three generators can generate 136 megawatts of electricity. Lake Merwin behind the dam covers 4,000 acres and is 14.5 miles long. There's no public access to the top of Merwin Dam, though visitors to the nearby park can get a partial view. A better view is possible by walking upstream from the boat launch below the dam.

• Yale Dam, named for a community in the Lewis River Valley, was completed in 1952 and is 323 feet tall with a crest length of 1,230 feet. Its two generators can generate 134 megawatts of electricity. Yale Lake covers 3,800 acres and is 10.5 miles long. Most of Yale Dam is out of sight even to boaters on the river below it. In summer, the public can picnic by Yale Saddle Dam, a smaller structure that traverses a saddle between two hills just north of the main dam.

• Swift Dam was completed in 1958 and is 512 feet tall with a crest length of 2,100 feet. It's named for Swift Creek, which flows off Mount St. Helens into the reservoir. The reservoir covers 4,680 acres and is 11.5 miles long. It has three generators with a total output of 240 megawatts. A power canal 3.2 miles long connects Swift Dam with the Swift No. 2 powerhouse, which is owned by the Cowlitz PUD. Its two generators have a total output of 66.8 megawatts.
The public is usually allowed to walk several hundred yards off of Forest Road 90 to get out on Swift Dam, where fishing can be good.

Recreation: PacifiCorp provides boat launches on all three reservoirs that are open year-round and campgrounds that are open in summer only. For more information, see http://www.pacificorp.com/about/or/washington.html. The upper part of the Lewis flows through the Gifford Pinchot National Forest. The most popular hiking trail on the upper Lewis passes three major waterfalls.

Glen Canyon Dam full of use, conflict after 50 years

By Brandon Loomis The Republic | azcentral.com, Oct 13, 2013

For photos of Lake Powel go here: http://www.azcentral.com/photo/26465

Page, AZ - There wasn't much to recommend this dusty bluff to tourists 51 years ago. There wasn't much, period. A dam changed all that. In the late 1950s, the U.S. Bureau of Reclamation built a one-bowling-alley town and a bridge to support construction of Glen Canyon Dam, which would create America's second-largest reservoir and fuel a postwar boom in the Southwest. Before the dam, there was no Page, no Lake Powell, no neon-buzzed loop of motels for the water skiers and houseboaters who would one day skitter across a huge new lake.

On Sept. 13, 1963, the last bucket of concrete tipped 583 feet above the Colorado River, spilling both prosperity and perpetual controversy. Glen Canyon Dam was completed, and the newly plugged Lake Powell was on a 17-year rise toward 9 trillion gallons.

"It was huge," recalled Page Mayor Bill Diak, then a Southern California teen who camped here often with his parents just to gawk as man conquered nature. "It was impressive to see those big concrete buckets go over and dump." Of the waterway to come — the 254 square miles he would explore every summer weekend while raising four kids, the dozens of mysterious and freshly accessible side canyons, the non-native fish that were introduced, the American Indian artifacts that were submerged — "I had no idea." These are all part of the landscape now, for more than 2 million visitors each year. Yet Lake Powell's story — one of boisterous boosterism and environmental destruction, of a glorious future and a lost past — still flows down an uncertain channel.

For and against Today, after the Colorado River watershed's driest 14-year run on record, the reservoir is less than half-full. The prospect of a shortage that could cut into Arizona's take of the river's water looms. Fans of the reservoir say it's a natural cycle that will soon end. Opponents say it's time to think about pulling the plug. They've never liked how the dam drowned a canyon and changed the river's ecology, and they see an opening presented by climate change. "Whether it's extreme droughts or

extreme floods," said John Weisheit, a Utah environmentalist who expects both conditions to occur as climate variability grows, "you're going to lose this (dam) system." His organization, Living Rivers, sings in a growing chorus clamoring to "Fill Mead First" by draining Lake Powell unless the larger downstream reservoir is full. They believe a drying climate won't keep both reservoirs full, and draining Powell would effectively restore a free-flowing river past Glen Canyon and into the Grand Canyon. Page resident and Friends of Lake Powell member Paul Ostapuk sees it differently. Pacific Ocean patterns dictate snowfall cycles that feed the Colorado River, and they have swung wildly before. Ostapuk finds it ironic that those who swore high water would topple the dam in the early 1980s (when huge releases of water dangerously ripped rock from dam-bypass tunnels) now are saying drought spells doom. "It's hard for me to believe that right at 2000, when (Lake Powell was) basically full, that a permanent climate switch happened," he said. "Don't give up on the Colorado River. It could come roaring back, and I think people will be surprised how much water comes down."

The river is erratic, draining anywhere from 5 million acre-feet in a drought year to 20 million after an epic winter. Each acre-foot supplies roughly enough water for two Southwestern households for a year. Without both Lake Mead and Lake Powell, Ostapuk said, a water shortage already would be drying up Arizona farms. California has older, superior rights to Colorado River water that would trump Arizona's during a crisis.
"You have to have the ability to catch the wet years so you can ration it out in the lean times," he said. "If you'd only had Lake Mead (during the current drought), it would be totally empty. Lake Powell's what's getting us through this." The Bureau of Reclamation concurs. It calls Lake Powell critical to the mix of water-supply options already projected to fall short — barring extensive conservation and reuse efforts — over the coming half-century. "Drawing down Lake Powell would result in reduced yield to the system," bureau spokeswoman Lisa Iams said in an e-mail. "Losses due to evaporation would increase if additional water currently stored in Lake Powell were released to Mead," because Mead is at a lower, hotter elevation. "The option to remove Lake Powell altogether would have significant negative impacts to the system because system storage would be dramatically reduced." Lake Powell can hold up to 24million acre-feet, while Lake Mead can hold nearly 29 million. Some Lake Powell opponents have recently pointed to studies suggesting that seepage in Glen Canyon's porous sandstone is siphoning water away.

Water politics are far out of mind at Bullfrog, one of three main marinas on the reservoir. Tucked away down a desert road behind Utah's Capitol Reef National Park, this arm of water teems with speedboats and houseboats. The ramp is a constant procession of pickups and trailers. On a late August afternoon, 18-year-old Garrett Funk of Colorado lashed windsurfers atop a sport-utility vehicle trailing Jet Skis. With family and friends, he had boated to the San Juan River and back, a family tradition. "Pretty much grew up here," he said. "I've been on this lake pretty much since I could walk." His 22-year-old brother, Geoffrey, recounted their father's tales of high water in the 1980s, when it was possible to swim under the towering rock formation that is now a high-and-dry Rainbow Bridge. He pointed to the white "bathtub ring" about 100 feet up an orange rock wall. "We've been coming up here since the water was above that mark," he said. These days, with the water's surface at 3,600 feet above sea level — down from a peak of 3,700 feet — it's a strenuous hike to reach the parking lot from a docked boat.

Boating and fishing
The low water and what it leaves behind — especially mud flats for river runners to slog past — can create a nuisance, and even a stench in side canyons.
Fluctuating water levels force marinas to keep chasing the shoreline — extending boat ramps and, in at least one case last month, moving one altogether. This is part of the routine of a fluid system, Glen Canyon National Recreation Area interpretation Chief Denise Schultz said. All floating structures, including docks, are routinely moved even when the reservoir isn't pushing historic lows. Fishermen love the low water. It forces the fish out of the brushy tamarisk trees that are submerged during wetter times. "Now, with the lake low, you don't have to fish in the trees," Page resident Kevin Campbell said on a recent morning after landing and releasing more than 40 striped bass just upstream of the dam. Stripers. Largemouth and smallmouth bass. Walleye.

Crappie. Sunfish. Channel catfish. Lake Powell offers more variety than an Arizona angler could have dreamed of before 1963. Campbell capitalizes at least 30 days a year. “It’s just the scenic beauty of the whole place,” he said, “and the variety of species is a big thing for me.” Below the dam, the aquatic legacy is mixed. Water gushing through the hydropower turbines comes from deep in the reservoir and is colder than native fishes such as the endangered humpback chub evolved to withstand. As chubs and other species declined downstream in the Grand Canyon, non-native cold-water trout thrived and created Arizona’s finest trophy rainbow fishery at Lees Ferry. The dam also blocked the sand that had flowed through the Canyon for ages, altering fish and wildlife habitat while depleting beaches used by river rafters. Smaller beaches support less windblown sand to root mesquites and other vegetation, or to cover and preserve archaeological sites from erosion. “The Colorado River Storage Project Act passed in ’56, and the big dam-building era was on us,” said Jan Balsom, Grand Canyon National Park’s deputy chief of resource management. “It wasn’t until years later that we realized what was happening environmentally.”

Economic powerhouse

By then, the dam was an entrenched economic engine. Visitors to Glen Canyon National Recreation Area pump some $400 million into northern Arizona and southern Utah, according to Friends of Lake Powell. That figure is similar to a $380 million estimate that Northern Arizona University researchers made in 1999. The dam generates hydropower to supply cooperatives that have 4 million customers spread from Arizona to Wyoming. It generates less power now, when the water is low. There are eight turbine units, each capable of producing 165megawatts. A single megawatt is enough to power 250 homes at a given moment. But that capacity is available only when the reservoir is full. Plant supervisor Roger Williams said the water pressure now yields 135 megawatts per unit. Another water-level drop of 100 feet and the dam would have to cease hydropower production or risk damage to the turbines. By that time, the units would be producing just 75 megawatts apiece. These economic drivers are apart from the development and crops grown through the reservoir’s water deliveries, or its cooling of the nearby Navajo Generating Station, the West’s largest coal-fired power plant. Growing awareness of the damage to the Grand Canyon led to an environmental-protection act in 1992, mandating dam releases that take river ecology into account. Since then, the Interior Department has sought to restore something of the river’s past characteristics. Since 1996, and most recently last fall, the department has loosed four huge water flushes from the dam to mimic historic floods and churn up sandbars. The experiments built new sandbars and beaches in the short term, but eroded a smaller number of existing ones. In the long term, routine water releases have eroded the gains. The National Park Service supports frequent high releases, perhaps even annually if rains bring enough sediment — as Balsom believes late-summer rains did this year. Interior officials have not said whether they will authorize a high flow this fall. Balsom thinks it could help build on last year’s. “We may actually start seeing restoration of those resource values,” she said. “We’ve never done them back to back, so we’ll see.” The program remains controversial, both for power cooperatives that bypass their opportunity for electricity when the floodgates open and for environmentalists who say only draining the reservoir and restoring the sand will do. Tributaries downstream of the dam supply only about one-tenth of the sand that the pre-dam river carried through the Canyon.

Sacred sites ruined

Where Native Americans are concerned, the dam desecrated more than a canyon or even ancient burial grounds. It flooded sacred sites, both with water and people.

The confluence of the Colorado and San Juan rivers was a place of spiritual offerings before it was swamped. “We consider the San Juan River male and the Colorado female,” said Adair Klopfenstein, a Navajo and cultural-studies director for Tuba City schools. “Where these two met, it’s kind of like they mated. Offerings were left for different kinds of moisture and rain clouds. “A lot of places like that were destroyed when Lake Powell came in.” Most prominent among them, and the subject of an unsuccessful lawsuit by those who wanted to keep Powell from filling, is Rainbow Bridge. A sandstone arc standing 290 feet tall and 275 across, it traditionally is considered a “rainbow turned into rock,” Klopfenstein said. “In the same way that we respect and use rainbows in our prayers and songs,” he said, “that rainbow we respect, so we don’t pass under it.” Rainbow Bridge is a national monument separate from but administered through Glen

Canyon National Recreation Area. In high-water years, it is inundated up to the gap beneath the arc. These days, the water is a half-mile away. Tour boats deposit visitors willing to take a short hike to see it. The National Park Service says 200,000 to 300,000 people visit in a year. “It’s incredible that nature makes such a thing,” Swiss tourist Mariann Rothe said when she saw Rainbow Bridge in late August.
Out of respect for Native American traditions, the Park Service asks people to refrain from walking under the arc. Interpretive ranger Mike Young said that of the 250 or so people he advised of the sensitivity each day this summer, about 50 went to stand beneath the rock. “It is an outstanding view from right under it,” he conceded.

Benefits and costs
The dam has irked old-time boatmen from the beginning. A few who scraped together surplus military equipment to float the relatively calm water of Glen Canyon in the 1950s had learned and loved what the dam would kill. It was a place both horizontally and vertically far removed from roads. Richard Quist of Salt Lake City fondly remembers rafting the wilderness with his dad, which led to a family rafting business that continues on the Southwest’s rivers. “Everything about it was just a magical place,” Quist said. “Talk about a place to turn a kid loose to wander, to play and swim and hike the side canyons and find amazing things.” There were petroglyphs. Pictographs. Pit houses and rock-walled granaries from Anasazi days. “There were more archaeological treasures lost in the flooding of Glen Canyon than probably you’d see in a hundred well-stocked museums,” Quist said. The dam brought new, motorized recreation for thousands of people who never would have visited otherwise, he said, but at a painful cost. “It made a hell of a lot better river than it does a reservoir.” For rafters who don’t mind starting below the dam, though, there’s an argument to be made for corralling the Colorado. The dam evens out the peak flows each spring and keeps the river a little higher through fall, said Korey Seyler of Colorado River Discovery tours in Page. He has paying customers from March through November. Without the dam? He figures he’d close shop in September when river rocks emerged. Ostapuk, the Friends of Lake Powell member, said Glen Canyon remains wild, with uncrowded side canyons requiring no permit to explore. “It’s just pure, raw adventure out there,” Ostapuk said. Fifty years after that last bucket of concrete, when Page Mayor Diak stops to look at the dam and the high-voltage lines spreading from it across the Colorado Plateau, he still sees the future. Whether building a dam here was ideal is now pointless to argue, he said. “You can’t live in the 15th century and expect to have the things that we have now.”

(How do you do a good job when you don’t have the staff or money to do it?)

Many Dams In Texas Are in Bad Condition

October 14, 2013 | By Mose Buchele, stateimpact.npr.org

This is part one of a State Impact Texas series devoted to looking at the infrastructure of dams in Texas, and what can be done to improve it.

Of the 1880 dams inspected by the TCEQ since 2008, 245 were found to be in bad condition, according to the Texas Commission on Environmental Quality. Around 2000 of the state’s dams were built with federal help in the wake of the great drought of the 1950s. Almost all of those are now past or nearing their projected 50 year lifespan, according to the American Society of Civil Engineers.

Photo from TCEQ
This picture of a dam that over-topped is used in dam safety workshops.

Statistics like these don’t come as a surprise to the people who work with dams in the state of Texas. “We’ve traveled and looked at different dams just to make sure that we do things right. And

there's a lot of dams that we did come across that would scare me to live downstream from them," Troy Henderson, Chief of Lake Patrol for the Brownwood Water Improvement District, told StateImpact Texas this summer. Part of Henderson's job is maintaining the dam at Lake Brownwood, something he and his team take very seriously.

"Downstream is the population of Brownwood and Early, and if we have a dam failure it's going to be catastrophic," he said. The challenges confronting the state's infrastructure of dams is underscored by the fact that Texas has more than 7,300 dams, more than any other state. There is, in fact, only one natural lake in the entire state of Texas. Troy Henderson, with the Brownwood Lake Patrol, shows where erosion has eaten at a dam's spillway. But many public safety officials and engineers say it's difficult to get people to pay attention. Major floods continue to strike Texas periodically. Central Texas, for example, was just hit by flooding this weekend. But it's the continuing drought that policymakers appear most concerned with.

But if Texas experiences the type of historic rain event that will likely be necessary to free it from drought, will the state's infrastructure be prepared? Many experts say no.
Wes Birdwell, a civil engineer, says the situation reminds him of the old tune "The Arkansas Traveler." "'My roof doesn't leak when it doesn't rain,' the old song says," he told StateImpact Texas at his Austin Office. To explain the problem, Birdwell described a hypothetical dam. "Say your great grandpa got home from World War One and he had an army surplus bulldozer," Birdwell said. "And he bought this piece of property with his GI Bill. And he went and got his bulldozer and he scraped some dirt up, and he built a dam it's been there for 80 years. He fished on it, and your dad fished on it. And there's never been a problem." Then, one day a ranch downstream is sold to a developer. Houses start going up. And you start looking at that old dam a little differently. Now lives and property are at risk if it fails. And it's your responsibility to make sure that doesn't happen.
"Now suddenly, you've gotta spend all this money. That is a problem," said Birdwell.

'We Want to Fix This'
"There is no place for owners to go to go get money if they want to rehabilitate their dam," Warren Samuelson the Manager of the Dam Safety Program with the Texas Commission on Environmental Quality, told StateImpact Texas, when asked about the challenges his department faces. Warren Samuelson is the Manager of the Dam Safety Program at the TCEQ. Samuelson says about 60 percent of dams in the state are privately owned. Many of those owners couldn't afford to rehabilitate their dams even if they wanted to.

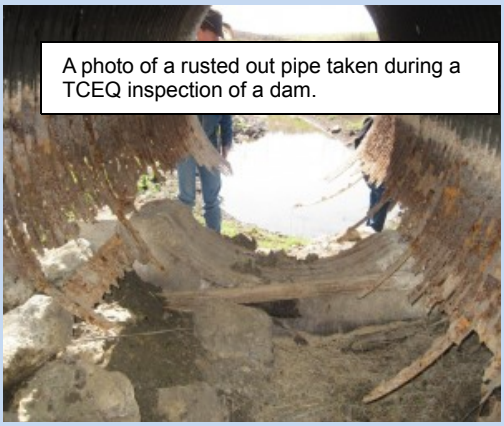
"We have a lot of people call us and say 'we want to fix this. But we have no money to do it,'" Samuelson Said. "And it's not just [homeowner's] associations. A lot of it is cities. A lot of their source of money could be taxation, but are you willing to tax people for additional funds? And it's a political issue." Samuelson would like Texas to set up a fund that could aid cash-strapped dam owners. Of course, earmarking funds for that is political too and, so far, Texas lawmakers have been uninterested. In the past, his division has also sought greater power to enforce dam upkeep, but Samuelson said those powers were not given to them by lawmakers. So what reforms have legislators backed? This year, instead of beefing up enforcement, lawmakers reduced the number of dams that will be inspected. Something that Engineer Wes Birdwell says could put lives and

property at risk. “Any time we decrease the size of the safety net, there’s probably reason for concern,” he told StateImpact Texas. Learn more about that tomorrow in the second part of our series on the state of dams, in the state of Texas.

(They’re trying but with 7300 dams how do you make headway?)

How Hundreds of ‘Significant Hazard’ Dams Escape State Inspection in Texas

October 15, 2013 | By Mose Buchele, stateimpact.npr.org


A photo of a rusted out pipe taken during a TCEQ inspection of a dam.

This is part two of a series devoted to looking at the infrastructure of dams in Texas, and what can be done to improve it. You can find part one here. In 2008, the Texas State Auditor’s office released the kind of report that keeps public officials awake at night. It found that state regulators were not ensuring the proper maintenance of thousands of dams in Texas. The audit found that state inspectors had never visited hundreds of dams that could cause loss of life if they failed. The Dam Safety Program with the Texas Commission on Environmental Quality is in charge of inspecting the state’s dams. Warren Samuelson, the program’s manager, says that his department has added staff and made progress since that audit was issued. “At the end of 2011 we had all of them… except a handful that we couldn’t get into. We were able to look at all of these high and significant hazard dams,” Samuelson told StateImpact Texas. A significant hazard dam is a one that could possibly kill people and most certainly cause economic loss if it were to fail. If a high hazard dam fails, it will probably kill people and cause major property damage. About 60 percent of dams in Texas are on private land, making the job of inspecting them more difficult. But, Samuelson says, now that all high and significant hazard structures have been inspected, they will not fall from view of his program.

(PA is a busy place. See article below too.)

Dam at Fulton County's former Meadow Grounds Lake to be probed

By Jim Hook. 10/16/13, publicopiniononline.com

Fulton County, PA - Engineers will soon begin probing the earthen dam at the former Meadow Grounds Lake in Fulton County. "This is not the engineering work to fix the structure," said Eric Levis, spokesman for the Pennsylvania Fish and Boat Commission. "This is the first step to identify the specific issues and provide possible solutions." The commission drained the secluded 204-acre lake in March for safety reasons. The 49-year-old dam on Roaring Run was seeping and posed a risk to 65 homes downstream, according to a Pennsylvania Department of Environmental Protection dam inspection. The engineer's report is expected by the end of January, Levis said. It will outline alternatives for repairing the structure and the cost of each alternative. Local residents have formed the Friends of Meadow Grounds Lake Inc., the motto of which is "just add water" to the muddy spot in State Game Lands 53 in Ayr Township. They will promote their cause this weekend at a table during the Fulton Fall Folk Festival in McConnellsburg.

"They're going to be at this for a long time," said Philip Harper, a McConnellsburg attorney. "Their job is to keep the pressure on elected officials to convince the Fish and Boat Commission, DEP and the Pennsylvania Game Commission to work toward funding the repair of the dam."
Harper is helping the group get established. It's registered as a nonprofit in Pennsylvania and should receive its federal tax exempt status as a 501(c)(3) organization around the first of the year, he said.
"We have accomplished a lot," said Anthony D'Anna, president of the Friends of Meadow Grounds. "I feel more confident this is going to happen, even more so than two months ago."

The group has printed 2,500 large postcards that it will mail to politicians on behalf of individuals who sign a card, according to D'Anna. Each postcard asks for a response from the politician so supporters will be more motivated to contact their officials. The cards will be mailed to Gov. Tom Corbett, Sen. Rich Alloway, Sen. Eichelberger, fish commission President G. Warren Elliott and the office of the late Rep. Dick Hess. "We want to keep the wheels greased," D'Anna said.
Dam repair projects take about four years. The fish commission manages 14 unsafe dams. Three repair projects are funded. Two dams have been removed from unsafe status. Nearly $60 million is needed for the remaining repairs. One is Colyer Lake in Centre County. The fish commission announced in March that Colyer Lake would be drained for safety reasons, and it was drawn down 17 feet. More than 100 boats participated Sept. 15 in the latest fundraiser on the lake. Save Colyer Lake Inc. has pledges of $115,000 toward a goal of $200,000, according to an email from group secretary Scott Sheeder.

Repair of the dam at Meadow Grounds is expected to cost about $4 million, with $2.25 million authorized in the commission's capital budget. The fish commission requested an additional authorization for $2.2 million for the project in Senate Bill 680, according to Levis.
"Getting projects on the capital budget list is just the first step," Levis said. "The second, more difficult step, is getting approval from the governor's office to release the funding. Only then can we move forward with the project, developing a construction timeline and awarding a contract. Money has not been released yet for this project." The fish commission leases the ground from the Pennsylvania Game Commission. The fish commission recently awarded the $63,322 engineering contract to low bidder URS Corp. The 10 bids received on Aug. 14 were as high as $140,000. "URS expects to have its equipment in place by the end of the month to begin geo-technical work to identify what is happening beneath the surface," Levis said.

Lake Wynonah dam deemed high hazard

By Mark Gilger Jr., republicanherald.com, October 16, 2013

Lake Wynonah, PA - The big dam is a high hazard and must be repaired.
The state Department of Environmental Protection has declared the 40-year-old earthen dam in the gated community a high hazard and the Lake Wynonah Property Owners Association is considering replacing it. The community's nine-member board of directors, who are elected by the association, has called an emergency open meeting at 10 a.m. Saturday in the business office gathering room to discuss ways of paying for repairs. A dam engineer will explore repair options while a mortgage broker will also discuss the impact repairs and costs may have on home sales and mortgages. The state categorizes a dam as high hazard if it has deficiencies that, if go uncorrected and the dams were to fail, pose a chance of substantial property damage as well as endangering the lives of local residents.

Lake Wynonah is a gated community in South Manheim and Wayne townships with two lakes, Fawn Lake and Lake Wynonah. Fawn Lake is 3/4 of a mile long, up to 45 feet deep and covers about 27 acres. Lake Wynonah is much larger at 2 1/2 miles long, up to 90 feet deep and covers about 175 acres. High-hazard dams typically have some kind of structural deficiency, like cracks or erosion, Colleen Connolly, community relations coordinator at DEP, said Tuesday.
"Structurally, it's just not sound," she said. The Lake Wynonah dam has been a high hazard dating back to at least 2009, Connolly said. In general, the dam has problems with its spillway, but Connolly was unable to provide specifics Tuesday. Herv Breault, Lake Wynonah Property Owners Association board president, said there may be some confusion on the dam's status.
"There may be some misinterpretation on the understanding of Lake Wynonah's dam being high hazard. To clarify our understanding, a high-hazard dam is a classification used by DEP and the Dam Safety Act to classify the type of dam. Once again it is not a situation but rather a classification," Breault said. "Since the time it was built, our dam has always been classified as a high-hazard dam due to various factors. These factors include, but are not limited to, the height of the dam and its location."

Breault said action has begun to remedy the situation. "Currently, we are in the beginning stages of conducting a required study which will determine any rehabilitative measures that must be taken to meet current updated standards set forth by DEP and the Dam Safety Act," Breault said. Connolly did not know the typical cost of replacing a spillway. However, a similar project at Fawn Lake in 2009 to repair the spillway was estimated at about $4 million. DEP performs annual inspections on dams and can require a lake to shut down if repairs aren't made. "We're not there yet (with Lake Wynonah)," Connolly said. DEP is urging the association to consider all its options but recommends replacing the dam if it's affordable, Connolly said. "I wouldn't say (it's an) immediate danger," she said. "There could be potential for a problem depending on the number of houses downstream in the area." There are more than 2,640 residents and 1,200 homes around the lakes, according to the 2010 census. Even though it is privately owned, Connolly said the dam is eligible for loans and grants from the Pennsylvania Infrastructure Investment Authority, or PennVEST. Additional government funding may also be available. "We are not aware of any government grants for a private community such as ours. As a private community, all costs for the care and upkeep of the community is the responsibility of its members," Breault said.

(This a large dam so an earthquake is not a good thing!)

Earthquake's Impact on Local Dams

by Kyle Aevermann, October 17 2013, kobi5.com

Lost Creek Lake, OR

If a large magnitude earthquake were to strike our region, how would our local dams hold up? And what damage could they potentially do? At the southern end of Lost Creek Lake sits Wes L. Jess Dam, one of 57 across the state. Since Oregon sits right next to the Cascadia Subduction Zone, geologists say the chances of a large magnitude earthquake is long over due.

Jim Bucks with the Army Corps of Engineers knows that an earthquake is bound to happen. "If we were to have a major earthquake here, we would anticipate there would be some damage to the dam, but it wouldn't be here one instance and gone the next," said Jim Buck, from Army Corps of Engineers. Army Corps of Engineers monitor both of the dams at Lost Creek and Applegate Lakes. Buck believes they would be able to withstand a large earthquake but there are of course certain factors. "We tend to relate in magnitude, it's where the earthquake happens, if it's further away the less likely the damage is likely be." But the time of year also plays a factor of how much damage could potentially be done.

In May both reservoirs are both full. To insure that doesn't happen, they are always inspecting the dam wall. But only time will tell what damage will be ultimately be done.
Bottom line, the Army Corps of Engineers say that the dams at Lost Creek Lake and Applegate Lake would likely hold up, even in a large earthquake. We also contacted several of the local irrigation districts who monitor smaller sized dams such as Howard Prairie and Emmigrant Lake and they also say they believe those dams would also be able to withstand a large earthquake.

(Pork barrel for dams! Somehow, it's even distasteful with dams.)

McConnell's Favored Dam Project Included in Debt Deal

By Caitlin Webber & Craig Gordon - Oct 17, 2013, bloomberg.com

The legislation approved by Congress to end the fiscal impasse includes a provision authorizing an additional $1.2 billion for a lock and dam project favored by Senate Minority Leader Mitch McConnell of Kentucky. The deal brokered by McConnell, a Republican, and Senate Majority Leader Harry Reid, a Nevada Democrat, includes permission to continue construction on the Olmsted Locks and Dam on the Ohio River between Kentucky and Illinois. It would boost the authorization to about $2.9 billion from about $1.7 billion. Senate Minority Leader Mitch McConnell, a Republican from Kentucky, center, walks from the Senate floor at the U.S. Capitol in Washington on Oct. 16, 2013. Senate Minority Leader Mitch

McConnell, a Republican from Kentucky, center, walks from the Senate floor at the U.S. Capitol in Washington on Oct. 16, 2013. Photographer: Andrew Harrer/Bloomberg
The two senators in charge of the panel that allocates money for water projects said last night that contracts would have been canceled and $160 million would have been wasted unless Congress moved quickly to renew the project's authorization. Battles over the budget and President Barack Obama's health-care law had sidetracked action on routine bills, including one that would have reauthorized this project.

Don Stewart, a spokesman for McConnell, said in an e-mail the White House supports the project and that it was Senate appropriators who requested the project be included in the stopgap spending bill. Stephen Ellis, vice president of Taxpayers for Common Sense, a group opposed to government waste, said in an e-mail that it appears McConnell "took advantage of his position to slip in this bit of parochial pork." The Senate Conservatives Fund, a group that's opposed to McConnell's re-election in 2014, labeled the authorization a "Kentucky kickback."
Anti-McConnell Ads "This is an insult to all the Kentucky families who don't want to pay for Obamacare and don't want to shoulder any more debt," the organization said in a blog post on its website.

Understanding the Debt Ceiling
The group is running ads in Kentucky to aid McConnell's primary election opponent, Louisville businessman Matt Bevin. The legislation doesn't provide any money for the project. As an authorization, it provides permission to continue work and sets a maximum amount that can be funded. The bill would permit total funding of as much as $2.9 billion. McConnell has previously sought funding for the project. He toured the construction site on August 20, 2009. "There is no more important project in the country, in terms of cost-benefit ratio," he said at the time, according to a news story on the website of the Army Corps of Engineers Louisville district.

Costly Delays
"The challenge for me and other members of Congress who are interested in this is to keep the funding going. To the extent that you can't get money on an annual basis, it delays the project and ends up costing more," McConnell said. "I and others in Congress are going to do everything we can to keep this project on schedule." Senator Lamar Alexander of Tennessee, the top Republican on the appropriations subcommittee that handles spending on water projects, said in a statement last night that he and the panel's chairman, Democratic Senator Dianne Feinstein of California, requested the provision. "According to the Army Corps of Engineers, 160 million taxpayer dollars will be wasted because of canceled contracts if this language is not included," Alexander said in his statement. URS Corp. (URS), a San Francisco-based company, is leading a joint venture to build the project. The project is designed to reduce tow and barge delays through that stretch of the river, about 17 miles upstream from where the Ohio and Mississippi Rivers meet, according to the U.S. Army Corps of Engineers website for the Louisville district.
Water Projects Earlier this year, the Senate passed a bill that would authorize a variety of water projects around the country, including Olmsted. That bill includes language ordering the Government Accountability Office to study cost overruns on the project. The project initially was authorized in 1988 for a maximum of $775 million. As of the 2011 fiscal year, it had received more than $1.4 billion, according to the Army Corps. An administration official said today that the provision doesn't increase funding for the Army Corps and would avoid additional costs incurred by a delay. The White House identified a number of projects that would have run into difficulty without full-year funding and Congress chose which to include, according to the official, who asked for anonymity to discuss negotiations with lawmakers.

Hydro:

(Did you notice that the hydro they chose to show is Itaipu? How many Itaipu's are there in the U.S.? Most are foreign hydro projects. I guess since they have shut down large hydro in the U.S., they're taking their show elsewhere.)

It's a Mistake for NGOs Not to Engage with Hydropower Companies

Written by Giulio Boccaletti, August 20th, 2013, blog.nature.org

We are entering a new hydro-dam era. As John Vidal has reported, construction of hydropower in the Himalayas will be one of the great forces for change in Asia and a hot spot of regional tension between China, India, and Pakistan. In Africa, the growth aspirations of many countries are pinned at least in part on the development of its extraordinary hydropower endowment. Only about 5% of the continent's hydropower potential has been developed thus far. But things are changing. Ethiopia's construction of the Renaissance Dam in the upper Blue Nile – which, when completed will be one of the largest dams on the continent – has sparked conflict with downstream Egypt and made headlines about water wars on the Nile. Recently, the World Bank has announced its return to financing hydropower as part of its core strategy, after almost two decades during which it has been virtually inactive in the sector.

Itaipu Dam, a binational hydroelectric dam on the Paraná River

Hydropower development has a troubled history. Relocation of people to make room for reservoirs, downstream environmental impacts from the fragmenting of rivers, and the profound modification of aquatic ecosystem – all drive legitimate concerns about the development of this type of infrastructure. But hydropower also brings essential base-load supply, a renewable source of energy, and in some cases much-needed storage capacity and flood control. Managing these competing objectives requires facing difficult trade-offs, which are not susceptible to broad-brush strokes positions.

Not yes or no, but where and how

While some dams' impacts clearly outweigh their benefits, in many places the most important question may not be whether to build a dam but rather about where and how hydropower is built. On 1 July I stood along the Penobscot River in Maine with colleagues and onlookers from partner organisations, government, local businesses and the community to watch the historic removal of the Veazie Dam. This was the second of two major dam removals as part of the Penobscot River Restoration project – one of the largest such projects in the world. The project will greatly improve access to nearly 1,000 miles of habitat for endangered Atlantic salmon and a number of other species of native sea-run fish – many of which had dwindled from annual populations in the millions in the 1800s to only a few thousand by 2011. In the late 1990s, after decades of conflict around re-licensing of individual dams on the river and proposals to add new dams, a single power company bought all the dams in the lower river basin. This changed the debate. Instead of taking a dam-by-dam approach, the Penobscot Indian Nation, a number of environmental groups and the Penobscot River Restoration Trust were able to work with the hydropower company and federal and state regulators to look across the river basin and find a solution that meets multiple needs. Ultimately, an agreement was reached to remove the dams while increasing fish passage and electricity generation at other less harmful sites – reestablishing river health, recreation and culture while increasing electricity generation.

Scale, risk and outcomes, looking over the horizon

This example demonstrates something important. Limiting the impacts of hydropower while harnessing its benefits is first and foremost an optimisation problem. By taking a river-basin wide

perspective, the siting and construction of dams can be directed toward the least damaging places within a basin – ensuring as much of the natural flow of water, sediments, nutrients and fish are sustained as possible for the benefit of people and nature. This does not avoid the difficult trade-offs but can improve outcomes. This is the conversation that needs to happen, and the only route to global impact. Organisations like mine have the science, some solutions and emerging ideas, but businesses and governments will be making the large-scale infrastructure investments and have the delivery capacity that will dictate our reality. This is why The Nature Conservancy and China Three Gorges Corporation have just signed an agreement to work together for the next five years. This agreement builds on our conservation work on the Yangtze River and attempts to begin exporting our lessons and practices to other international locations where Three Gorges works. It will not be easy and we should not be under any illusion that we will always land on the same side of the debate. But if we fail to engage with the hydropower community, we will miss an enormous opportunity for positive impact. While we may at times still be at odds, working with business – and with governments where major development is occurring – is the only way to bring sustainable solutions to a scale that can alter the path we're travelling on. *Giulio Boccaletti is Managing Director of Global Freshwater at The Nature Conservancy. This post originally appeared on The Guardian.*

(The question isn't "should", the question us "why Haven't they".)

Should the U.S. Government Play a Role in Hydro Power?

Sean O'Neill | Oct 14, 2013,

When considering national priorities, the appropriate role of government, and our quality of life, the topics of energy, water, jobs, economics and our environment are paramount. The debate over the federal government's appropriate role in energy production continues to be waged against a backdrop of winners having been chosen and continued subsidies for even the most mature electric generating technologies. One reality that appears to be unimpeachable is the need for new generating capacity being permitted, built and ready to run before we can close old, inefficient, polluting and expensive facilities. Reliable, affordable, clean power and the availability of clean, potable water are cornerstones of our society and economic development. Near-term, mid-term and long-term planning are necessary to ensure that we meet the water and power needs of a growing population. The choices to be made are seldom made in a vacuum. The U.S. Department of Energy has identified retrofitting non-powered dams as a near-term priority for increasing emission-free energy, creating jobs and supporting economic development. "Importantly, many of the monetary costs and environmental impacts of dam construction have already been incurred, so adding power to the existing dam structure can often be achieved at lower cost, with less risk, and in a shorter timeframe than development requiring new dam construction," according to a recent DOE report.

Generating power at non-powered dams, along with mature renewables like wind, solar and geothermal, biodiesel and biomass provide near-term solutions and provide a path forward to less reliance on foreign sources of energy and finite fossil fuel supplies. In the mid-term, marine and hydrokinetic renewable energy technologies are poised to make considerable contributions. As the newest entrants to the energy marketplace, they deserve the initial support and consistent funding for research and development that other forms of energy production in the United States have been given in the past. Moreover, for the United States to maintain its leadership within the world's economy, a diverse energy supply portfolio is key to maintaining reliable, affordable, and environmentally friendly electricity. One of the biggest contributions can be made along the coast where most people live and where we have wave and tidal resources close to where much of the energy will be used. The argument is not the economy versus the environment. How can we best use our resources - human, natural, economic, and technical - to support a sustainable future and continually improve our quality of life? Ocean renewable technologies reduce the need for competing land resources and provide emission-free generation near the coast where the demand is greatest. We must provide consistent market signals. Today, we have short terms for production tax credits and investment tax credits. This causes fits and starts in the development of renewable energy projects and sends mixed signals to the development and financial

communities. Our policy incentives are not synchronized with regulatory requirements, making it difficult and cumbersome to administer and apply these programs, and adversely affecting both the government R&D managers and the project developers. Huge losses are incurred in the waxing and waning of incentives approved by Congress and in the spending decisions for serious long-term research and development. Consistent R&D funding is required to make meaningful scientific advances. Federal agencies are making great strides in identifying areas in which communication and cooperation across agency lines can help leverage our resources, but we could use more policy support from our elected leaders. The United States should support power production from sources like ocean renewable energy, minimizing the need for additional transmission infrastructure. The federal government should provide consistent and long term funding for research development. *This story first appeared in EnergyBiz magazine*

Water:

Comment: It never rains where or when you want it!)

Environment:

(Dilemma – what to do about the dam mussels? Brings to mind the snail darter! Build a dam to remove a dam – huh? You won't find many people willing to spend $800,000 for a human being!)

Mussel discovery delays Grand River dam removal

10-12-13, wral.com

Lyons, Mich. — The removal a 156-year-old dam in Ionia County has been delayed as officials develop a plan for protecting an endangered freshwater mussel discovered in the Grand River downstream of the aging structure. Biologists from Central Michigan University this month are finishing a survey of snuffbox mussels, which have been found on the gravel river bottom about 100 feet from the dam. The mussel was added to the federal endangered list in 2012 because of a 62 percent population decline from habitat loss, dam construction, pollution and the effects of invasive species, according to the U.S. Fish and Wildlife Service.

"What they're finding is that there's quite a good community of mussels there," Melissa Eldridge, Ionia Conservation District manager, told The Grand Rapids Press (http://bit.ly/17a6xJC) for a recent story. Some are young, while others are more than 30 years old. The find has brought the dam removal project to a halt for the moment, said Jay Wesley, southern Lake Michigan unit manager for the state Department of Natural Resources. The mussels historically have been found in 18 states and Ontario, Canada. The concentration in the Grand River is just north of the low, 9-foot dam, which the state considers a hazard because of structural deterioration.
The mussels must be relocated before the dam project can begin. A Central Michigan team led by assistant professor Daelyn Woolnough has been tagging those found. The group found a suitable place to move them, more than a mile downstream. If state and federal officials sign off on the relocation, it probably will be done late next summer, when the water level is low. Afterward, the dam project will have to begin within 60 days. Having to deal with the mussels has boosted the dam project's cost from $1.2 million to about $2 million, Wesley said. Instead of pulling rock from the river bottom, officials now must purchase about $600,000 worth of car-sized rocks to build an impoundment that will replace the dam.

Other Stuff:

(At least, someone has figured out wind isn't free. Don't you think a reservoir is more scenic? Subsidies don't work, especially when they're single-purpose (power) and so inefficient! This has already happened in CA, the whole U.S. is next and then we be unable to compete economically in the world! We have a bunch of amateurs dictating our economic and energy policies!)
http://www.telegraph.co.uk/earth/energy/10375167/Number-of-planned-new-onshore-wind-farms-has-doubled-since-2011.html

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