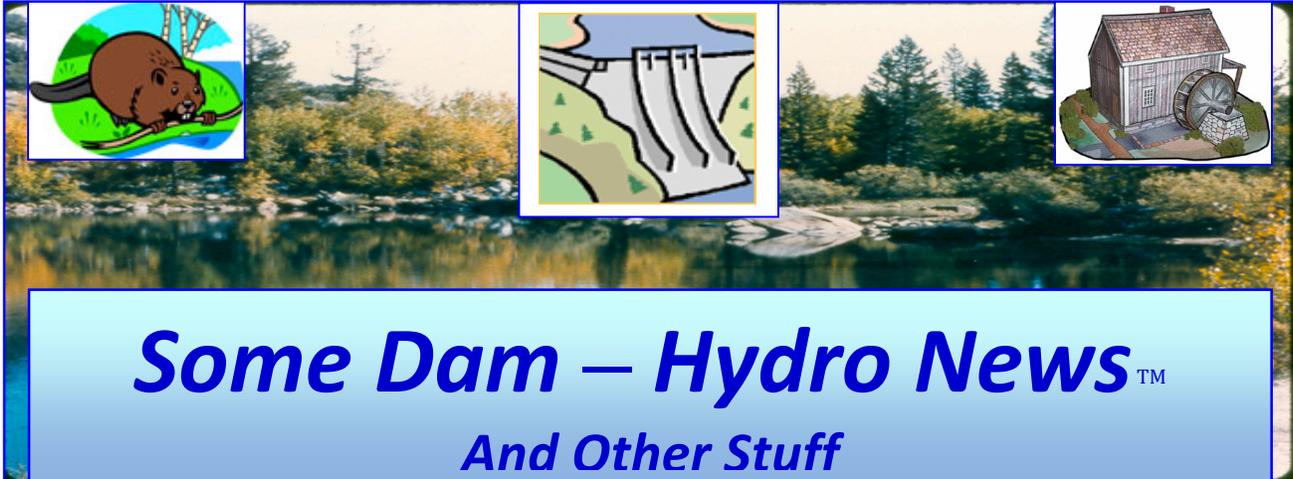


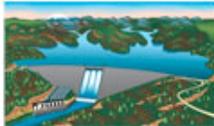
10/4/2019



**Quote of Note:** *“The wise man doesn't give the right answers, he poses the right questions.” - Claude Levi-Strauss*

**Some Dam - Hydro News → Newsletter Archive for Current and Back Issues and Search:**  
 (Hold down Ctrl key when clicking on this link) <http://npdp.stanford.edu/>. After clicking on link, scroll down under Partners/Newsletters on left, click one of the links (Current issue or View Back Issues).

**“Good wine is a necessity of life.” - -Thomas Jefferson**  
*Ron's wine pick of the week: 2017 Drew Pinot Noir "Mid-Elevation"*  
**“No nation was ever drunk when wine was cheap.” - - Thomas Jefferson**



**Dams:**

(New web site worth knowing about.)  
<https://ohsonline.com/articles/2019/09/24/osha-and-noaa-make-severe-weather-safety-resource.aspx?admgarea=news&m=1>

(More opinion and commentary on the Lower Snake River dams.)

**Dam breaching incurs the law of unintended consequences**

Commentary by Rick Rogers, 9/8/19, Imtribune.com



“Study: Breaching dams would pay off” (Lewiston Tribune headline, July 31). This follows an April 4 article indicating some “experts” believe it possible to replace the four lower Snake River dams with wind power and solar. I’m

afraid my first words in both cases were a little unkind: “horse apples.” I really need to watch my language.

The “study,” titled the “Lower Snake River Dams Economic Tradeoffs of Removal,” was done by ECONorthwest for Seattle-based Vulcan Inc., a company founded by the late Paul Allen. Allen, who also co-founded Microsoft, was, in this writer’s opinion, a screaming liberal hoping, with his money, to foist his liberal views on Americans even long after his death. This “study” is a perfect example both of Allen’s foresight and of typical liberal shortsightedness. Doing my due diligence, I read the executive summary of this “study” online. Twice. The summary proves to be a perfect example of the authors’ ability to assume human behavior, tap dance with statistics and simply lie by omitting important considerations.

I’m all for renewable energy resources (we have solar power on our home, for example). One of those renewable resources is hydropower, which the Northwest has in abundance. I’m old enough to remember when the dams were first proposed. I watched in alarm as the Army Corps of Engineers abused government’s eminent domain powers to move private citizens and businesses off the river to build the necessary levees. The powers that be at the time “mitigated” the dams’ effect on fish by building a hatchery at Ahsahka. This was when Middle East sheikdoms were gouging us with oil prices and supply, and few people (other than Nez Perce tribal members) were worried about fish.

A big selling point for the dams was flood control. The current powers that be (today’s environmentalists) are apparently not worried at all about flood control. This is typical of environmentalists pushing government programs and ignoring the law of unintended consequences. Almost universal in any human endeavor, unintended (or unanticipated) consequences are outcomes (or additional results) not foreseen and/or intended by a purposeful action. The term was originally popularized by American sociologist Robert Merton. In her Aug. 3 letter to the editor, Tribune reader Marie Eier beautifully described the downstream flooding environment she saw and experienced in the region before the dams. Let’s all thank God for citizens senior enough to remember our history. One would expect the study ballyhooed in the Tribune’s headline would at least analyze the flood control issues that might arise from removing these dams. One would be disappointed. In a glaring omission, the executive summary doesn’t even mention flood control. Completely eliminating potential flood control costs contributes to the authors’ claim of an \$8.6 billion savings by removing the dams. “Horse apples” again, say I.

Any businessman would also expect that the original cost of the dams and levees would be considered as sunk cost and, (inflation-adjusted) applied (as cost) to any cost/benefit calculations. That expectation would also be dashed; it didn’t fit Allen’s agenda. This writer has sought in vain to decipher why Allen took on this project without considering what the eastside population (and government representatives) thought about it. Probably, Allen didn’t plan on being dead when the dams fell, so he could chortle and rub his hands in glee with the best of evil-dealing billionaires. Unfortunately for him, he discovered that even great wealth doesn’t excuse one from the final judgment. To assume, as this study apparently does, that removing the dams will have no cost effect on downstream flooding flies in the faces of those earlier wizards who thought that the dams would provide flood-control benefit. That was, after all, back in those prehistoric days of the 1960s and 1970s.

The ECONorthwest authors apparently believe, without evidence, that the level of the Snake River can return to pre-dam levels, and miraculously the river will settle at the correct temperature for fish. At the same time, the shoreline will (instantly and without cost) re-grow all the native trees and grasses that formerly bordered the river. And there will be an immediate, cost-free and beneficial result for all the other local flora and fauna. Like the unicorns. It’s unimaginable the result could instead be a muddy breeding ground for every unwanted weed and insect possible. I propose a “study” on the rate of intellectual deterioration of government and political beings during the past 50 years. It must be nice to work for government (or a Paul Allen company) and live in an imaginary world.- Rogers of Clarkston is a retired manager at CCI-Speer (now Vista Outdoor). His email address is rrogerr76@gmail.com.

(Wow, dam removal is on a roll. Another hydro project bites the dust.)

## Going, going, gone

SEP 14, 2019, by BILL SHEA, Editor, messengernews.net

Crews from Rachel Contracting, of St. Michael, Minnesota, work on removing the last of the Hydroelectric Dam Tuesday morning. Workers will be installing a J hook feature further upstream to help create fish habitat. Fort Dodge City Engineer Tony Trotter said crews have until Dec. 31 to complete the work. The exact completion date will depend on river levels and flow, he said. Some of the last bits of the Hydroelectric Dam that spanned the Des Moines River in Fort Dodge for more than a century began disappearing this week.



Earthmovers splashed into the water to gouge out a 5-foot-tall section of the dam that remained submerged after most of the dam was removed earlier this year. The majority of the Hydroelectric Dam and the structure downstream that residents had long called the little dam were ripped out in a process that began in January and largely wrapped up in March. Left behind was the frame of a gate that allowed water to flow through the Hydroelectric Dam. That gate, on the west bank of the river, was left in place as a result of an agreement with the State Historic Preservation Office. Also left in place was the section that workers are pulling out now. City Engineer Tony Trotter said previously that the section was left there in order to control the release of silt that had accumulated behind the dam.

Crews from Rachel Contracting, of St. Michael, Minnesota, worked on adding rocks to the east bank of the Des Moines river to control erosion as part of the Hydroelectric Dam removal project. "The idea behind that was to slowly release the silt," Trotter said. In January, the Fort Dodge City Council hired Rachel Contracting Inc., of St. Michael, Minnesota, to remove the dams. The company is to be paid \$274,784 to remove the little dam and \$1,186,302.86 to remove the Hydroelectric Dam. Trotter said the company has until Dec. 31 to complete the job. He added that the exact completion date will depend on the river's water level and flow. A master plan for the Des Moines River corridor in Fort Dodge and Webster County that was approved about three years ago called for removing the dams for safety and environmental reasons.

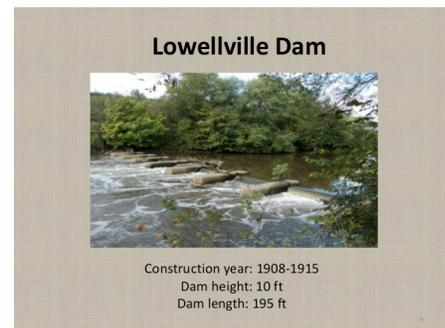
(Dam removal keeps rolling on.)

## Lowellville gets approval to remove dam along Mahoning River

There's a plan to remove all nine dams to allow for a free-flowing river

By: Stan Boney, Sep 16, 2019 / wkbn.com

LOWELLVILLE, Ohio (WKBN) – The Army Corp of Engineers gave its approval for the removal of the Lowellville Dam on the Mahoning River. We should know in the next few days when the work will begin. Lowellville Mayor Jim Iduciani said he's meeting Tuesday with the excavating company Marrucci and Gaffney to talk about when the work will start. Iduciani said the first step is to dredge behind the dam, which will take two months. After the dredging, the dam will be removed. This will be the first of nine dams removed along the Mahoning River. There's a plan to remove all the dams within the next three to five years to allow for a free-flowing river.



(More dam removal.)

## More Rogue dams will fall

BY MARK FREEMAN, MAIL TRIBUNE (MEDFORD), Sept. 16, 2019, bendbulletin.com

PROVOLT, OR — A gravel push-up dam spanning Williams Creek using 19th-century technology is about to get a 21st-century makeover that will help the irrigator as well as wild Rogue River Basin salmon. Called the Lower River, it diverts irrigation water but blocks wild salmon and steelhead from as much as 31 miles of usable habitat. But it's going away in 2020 when the creek gets reshaped to better deliver irrigation water yet allow upstream and downstream migration year-round of wild steelhead and salmon, including wild coho, a threatened species in the Rogue basin. It's not as high-profile as dynamiting half-built Elk Creek Dam or chiseling the former Gold Ray Dam from the Rogue a decade ago, but it's the next skirmish in the long battle to bolster wild salmon populations in Oregon's most high-profile coastal river. Bridgepoint Dam, this legal impediment less than a mile upstream of the creek's confluence with the Applegate.



"Removing those big dams was sexy, but this is where we can really produce fish," says Janelle Dunlevy, executive director of the Applegate Watershed Council. "It's going to change the dynamics of this stream." Small-stream dynamics will be changing big-time in the Rogue Basin under a \$570,000 federal pledge toward reclaiming up to 400 miles of wild salmon and steelhead habitat by removing fish-passage barriers such as this one on Williams Creek. The National Oceanic and Atmospheric Administration grant will target 16 fish blockers like Lower Bridgepoint over the next three years.

(That's a lot of dams that have no useful purpose.)

## World Rivers Day 2019: Unclogging the 'arteries' of our state

By Julia Blatt, 9/17/19, capecodtimes.com

"Rivers," Canadian naturalist Mark Angelo tells us, "are the arteries of our planet." Massachusetts rivers, however, are arteries that have long been clogged at multiple points, slowing down the flow of life-sustaining water, imperiling the health of our environment, and harming the state's climate resiliency – our ability to withstand droughts and floods. In Massachusetts, more than 3,000 dams block the natural flow of water on more than 10,000 miles of rivers.



world rivers day!

These dams change how our rivers function. As Ian Cooke, executive director of the Neponset River Watershed Association, explains, "what these dams really do is chop the river up, leading to habitat fragmentation and preventing the fish from moving up and down the stream." The state's Division of Ecological Restoration Director Beth Lambert agrees, noting that dams make "rivers act more like ponds."

It's not as though these dams serve any modern-day function. Most dams throughout the state were built in the 1700s and 1800s to power small mills. The South River in western Massachusetts is a good example. According to one source, the first dam across that river was built in 1744, to power a corn gristmill, and the first dam within Conway in Franklin County was built in 1762, the year of Conway's original settlement. By 1794, Conway had at least seven mills, including sawmills, gristmills, and mills that made linen from flax. By the 1900s, however, this manufacturing bubble had burst. The shoe factory, the last manufacturing venture from the 19th century, closed in 1916. The dams, however, remained.

Today, around 90 percent of the dams in Massachusetts no longer serve their original purposes. These archaic, unused dams harm the environment - and their removal helps restore it by bringing back more natural conditions in the state's rivers and streams. In September 2015, for example, the town of Pepperell, the state Department of Ecological Restoration, MassWildlife and

others teamed up to remove the Millie Turner Dam on the Nissitissit River. According to DER, "removal of the Millie Turner Dam opened over 40 miles of mainstem and tributary habitat. Fish and other aquatic species are now able to access coldwater refuge during the warm summer months, access critical spawning, rearing, and feeding areas, and seek quieter streams during ... floods."

Some folks believe that dams are necessary for flood control purposes. But these old dams frequently exacerbate, rather than alleviate, safety hazards. An increasing number of dams are falling into disrepair and becoming more and more likely to fail during severe weather events. Indeed, in Massachusetts, nearly 70 percent of the state-regulated dams are classified as high or significant hazard, meaning that the dams are in locations where failure has the potential to cause loss of life and/or significant property damage. Many of these dams have been found in "unsafe condition" (at high risk of failure) or "poor condition" (having major structural, operational, maintenance, and flood routing deficiencies). These safety concerns are not theoretical. Many people still remember that the Mill River's Whittenton Pond Dam made national headlines in 2005 when it nearly failed after a severe rainstorm. The risk of a dam break, sending a wall of water downstream, forced Taunton to close its schools and forced about 2,000 Taunton residents to evacuate their homes. Similarly, during a storm in 2010, concerns about the Forge Pond Dam on the Assonet River in Freetown led to the evacuation of residents and a decision to breach the structure to release the pressure of floodwaters.

On Sept. 22, millions of people in more than 60 countries will celebrate World Rivers Day. World Rivers Day has been designated by the United Nations to help create a greater awareness of the need to better care for our water resources. This World Rivers Day, we invite Massachusetts residents to appreciate the natural wonders of their local rivers. The good news is that state legislators recently significantly increased the funding available for dam removal and river restoration. We hope this trend continues. We urge local and state policymakers to continue to carefully consider the need to declog the "arteries" of our state by helping to identify, and then fund the removal of, those dams that today cause more harm than good. Julia Blatt is executive director of the Massachusetts Rivers Alliance. The Alliance is a statewide organization of 79 environmental organizations in Massachusetts, Connecticut and Rhode Island.

(Fix that dam.)

## Reading City Council plans to drain lake at Bernhart's Dam

By: 69 News, Sep 19, 2019, wfmz.com

MUHLENBERG TWP., Pa. - Reading officials said they plan to drain the lake at Bernhart's Dam in Muhlenberg Township so that they can see what work is needed to make the dam safer. City leaders held a public meeting at Chabad of Berks County on Wednesday. They said they are concerned about the integrity of the dam. They said if it bursts, it could cause millions of dollars in damage. The Pennsylvania Department of Environmental Protection has ordered the city to remove the dam or rehabilitate it. Some people in Reading and Muhlenberg Township oppose draining the lake, but city leaders said it has to be done in the interest of public safety. Officials did not say when that will happen



(An economics argument on removing the 4 Lower Snake River dams. It's ok if one that does not get affected. Relies too much on the ECONWest study which is suspect. How many trucks and/or rail cars would you need?)

## Few Would Lose from Removing Snake River Dams

And making whole the irrigators and grain barging companies would cost little.

Author: Daniel Malarkey, September 18, 2019, sightline.org

This article is part of the series *The Case for Removing the Snake River Dams*. Breaching the lower Snake River dams and restoring the river would not come cheap. The cost could exceed a billion dollars. (The value of wild salmon make that expense worthwhile, I argued in the first article of this series.) But making whole the irrigators and grain barging companies that are the principal beneficiaries of the dams would be surprisingly affordable. In some cases, paying them for their losses would cost less than continuing to operate the dams as at present. In some cases, paying them for their losses would cost less than continuing to operate the dams as at present.



Lower Granite Dam

You would not guess it from the words of conservative political leaders along the Snake, though. When in late July, the consulting firm ECONorthwest (ECONW) released its study on the economic tradeoffs of removing the dams on the lower Snake River, US Reps. Cathy McMorris Rodgers and Dan Newhouse, both Republicans from Eastern Washington, immediately branded the report “a slap in the face of our state’s agricultural economy” adding that “billions of dollars in infrastructure improvements that would be needed for irrigation and transportation hardly come across as a ‘public benefit.’” The ECONW study took a bean counter’s approach to weighing the pros and cons of dam removal. In the case of agriculture, it showed that the increased costs to irrigators and grain growers are surprisingly modest. Let’s take them in turn.

#### **Irrigation after the Dams**

Using water permit data from the Department of Ecology, ECONW identified 41 surface water diversions and 84 groundwater wells that could be affected by the drop in water levels if the dams were removed. In total, just 125 water sources out of 230,000 statewide permits managed by Ecology would be affected. Policymakers could choose to engineer water replacement solutions at no cost to the irrigators using those sources (rather than consider alternative water sources, compensate irrigators financially, invest in water conservation, or let irrigators suffer some from restoring the river—after all, water rights do not entitle anyone to massive federally subsidized dams).

But an irrigation specialist estimated that it would cost \$148 million to plan, permit and replace the 41 diversions at the new water level after the dams were breached and \$12 million extra to deepen or replace the 84 wells. These combined costs are about 12 percent of the estimated costs of removing the dams—not small numbers but certainly within the range of mitigation costs that have been part of other large public projects.

#### **Grain hauling after the Dams**

Downriver grain shipment makes up the majority of barge traffic on the lower Snake River. Grain growers have recently averaged annual shipments of about 2.2 million tons per year downriver. If the dams were breached, those grain shipments would either travel by truck to Pasco for barge loading or travel by train to Portland. The shift from barge to truck or train would increase costs for some grain growers. To estimate how much more they would pay, ECONW analyzed the average annual barge loadings at the ports along the Snake River and reallocated them to trucks or trains given the relative costs for each mode. Using local data on the costs per ton-mile to move grain by barge, train, and truck, ECONW estimated that growers would pay an additional \$6.2 million per year in shipping costs. Remarkably, the annual budget for operating the locks at the four dams is \$21 million per year; the federal government spends one dollar operating the locks so grain shippers can save 30 cents on shipping. Better to pay the grain growers the 30 cents directly and let federal taxpayers keep the remainder.

If grain growers were forced to absorb higher shipping costs, the increase looks small in the context of the regional grain market. The average annual market value of Washington’s wheat

and barley crops for the last ten years is \$862 million. A \$6.2 million increase in transportation for those who barge their grain represents an average cost increase that is less than one percent of the region's grain revenues. In the last 10 years, the revenue per acre of wheat has an average year to year variation of more than 20 percent as crop yields and prices swing in response to weather and market forces. Any cost increase matters to farmers and the increased shipping costs would fall more heavily on some than others, but policymakers should understand that shifts in transportation costs on the order of one percent are just one star in a broad constellation of forces that determine planting choices and profitability.

Given the alternatives for moving grain from the Palouse, wheat and barley would still find their way to market without barges on the lower Snake River. If the federal subsidy for barging shifts to trucks and trains, growers' transportation costs need not increase at all. All told, on the most generous assumptions, holding irrigators and grain haulers harmless and applying the savings from ending lock operations would cost roughly \$80 million or about 7% of the cost of removing the dams. In spite of the howls of protest over the ECONW report, the face of agriculture in Eastern Washington would go unmarred if the dams came down. Next time: Breaching the Snake River dams and restoring the river would add jobs, not subtract them.

(Do you think this guy smokes some pretty strong stuff? For instance, does he think that recreation jobs will get paid as much as barge operators?)

### Restoring the Snake River Is a Jobs Program Removing the dams would boost the economy.

Author: Daniel Malarkey, September 19, 2019, sightline.org

This article is part of the series **The Case for Removing the Snake River Dams**. "Breaching Snake River dams could save salmon and orcas, but destroy livelihoods" reads a March 24, 2019 cover story of the Sunday Seattle Times Pacific NW magazine. Such headlines reinforce the misperception that removing the dams would deal a blow to the economy of Eastern Washington. The recent economic impact



analysis by ECONorthwest (ECONW) shows just the opposite: a river recovery project would add hundreds of jobs to the lower Snake River basin. An influx of spending for engineering, construction, and environmental mitigation during and long after removal would increase employment, income, and output through the region. In 2002, the Corps estimated the costs of breaching the dams and restoring the river would total \$860 million in 1999 dollars or \$1.6 billion in 2018 dollars. This influx of spending for engineering, construction, and environmental mitigation during and long after removal would increase employment, income, and output through the region. According to the modeling by ECONW, a capital project of this size would add over 300 jobs per year in the counties adjacent to the river for more than 30 years. Restoring the lower Snake River would also bring more recreational visitors to enjoy white water recreation and other riverside activities. ECONW projects that by 2040 annual visitors would increase by 1 million compared with a baseline of 1.4 million visitors if the dams remain. Assuming visitor spending amounts in Asotin County from a 2016 study, those new visitors would spend an additional \$80 million per year.

#### More jobs overall but some job loss

These increases in spending and net employment would boost the economy in southeastern Washington, but not every person in the region would benefit from breaching. The photo essay that accompanied the Seattle Times article offered a portrait of the work lives of the barge operators who could lose their jobs if barge traffic stops in Pasco, Washington, instead of continuing up the Snake River to Lewiston, Idaho. But policymakers should keep any potential losses in perspective. According to state reports, inland water freight employed 248 people in all of Washington in 2017. None of these employers were located in the seven counties that comprise the southeastern corner of Washington where the lower Snake River is: Asotin, Benton, Columbia, Garfield, Franklin, Walla Walla, and Whitman. Tidewater, the leading barge operator, is

headquartered far downriver in Vancouver, Washington. Employers that do locate in the seven southeastern counties together employed over 175,000 people in 2017. National statistics show that monthly layoffs and discharges now average 1.2 percent per month. If southeast Washington follows that national average, then 25,000 people in those seven counties lose their jobs each year. Most are rehired after a job search of a few months. Every job is important to the person who holds it, but the larger context is important, too: the region has a dynamic economy where employers constantly add and subtract jobs from the labor market.

More specifically, the Kennewick-Pasco-Richland area has recently added about 3,000 net new jobs per year, an annual employment growth rate of 2.1 percent since 2000. That rate is well above the state average of 1.2 percent. **Any individual job losses from breaching the dams could be absorbed in an already dynamic local economy** that would surge from a boost of new spending. Far from destroying livelihoods, as the Seattle Times fears, breaching the dams and restoring the river would boost the economy that centers on the lower Snake. Agricultural production would continue much as it is now with a boost to transportation employment as some grain shipments move from barges to trucks and trains. Hundreds of people would work on removing the dams and, once the river is restored, hundreds of thousands of new fishers and rafters and their spending would visit the river basin. **The economic prospects of the region are brighter without the dams.**

### **Economics says it is time to restore the Snake River**

In this case, as in the three previous cases in this series, the recent ECONW report makes clear that breaching the dams on the lower Snake River is a win for the Northwest:

- Northwesterners place a high value on improving the prospects for threatened and endangered salmon in the Snake River.
- Hydropower from the dams isn't so cheap anymore; it may cost less to generate power from new, carbon-free resources like wind and solar.
- Even a river restoration project with a relatively modest mitigation fund could make farmers whole, offsetting nearly all of the increased cost of irrigation and grain hauling
- The costs and disruptions to jobs from breaching the dams are small compared with the benefits and the net new jobs the project would create.

The argument over the fate of the dams will continue to unfold in lunch counters, editorial pages, hearing rooms, and courts. **A growing body of evidence now weighs in favor of breaching the dams and returning the lower Snake River to a natural state.**

(Wants to get rid of the old, useless dams, but it won't stop there.)

### **My Turn: World Rivers Day 2019: Unclogging the “arteries” of our state**

By JULIA BLATT, 9/22/2019, recorder.com

“Rivers,” Canadian naturalist Mark Angelo tells us, “are the arteries of our planet.” **Massachusetts rivers, however, are arteries that have long been clogged at multiple points,** slowing down the flow of life-sustaining water, imperiling the health of our environment, and harming the state’s climate resiliency — our ability to withstand droughts and floods. **In Massachusetts, more than 3,000 dams block the natural flow of water on more than 10,000 miles of rivers.** These dams



change how our rivers function. As Ian Cooke, executive director of the Neponset River Watershed Association, explains, **“What these dams really do is chop the river up,** leading to habitat fragmentation and preventing the fish from moving up and down the stream.” The state’s Division of Ecological Restoration (DER) Director Beth Lambert agrees, noting that dams make “rivers act more like ponds.”

**It's not as though these dams serve any modern-day function.** Most dams throughout the state were built in the 1700s and 1800s to power small mills. The South River is a good example.

According to one source, the first dam across that river was built in 1744 to power a corn grist mill, and the first dam within Conway was built in 1762, the year of Conway's original settlement. By 1794, Conway had at least seven mills, including sawmills, grist mills, and mills that made linen from flax. By the 1900s, however, this manufacturing bubble had burst. The shoe factory, the last manufacturing venture from the 19th century, closed in 1916. The dams, however, remained.

Today, around 90 percent of the dams in Massachusetts no longer serve their original purposes. These archaic, unused dams harm the environment — and their removal helps restore it by bringing back more natural conditions in the state's rivers and streams. In September 2015, for example, the Town of Pepperell, the state Department of Ecological Restoration, MassWildlife and others teamed up to remove the Millie Turner Dam on the Nissitissit River in Pepperell. According to DER, "removal of the Millie Turner Dam opened over 40 miles of mainstem and tributary habitat. Fish and other aquatic species are now able to access coldwater refuge during the warm summer months, access critical spawning, rearing and feeding areas, and seek quieter streams during ... floods."

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(Another hydro project will be gone.)

### **Saccarappa dam removal 'ahead of schedule'**

**Good weather has helped move the project along, Sappi says, paving the way for construction of the fish ladder.**

BY CHANCE VILES, AMERICAN JOURNAL, .pressherald.com, 9/25/19

WESTBROOK — The removal of the Sappi hydropower dam on the Presumpscot River is progressing successfully, according to the project's engineering manager. Work to remove the head walls of the dam began in mid-July. A natural fish ladder will be installed once the dam is fully removed. "To date the project is going as planned. Much progress was made over the last two months," Barry Stemm said, and it's "slightly ahead of schedule primarily due to good construction weather."



"(There has been) efficient demolition of the old spillways and dam gate structures," Stemm said. Talks of removing the dam for the benefit of wildlife began over 20 years ago, but was reinforced in 2006 when the U.S. Supreme Court upheld the Maine Department of Environmental Protection's ability to require fish passage and minimum water flow standards around the Presumpscot River dams, then owned by S.D. Warren Co. The DEP requirements were part of water quality certifications required for federal relicensing. After years of negotiations, the city of Westbrook and Sappi, the current owners, agreed to a plan to remove the dam. That plan was approved by federal regulators this April.

Michael Shaughnessy, president of Friends of the Presumpscot River, said the response from residents he has talked to about the work "has been very positive." "It is looking better than expected," Shaughnessy said of the lower water level since the removal of the head walls. "I thought there would be more mud (on the new shoreline) when the water dropped. It usually takes a while to green in, but it seems like it's greening in immediately. The current is a little more, but not bad and you can still go up stream. It's looking good," he said. Fish ladder construction is expected to start in coming months. "I encourage anyone to kayak down it or paddle down and take a look. It's almost more manicured than it was before," Shaughnessy said.

[\(Here's another comment on the Lower Snake River dams.\)](#)

### **Guest column: In response to the salmon crisis**

BY KURT MILLER, Sept. 24, 2019, bendbulletin.com

There is a genuinely compelling case to be made for the calling our salmon and steelhead situation a crisis, and Yancy Lind's well-written opinion piece, "The grim outlook for Columbia Basin salmon and steelhead," tackles that subject head on. I agree with many of Mr. Lind's points on the subject. On the other hand, there are some points that I respectfully disagree with and feel are inaccurate representations of the situation at hand. A dangerous narrative has been developed, which claims that the Bonneville Power Administration, "is going broke," and that its dams are no longer cost-effective. Simply put, the facts do not match up with the story being told. The administrator for BPA, Elliot Mainzer, put forth a very strong defense of BPA's financial situation in response to this spreading narrative.

Similarly, many people have echoed a storyline that says the lower Snake River dams are not economically viable, but that assertion is based on incorrect assumptions about how, when and where BPA sells its power. Despite this fact, many people would like to see these dams breached because they feel we must do something. I truly sympathize with the sincere desire to make a difference; however, there is a lot of evidence to suggest that dam breaching isn't something that would save salmon populations. That's because the cause of the salmon crisis is much bigger than the Columbia River Basin. Government data shows that from Southern Oregon to southeastern Alaska, the percentage of adult chinook salmon returning to rivers has been dwindling over the past decade. Many of the rivers involved are undammed and free flowing. This means that turning the lower Snake into a free flowing river is unlikely to be a meaningful solution. However, Mr. Lind and I do agree that The Blob and dangerous ocean and river temperatures pose a significant threat to the future of our salmon and steelhead.

In a scientific conference in Portland in May, biologists from around the world echoed similar findings; warming ocean temperatures are harming salmon populations. Also the New York

Times article from February entitled “The world is losing fish to eat as oceans warm, study finds” provides important insights into how far-reaching this problem is. Our region is responding with bold clean energy goals, but many people are not aware of how important hydroelectricity is for us to achieve those goals. **Hydroelectricity from dams provide almost 50% of the region’s total energy and 80% of the Northwest’s carbon-free electricity.** Hydroelectricity also helps us add other renewable resources. Solar and wind are very important as we fight our contribution to climate change, but they are intermittent. This means their electric output fluctuates based on sunshine and wind.

The challenge for the grid is that if there is too much or too little power at any one time, blackouts can occur. **Hydroelectric dams are essential because they can quickly “turn on and off” to help balance the grid.** Said another way, hydropower partners with solar and wind to provide a consistent power supply in a completely carbon-free way. No other source of energy or storage has achieved these capabilities on the scale of hydropower. We need to look at these issues strategically. An ocean wide problem requires a solution that addresses the ocean. The idea of pulling out renewable resources, like the lower Snake River dams, threatens to only worsen the severity of climate impacts, like The Blob that Mr. Lind refers to. Ultimately, like Mr. Lind, I ask the readers of this newspaper to recognize the critical nature of the climate threat. It represents the single greatest threat to salmon and steelhead. Hydropower is part of the solution. **I encourage you share your support for hydroelectricity with your elected representatives.** — Kurt Miller is the executive director of Northwest RiverPartners.

(In honor of the original dam builders.)

**A new pub with a beaver theme is making its way to Beavertdale in the former Reed’s Hollow (Des Moines, Iowa)**



### **Hydro:**

(Maybe this time, they’ll make it work.)

### **Power play: Developers again looking at Blue Marsh Dam for electricity production**

Hydroelectric developers want to study facility’s potential for producing power.

#### **5 dams in eastern Pennsylvania**

While there are many smaller dams in the region, these five are notable because they are larger and were built and are operated by the U.S. Army Corps of Engineers for flood control.

- **Blue Marsh Dam** on the Tulpehocken Creek, Berks County, built in 1979 built in 1972
- **Francis E. Walter Dam**, Luzerne County, built in 1961
- **Prompton Dam**, Wayne County, built in 1960



- **Jadwin Dam**, Wayne County, built in 1959

In the race to harness more renewable energy, thoughts most often turn to wind and solar. **Harnessing the power of flowing water, an idea around for thousands of years, is sometimes forgotten in the conversation.** Yet, it is simple and efficient enough that the ancients used water wheels for grinding wheat, and more recently in Berks County water wheels powered the iron furnaces of the 18th and 19th centuries.

Around the country, today's hydroelectric developers compete for locations to tap for more emissions-free electricity. **The Blue Marsh Dam in Berks County, run by the Army Corps of Engineers, has been eyed in recent years by at least three developers hoping to turn the dam, designed for flood-control, into a hydroelectric station.** Most recently, Birmingham, Ala.-based Hydro Green Energy has asked the Federal Energy Regulatory Commission for a permit to study the feasibility of a project the company calls the Blue Marsh Dam Hydropower Project. If granted, the permit blocks other companies from pursuing a similar project at this site for three years. In 2015 developer Adam R. Rousselle II, currently director at Renewable Energy Aggregators, was granted a license for a feasibility study for adding a hydroelectric component at Blue Marsh Dam. **In 2016 FERC canceled the permit after several required progress reports were overdue, commission filings show.** In 2008 the Delaware River Basin Commission also considered adding power to the dam by placing turbines that would have been capable of generating enough electric to power 700 homes. **In 2011 that commission let the permit lapse after determining the project wouldn't make financial sense, a Reading Eagle story said at the time.**

**Blue Marsh Lake construction began in 1974 and was completed in 1979.** The dam is located on the Tulpehocken Creek. It has become a recreation attraction for boating, fishing and swimming. Boats of any size and any motor are allowed on the lake, said Blue Marsh Natural Resource Manager Scott Sunderland, who oversees recreation and dam operation. **The water is higher in the summer.** A ruler painted on the side of the dam's control tower shows the number of feet above sea level. In summer the lake is kept at 290 feet above sea level, Sunderland said. In winter the water is lowered 5 feet to make room for winter and spring flood storage. Predictions of a heavy rain is another reason the water could be lowered. **"We get about 900,000 people out a year to recreate,"** Sunderland said while standing at the top of the earthen dam as boats drifted on the lake behind him. "People think the dam was built for recreation purposes. First and foremost it was built for flood control. If not for the flood control mission, there would not be a lake here." **It was all in response to the devastating flooding caused when the remnants of Tropical Storm Agnes drenched Berks and the region over several days in late June 1972.**

#### **Early in the process**

Hydro Green Energy envisions two turbine-generator units near the dam that would have an annual generation of 7,750 megawatt-hours. **Hydro CEO Wayne Krouse has not visited the site.** "Once we get the permit and no one can scoop (the site) from us then we can come up and check with our engineers to see if it makes sense economically," Krouse said. **"We understand how it is operated by the Army Corps of Engineers.** Once we get the permit we will be up there to meet with them. It is possible it is not a site that can work, but we don't know." Hydro Green Energy focuses on developing hydropower on existing non-power dams. **It has 10 projects across the nation including one in the late stage of development, near Pittsburgh at Braddock Locks and Dam Number Two on the Monongahela River. Braddock Locks and Dam is also operated by the Corps of Engineers. Electricity produced would be sold to the power grid, Krouse said.** The Army Corps of Engineers has no statement about any proposed project at this stage. "This is early in the overall process and at this point the applicant can request and share information with the U.S. Army Corps of Engineers Philadelphia District," said Steve Rochette, Corps spokesman. "There is a system where third parties can apply and follow a process." **The Corps will watch to make sure nothing affects the dam's primary purpose, which is flood-risk management, he added.**

(History lesson of the day.)

### **History of the Bagnell Dam, 90 years since start of construction**

By Ashley Eddy, September 16th 2019, krcgtv.com

LAKE of the OZARKS, MO— Ninety years ago this year, construction began on the Bagnell Dam for the purpose of hydroelectric power generation. Union Electric Company, now known as Ameren after merging in 1995, started construction on the Bagnell Dam in August of 1929. The Bagnell Dam holds back water from the Osage River, to create the Lake of the Ozarks. The stored water serves as fuel for the Osage Energy Center that produces more than 500 million kilowatt hours of electricity. That's enough to supply the needs of nearly 42,000 households. Phillip Thompson, the Osage Plant manager, said Union Electric Company back then started to build an infrastructure to support the construction of the dam. "They built a railroad into the area, they built a, they installed a dredge to dredge gravel so that they could produce concrete here on site, they had to build a power plant, they had to build a sawmill to saw lumber," Thompson said. Thompson said an entire village was established to support homes for those who came to work on the project.



He said two turbines have never been removed since being installed in 1930. (Missouri State Archives). He said people came from near and far, all to find a job. "We've got stories of individuals walking barefoot all the way out of Arkansas to come up here to stand in line for days to try and get a job," Thompson said. Thompson explained jobs were hard to find and that just two months later, in October 1929, the Great Depression hit. He said the funding for the project was already established, making it the largest privately funded construction project in the United States. Thompson said over the two-year span, the project hired more than 20,000. Now in 2019, Thompson said there has never been a minute since 1931 without someone working inside the dam. He said there are numerous machines that haven't required hardly any maintenance since the 1931 period. Thompson said a good example is the generator and turbine pictured below.

He said two turbines have never been removed since being installed in 1930. Water flowing through the turbine causes it to turn. The turbine is connected to the generator, which is also turned in the stator. This motion causes electricity to flow. Thompson said the dam is like an old house and continued maintenance is needed. Just last year, the dam was renovated to rehabilitate some of the concrete and to install anchors. "The kind of floods we design for is what we call a 10,000-year event," Thompson said. "It would be somewhere on the neighborhood of 25 to 30 inches of rain in a relative short period of time between the two dams." To put the project in perspective, the original dam cost \$30 million, this most recent project alone cost more than \$50 million.

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(Good question.)

### Why hate on alternative energy?

Letters to the Editor | September 19, 2019, aspentimes.com



Is it possible for some of our right wing or libertarian neighbors in the valley to explain why they dislike solar power, windmill power, electric cars, and hybrid cars and for some strange reason Toyota Priuses? I'm also confused about how hydroelectric dams are rarely if ever mentioned. Miles Knudson, Aspen Village,

Col.

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(Oh well, nice try.)

### 'IT IS DEAD': \$440M PUMPED HYDRO SCHEME DUMPED

A \$440 million hydro scheme in Highbury, PA, promising to employ around 300 people, has been abandoned.

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(Can New York meet their renewable energy goals without hydro? The Niagara Project alone can produce about 2200 kW. Always said, hydro owners are the only ones that smile when it rains.)

## Small hydropower plants say New York needs to help keep their clean power competitive

By KAREN DEWITT • 9/23/19, wrvo.org

Owners of existing clean energy power plants in New York say they'd like the same support from the state for their businesses that new ones get. **Jim Besha's engineering firm runs what he said is the oldest continuously operating hydroelectric plant. Built in 1897,** it's housed in a compact brick building that spans the upper Hudson River, outside Mechanicville. **Its seven generators were designed by General Electric scientist Charles Steinmetz, one of the founders of alternating current.** Besha said the dam in the early days supplied power for the entire Capital Region. Since no one had power in their homes and most businesses were not electrified, that meant the electricity needed to flow only to the GE plant in Schenectady and electric streetcars in five nearby cities. **"This plant is also believed to be the birthplace, the starting place, of the modern electrical grid," Besha said.**



The turbines underneath the building churn in the water and operate essentially like water wheels. **It's a refreshingly simple technology, although in modern times, it is run by computer and can be monitored through Besha's iPhone.** It produces power 24 hours a day, 365 days a year, as long as the river keeps running and there's regular rainfall, Besha said. **"We like to say a day without rain is a day without sunshine," Besha said with a laugh. "We love it when it rains."** The plant now generates enough power for 3,000 to 4,000 homes, but it could generate enough for **18,000 homes a day, if it had some upgrades.** But Besha said the price for its power is just 2½ cents per kilowatt-hour, down from 6 to 8 cents several years ago. That's not enough to make needed capital investments. **The reason is competition from cheaper natural gas.** Neighboring New England states direct electric utilities to subsidize prices to make the clean energy sources more competitive. **But New York offers incentives only for new clean energy plants, not existing**



**ones.** A bill passed by the Legislature earlier this year and awaiting Gov. Andrew Cuomo's signature would change that. Anne Reynolds with the Clean Energy Alliance of New York said utilities are already required to buy a portion of their electricity from new clean energy sources. The bill would guarantee that the utilities would also buy power from the older sources, by requiring that the price be set at a slightly lower rate -- 75% of the going rate for the power from the new sources.

Costs would be funded through an existing crediting program. **The result would boost prices for Jim Besha's dam and dozens of others like it, as well as several existing wind power projects around the state.** "We see it as a real gap," Reynolds said. Reynolds said New York is required to meet very ambitious goals for clean energy and be 70% carbon-free by 2030, and derive 100% of the state's energy from noncarbon sources by 2050. **Besha doesn't view the measure as a handout.** He said the state takes credit for the clean power generated by his plant and others like it, and uses that to help meet its carbon reduction goals. **"I don't look at it as a subsidy," he said. "It's simply being fair."** Besha's company operates two other hydro dams and would like to build several more. He said there's a lot of potential in New York state to expand hydroelectric power, and the untapped power is estimated to be equivalent to power generated by one nuclear plant. **But he said in order to expand, he may have to sell the power for more money out of state, unless Cuomo signs the bill.**

(Of course it doesn't make sense. It's a hair brained idea.)

## Does it make sense to replace America's aging dams with solar panels?

By Zach Fitzner, Earth.com staff writer, 9/24/19

Dams are typically seen as the enemy by environmentalists, ever since Hetch Hetchy Valley in Yosemite was flooded against the protests of John Muir. Ed Abbey painted dams as the enemy of his band of misfit ecoterrorists in The Monkey Wrench Gang. The reasons why dams are unpopular among environmentalists are numerous. Some are horrified by the loss of beautiful places like Hetch Hetchy or Glen Canyon. Flooding behind a dam not only destroys wildlife habitat but sometimes covers important paleontological, geological or archaeological sites.

Others worry about the impact of dams on fish populations. Silt builds up behind dams, and the water is warmer in a reservoir created by a dam than in the original river. All of this leads to a release of methane created in the new aquatic environment and a loss of biodiversity. In fact, as the original life drowned by flooding die and decay, as much as 0.5 pounds of carbon dioxide equivalent is released per kilowatt hour, barely better than the 0.6 – 2 pounds produced from natural gas generated electricity.



Migratory fish are stopped or delayed in their movement by dams. Sometimes dams favor invasive non-native fish populations adapted to different environments. Populations of fish in Europe have declined after the building of dams.

In China, fish species declined from 107 to 83 after the Xinanjiang dam was built. The same trend of a decline in biodiversity, not only in the flooded region of a river but also downstream, has been shown in Australia and Latin America as well. Dams also impact native fishes negatively in the US. Political battles have been fought over dams throughout the western US and mostly environmentalists have lost and dams sprouted everywhere people lived out west. For the most part, we've passed the time in US history for major dam building. According to FEMA numbers, only 92 dams of any stature were built before 1800 in the United States. The number of dams built increased until 27,715 dams were built in the US between 1951 and 1970. Dam building has slowed down considerably since that time, with 19,506 dams built between 1971 and 1990. Only 5,105 dams were constructed between 1991 and 2007. Now, many of these dams are growing old and there's a discussion of what should be done.

Headwaters Economics reports that the US has 87,000 dams more than six feet high and 2 million all together. Of the dams, there are 2,603 in the lower 48 states that generate electricity. It's estimated that by 2020, 70% of dams will be over fifty years old and will require more and more costly maintenance. It's estimated that repairing the United States non federally owned dams could cost \$51.5 billion. Some of those dams still serve a useful purpose while others are potentially reaching the end of their service. With realities such as these, dams across the US have been removed as well as constructed. Since 1912, more than 1,300 dams in the US have been removed, and 62 were removed in 2015 alone. With the removal of dams and the decommissioning of the connected hydropower plants that many of them keep alive, electrical power becomes an issue.

Hydroelectricity currently provides about 6% of the United States electricity needs and give constant steady electricity to the grid. New research in Nature suggests that solar electricity could potentially replace the lost electricity from hydroelectric. The research indicates that theoretically, the same amount of electricity as currently generated by dams could be generated by solar panels using only 13% of the land currently occupied by reservoirs. Of course, some of the land used by reservoirs wouldn't necessarily be appropriate for solar panels, so other land might have to be used to make the same amount of electricity. If all hydroelectric dams were removed and only half of the land area they occupied was replaced with solar, it could generate 3.44 times the amount of electricity currently created by hydroelectric.

Replacing hydroelectric dams with solar panels is an interesting idea, but it's more complicated than a straight trade of one thing for another. Without a way to store electricity like batteries, solar power is unlikely to be a good replacement for hydroelectricity, which is generated 24 hours a day. Solar also varies per season and not every location that currently uses hydroelectric has equal opportunity for solar. Washington State, for example, has 107 hydroelectric dams, Arizona has 9. On average, Phoenix, Arizona has 299 sunny days per year while Seattle, WA has only 152. Just from this one comparison it's obvious that some places have a huge advantage than others for solar or hydroelectric. All of this leads to a lot of uncertainty about the potential cost of replacing hydroelectric plants with solar panels as well as the local feasibility. Replacing the energy Arizona gets from hydroelectricity seems a lot more doable than doing the same for Washington. There is also the question of environmental impact and what the impact of solar panels is in the long run.

Both solar and hydroelectric systems are forms of renewable energy, with solar having less of a direct impact, mainly coming from the manufacturing of the solar panel itself. Due to the carbon footprint of producing a solar panel, solar actually produces more carbon on average over its lifetime than hydro. There are also some serious problems related to disposing of solar panels. Over time, solar panels become less and less efficient, with most functioning at a rate of 85% after 25 years or less. The International Renewable Energy Agency (IRENA) estimates that by 2050 there will be 60 to 78 million tons of solar panel waste. Solar panels are hard to recycle because they're made from so many different materials and very few facilities exist that are capable of recycling them at all. So, that leaves us with the question: is it better to replace hydroelectricity with solar?

The best way to reduce carbon emissions is to decrease consumption and increase efficiency. Whether solar makes sense as an alternative to hydroelectricity might change depending on the region, and it might also become less problematic as technology develops. For the moment, it's something that deserves further consideration.

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(Guess they didn't want the hassle that a license process carries with it. It's a dam (Spelled w/o an "n") shame! Guess the FERC and enviros scared them off.)

### Utah Rolls Back Hydroelectric Power Plans For Lake Powell Pipeline

By NATE HEGYI • 9/326/19, kuer.org

Utah officials are drastically scaling back hydroelectric power plans for the controversial Lake Powell pipeline, saying the move will save taxpayers \$100 million dollars on the proposed project. "I think this was a good and wise decision," said Eric Millis, director of the Utah Division of Water Resources. "We could simplify the process, we could reduce some costs, and we could minimize the environmental impacts from what they would've been."



The proposed 140-mile pipeline would pump water from Lake Powell in southeastern Utah to the growing city of St. George. The original idea was that the pipeline would help pay for itself by selling hydroelectric power. But after federal officials voiced environmental concerns, the state decided to scrap that part of the plan and withdraw their application to the Federal Energy Regulatory Commission. It is the regulatory body and has acted as lead federal agency for the application process thus far. The state argues this will save money on the project, which it estimates will cost between \$1.1 billion and \$1.8 billion. But Zach Frankel, executive director of the environmental protection group Utah Rivers Council, said the state's claims of saving taxpayer money are nonsense. The process behind the now-withdrawn application cost the state \$37 million, according to Frankel, and was ten years in the making. He also says the loss of revenues from hydroelectric power will make the pipeline more expensive to operate. "They can no longer count the revenues from hydroelectricity generation that the state has been banking on

to help lower the costs," Frankel said. State officials said the potential revenues from the power plant wouldn't have equaled the cost to build it anyway.

## Environment:

(Poor sea lions. Guess they're not much value.)

### **Plan allows for killing 1,100 salmon-eating sea lions each year**

By KEITH RIDLER | Associated Press, August 30th 2019, keprtv.com



BOISE, Idaho (AP) — More than 1,100 sea lions could be killed annually along a stretch of the Columbia River on the Oregon-Washington border to boost faltering populations of salmon and steelhead, federal officials said Friday. The National Marine Fisheries Service said it's taking public comments through Oct. 29 on the plan requested by Idaho, Oregon, Washington, and Native American tribes. The agency says billions of dollars on habitat restoration, fish passage at dams and other efforts have been spent in the three states in the last several decades to save 13 species of Columbia Basin salmon and steelhead protected under the Endangered Species Act. But sea lions have learned that fish bunch up at dams and are easy to catch, an opportunity not available when the Columbia was free-flowing.

"The changes in the system have created this sort of pinch-point where sea lions can take advantage of the fish," said Michael Milstein, a spokesman for National Marine Fisheries Service. About 900 California sea lions and 250 Steller sea lions could be killed each year, starting about 110 miles (180 kilometers) from the river's mouth and extending 300 miles (480 kilometers) upstream. Experts say sea lions in that area are exclusively preying on salmon and steelhead. The Wild Fish Conservancy, which works to recover and conserve wild fish, opposes killing sea lions. The group says habitat destruction, dams and overharvest have far greater impacts. Killing sea lions "is a kind of scapegoating when there are a lot of other actions we are choosing not to do that would have a larger impact," said Emma Helverson, spokeswoman for the group.

The National Marine Fisheries Service already allows up to 92 California sea lions to be killed annually at Bonneville Dam, which is within the stretch of river in the new plan. The new plan expands the area where sea lions can be killed, allows tribes to take part in removing sea lions, and adds Steller sea lions for removal. Currently, state and federal workers live-capture California sea lions near Bonneville Dam and they are later euthanized. Last year Steller sea lions outnumbered California sea lions at Bonneville dam. Nearly all the sea lions are males bulking up on fish before heading back to the Pacific Ocean and then to breeding grounds. California sea lions, which can weigh 1,000 pounds (455 kilograms), are heading south to the Channel Islands off the California coast. Steller sea lions, which can reach 2,000 pounds (900 kilograms), are heading north to breeding areas.

California sea lions number about 300,000, and the eastern population of Steller sea lions about 52,000. Neither population is listed as threatened or endangered. The number of sea lions from each population that can be killed in the plan is based on a formula allowing each population to maintain an optimal sustainable level. Overall, ocean conditions and habitat degradation along the migration corridor in the Columbia River are generally considered the main factors limiting salmon and steelhead populations. But much work has been done and money spent in restoring habitat in the three states. "We want to make sure we get as many fish back as possible to take advantage of that habitat that's being restored," said Russ Kiefer, an Idaho Fish and Game fisheries biologist. Snake River sockeye salmon, which swim up the Columbia and reproduce in high-elevation Idaho lakes, teetered on extinction for several years before an elaborate hatchery program involving Fish and Game was created.



## Other Stuff:

(How many birds are killed by wind turbines?)

### Wind turbines (all)

#### From: **Direct Mortality of Birds from Anthropogenic Causes**

By Scott R. Loss, Tom Will, and Peter P. Marra

**Canada** 16,700 13,330 **21,600** Mean, 95% CI Zimmerling et al. 2013

**United States** 573,093 467,097 **679,089** Mean, 90% CI Smallwood 2013

The full report says N. America has lost **3 Billion birds in 50 years** (30% of all birds).

(Gotta do a lot reading to catch up.)

### Top 10 Books of the Century

Historical fiction tops the Guardian's list

By Bob Cronin, Newser Staff, Sep 22, 2019, newser.com

(NEWSER) – Weeks after its list of this century's best movies, the Guardian has done the same for books. Atop the list Hilary Mantel's *Wolf Hall*, a 2009 political intrigue that imagines the ascent of Thomas Cromwell in the court of King Henry VIII. That was long ago, but the Guardian says Mantel's "exploration of power, fate and fortune" is still relevant in our own era; the book was on former President Obama's summer reading list. Works by JK Rowling, Nora Ephron, and Bob Dylan also made the Top 100. The top 10:



1. *Wolf Hall*, by Hilary Mantel (2009)
2. *Gilead*, by Marilynne Robinson (2004)
3. *Secondhand Time*, by Svetlana Alexievich (2013), translated by Bela Shayevich (2016)
4. *Never Let Me Go*, by Kazuo Ishiguro (2005)
5. *Austerlitz*, by WG Sebald (2001), translated by Anthea Bell (2001)
6. *The Amber Spyglass*, by Philip Pullman (2000)
7. *Between the World and Me*, by Ta-Nehisi Coates (2015)
8. *Autumn*, by Ali Smith (2016)
9. *Cloud Atlas*, David Mitchell (2004)
10. *Half of a Yellow Sun*, by Chimamanda Ngozi Adichie (2006)

See the full list of 100, along with the reviews:

<https://www.theguardian.com/books/2019/sep/21/best-books-of-the-21st-century>

The paper's top movies list started with *There Will Be Blood*:

<https://www.newser.com/story/280392/10-best-movies-of-21st-century.html> )



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