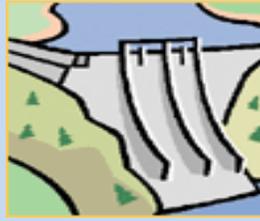


4/14/2017



# Some Dam – Hydro News™ And Other Stuff



**Quote of Note:** *“It don’t take a very big person to carry a grudge.” - Unknown*

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**“Good wine is a necessity of life.” - -Thomas Jefferson**

**Ron’s wine pick of the week: 2011 Antinori Italian (Tuscany) Red “Villa Antinori Chianti Classico Riserva”**

**“No nation was ever drunk when wine was cheap.” - - Thomas Jefferson**



## **Dams:**

(Maybe we’ll find out why?)

### **Oroville Dam: Independent team to investigate cause of spillway failures**

By Risa Johnson, Chico Enterprise Record | March 28, 2017, mercurynews.com

Sacramento, CA – The state Department of Water Resources gave the overseeing federal agency of the Oroville Dam what it asked for last week — a schedule for the independent review team investigating the cause of the spillway failures, but it listed no deadline for a final report from the team. The Federal Energy Regulatory Commission told the state Department of Water Resources on March 20 to send the agency a schedule for its independent review team, approved by FERC, within five days. The department responded to FERC’s letter four days later, on Friday.



“Although DWR has gathered the information that will be needed for the team to review, the team is just beginning to digest the information,” wrote DWR Project Manager Ted Craddock in the letter. The schedule for the team is to review materials from March 23 to April 12, conduct site inspections and meetings with DWR from April 12-13, have team meetings April 13-14 and provide a list of potential causes for the spillway failure to be factored into the design of the “interim spillways” in the first week of May.

From April 14 to an undetermined time, the plan is for the team to continue to review materials, do evaluations, hold meetings and complete evaluations, according to the letter. Dates for the team to present its preliminary findings to DWR, the Division of Safety of Dams and the board of consultants and to complete its forensic report are to be determined, the letter said.

#### **DWR UPDATE**

DWR acting Director Bill Croyle told members of the press Monday in Oroville that spillway flows would gradually slow from 40,000 cubic-feet per second, or cfs, to zero cfs by late afternoon in order to do repairs. “The process to step down has been revised, tweaked, (with) lots of consultation with our downstream water agencies, the flood operations center, our fish resource agencies — to make sure all the concerns everyone might have are factored into our revised plan,” Croyle said. The department planned to restart flows at the Hyatt Powerplant, ramping up to about 11,900 cfs, and to increase outflows at the Thermalito powerhouse. One of the six turbines at the Hyatt plant remains unoperational, as it has for years. The department has said it is undergoing maintenance. As of 6 p.m. Monday, Lake Oroville’s was at 836.5 feet of elevation, 64.5 feet below the lip of the emergency spillway. Though some experts say the completion date will be impossible to make, as reported by the Sacramento Bee newspaper, DWR is aiming for a ready-to-use spillway by winter.

“We will — if I have anything to do (with) it — have the spillway to use by Nov. 1,” Croyle said. “Whether that’s a permanent or temporary structure is yet to be decided.” He said the spillway flows will be turned on again, likely when the lake rises to 860 feet. Current projects include debris removal at the Diversion Pool, rebuilding roads to access the spillways, reinforcing the base and slopes of the spillway and inspecting the emergency spillway, where work is almost complete, he said. Evacuation informational meetings for the public continue this week, with one in Palermo and one in Thermalito. Butte County Sheriff Kory Honea lifted the evacuation warning last week, though emphasized he wants residents to be prepared and stay informed. Residents can find their zone and sign up for emergency notification alerts at [buttecounty.net/com](http://buttecounty.net/com). “Just because I lifted the warning doesn’t mean we’re out of this crisis,” Honea said.

[\(He’s going to keep beating them up until they give in.\)](#)

Spill more water over Snake dams for salmon, judge tells Corps of Engineers

By Rich Landers, MARCH 27, 2017, [spokesman.com](http://spokesman.com)

**FISHERIES** – Beginning next year, the government must spill more water from dams on the lower Columbia and Snake rivers to improve the chances that protected salmon will survive, a federal judge in Oregon says.

Here’s more from the Associated Press: U.S. District Judge Michael Simon said in a ruling Monday that the salmon continue to be imperiled and that the Army Corps of Engineers must spill more water for the fish at eight dams. However, he declined to require the corps to do so immediately, as conservationists requested. Instead, he told the government to spend the next year studying how best to release the right amount of water without created strong eddies or other conditions that could wind up endangering the fish further. Conservationists say the extra water will help young salmon migrate out to sea. Simon is the same judge who last year urged the



Lower Granite Dam, WA

government to consider breaching the four dams on the Lower Snake River. Conservation groups have this to say via a media release via Earthjustice:

**PORTLAND, OR** — Federal dam operators on the Columbia and Snake rivers must increase water releases over spillways at eight dams to improve survival rates for juvenile salmon migrating to the ocean starting in 2018, a federal court ruled today. Portland U.S. District Court Judge Michael Simon found that current operation of these federal dams is causing continued irreparable harm to imperiled salmon and steelhead and that increased “spill” indisputably provides safer passage for juvenile salmon navigating the heavily dammed Columbia-Snake River Basin. In the meantime, the spill in place under court order since the summer of 2005 will continue. “While we recognize that this relief will not eliminate the harm to salmon and steelhead from dam operations in the long run, we are encouraged that increased spring spill will be granted to reduce irreparable harm to juvenile salmon and steelhead,” said Earthjustice attorney Todd True. Together with the State of Oregon and the Nez Perce Tribe, Earthjustice sought the injunction to increase voluntary spill on behalf of the National Wildlife Federation, Pacific Coast Federation of Fisheries Associations, Northwest Sportfishing Industry Association, Idaho Rivers United, the Northwest Energy Coalition and other conservation organizations and fishing business associations. Fishermen were especially encouraged by the court’s decision to require the agencies to provide increased spill until a new lawful plan is in place. “We’re relieved that the court will provide much-needed near-term help to salmon populations that call the Columbia and Snake rivers home,” said Amy Grondin, a Washington commercial salmon fisherman. “Family fishing businesses like mine have struggled for years due to low salmon populations. We can’t continue to wait for years for the federal agencies to finally get this right.” “This is about much more than saving fish,” said Liz Hamilton, executive director of the Northwest Sportfishing Industry Association. “Until the federal agencies are willing to comply with the law, we are glad short-term measures will be in place to give migrating fish the fighting chance they need. We owe it to ourselves and future generations to get this right.”

“We’re pleased that the court continues to closely examine the facts in this case and recognizes that these facts demand additional actions on behalf of Columbia and Snake River salmon and steelhead,” said Tom France, regional executive director of the National Wildlife Federation. Federal agencies are currently conducting a National Environmental Policy Act EIS Review in the wake of a May 2016 ruling that rejected the government’s latest salmon protection plan as illegal under NEPA and the Endangered Species Act. Agencies must consider removing the four lower Snake River dams as one of several alternatives in that analysis. Last fall, they held a series of NEPA scoping meetings to solicit public input on the new plan across the Northwest that drew thousands of people in support of dam removal. At a March 9 court hearing, however, Judge Simon indicated he was “disheartened” by feedback from concerned citizens that the agencies had not provided adequate information nor offered meaningful opportunity for input and dialogue. The request for injunction also sought a moratorium on tens of millions in capital spending on projects that would extend the life of dams on the lower Snake River at a time when the agencies are supposed to be fully and fairly considering their removal. The Court agreed with the conservation and fishing groups that these capital investments likely create “a significant risk of bias.” While the Court did not grant the request for an immediate halt to spending on all future capital projects, it ordered the Corps to provide the groups with regular and timely advance notice of planned projects so that they may seek an injunction against those that “substantially may bias the NEPA process.”

“For more than two decades we’ve been asking federal agencies to do more for our endangered wild salmon,” said Kevin Lewis, executive director of Idaho Rivers United. “It’s unfortunate we’ve had to go to court to get the results our salmon and people who depend on them need, and it’s equally disturbing that the federal government continues to pour tens of millions of dollars into propping up four obsolete dams on the lower Snake River. It’s simultaneously encouraging, however, that a federal judge has once again agreed with us.”

(PR piece. Staying ahead of the game by maintaining them.)

## NID: Reservoir Infrastructure Storm Damage Report

By NID - March 27, 2017, yubanet.com

March 27, 2017 – Maintaining public safety is paramount at NID, CA. This year's powerful winter storms with record precipitation, intense high flows, and flooding have triggered heightened awareness across California. NID is sensitive to community concerns over potential infrastructure damage due to the intensity of this season's storms in the Sierras. Current minimal infrastructure damage poses no risk to community safety, and extensive efforts are underway to avoid any impact to water supply. NID is actively working with regulatory agencies to ensure public safety by combining the District's expertise with specialists from the Federal Energy Regulatory Commission's (FERC's) Division of Dam Safety and Inspection, the Federal Emergency Management Agency, the California Department of Water Resources' Division of Safety of Dams (DSOD), and the Governor's Office of Emergency Services.



There is some cosmetic damage to the Rollins Reservoir spillway. The most visible damage to NID's infrastructure is on the Scott's Flat spillway. To ensure safety and quick repairs, NID has assigned a team of engineers to complete repairs of the damaged spillway. Regular visual inspections are taking place, and a comprehensive evaluation of the spillway will be completed when the winter flows recede. The District has a robust dam safety program, which includes regular visual and physical monitoring of NID infrastructure. District surveyors monitor the dams for any movement, and staff regularly measure leakage weirs and take readings from piezometers buried in the dams. All of the monitoring information is consistently reviewed by a full time engineer with specialized expertise in dam related issues. The inspection program will alert staff of potential issues. NID's ongoing commitment to infrastructure safety involves participation in annual FERC and DSOD inspections. NID also retains an independent consultant to complete a safety evaluation of all FERC jurisdictional dams every five years. The current five-year evaluation is scheduled to be completed this summer. NID works to maintain public safety and the uninterrupted delivery of a quality water supply by implementing exceptional reservoir safety programs. NID engineers will implement a repair plan to the Scotts Flat and Rollins spillways when access to the damage is feasible, and will continue to monitor infrastructure with specialists. Preliminary repairs are expected to be completed early this summer.

(Probably right and a good thing. What would we do without the dams?)

### Mega-dams, like Hoover, probably wouldn't be built today

By Sarah Gardner. March 29, 2017 | marketplace.org

President Trump's advisers are still at the draft stages of a national infrastructure plan. Trump is hoping to inspire a trillion dollars of infrastructure spending, much of it privately funded. But 80 years ago, during the Great Depression, the federal government fueled a public works revolution. Virtually every county in America got a project under Franklin Delano Roosevelt's New Deal. Some got icons, like Hoover, Shasta, Grand Coulee and other massive dams. Those kind of monuments just don't happen today. Especially dams. David Freyberg, associate professor of civil engineering at Stanford University, said dams have gone out of fashion. Many of the good dam sites have been taken, for one. But there are also modern alternatives to consider.



"Certainly if you look at the cost of a new water supply, doing that via a large dam is very expensive, per gallon of water, relative to other ways of obtaining additional water supply," Freyberg said. Today, environmentalists argue instead for alternatives like groundwater banks, recycled wastewater, and more water efficiency and conservation, among other methods. Freyberg said when dams like Hoover and Shasta were built, the environmental effects weren't yet fully understood. Take Shasta Dam in Northern California, built shortly after Hoover. It tamed the Sacramento River, which frequently threatened to flood nearby communities. But Richard Walker, an emeritus professor of geography at University of California, Berkeley, said the dam harmed wildlife and upset ecosystems. "Shasta basically destroyed the salmon run of the Upper Sacramento, which was one of the great salmon runs in the world," Walker said.

But monuments like Hoover, Shasta and Grand Coulee, on the Columbia River in Washington, were also built during a time of relatively lax worker safety and labor standards. Think of the Hoover Dam workers who suffered from carbon monoxide poisoning and heat stroke. Workers even lost their lives building the mega-dams of the Great Depression. More than 100 men died at Hoover under work and living conditions that would never be tolerated today. Historians say it's partly why the dam was completed two years ahead of schedule and under budget. That's not to say proposals for smaller dam projects don't have support today, particularly from agricultural interests. In California, farmers are pushing for several controversial new dams, including one on the San Joaquin River.



Acquiring land for mega-projects is harder today as well. At Hoover, on the Colorado River between Arizona and Nevada, the government managed to buy out an entire town. The community of St. Thomas, founded by Mormons, was submerged beneath Lake Mead, the reservoir at Hoover Dam, in 1938. The government bought up land to build Shasta Dam as well. The Winnemem Wintu, a tiny Native American tribe that lived in the area, contend the government simply took their land. Today, even a proposal to raise Shasta Dam to increase water storage capacity draws loud opposition. Groups like the Sierra Club contend it violates a state environmental law that protects the nearby McCloud River. The Winnemem Wintu say expanding the reservoir would flood more tribal sites that it considers untouchable. "Shasta Dam pretty much the weapon of mass destruction for our people," Chief Caleen Sisk said. "Even though we can't live there, we have always gone back there. We always go there to dance. We always keep up our prayers to the sacred places." Big builds like dams and other mega-projects are highly scrutinized today, subject to more regulations, hearings and other oversight. The "red tape," some good, some bad, depending on your interests, makes things pricier. Sometimes too pricey. The federal government has already indicated it can't afford to foot the entire bill for raising Shasta Dam, for example. It would cost well over a billion dollars, more than double what the U.S. government spent, in today's money, to build the dam in the first place.



is

(Gotta protect against those shakers.)

## Drilling to begin for Ochoco Dam seismic stability studies

Weeks of work, refining existing studies

By: KTVZ.COM news sources, Mar 29, 2017



PRINEVILLE, Ore. - The federal Bureau of Reclamation will begin drilling in early April to collect soil samples at Ochoco Dam east of Prineville. Crews will be working near the toe of the dam's downstream face, collecting soil samples from the embankment and foundation at six drill sites to refine existing studies of the dam's seismic stability. This work is being done as part of Reclamation's Safety of Dams program to ensure the continued safety and integrity of Ochoco Dam.

The Dam Safety program's goal is long-term stability of dams to protect lives and property and to maintain the physical integrity of Reclamation dams. The agency said "the program is recognized worldwide as the standard for dam safety and risk management." The Bureau of Reclamation said its engineers assess all of the agency's dams under strict criteria established by the program. Each structure is periodically reviewed for stability under seismic and hydrologic loading and for indications of internal erosion and physical deterioration. The Bureau of Reclamation advised the public to be aware of drilling equipment near the dam and to stay clear of the area. The drill crews are expected to continue work through May. Ochoco Dam has been part of Reclamation's Crooked River Project since 1956. It stores water for the Ochoco Irrigation District.

(Dams or no dams!)

### Sue Lani Madsen: Snake River dams or shiny new things

By Sue Lani Madsen, MARCH 31, 2017, spokesman.com

The slogan SAVE OUR DAMS is painted in large white letters on a red barn along Hwy 195 north of Pullman. It's been a rallying cry for southeast Washington for almost two decades. Unless you're a fisherman or a farmer, you may have no idea what the barn is trying to tell Cougar football fans. Last Wednesday, the Washington Policy Center's WSU Young Professionals chapter sponsored a campus debate on the question of breaching or keeping the dams. The dams in question are the four Snake River dams upstream of the confluence of the Columbia and the Snake Rivers. Their primary purpose is to connect the Port of Lewiston to the ocean for barging freight, and to provide flood control. Power generation is a secondary function. The dams and locks are operated by the Army Corps of Engineers. The pro-dam team was represented by Todd Myers, Director of WPC's Center for the Environment, and the Honorable Doc Hastings, former U.S. Congressman representing central Washington's 4th Congressional District. No one argues that given their druthers, salmon prefer rivers without dams. So do some people, and "save our salmon" has become their counter-rallying cry. More specifically, Save Our Wild Salmon.



The pro-breach arguments were presented by Sam Mace, Inland Northwest director of Save Our Wild Salmon, joined by Kevin Lewis, executive director for Idaho Rivers United. Both the pro-dam and pro-breach teams kept returning to the distinction, or lack of distinction, between salmon and wild salmon. While Sam Mace advocated for counting only wild salmon toward recovery numbers, Doc Hastings was equally adamant in arguing it's a distinction without a difference. Columbia River hatcheries first released smolts into the river system in the late 1890's. That's 25 generations of fish cross-mating and spawning in the wild," Hastings said. The killer whale population listed as endangered who feed on salmon only care if they're big, not if great-great-grandfather was a hatchery smolt. It only matters if one wants to use the Endangered Species Act as a hammer to remove dams. Three of the four dams were generating power by 1970 and Lower Granite had been under construction for eight years before the ESA passed in 1973. Salmon weren't a primary consideration in the design and construction of the original facilities, although much has been invested in new technology to improve fish survival. Salmon runs set records in 2016, with more salmon returning up the Columbia-Snake River system than any time since record-keeping began in the 1930s, as long as you count all of the salmon. Todd

Meyers focused on the value of investments already made in both transportation and hydropower generation. Congress voted to extend the Columbia River barge system to the Snake River in 1945, at the start of an era transforming our transportation infrastructure. The Federal Airport Act passed in 1946 and the interstate highway system bill in 1956. Our robust but aging rail system wasn't the bright new thing anymore. Tracks were abandoned and removed instead of maintained as investments. Meyers pointed out the real issues are trust and tradeoffs. Wind and solar are the bright new non-carbon based technology, but both are intermittent and rely on hydropower to balance the load. The average annual 8.37 million megawatt hours of power generated by the four dams has to be replaced from somewhere, and will have a cost in both dollars and carbon.

Mace pointed out how transportation demand has changed. Palouse farmers are diversifying crops, growing more pulses and less wheat. Pulses, which include garbanzos and lentils, are shipped in containers but the Port of Portland no longer handles containers. Overall barge traffic is down. Maintenance costs for the barge system are spread across fewer customers, and rail demand has increased to carry containers to the Port of Seattle. **We've reduced diversity in our transportation system before and regretted it. If Snake River barges are abandoned and dams removed in favor of new rail lines, we are circling back to 1945.** Judge Simon ordered a new study because of the fish impact, but power and transportation also have long-term implications. Do we abandon investments in old infrastructure because maintenance costs are less appealing than building shiny new things?

[\(Back to dam removal or not! So there!\)](#)

Letter: Snake River dams are serving their purpose and allowing fish through  
MARCH 31, 2017, tri-cityherald.com



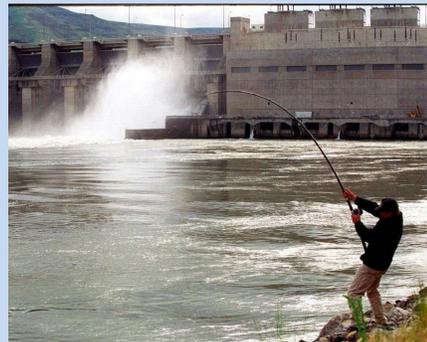
**To the lady from Friday Harbor who questions if the dams on the Snake River are serving their purpose (TCH, March 23).**

1. I would respectfully ask you to read your electric bill.
2. Check the availability of beans, spuds, corn, livestock feed and many other agricultural products grown in the Columbia Basin. These crops are possible due to water available from the Snake

River and Columbia River. The power generated from the dams on the Snake River and Columbia River power up the pumps required to irrigate well over 1 million acres of farm land. This farm land is what helps you feed your family. The power generated by these dams powers up these pumps, as well as supplies you clean, cheap, nonpolluting power for your household appliances. How many clean, nonpolluting, renewable power dams are located on your side of the state? Do they allow fish to pass over them? Ours do.

3. Passage of salmon through our dams has increased many fold in these past 10 years. Check the official fish count.

LOU KNESEK, PASCO



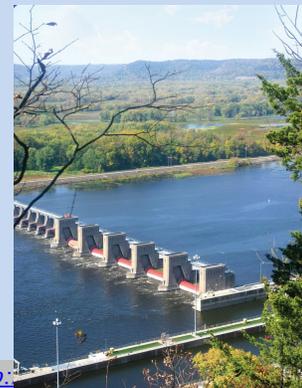
[\(It's dangerous around dams.\)](#)

### **Boater dies after getting caught in Genoa dam**

Mar 31, 2017, news8000.com

**GENOA, Wis. (WKBT) - One person is dead after getting caught in the roller gates of the Genoa Dam on the Mississippi River.**

The incident happened just before 5 p.m. Friday. According to the Wisconsin DNR, a fisherman had his boat anchored inside the dam's restricted area, within 150 feet of the dam. When the man was told to leave the restricted area, he pulled up his anchor before starting his



boat's engine. At that point, the boat was already being pulled toward the dam. The DNR says the man's boat capsized near the dam and he was pulled under the roller gates by the current. The fisherman's body was later recovered from the water. Authorities say he was wearing a life jacket when he was recovered. The man's name is not being released at this time.

(Another shaker fix. Wish they'd just fix this dam and quit writing articles about it.)

### **Safety stressed in renovation of 86-year-old dam**

By ED RUNYAN, windy.com, April 2, 2017

MINERAL RIDGE, Ohio - Though much remains unknown as to the kind of reconstruction program that will be done to modernize the Mahoning Valley Sanitary District's Meander Reservoir dam, MVSD President Matt Blair says the safety of downstream residents will continue to be an important consideration. Blair says the 86-year-old dam needs to have the modern advancements that allow for ground movement and will allow the dam to function for many more years. "I want to bring the dam up to today's specifications. I don't want to be coming back in 10 years doing this again," Blair said.



The engineering firm Gannett Fleming has a \$396,000 contract to study the dam. The study is expected to be complete in the fall and will help determine the scope of the renovation and how much it will cost. Cost estimates for upgrades to the dam have risen. The original estimate was \$3.6 million but is now about \$28 million. Blair, a Niles representative on the MVSD board, has raised red flags about the safety of the dam in recent years. He wrote letters last summer to the Ohio Department of Natural Resources and Environmental Protection Agency asking for help in determining whether "ground shifting" is occurring near the Meander facilities that would explain cracking in the road above the dam, built in 1932, and in MVSD buildings. More recently, he has cited evaluations of the dam by Gannett Fleming and ODNR saying the dam is structurally sound and poses no danger to the public. The MVSD has an emergency action plan, which its employees last updated in January. Its purpose is to outline procedures that would be implemented in the event of an emergency involving the MVSD, such as a weather event, chemical spill or a problem with the dam. It lists agencies that might be involved in an emergency response and lists phone numbers and contact names.

An ODNR inspection of the dam last September also contains a potential downstream-hazard classification, which is a chart listing the areas that would be vulnerable to flooding if the dam broke. It says Niles and Girard would have a "probable loss of human life," flooding of structures or high-value property and damage to roads. It says downtown Niles is 1.9 miles from the dam; Girard is 5 miles away. The dam is rated Class 1, which means it poses the greatest hazard to downstream residents of the four dam classifications in Ohio. The classification is based on the height of the dam (60 feet), the "total volume of water the dam can impound," and the "potential downstream hazard," according to ODNR. Renovations to the dam could take three years to complete and could create additional hazards, so Gannett Fleming will write a separate construction-related emergency action plan, Blair said. An emergency action plan will be written by Gannett Fleming to address any hazards that would arise in the event that there was a hazard during the renovation of the dam," Blair said recently during an interview. The plan might also address other hazards that could arise in future years, such as earthquakes, Blair said. A June 2012 engineering study by MS Consultants of Youngstown evaluated the possibility that area injection wells caused damage to the dam and MVSD buildings. No evidence was found of that, however. MS studied cracking in the floor and elsewhere in the MVSD filter addition building, which was built in 2005. The 2012 report mentions that a 4.0 magnitude earthquake occurred at

the Northstar 1 injection well on Ohio Works Drive in Youngstown Dec. 31, 2011, and the filter-building cracks were first observed three days later. Northstar 1 is about 7 miles from the dam. Professional Service Industries Inc. conducted four soil borings in April 2012 around the perimeter of the filtration building. The results indicated that it is “highly probable that settlement of the existing fill ... is the primary cause of the cracks and that the earthquake prompted the owner to recently look for and record existence of cracks.” The report also said, however, that “it is also possible that the 4.0-magnitude earthquake may have aggravated the severity and/or extent of the cracking, and the cracks became more noticeable.”

The September 2016 ODNR inspection of the dam didn't mention any substantial concerns about the dam's safety, but it addressed the dam's emergency action plan. “Despite efforts to provide sufficient structural integrity and to perform inspection and maintenance, dams can develop problems that can lead to failure,” the report said. “Early detection and appropriate response are crucial for maintaining the safety of the dam and downstream people and property.” The 2016 report said the “Mineral Ridge [Meander] Dam has an approved emergency action plan,” but its “contact information is out of date.” **The plan is also missing a “preparedness section,”** it says. When the plan is revised, a copy should be provided to ODNR and the Trumbull County Emergency Management Agency, it says. Dave Tabak of MS Consultants, who has been operator of record and chief engineer for MVSD since late February, said the MVSD board has authorized Gannett Fleming to create an emergency action plan.

As part of that process, MVSD will conduct exercises to present information to the communities near the dam to allow them to be prepared in the event of a dam failure. Tabak said he doesn't know when those types of exercises will take place, but it will be after a draft of the emergency action plan is written. **When asked recently whether Trumbull Emergency Management Agency in Warren has a copy of the existing emergency action plan, officials said they could not find one.** Niles Fire Chief David Danielson also said he doesn't have a copy of the plan. Various things can cause ground shifting, and injection wells are just one of them, Blair said. Others are “natural shifting of the ground” such as from geological faults. **“I want the [dam renovation] project to take into consideration seismic activity wherever it comes from,”** he said. As of late January, Gannett Fleming was conducting soil borings, according to documents obtained by The Vindicator through a public records request. John Williams of Youngstown, a member of the environmentalist group Frackfree Mahoning Valley, said the increase in cost estimates to renovate the dam in recent years makes people like him wonder whether seismicity produced by the gas and oil industry explain the higher estimated cost of dam renovations. **“It's been damaged by something,”** Williams said of the dam. **“They can't seem to put their finger on it.”**

(Furnishing the drinking water.)

## Olympus Dam

From Wikipedia, the free encyclopedia

Olympus Dam is a dam located on the Big Thompson River, in the town of Estes Park, Colorado. **The reservoir behind the dam, Lake Estes, is the main source of drinking water for Estes Park.** The dam was constructed between 1947 and 1949. The dam is 70 feet high, has a crest width of 10 feet, a base width of 49.5 feet, and a crest length of 320 feet.



(New display at visitors center.)

## Ceremony set for displays at Glen Canyon Dam visitor center

By - Associated Press - Monday, April 3, 2017. [washingtontimes.com](http://washingtontimes.com)

PAGE, Ariz. (AP) - A ceremony is planned Tuesday in northern Arizona to celebrate the new opening of displays at the Glen Canyon Dam visitor center at Lake Powell. Federal Bureau of Reclamation and National Park service officials are hosting the ceremony at the visitor center, which is located at the west end of the dam located near Page, just south of the Arizona-Utah line. Officials say the replacement of the displays is the first full one since the visitor center opened in 1968. The new informational and interactive displays include updated scientific data and use education techniques focusing on science, technical, engineer and math.



(New dam.)

### Hide-A-Way Hills completes new dam

By Spencer Remoquillo , Reporter, April 2, 2017, lancastereaglegazette.com

HIDE-A-WAY HILLS, PA - For the first time since 2014, the Hide-A-Way Hills community will have full access to the private community's largest lake after completing dam construction late last year. Hide-A-Way Hills Club residents privately funded a \$3 million dam construction project to restore the 110-acre Lake of Four Seasons after problems were discovered with the dam in November 2013. "There were horizontal cracks, which was probably due to sub-par construction 50 years ago," said Jim Krygier, chairman of the Hide-A-Way Hills management committee. Krygier was charged with educating residents of the dam's structural issues to raise funds, which resulted in each of the 700 households paying about \$4,000. Krygier said it was a challenge to inform residents that they needed to privately finance the work as the work on Buckeye Lake's dam was state funded. The difference is Buckeye Lake is a state park. If it hadn't been funded, property values would have decreased.



"If you're in a lake community, you need a lake," Krygier said. The dam was originally constructed in 1965 and cost about \$500,000, according to the club's website. Fundraising and planning of the new dam took about two years and required assistance from the U.S. Army Corps of Engineers. Construction began in the summer of 2016 and is complete minus some landscaping around either side of the new spillway. The new dam increased the lake's surface area by about 70 feet, improved the boat launch ramp and is expected to last at least another 50 years. Krygier said residents are looking forward to the full use of the lake this year. "In 2014, 2015 and 2016 we haven't been able to use the lake fully, only canoes and kayaks," Krygier said. Last week Krygier estimated lake levels are about one foot below normal pool. Boats will return to the water on April 29.



### Hydro:

(Too much of a good thing. Federal regulations make no sense.)

### Renewable energy creates oversupply, may impact rates

By HEATHER KENNISON, magicvalley.com, 3/29/17



TWIN FALLS, ID — Idaho Power Co.'s hydroelectric facilities are generating more power than what the company can use — and staff are pondering how a regional oversupply may affect future customer bills. Federal regulations require the company to purchase all the power generated from its most expensive resource: wind and solar. Idaho Power doesn't own its own wind and solar facilities, but must buy the power from commercial projects. The problem? "We're in the middle of a pretty significant water supply here," said Kresta Davis-Butts, real time balancing operations leader for Idaho Power. "We are generating quite a bit of hydroelectric generation."

Brownlee Reservoir, upstream of Hells Canyon, is far above normal levels, and water is being spilled for flood control. But 13 solar projects able to generate 270 megawatts, and 627 megawatts of wind energy facilities, are contributing a regional oversupply of energy, she said. "The wind is definitely generating more at this time of year," Kresta-Butts said.

All that extra energy has to go somewhere. Idaho Power is forced to either limit its hydroelectric generation or sell its excess. Customer demand on the system is around 2,100 megawatts during peak times in the morning and evening. "We have had days when we have transferred 300 to 500 megawatts of energy," Kresta-Butts said. And prices for energy on the market are low because of the oversupply, forcing the company to sell at a loss if it has to do so. "We are limiting (generation) so we stay more balanced," Kresta-Butts said. The higher cost of wind and solar is passed down to Idaho Power customers through a rate-setting process. These are likely to be reflected when the company files its annual Power Cost Adjustment next month. "We don't know yet what that's going to look like," company spokeswoman Stephanie McCurdy said.

(Too bad, hydro's cheaper.)

### Surge of hydropower could force cutbacks of solar, wind

By Dominic Fracassa, March 31, 2017, sfchronicle.com

An abundance of rain and snowfall this winter has teed up what's expected to be a bountiful year for hydroelectricity production in California, as reservoirs recover from five years of drought. But the projected rise in hydropower could force the state to sharply cut back on the amount of power produced from other sources, particularly renewable energy, according to the California Independent System Operator, the organization that manages most of the state's vast energy system. The system operator forecasts on some days it will have to block between 6,000 and 8,000 megawatts of electricity from the grid as a result of the profusion of hydropower. That's the equivalent output of six to eight nuclear reactors. In order to keep pace with the supply and demand of the state's moment-to-moment energy needs, as one power sources rises, others have to be dialed down, in a process known as curtailment. Steven Greenlee, a spokesman for the system operator, said that California's policies requiring increasing amounts of energy to be produced from renewable sources has boosted the amount of solar power.



"If the amount of excess supply we have on the grid is during the mid-morning and mid-afternoons, it's likely that solar will be high on the list to curtail," Greenlee said, adding that wind power production was likely to be curbed as well. Natural gas plants could also be affected. Hydroelectric output could also be curtailed, Greenlee said, but only when dams are beneath their "spill levels," the safety threshold that determines when water must be released. The system operator must accept power from hydroelectric sources that are above their spill levels. That could happen as snowmelt pours into reservoirs. "Now we're seeing a record amount of hydro plus a record amount of solar," Greenlee said. "And so that's shaping up to be a potential for more excess on the grid than what we've ever encountered before." Fitch Ratings released a memo in March predicting that curtailment brought on by overproduction would hurt renewable energy producers. Matthew Reilly, director of U.S. public finance for Fitch, expects large, utility-scale

solar projects to suffer the most should the curtailment projects become reality. Those projects are largely in Southern California. Much of the energy generated from rooftop solar panels doesn't feed back directly into the power grid, so homeowners are likely to be unaffected, Reilly said. The system operator pays some energy providers to power down when it's necessary to cut back, but Reilly said that "most renewable projects don't receive revenue when they're being curtailed, so they would lose out on revenue they would otherwise get."

(A history lesson on hydropower.)

### How Nikola Tesla Harnessed The Power Of Niagara Falls

By KALEE BROWN, APRIL 2, 2017, collective-evolution.com

Can you imagine if we were still walking around at night using candles to light our way, or heating our homes only by fire? Sure, it's romantic and nostalgic to do that once in a while, but at the end of the day, society would look extremely different without the use of electricity.

advertisement - learn more Nikola Tesla was one of the geniuses who played an integral role in creating modern electricity, so you have him along with many other scientists to thank!

Tesla worked with Edison on electromagnetism, played a hand in inventing the radio, and is well-known for his work with alternating current (AC), AC motors, and polyphase distribution system. In fact, Tesla and industrialist George Westinghouse developed the first hydroelectric power plant using Niagara Falls.



### The first hydroelectric power plant at Niagara Falls

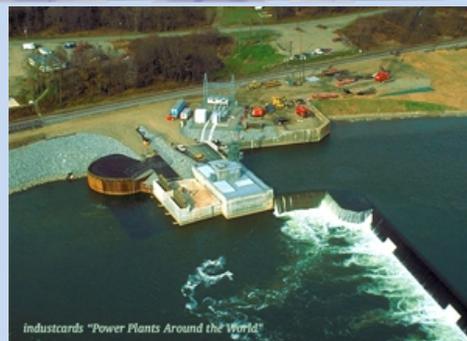
If you've never been to Niagara Falls, it's quite a sight to see. The CE team lives in Ontario, so we've had the pleasure of seeing it up close, and it's pretty miraculous. However, it's arguably even more astounding that Nikola Tesla had the idea of utilizing the power from this magnificent waterfall to generate electricity in the first place. The power generated by the Falls can be done through a process called hydroelectricity. Hydroelectricity refers to the generation of electrical power through the use of the gravitational force caused by falling or flowing water. In this case, the source of the flowing or falling water is Niagara Falls. This wasn't exactly a random thought for Tesla either, as he had always dreamed of generating energy by harnessing the power from the Falls. It wasn't until 1893 that his dream became a reality when Westinghouse was awarded the contract to develop the plant. This wasn't exactly a small dream either, as Tesla was a supporter of alternating current (AC) as opposed to direct current (DC), which was what society was leaning towards using at the time. In fact, there were proposals submitted for this power project to use DC, including one backed by Thomas Edison. It's a good thing that the Niagara Falls Commission agreed to allow Tesla to use AC because it's far more powerful and safer to transfer over longer distances, as AC is what we use now to power entire cities (source).

(Back to the mundane, a license.)

### Rye Development Receives FERC License for Allegheny Lock and Dam 2 Hydropower Project to be Located at Riverfront 47 as Part of Innovative Partnership

PR Newswire, April 3, 2017, finance.yahoo.com

BOSTON, April 3, 2017 /PRNewswire/ -- Rye Development announced today the receipt of a hydropower license from the Federal Energy Regulatory Commission (FERC) for the Allegheny 2 Hydroelectric Project, a 17-Megawatt facility,



which will be located on the Allegheny No. 2 Lock and Dam owned by the US Army Corps of Engineers. Rye Development and Riverfront 47 said their innovative partnership was designed to combine the residential/mixed use development with a local and reliable source of clean, renewable energy. Both Rye Development and the Riverfront 47 development team, said they look forward to working with the Army Corps of Engineers to bring this project to fruition. This low-profile powerhouse planned for the Allegheny 2 project will generate enough energy to power over 8,500 homes with clean, renewable energy for generations to come. This local investment of over \$60 million will create 150-200 jobs during construction, operations and maintenance. Construction is expected to commence in 2018 and be completed, with the facility online, in 2020.

Ramya Swaminathan, CEO of Rye Development, said: "Receiving this license is a major milestone in our plans to create clean energy and jobs in the region. We appreciate Riverfront 47 incorporating our facility into their plans and supporting our efforts. In addition to providing an additional local source of clean energy, we believe in R47's vision of a project that enhances the community. The plant will have a minimal footprint and, as part of our FERC licensing process, we committed to providing recreational enhancements for local residents. It also creates the ability for R47 to be energy independent and for a facility on its property to be producing far more energy than the development itself requires." Mark Minnerly, Director of Real Estate at The Mosites Company, said: "We are building a coalition of stakeholders to jointly control this 66-acre area of waterfront. With Rye Development joining this effort, along with entities including Riverfront 47, the municipalities and Aspinwall Riverfront Park, we will have an excellent opportunity to make this riverfront industrial reclamation into one of the greenest and sustainable waterfront districts of its kind." FFP New Hydro LLC has a portfolio of 23 hydropower development projects on existing dams in PA, WV, OH, MS, KY, IN, and LA totaling over 260 MW. These projects are low impact run-of river hydropower development projects, which will provide clean, renewable power in their host communities. Rye Development is the manager of FFP New Hydro.

(The sacrifices of some to build a dam and hydro plant.)

## **BARKER DAM**

By SERENE KARPLUS · APR 3RD, 2017 · themtnear.com

Nederland, CO - Eight men died constructing Barker Dam. A random lightning bolt in a sudden summer storm ignited dynamite charges set to blast a channel for the sides of the dam walls. The four-man crews of two steam shovels perished underneath the rubble from the explosion. In 1903, the sustainability of hydroelectric power attracted engineers of the Central Colorado Power Company (later Public Service Company of Colorado) to seek ways to harness water energy to provide electricity to our thriving mining camps and cities downstream.



The original location chosen was further upstream in Eldora, but when that didn't work out, officials chose the ranch owned by Hannah Barker. When she refused to sell, a process similar to today's eminent domain seized the land and construction began in 1908.

The dam cost \$2.7 million to build and was completed with the help of 700 workers in 1910. Materials were hauled by train on a spur of the Switzerland Railroad. It was built with more than 133,000 cubic feet of reinforced cyclopean concrete made on site, 120 feet thick at the base, 16 feet at the top, over 600 feet long and 175 feet high. Its 10 hydraulic gates on the front can drop 10 feet using the original technology built over one hundred years ago. Unlike many more modern dams, everything can also be operated manually, not solely reliant on electronics and computers to manipulate. When full, the reservoir holds 500 million gallons, or 12,000 acre feet. The Boulder Canyon Hydroelectric Plant was built eleven miles downstream at Orodell with materials brought up the canyon by train and hauled by 16-horse-team of specially built wagons. State of the art applications made this plant the model for many others built after it in that era. Water is gravity fed

via a 36" reinforced concrete pipeline built on site in 2 foot sections to the Kossler reservoir and 9,647 feet of steel pipeline to the plant.

The 1,828-foot drop from Kossler created the highest water pressure of any dam in the United States at that time. The 800 pounds per square inch water pressure in the pipeline caused the riveted joints in the channel to leak. Using the new method of acetylene welding, welders discovered that striking the joints with a ball-peen hammer while they were warm produced the needed weld strength. A distinct advantage to the pressure lies in the ability of the pipeline to cross under Boulder Canyon and carry water back uphill to Betasso. When the plant began operation on August 4, 1910, the two I.P. Morris Company turbines and General Electric AC generators produced 10,000 kilowatts of power. Later, upgrades doubled that output. The dam's purpose was also to create water storage and the pipeline also directs water to the City of Boulder Betasso Water Treatment Plant. Barker Reservoir has been a key component of Boulder's water system since 1954, delivering up to 40 percent of the city's annual water supply. In 2001, the City of Boulder purchased the Boulder Canyon Hydroelectric Project from Xcel Energy, formerly Public Service Company of Colorado. The purchase included Barker and Kossler reservoirs as well as the connecting pipelines, rights-of-way and the Boulder Canyon Hydroelectric Plant.

With water laws in place since the early 1800's that provide senior rights to Kansas, managers must determine every day how much water may be removed and how much must be released to flow into the stream. On call 24/7/365, our local "Dam Keeper" (or Water Source Operations Manager for the City of Boulder) Eric Johnson is responsible for controlling the gates, as well as continuous maintenance, monitoring, and testing at the dam and the snow melt watershed source above it. He lives and breathes the history and infrastructure of our dam every day. Speaking at a Nederland Area Seniors lunch earlier this month, Johnson reassured us that the annual inspections of the dam show it to be very solid and sturdy. Some plans to re-face it in the next twenty years are purely cosmetic. When asked about the hiking trail along the north shore, Eric indicated that these were built by local volunteers and are not city-funded or maintained, but that he would help provide materials if locals manage a trails refurbishment project.

(Will the SCOTUS be next?)

## US COURT REJECTS STATE'S CLAIM TO RIVERBED WHERE DAMS BUILT

By Emery P. Dalesio, AP Business Writer, April 4, 2017, pennenergy.com

RALEIGH, N.C. (AP) — A federal appeals court has rejected North Carolina's claim that it owns the bottom of a major river where hydroelectric dams have been churning for a century. The 4th U.S. Circuit Court of Appeals split 2-1 in dismissing the state's claim that it has a say in the operations and ownership of four Yadkin River dams built to power a now-defunct Alcoa aluminum smelter.



Monday's decision by the Richmond, Virginia-based court upheld a lower court ruling that Alcoa had proved it acquired title to 99 percent of the disputed riverbed, and that North Carolina was too late to contest the rest. Laura Brewer is a spokeswoman for state Attorney General Josh Stein. She says Stein's office hasn't decided whether to appeal the ruling to the U.S. Supreme Court.



**Water:**

(The other water storage in CA.)

## PG&E snow survey shows healthy snowpack

By: Cristina Davies, Mar 28, 2017, krctv.com

DYER MOUNTAIN, Calif. - Pacific Gas and Electric conducted a snow survey on Tuesday afternoon in Lassen County to get a birds eye view of a healthy Northstate snow pack. It was a quick helicopter ride to the top of Dyer Mountain in Lassen County, where PG&E crews were taking measurements of the snow. "PG&E measures the snow within our hydro watershed so we know how much water to expect for hydro power," said Paul Moreno, a spokesman for PG&E. Trekking through the snow, hydrographer Ted Baker and his coworker surveyed ten different spots.



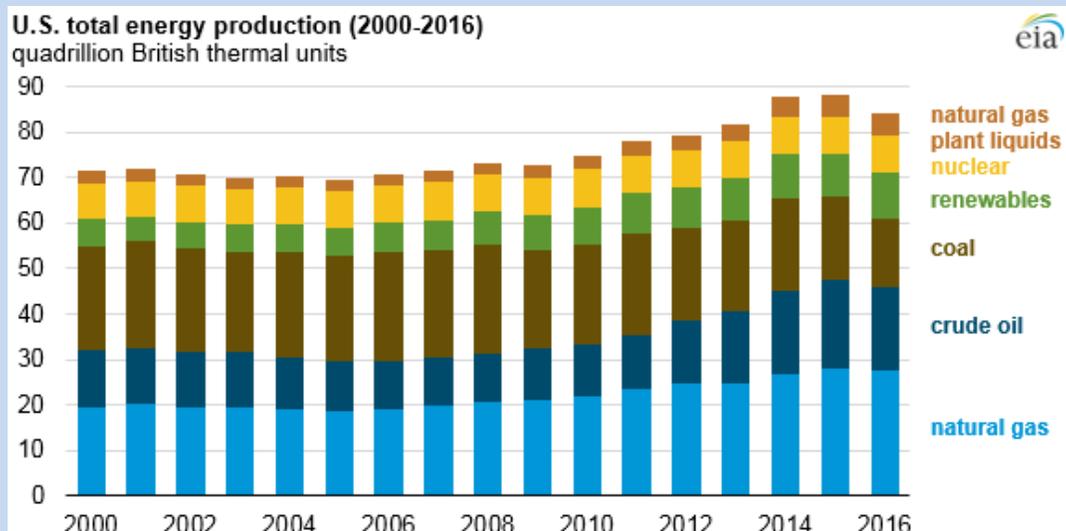
"We'll get a sample of the snow so we'll weigh it and then you can determine from there basically how much water content there is in the snow," Baker said. He explained how they use a tube, plunge it into the snow once, hit solid ground and pull it out to measure the depth. After measuring the depth they weigh the snow to determine the water content.

"We got a pretty good amount of water content in the snow and it's going to look like a pretty great year," Baker explained. The snow depth for this survey was averaging 96 inches, which translates to 33 to 42 inches of water, according to Moreno. Last year during the same survey there was only 81 inches of snow. "We're certainly happy to see a very healthy snowpack," Moreno said. "One of the best we've seen in decades." Once the snow melts it will be harnessed for hydro power. "The snow right under our feet is going to melt and eventually work its way into Lake Almanor and down the north fork of the Feather River into Lake Oroville and then eventually into the Sacramento River," Moreno said. Moreno explained the more snowpack there is, the more hydro power they can harness. "For our customers it means we're going to have more hydro power available," Moreno said. "This is a good source of energy. It's clean. It's renewable. It's reliable. And in fact we use it to help us through the hot periods of summer because we can quickly ramp up hydro power when called upon." He added the data they collect will be shared with the state to help get a better picture of the water situation in California.



### **Other Stuff:**

(Does this mean the economy is not so hot?)



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

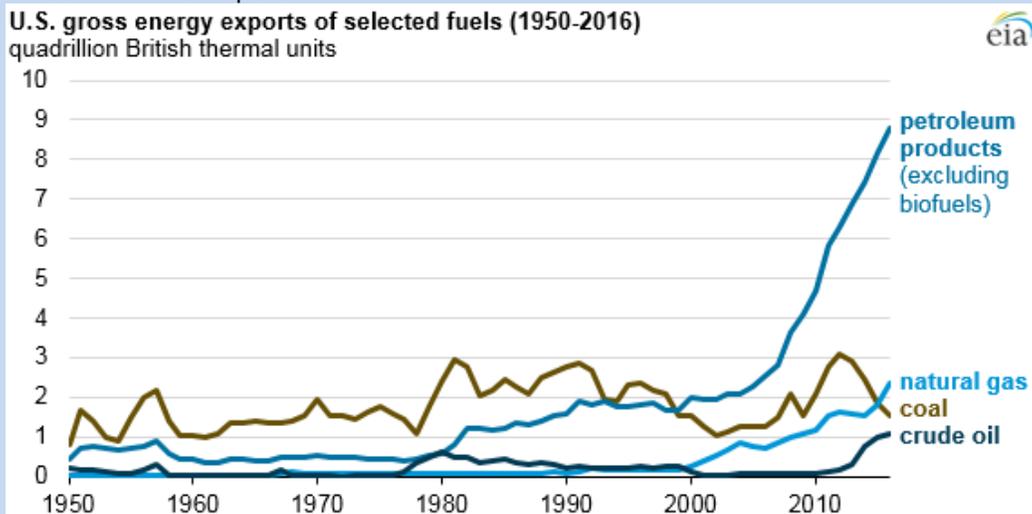
Total U.S. energy production falls in 2016 after six consecutive years of increases  
1 APRIL 2017 BY MILITARY NEWS, Principal contributor: Allen McFarland, military technologies.net

U.S. primary energy production totaled 84.1 quadrillion British thermal units (Btu) in 2016, falling 4% from the 2015 level, the first annual decline in U.S. energy production since 2009. The decline in production coincided with an increase in both total energy imports and exports.

U.S. fossil fuel production fell 7% from 2015 to 2016. Most of this decline was from coal production, which decreased 18% and fell to its lowest level since 1978. Relatively low natural gas prices, especially in the first half of 2016, and relatively flat electricity demand contributed to the decline in coal production. Petroleum and natural gas production also declined, falling 5% and 2%, respectively, as prices for both fuels were below their respective 2015 levels.

After declining slightly in 2015, U.S. renewable energy production increased 7% in 2016. Wind energy made up almost half the increase in renewable production, while solar energy accounted for nearly a quarter. Both fuels saw substantial electricity generating capacity additions in 2015 and 2016. Hydroelectricity also accounted for almost a quarter of the increase in renewable energy production, largely because of easing drought conditions in the West Coast states, where most of the U.S. hydroelectric capacity is located.

After ten consecutive years of decline, U.S. total energy net imports rose 6% from 2015 to 2016, as the growth in gross imports outpaced the increase in gross exports. U.S. gross energy imports increased 7% from 2015 to 2016. Most of the increase came from additional crude oil imports, which rose 7% as low gasoline prices led to an increase in gasoline demand. Despite the decrease in production, total energy exports rose 7% from 2015 to 2016. Petroleum product exports increased 8%, natural gas exports increased 30%, and crude oil exports increased 13%. These increases and relatively small changes in biofuels, electricity, and coal coke exports offset a 19% decline in coal exports.



For the first time on record, gross exports of natural gas from the United States exceeded those of coal in energy-equivalent terms. EIA projects that the United States will become a net exporter of natural gas on an annual basis by 2018, as domestic production continues to grow and additional natural gas export capacity, particularly to Mexico, comes online.

(The good jobs list!)

## Top 10 US Jobs in 2017

### Tech roles dominate the list

By Evann Gastaldo, Newser Staff, Mar 22, 2017, newser.com

(NEWSER) – In the market for a new job? Consider one of these, which jobs website indeed ranks as the top 10 jobs of 2017. Indeed put its rankings



together based on number of job postings, growth opportunity data from 2013 to 2016, and salaries of at least \$70,000, USA Today reports. Roles in tech and computer science dominate:

1. Full stack developer: Average base salary \$110,770
2. Data scientist: \$129,938
3. Development operations engineer: \$123,165
4. Salesforce administrator: \$89,702
5. IT engineer: \$85,563
6. Salesforce developer: \$108,089
7. Quality engineer: \$71,111
8. Digital project manager: \$73,169
9. Cloud engineer: \$118,878
10. Management consulting analytics manager: \$90,994

Click for the full top 25: <http://blog.indeed.com/2017/03/21/best-jobs-united-states-2017/>



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