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2016 AMERICA'S MOST **endangered** RIVERS®

America's Most Endangered Rivers® 2016

The *America's Most Endangered Rivers*® report is one of the best-known and longest-lived annual reports in the environmental movement. Each year since 1984, grassroots river conservationists have teamed up with American Rivers to use the report to save their local rivers, consistently scoring policy successes that benefit these rivers and the communities through which they flow.

American Rivers reviews nominations for the *America's Most Endangered Rivers*® report from river groups and concerned citizens across the country. Rivers are selected based upon the following criteria:

- A major decision (that the public can help influence) in the coming year on the proposed action
- The significance of the river to human and natural communities
- The magnitude of the threat to the river and associated communities, especially in light of a changing climate

The report highlights ten rivers whose fate will be decided in the coming year, and encourages decision-makers to do the right thing for the rivers and the communities they support.

The report is not a list of the nation's "worst" or most polluted rivers, but rather it highlights rivers confronted by critical decisions that will determine their future.

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America's Most Endangered Rivers®



- | | | |
|---|-------------------------------|------------------------------|
| 1 Apalachicola-Chattahoochee-Flint River Basin (AL, FL, GA) | 4 Smith River (MT) | 8 Merrimack River (MA, NH) |
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| | 7 Russell Fork River (VA, KY) | |

The report presents alternatives to proposals that would damage rivers, identifies those who make the crucial decisions, and points out opportunities for the public to take action on behalf of each listed river.

About American Rivers

American Rivers protects wild rivers, restores damaged rivers, and conserves clean water for people and nature. Since 1973, American Rivers has protected and restored more than 150,000 miles of rivers through advocacy efforts, on-the-ground projects, and an annual *America's Most Endangered Rivers*® campaign. Headquartered in Washington, DC, American Rivers

has offices across the country and more than 200,000 members, supporters, and volunteers.

Rivers connect us to each other, nature, and future generations. Find your connections at AmericanRivers.org, Facebook.com/AmericanRivers, and Twitter.com/AmericanRivers.

Cover photo: Oystermen at the mouth of the Apalachicola River, Florida
Credit: Richard Bickel

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APALACHICOLA- CHATTAHOOCHEE- FLINT RIVER BASIN

ALABAMA, GEORGIA, FLORIDA

#1

Low water on Lake Lanier; Credit: Tom Wilson

THREAT: OUTDATED WATER MANAGEMENT

**AT RISK: SUSTAINABLE WATER FLOW FOR
COMMUNITIES, FARMS, FISHERIES,
RECREATION, WILDLIFE AND ESTUARIES**

Summary

A water conflict has been raging in the Southeast for more than two decades, and rivers and communities are at a breaking point. Outdated water management practices and wasteful water use threaten the Apalachicola, Chattahoochee and Flint rivers – the source of metro Atlanta’s drinking water and lifelines for agriculture, industry, fisheries and recreation. Unless Georgia, Alabama and Florida reach a transparent water-sharing agreement that protects both people and wildlife throughout the basin, and the U.S. Army Corps of Engineers improves water management, the region will face lasting economic and irreversible environmental damage.

The River

The Flint and Chattahoochee rivers both begin in Georgia – the Chattahoochee in the mountains north of Atlanta, and the Flint near the Atlanta airport – and they join together near the Florida border to form the Apalachicola, which flows to Apalachicola Bay. More than four million people, including 70 percent of metro Atlanta, rely on the Chattahoochee and Flint rivers for drinking water.

A powerful trio, the ACF rivers provide water for industry, power generation, agriculture, recreation and fisheries. The Chattahoochee River National Recreation Area, home to the country’s first National Water Trail, attracts more than three million visitors and generates more than \$290 million annually. The Flint, one of the most biologically diverse aquatic ecosystems in the Southeast, is one of only 40 rivers left in the United States that flows for more than 200 miles unimpeded by dams. Historically one of the northern hemisphere’s most productive estuaries, Apalachicola Bay once yielded more than 10 percent of the nation’s oyster harvest as well as abundant shrimp, crab and fish harvests. The ACF Basin provides 35 percent of the freshwater and nutrients to the Eastern Gulf of Mexico, supporting commercial fisheries valued at more than \$5.8 billion and the livelihoods of Gulf communities and multi-generational fishing families. The basin is also home to several threatened and endangered mussels and fish including Gulf Sturgeon.



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The Threat

Excessive water use, particularly in fast-growing Georgia, is the chief threat to the ACF Basin, with the U.S. Army Corps of Engineers' mismanagement exacerbating the problem. The upper Chattahoochee River drains one of the smallest watersheds providing water supply to a major American city (Atlanta). The Flint River's headwaters supply water to Atlanta's southern suburbs at great expense to property values and river health. The Army Corps, which manages multiple dams along the length of the Chattahoochee River, has been unable to reconcile Georgia's growing water demands with needs downstream in Alabama and Florida. Across the lower basin, thousands of agricultural withdrawals from streams and the Floridan aquifer in all three states are dewatering the river system. Major lower-Flint tributaries run at low flows even in normal water years. In droughts, many run dry.



Shoal lilies on the Flint River; Credit: Flint Riverkeeper

Excessive water consumption throughout the ACF Basin is having disastrous consequences for Apalachicola Bay, where oyster, crab, shrimp and finfish populations were decimated in 2012 and have scarcely recovered. In order to keep the Atlanta-area reservoir Lake Lanier full, the Apalachicola River's flow is artificially held at drought levels for extended periods during dry conditions, cutting the river off from its floodplain and impacting the natural pulse of river flows and the estuary's health. While the estuary is displaying the worst effects of over-allocation, the impacts are felt throughout the ACF Basin.

The Army Corps, Congress and the three states share responsibility for the mismanagement of water in the ACF Basin. Rather than seeking real and workable solutions, the three governors, Congressional representatives and other political leaders have been locked in litigation and political jockeying over water use for more than 25 years. The lack of a resolution to the tri-state water conflict allows status quo water mismanagement to continue. The latest legal battle is Florida's U.S. Supreme Court suit against Georgia, putting the basin's health and sustainability in the hands of Special Master Ralph Lancaster. Unless a negotiated settlement breaks the litigation cycle, the Special Master's decree, for better or worse, may have long-term and unforeseeable consequences.

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What Must Be Done

To address this water allocation issue in a sustainable way, Alabama, Florida and Georgia must work cooperatively to reach a water-sharing agreement that protects the rivers, floodplains and Apalachicola Bay while promoting sustainable water use basin-wide. The three governors should create a transboundary water management institution, as recommended in the ACF Stakeholders' 2015 Sustainable Water Management Plan, to foster transparent, science-based adaptive management throughout the ACF Basin. Water conservation and wiser, more efficient water use in all sectors throughout the basin can help bring sustainability to the river system.

Additionally, the Army Corps must substantially improve water management to sustain ecosystems in the ACF Basin. Especially important is variability in flow releases from facilities managed by the Corps to maintain the health of the Apalachicola River, floodplain and bay system. The Army Corps should meaningfully involve the U.S. Fish & Wildlife Service and other federal and state natural resource agencies in the update and implementation of the ACF Water Control Manual. Finally, a supplemental Environmental Impact Statement is necessary in order to support the revision of the manual with up-to-date information concerning future water needs, especially in North Georgia, as well as to evaluate environmental impacts extending from the headwaters to Apalachicola Bay.

How You Can Help

- Go to www.americanrivers.org/ACF and take action!
- Retweet from @americanrivers on Twitter and use the hashtag #WeAreRivers
- Share ACF River Basin posts on [Facebook](https://www.facebook.com/weareacfrivers)

SAN JOAQUIN RIVER

CALIFORNIA

#2

**THREAT: OUTDATED WATER MANAGEMENT
AND EXCESSIVE DIVERSIONS**

**AT RISK: RIVER HEALTH AND RELIABLE WATER
SUPPLIES**

Summary

The San Joaquin is Central California's largest river, supporting endangered fish and wildlife, communities, and one of the most productive agricultural regions in the world. However, the river is so overtapped that it runs completely dry in stretches, threatening water quality, endangering fish and wildlife, creating uncertainty for farmers, and leaving communities vulnerable in the face of more frequent and severe droughts. The California Water Resources Control Board must act this year to increase flows in the San Joaquin so that the watershed is healthy enough to support fish and wildlife, sustainable agriculture and resilient communities for generations to come.

The River

The San Joaquin River and its principal tributaries—the Merced, the Tuolumne and the Stanislaus—originate on the high slopes of the southern Sierra Nevada, and flow through the fertile San Joaquin Valley south of Sacramento. For millennia, the cool waters of these rivers sustained the southernmost runs of king salmon and vast wetlands that supported millions of waterfowl, herds of tule elk and even grizzly bear.

Today, approximately four million people live in the San Joaquin watershed. These rivers support some of the most productive and profitable agriculture in the world, irrigating more than two million acres of arid land. The rivers also generate more than 3,000 megawatts of hydropower, provide drinking water to more than 4.5 million people (including the City of San Francisco), and support numerous endangered or declining species. From the headwaters, including Yosemite National Park, to the mouth at the San Francisco Bay-Delta estuary, these rivers support a thriving recreational industry that generates hundreds of millions in economic activity and includes world class whitewater rafting, bass tournaments, waterfowl hunting, and a native rainbow trout fishery.



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River diversion outside Stockton, CA; Credit: Sarah Craig

The Threat

Years of managing the San Joaquin for agriculture, hydropower and flood control have taken their toll on the river. Dams, levees and excessive water diversions have hurt river habitat and opportunities for recreation and community access. More than one hundred miles of the mainstem river have been dry for over fifty years, and water diversions along the tributaries take more than 70 percent of the natural flow. The river's salmon and steelhead populations are on the brink of extinction. Excessive diversions, groundwater overdraft, and poorly designed levees have left the river and surrounding communities vulnerable to increasingly frequent and severe droughts and floods.

California's ongoing drought places additional stress on the river and its communities, but we must not allow the drought to force rash decisions— such as cutting environmental protections or building expensive new dams at taxpayer expense— that will harm the river, fish and wildlife and communities for years to come.

What Must Be Done

It is time to take long-overdue action to restore the San Joaquin River. We must plan for a more sustainable future that includes both a healthy river and sustainable agriculture.

The California State Water Resources Control Board, the agency charged with allocating water rights and protecting water quality, is required to issue a plan for management of the river and its three principal tributaries. The Board must act this year to increase flows in the river to protect water quality, fish, recreation and community access, and support sustainable agriculture. In order to comply with state and federal laws, the Board must require dam owners to release more water to the river in a manner that mimics the natural flow regime. Powerful interests who have historically taken the water without regard to the river's health will resist any changes to protect their economic interests. We need members of the public to write the Board and share our vision where both the river and family farmers get the water they need for an economically and environmentally sustainable future.



Dry irrigation channel; Credit: Alison M. Jones www.nowater-nolife.org

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How You Can Help

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- Retweet from @americanrivers on Twitter and use the hashtag #WeAreRivers
- Share San Joaquin River posts on [Facebook](https://www.facebook.com)

SUSQUEHANNA RIVER

MARYLAND, PENNSYLVANIA

#3

Conowingo Dam; Credit: Aaron Harrington [flickr]

THREAT: HARMFUL DAM OPERATIONS

AT RISK: STATES' RIGHTS TO PROTECT WATER QUALITY

Summary

The Susquehanna River is a vital resource and economic engine for communities, and a major influence on the overall health of the Chesapeake Bay. The Susquehanna is threatened by pollution, but is also imperiled by the Conowingo Hydroelectric Dam, which alters river flow, blocks fish and impacts water quality. The Exelon Corporation is seeking to renew its federal license to operate Conowingo, and Maryland has the authority to require that the dam meet state water quality standards before a new license can be issued. However, a bill pending in Congress, H.R. 8, would take away Maryland's authority to hold Exelon accountable for pollution, putting the Susquehanna River further at risk.

The River

The Susquehanna River is one of the longest rivers in America, flowing 464 miles from Cooperstown, New York to Havre De Grace, Maryland and draining more than 27,000 square miles (including roughly half of the state of Pennsylvania). It provides drinking water for more than six million people and is one of the nation's best smallmouth bass fisheries. The Susquehanna is also popular with local residents and tourists who fish, kayak, canoe or boat on the river for recreation.

The Susquehanna delivers more than half of the freshwater flowing into the Chesapeake Bay. The river contributes 41 percent of the bay's nitrogen, 25 percent of its phosphorus and 27 percent of its sediment load. These pollutants, which harm the river and the bay, come from wastewater treatment plants, agricultural, urban and suburban runoff, and other sources of pollution throughout the Susquehanna River watershed.

Since its construction in 1928, Conowingo Dam has been trapping these pollutants in the reservoir behind the structure. Today, scientists warn that the reservoir is essentially full, and the dam's long-term ability to trap pollutants is all but gone. During large storms, strong river currents can scour sediment from the reservoir, sending additional pollution downstream into the river and the bay.



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Eagle at Conowingo Dam; Credit: Stan Lupo [flickr]

The Threat

The renewal of the federal license for Conowingo Dam represents a once-in-a-lifetime opportunity to improve the health of the Susquehanna River and the Chesapeake Bay, but that opportunity could be lost. Under the federal Clean Water Act, Exelon must prove to the Maryland Department of the Environment that its dam will comply with water quality standards before the state will issue a water quality certification. The Federal Energy Regulatory Commission (FERC), the federal agency that regulates hydropower projects, cannot issue a long-term (40-50 year) operating license to Exelon without certification from Maryland. This ensures that as pollution from the Conowingo Reservoir is discharged downstream and harms water quality, Exelon is responsible for addressing its share of the problem.

However, the National Hydropower Association, a coalition that includes Exelon Corporation, is pushing legislation in Congress that would place the interests of hydropower dam owners over the public interest in protecting fish, wildlife, outdoor recreation, water quality and public lands. The bill (H.R. 8) allows Exelon and FERC to avoid Maryland's authority under the Clean Water Act. If enacted, Maryland's actions to require Exelon to improve water quality would be in jeopardy.

Maryland, along with several other states, more than 200 conservation and recreation organizations, Native American tribes and the Obama Administration all strongly opposed this legislation's hydropower provisions, because of its implications across the country. In fact, several members of the Maryland delegation offered an amendment to H.R. 8 to preserve Maryland's authority to protect the Susquehanna, but that amendment was blocked by the hydropower industry's allies in Congress without even coming to a vote. If H.R. 8 becomes law, every hydropower dam in the country will be able to avoid compliance with bedrock environmental laws such as the Clean Water Act. Nonetheless, the bill has passed the U.S. House of Representatives and is now pending in the Senate.

What Must Be Done

The Susquehanna River is critical to the Chesapeake Bay and the residents of New York, Pennsylvania, Maryland and beyond. There are many sources of pollution into the Susquehanna River and the bay, and the river is in peril. State and local governments, along with many organizations and citizens, are working hard to repair the river's health and are making progress.

To continue to prioritize the health of the Susquehanna:

1. The Senate must not pass H.R. 8 or any similar legislation.
However, if it passes the Senate, President Obama must keep his promise to veto the bill. H.R. 8 undermines states' authority as well as the progress of local communities to improve the river and the bay's water quality. If the bill becomes law, Exelon would be able to avoid complying with water quality standards and the responsibility for addressing an inefficient dam's impacts would fall to the bay's municipalities, farmers and citizens.
2. Maryland must hold Exelon responsible for reducing the risk of sediment and nutrient pollution releases, and for improving passage for migratory fish. The company is profiting from their exclusive use of the river and should invest some of their revenue in these important upgrades to Conowingo Dam.
3. Bay partners must continue their important work to reduce pollution in local waterways.

We cannot let the hydropower industry avoid accountability at the expense of our fish, wildlife, water quality, public lands and outdoor recreation. For the millions who depend on the river and for generations to come—we must act now to save the mighty Susquehanna.



Alewife in Susquehanna River; Credit: Chesapeake Bay Program

How You Can Help

- Go to www.americanrivers.org/Susquehanna and take action!
- Retweet from @americanrivers on Twitter and use the hashtag #WeAreRivers
- Share Susquehanna River posts on [Facebook](https://www.facebook.com/weareamericanrivers)

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SMITH RIVER

MONTANA

#4



Credit: fisheyguyphotography.com

THREAT: COPPER MINING

**AT RISK: WATER QUALITY; NATIONALLY RENOWNED
WILD TROUT FISHERY**

Summary

Hidden in a deep canyon amongst central Montana's forested mountains, the Smith River is a treasured destination for paddlers and anglers alike. Unfortunately, this legendary trout stream is in danger of permanent degradation from a proposed copper mine. The State of Montana must require the mining company, Tintina Resources, to prove beyond any doubt that their operation will produce no acid mine drainage or cause any environmental harm to the Smith River or its tributaries before the project is allowed to proceed.

The River

The Smith River flows for 60 miles through a stunning limestone canyon between the Little Belt and Big Belt Mountains, emptying into the Missouri River just upstream of Great Falls, Montana. It is home to thriving populations of brown and rainbow trout, with a remnant population of native westslope cutthroat trout in Tenderfoot Creek, one of its most pristine tributaries. Among the wildlife that frequent the Smith River corridor are bald and golden eagles, osprey, black bear, moose, elk, and mule and whitetail deer.

Owing to its gentle currents and good road access at either end, the Smith is one of the few multi-day river trips in Montana that provides floaters of all ability levels with opportunities for backcountry solitude, superb fishing and stellar camping. In fact, the float down the Smith River is so popular that it is Montana's only permitted river. In 2015, 8,096 people applied for just 1,175 float permits. Recreational fishing and floating generate an estimated \$10 million annually in revenue for outfitters and surrounding communities.

The Threat

Tintina Resources Inc., a Canadian mining company controlled by Australia-based Sandfire Resources, is proposing to develop



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Fishing in Smith River; Credit: Scott Bosse

a copper mine underneath and directly adjacent to Sheep Creek, a major headwater stream that produces half of the tributary-spawning trout in the Smith River drainage and is a critical source of instream flows. The so-called Black Butte Copper Project would be located approximately 20 miles north of White Sulphur Springs. Within Montana, Tintina is touting the project as a modest-sized underground mine with an 11 to 14 year operating life that will bring jobs to White Sulphur Springs. However, to its out-of-state investors, Tintina is touting the potential for dramatically expanding the project and creating a “50-year mining district.”

Tintina claims the mine site is home to the, “third highest-grade copper deposit in North America.” However, removing the copper from the ground poses serious environmental risks. First, the copper lies in a massive sulfide-ore body, which, when exposed to air and water, can produce acid mine drainage. There is also the likelihood that the mine will leach toxic heavy metals such as copper into nearby surface waters, produce discharges of wastewater high in nitrates that result from the use of blasting compounds, and contaminate drinking water sources with arsenic. Finally, groundwater would have to be pumped from the mine, which could end up partially dewatering Sheep Creek or its tributaries, thus drying up trout habitat.

Mining has left a toxic legacy in many of Montana’s rivers for over a century. Among the rivers that have borne the brunt of historical mining impacts are the Big Blackfoot of *A River Runs Through It* fame and the Clark Fork, 120 miles of which is designated as the nation’s largest Superfund site due to contamination by toxic heavy metals. The cost to clean up the Clark Fork River alone is estimated at over \$1 billion and is expected to last 20 years. Modern mines have also taken their toll on local streams, and their legacy is found in publically funded multi-million dollar cleanups that are occurring, or must occur, at mines throughout Montana that have been shuttered in recent years, including: Zortman-Landusky near Malta, Beal Mountain near Anaconda, Kendall near Lewistown, Basin Creek south of Helena, and possibly the Troy Mine near the Kootenai River.

What Must Be Done

Tintina submitted its mine permit application to the Montana Department of Environmental Quality (DEQ) in December 2015. That application triggered a completeness review, which the state concluded in March 2016. The completeness review, supplemented with a review by a team of independent experts, found that

Tintina failed to provide sufficient information about fisheries, surface and groundwater flows, the discharge potential of effluent from the mine and long-term treatment of mine tailings. The permit application also failed to divulge the full scope of the proposed mining activity in the area over the next 50 years. Before the State of Montana agrees to proceed with an environmental impact statement, it must order Tintina to furnish the information that was missing from its permit application.

In the bigger picture, Montana Governor Steve Bullock must send a clear signal to Tintina that for its Black Butte Copper Project to win state approval, it must be designed using standards never before required of mines in Montana due to the industry’s legacy of repeated failures. Any mine approved in the Smith’s headwaters must ensure with 100 percent certainty that it will not degrade water quality or the wild trout fishery in the river or its tributaries. This high bar must be established now, while the project is still in the planning phases. The Smith River is not the right place for a mining experiment based on unsubstantiated promises.



Brown trout in Smith River; Credit: fisheyeguyphotography.com

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How You Can Help

- Go to www.americanrivers.org/Smith and take action!
- Retweet from @americanrivers on Twitter and use the hashtag #WeAreRivers
- Share Smith River posts on [Facebook](https://www.facebook.com)

GREEN-DUWAMISH RIVER

WASHINGTON

#5

Duwamish River, Seattle, WA; Credit: Ned Ahrens

**THREAT: OUTDATED DAM AND FLOODPLAIN
MANAGEMENT AND POLLUTION**

**AT RISK: CHINOOK SALMON AND STEELHEAD
POPULATIONS**

Summary

The Green-Duwamish River flows from the Cascade Mountains north of Mt. Rainier, winding through farmland and the Seattle – Tacoma metropolitan area, before reaching Puget Sound. Decades of pollution, floodplain development and harmful dam operations have taken their toll on the river and its salmon and steelhead runs. Two key actions this year can put the river on the rebound: the U.S. Army Corps of Engineers must build a long-delayed system for young salmon and steelhead to migrate downstream past a large dam, and governments at all levels must work collaboratively to manage the river for the benefit of salmon and communities.

The River

From its headwaters at Stampede Pass in Washington's Cascades, the Green River flows 30 miles through forested mountains before running into two dams: Howard Hanson Dam, a U.S. Army Corps of Engineers flood control facility, and Tacoma Headworks Diversion Dam, which diverts drinking water to the City of Tacoma. Tacoma's dam has completely blocked federally-threatened salmon, steelhead and bull trout migrating upstream since 1911.

Below the Tacoma Headworks, the river provides some of the Puget Sound Basin's best salmon and steelhead spawning habitat as it flows through forests, farms, and the scenic Green River gorge. At the City of Auburn, the Green River's fast flowing currents transform into a slower urban river that is channelized and walled off from its floodplain for about 20 miles. Finally, before it enters Seattle and nears Puget Sound, the Green flows through an estuary and its name changes to the Duwamish River. This transition zone from fresh to saltwater, which provides a critical nursery for young salmon as it bisects diverse neighborhoods, is scarred by decades of industrial pollution.



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The Threat

In recent years, as few as 800 Chinook salmon have returned annually to the Green-Duwamish, and for the past 40 years wild Chinook returns have averaged less than 10% of the historic average adult return of 38,000. Nearly half the historic salmon habitat in the Green-Duwamish watershed lies above Howard Hanson Dam. Tacoma's diversion dam is already outfitted to pass adult salmon and steelhead above both dams, but experiments with downstream fish passage have shown that it is not worth sending adult fish above the dam until the juveniles can safely migrate downstream through the reservoir and structure of Howard Hanson Dam. Without access to the abundant, forested spawning habitat above the dam, salmon and steelhead recovery will remain compromised.



Howard Hanson Dam; Credit: U.S. Army Corps of Engineers

At the same time, the lower Green River floodplain has been heavily developed, crowding out habitat and putting people and property at risk from flooding. Currently, the river is tightly confined inside an extensive levee system that requires costly maintenance and repair. A severe lack of shade along the river has led to unhealthy, and even lethal, water temperatures for salmon. A comprehensive plan to set back levees and provide a vital buffer of shade trees can help address these development impacts. Furthermore, polluted runoff is already the biggest water quality issue in Puget Sound and across the state. A nearly \$350 million effort to clean up the Duwamish must continue to move forward, and polluted runoff from roads and developments must be managed to avoid re-contaminating the river.

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What Must Be Done

The National Oceanic and Atmospheric Administration (NOAA) has been calling for the U.S. Army Corps of Engineers to complete the Howard Hanson juvenile fish passage system since 2001. Now the Army Corps and NOAA are discussing a new plan that would complete the fish passage project by 2021, with interim downstream passage provided until then. The Army Corps must commit to this timeline in 2016 in order to assure a future for salmon in the Green-Duwamish River.

In addition, local, state, and federal governments should embrace an integrated management and funding plan for the Green-Duwamish River that provides a path toward funding the fish passage, habitat, shade protection, and pollution prevention actions necessary to restore the river and its fisheries to health. While restoration efforts through a local watershed forum and King County's recent Green-Duwamish Watershed Strategy to coordinate work and leverage resources are laudable, more political leadership is necessary to restore the river's floodplain. In 2016, local leaders will decide whether to finally pursue a comprehensive, science-based flood management strategy that includes a long-term restoration plan. On the pollution prevention front, local governments and corporations are working on cleaning up a legacy of industrial pollution in the Duwamish, but a more robust and reliable funding source is needed to adequately control polluted urban runoff.

How You Can Help

- Go to www.americanrivers.org/GreenDuwamish and take action!
- Retweet from @americanrivers on Twitter and use the hashtag #WeAreRivers
- Share Green-Duwamish River posts on [Facebook](https://www.facebook.com/weareivers)

PEE DEE RIVER

NORTH CAROLINA

#6



Tillery Dam on Pee Dee River; Credit: Gerrit Jobsis

THREAT: HARMFUL DAM OPERATIONS

**AT RISK: FISH AND WILDLIFE HABITAT;
RECREATION; LOCAL ECONOMY**

Summary

The Pee Dee River provides abundant habitat for fish, mussels, birds and other wildlife. Unfortunately, the health of the river is at risk thanks to irresponsible and harmful operations of the Duke Energy Tillery Hydroelectric Project on the Pee Dee River. If the Federal Energy Regulatory Commission does not take steps to improve dam operations through the project's license, the river's health will suffer for decades to come.

The River

Rising from the foothills of western North Carolina and Virginia, the Pee Dee River courses some 430 miles before entering the Winyah Bay and Atlantic Ocean near Georgetown, South Carolina. In its upper reaches where it is known as the Yadkin River, this system supplies drinking water to Winston-Salem, High Point and other Piedmont communities. Six large hydroelectric dams punctuate 60 miles of the river in central North Carolina. The river's name changes to the Pee Dee at its confluence with the Uwharrie River just above the Duke Energy Tillery Hydroelectric Project.

The Yadkin-Pee Dee River system changes character along its path from the high gradient foothills through the rocky shoals of the Piedmont to the lower river's miles-wide floodplain forests, lush and abundant wetlands, and numerous Carolina bays. More than 100,000 acres of federally-protected land lie adjacent to the river comprising the Uwharrie National Forest, Pee Dee National Wildlife Refuge and Sandhills National Wildlife Refuge.

Migratory fish, including shad, striped bass, eel and sturgeon, ascend the river from the ocean to complete their lifecycles. The robust redhorse, a rare fish that is the largest sucker species native to East Coast rivers, was first discovered here in the 1860s. Many species of both endangered and common freshwater mussels can be found feeding on organic matter flowing across the river's bottom. Rounding out the river's wildlife are black bear, bald eagle and swallowtail kites which travel the river corridor and bring joy to those lucky enough to catch a fleeting glimpse.



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The Threat

In April 2015, the Federal Energy Regulatory Commission (FERC) issued a 40-year operating license for the Duke Energy Tillery Hydroelectric Project on the Pee Dee River. The license fails to require flow releases from the Tillery Dam that would restore and protect 19 miles of the Pee Dee River. During license negotiations, the State of North Carolina traded essential river flows for land in a deal with Duke Energy-Progress, the license holder for the project.

Despite volumes of scientific evidence and analysis that a higher flow rate is required to protect aquatic resources and recreation, FERC ignored the evidence presented by the City of Rockingham and American Rivers, and issued a license that will harm the river for decades to come. The City and American Rivers are appealing the license in federal court because its terms are not in compliance with the Federal Power Act, Endangered Species Act and other federal law.



Credit: City of Rockingham, NC

The Tillery Reach runs from the base of Tillery Dam to the Blewett Falls Reservoir, and is the only flowing fragment of river left in the impounded stretch of the Pee Dee. The wildlife, water quality and recreational use of the Tillery Reach will suffer for the next 40 years if the license issued by FERC is allowed to stand. Currently, hydropower operations alter river flows more than 50 fold without warning and flows too low to sustain aquatic life are common. Recreational use of the Tillery Reach by families, anglers and paddlers is all but eliminated by flow fluctuations that change from drought to flood and back to drought conditions virtually every day.



Credit: City of Rockingham, NC

During the licensing process, the U.S. Fish and Wildlife Service along with the City and American Rivers recommended minimum flows ranging from 800 cubic feet per second (cfs) to 1800 cfs for aquatic life and fish spawning. This reasonable flow regime recommendation was based on analysis of scientific studies by stakeholders in the licensing process and would also accommodate boating and fishing use. Under the new license, Duke Energy-Progress would release only 330 cfs (except for ten weeks in the spring when it will release 725 cfs for spawning) as its minimum, non-power-generation flow.

What Must Be Done

FERC must require minimum flow levels and reasonable hydropower operations that are protective of the Pee Dee River. In addition, FERC must halt implementation of the new Duke Energy Tillery Hydroelectric Project license and revisit the flows by granting the rehearing requested by the City of Rockingham and American Rivers. FERC has the opportunity to avoid a lengthy and expensive court case by granting the rehearing request and basing minimum flow requirements on the best information rather than harmful operations that result from a sweetheart deal between Duke Energy-Progress and the State that trades essential flows for uplands.

How You Can Help

- Go to www.americanrivers.org/PeeDee and take action!
- Retweet from @americanrivers on Twitter and use the hashtag #WeAreRivers
- Share Pee Dee River posts on [Facebook](https://www.facebook.com/wearepeedeerivers/)

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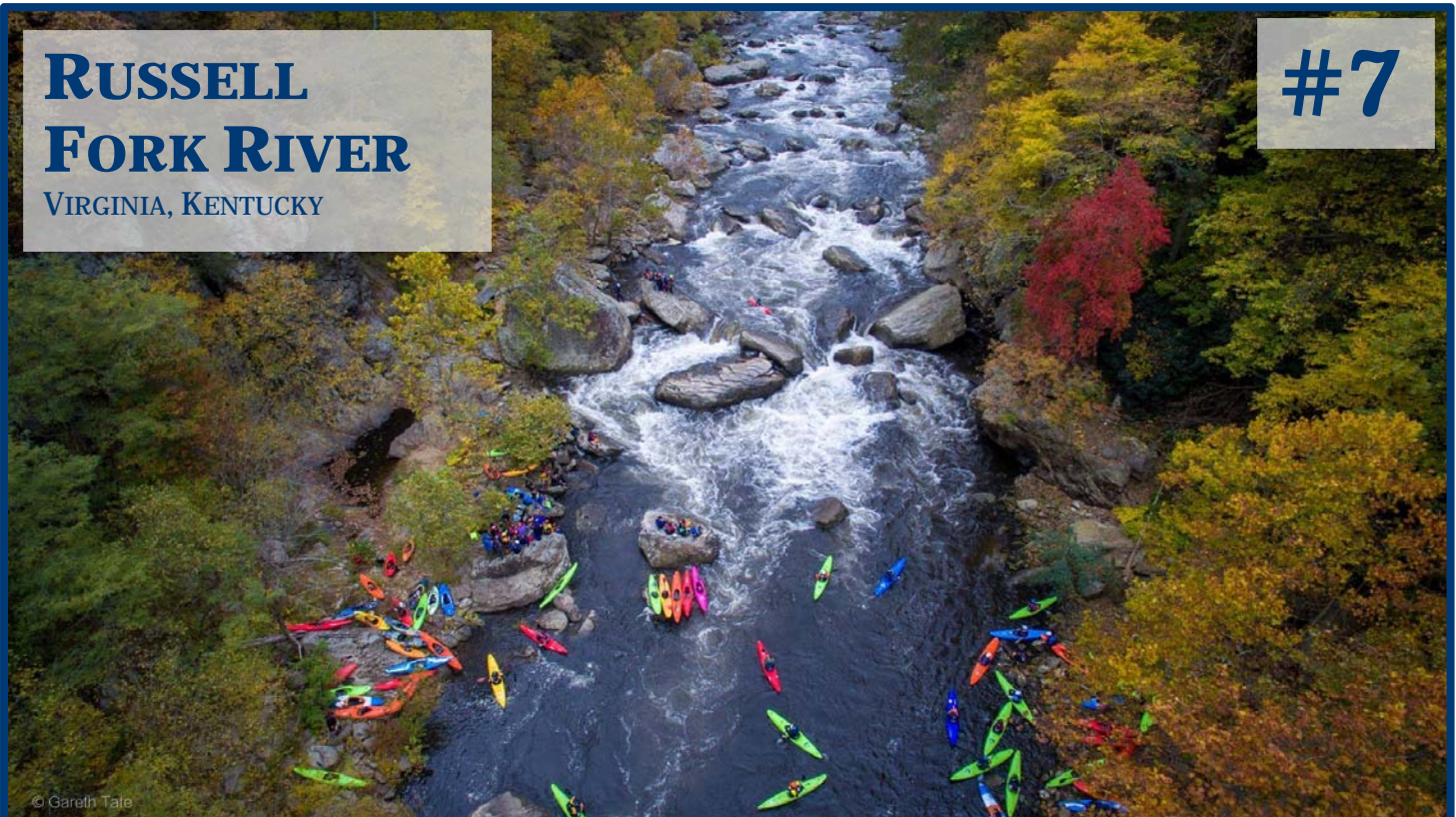
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RUSSELL FORK RIVER

VIRGINIA, KENTUCKY

#7



THREAT: MOUNTAINTOP REMOVAL COAL MINING

AT RISK: FISH AND WILDLIFE, RECREATIONAL USES

Summary

Locals and visitors love the Russell Fork River for its clean water, whitewater rapids and unique beauty. However, all of this will be compromised if Paramount Coal Company's proposed Doe Branch mountaintop removal coal mine gets the green light. The U.S. Environmental Protection Agency (EPA) and the State of Virginia must reject Paramount's permit application in order to protect the Russell Fork's many environmental and economic values for today's communities and future generations.

The River

The Russell Fork River winds along the border of Virginia and Kentucky. It forms the deepest gorge east of the Mississippi River and is known as the "Grand Canyon of the South." The gorge and river are the main attractions of Breaks Interstate Park, which draws more than 350,000 visitors per year. The Russell Fork is a tributary of the Big Sandy River, which is home to a number of endangered mussel and crayfish species.

The river's sandstone boulders create some of the most challenging rapids for kayakers in the southeastern United States. Every October, the U.S. Army Corps of Engineers conducts controlled releases at Flanagan Dam, which draw whitewater enthusiasts from around the world, providing a significant economic boost for the area. The river and natural environment play a vital economic role in the region—an area that has been historically dominated by the coal industry. In 2015 alone, Breaks Interstate Park generated \$9.95 million across southeast Kentucky and southwest Virginia. The nearby towns of Elkhorn City, Kentucky, and Haysi, Virginia, stand to benefit the most from the continued use of the park. It is crucial that this unique natural resource is protected as an economic and recreation asset.



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Mountaintop removal mining in nearby Wise County, VA; Credit: biotour13 [flickr]

The Threat

Mountaintop removal is among the most destructive forms of mining, with devastating impacts on clean water, fish and wildlife, and the health of local communities. The Russell Fork is threatened by Paramount Coal Company's proposed Doe Branch mine in Dickenson County, Virginia.

In mountaintop removal mining, heavy explosives are used to blast off the tops of mountains to extract the underlying seams of coal. Massive amounts of dirt and rubble, called "overburden" by the industry, are dumped into adjacent valleys, burying streams and ruining waterways for miles.

The Doe Branch mine would discharge toxic wastewater into Barts Lick Creek, Slate Branch, Wolfpen Branch, and Doe Branch—all tributaries to the Russell Fork River. As with many other mountaintop removal mines in the area, Doe Branch would likely discharge a host of pollutants including iron, manganese, sulfate, and sediment, as well as toxins such as selenium, beryllium, and arsenic. Mountaintop removal coal mining and the chemicals associated with it are harmful to human and aquatic life and may result in long-term water pollution.

Central Appalachia has supplied the nation with coal for more than a century. Unfortunately, a legacy of coal mining has poisoned streams and polluted air, ruined mountains, crumbled infrastructure, and all too often increased incidences of cancer and other diseases directly linked to pollution. [Can we add a sentence here about community impacts from contaminated water/air?]

As the region looks to the future for economic development, the Russell Fork and other rivers can be an asset for economic growth. We cannot allow such an economic engine for the region to be destroyed forever through destructive mountaintop removal practices. The time to act is now to protect this river.



Breaks Interstate Park

What Must Be Done

Paramount Coal is pushing ahead in pursuit of the Doe Branch mine, despite the dramatic downturn in the coal market and the bankruptcy of its parent company, Alpha Natural Resources. Paramount has already received two of the three permits necessary to mine, as well as approval from Virginia for a key wastewater discharge permit over the objections of the EPA, which has not approved the permit. Now the EPA has an opportunity to deny Paramount's application for 11 pollution discharge outfalls—an action that would halt the project. It is crucial that organizations and individuals maintain pressure on the EPA, so that the agency rejects Paramount's application.

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The rich natural resources of the Russell Fork watershed offer a vital recreational and economic lifeline to communities in Pike County, Kentucky, and Dickenson County, Virginia. It is of utmost importance that valuable natural assets like the Russell Fork are preserved for future generations.

How You Can Help

- Go to www.americanrivers.org/RussellFork and take action!
- Retweet from @americanrivers on Twitter and use the hashtag #WeAreRivers
- Share Russell Fork River posts on [Facebook](https://www.facebook.com/weareivers)

MERRIMACK RIVER

NEW HAMPSHIRE, MASSACHUSETTS

#8



Great Blue Heron; Credit: Denise Hurt

THREAT: POLLUTED RUNOFF

**AT RISK: CLEAN DRINKING WATER; RARE AND ENDANGERED
HABITAT AND SPECIES**

Summary

Birthplace of American industry, drinking water source for over a half million people, and home to Eastern brook trout and other fish and wildlife, the Merrimack River is one of New England's treasures. However, its forests are disappearing, cut down to make way for developments, roads and parking lots. Unless the EPA acts now to protect sensitive lands and implement green infrastructure solutions, the river and its communities will be choked by increasingly polluted runoff.

The River

The health of the 125-mile Merrimack River and its 11 tributaries is of great importance to two million residents and an abundance of fish and wildlife species. Currently, 600,000 people depend on the river for drinking water, including the six communities of Lowell, Lawrence, Tewksbury, Methuen, and Andover, in Massachusetts and Nashua, NH. Two more cities in New Hampshire, Manchester and Concord, plan to do so in the near future. In addition, the Merrimack is historically important as one of the birthplaces for industrialization, with the river powering textile mills and other factories. The region, "was then to industry what the Silicon Valley is today," said Theodore Steinburg, author of *Nature Incorporated: Industrialization and the Waters of New England*. Today, 847 dams harness the river and its tributaries, and some are candidates for removal to help restore river health and fisheries.

The Merrimack River is one of the three most important large rivers on the East Coast in its conservation value to migratory river herring and one of the six most important for 12 migratory fish species. The Merrimack watershed also supports at least 75 state and federally-listed endangered species, numerous pairs of bald eagles, the largest tidal marsh habitat in New England, and a portion of the Atlantic Flyway bird migration route.



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The Threat

Pavement is rapidly replacing trees across the Merrimack River watershed. The impact of unsustainable development on land, forests, habitat, and water quality is the largest threat that the Merrimack River watershed faces today. The U.S. Forest Service ranks the Merrimack River watershed as the most threatened in the country due to the development of forest lands, fourth for associated threats to water quality, and seventh for loss of habitat for species at risk. An estimated 40 to 63 percent of the forested land in the watershed is projected to be

developed by 2030. These threats are the direct result of the growing population and associated development occurring throughout the watershed, especially in southern New Hampshire, the most rapidly developing part of the state. For example, the average population growth rate between 2000 and 2010 in the three main New Hampshire counties of the Merrimack River watershed (Belknap, Merrimack, and Hillsborough) is nearly two times greater than the New England average.

Protecting the extensive forests in the Merrimack River watershed is essential to preserve their natural filtration function, which removes nutrients, pathogens, and other pollutants in order to help clean the river's water. The looming loss of these forests threatens the water supply of the more than 600,000 people who depend directly on the Merrimack River for their drinking water today, along with the additional 200,000 residents expected to use the water in the near future. The loss of forested lands also reduces habitat for threatened and endangered species.

Pollutants that flow through the Merrimack watershed ultimately impact the Gulf of Maine's marine ecosystem. In fact, the Merrimack is already the second greatest contributor of nitrogen and phosphorus to the Gulf of Maine. In the coming years, the National Oceanic and Atmospheric Administration predicts an increase in rainfall and flooding for New England rivers due to climate change, which will only increase polluted runoff. With the continued transformation of these vitally important forested lands into suburban developments, the ability of the land to absorb, hold, and naturally clean stormwater will be greatly reduced.

What Must Be Done

In order to ensure clean drinking water and protect fish and wildlife in the Merrimack River from poorly planned development, the U.S. Environmental Protection Agency (EPA) needs to create a regional watershed team and implement key safeguards including protection for important forest lands along rivers and streams, green infrastructure solutions, and improved stormwater management to reduce the excess nutrients and pathogens in the river. The EPA has created watershed teams in other basins facing chronic water quality challenges including the Chesapeake Bay, Great Lakes, and Gulf of Mexico. Such an approach empowers local citizens to take greater responsibility for river stewardship. Currently, EPA is already working closely with the City of Lawrence, Merrimack River Watershed Council, the Commonwealth of Massachusetts, and other partners to improve Lawrence's water. Now is the time to take the action to the next level. EPA Administrator Gina McCarthy has a once-in-a-lifetime opportunity to make a lasting positive impact on the Merrimack by facilitating and funding a plan, backed by local citizens, to conserve the river through smart planning and accelerated land protection while there is still time.

How You Can Help

- Go to www.americanrivers.org/Merrimack and take action!
- Retweet from @americanrivers on Twitter and use the hashtag #WeAreRivers
- Share Merrimack River posts on [Facebook](https://www.facebook.com/)



Paddling on the Merrimack River; Credit: Merrimack River Watershed Council

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ST. LAWRENCE RIVER

NEW YORK

#9



Credit: Lizzy Grater

THREAT: OUTDATED DAM MANAGEMENT

**AT RISK: WETLAND HABITAT, FISH AND WILDLIFE,
AND RECREATIONAL USES**

Summary

The St. Lawrence River has been a lifeline of the region for thousands of years, rich in history and biodiversity. Unfortunately, the river's dam management is stuck in the 1950's, a time when little consideration was given to environmental values. Unless U.S. Secretary of State John Kerry and Canadian Foreign Affairs Minister Stéphane Dion approve a proposed plan for improved dam operations, the river and its fish and wildlife will continue to suffer irreversible damage. Fortunately, the U.S. and Canadian governments can remove the St. Lawrence River from the list of *America's Most Endangered Rivers*® with the simple stroke of a pen.

The River

Historically a major trade route, the St. Lawrence River connects the Great Lakes with the Atlantic Ocean and flows along the border between the U.S. and Canada. With a 518,996 square mile watershed, it is one of the longest North American rivers, flowing 744 miles from Lake Ontario to the Gulf of St. Lawrence. The river provides shelter, breeding grounds, and nurseries to an abundance of fish and wildlife. It is home to 87 freshwater and 18 migrating species of fish and 115 species of waterfowl, shorebirds and raptors. Known as one of the great freshwater sport fishing grounds for pike, bass and muskellunge, it is a world-renowned tourist destination, with great opportunities for swimming, camping, boating, hunting and scuba diving.

In addition, the St. Lawrence provides drinking water to approximately four million people in the U.S. and Canada. The river also supplies an abundance of other services, including: the production of almost 12 billion kilowatts of electricity per year; water for industry; an international shipping channel that allows deep water vessels to reach the Great Lakes; and the receiving waters for industrial and human wastewater discharges. Its banks are lined with public parks and sites of historic significance to First Nation tribal communities and American and Canadian people.



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The Threat

In the past 50 years since the construction of the Moses-Saunders Hydropower Dam, the ecosystem of the St. Lawrence River has suffered consistent losses to its globally-significant biodiversity due to poorly

regulated water levels. Environmental considerations were not part of planning in the 1950's when the dam and shipping channel were constructed. As a result, this outdated management strategy does not allow for the natural variability in water levels and flows essential to maintain a healthy river. Instead, current management significantly limits the range of water level fluctuations. The resulting artificially-constrained water levels have caused a loss of biodiversity in coastal wetlands and significant impacts to many fish species and nesting water birds.



Moses-Saunders Hydropower Dam; Credit: Felix Castor [flickr]



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known as “Plan 1014.” Plan 1014 is based on science and promotes the benefits of healthy, intact wetlands including: improved water quality, stronger fisheries, increased biodiversity and erosion control. Plan 1014, when implemented, will place the environment at the center of decisions about water level regulations on the St. Lawrence River and will be one of the largest wetland restorations in North America.

However, since the IJC recommended Plan 1014 in June 1014, it has languished in inter-agency review, with no action by either the U.S. or Canadian governments. The St. Lawrence River is at a once-in-a-lifetime turning point. It is time for the U.S. State Department to take the lead and accept Plan 1014 in order to begin the restoration of the St. Lawrence River.

What Must Be Done

After more than two decades of research and deliberation, a \$20 million binational study, and extensive public comment and consultation with government at all levels and a variety of stakeholders, the trans-boundary International Joint Commission (IJC) developed a new plan for water management in the St. Lawrence River Basin,

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How You Can Help

- Go to www.americanrivers.org/StLawrence and take action!
- Retweet from @americanrivers on Twitter and use the hashtag #WeAreRivers
- Share St. Lawrence River posts on [Facebook](https://www.facebook.com)

PASCAGOULA RIVER

MISSISSIPPI, ALABAMA

#10



Great Egret; Credit: Nancy Blue

THREAT: NEW DAMS

AT RISK: FISH, WILDLIFE AND ECOTOURISM

Summary

The Pascagoula River is a free-flowing treasure that runs through the Gulf Coastal plain in the southeastern United States. The river and its associated marshes and wetlands are a haven for fish, wildlife, and visitors looking to experience the area's unique natural beauty. All of this could be irreversibly damaged if local counties are successful in their effort to build new dams on Pascagoula tributaries. The U.S. Army Corps of Engineers should deny the permit request for this unnecessary and environmentally damaging project.

The River

Running through the Gulf Coastal plain in southeastern Mississippi and southwestern Alabama, the Pascagoula River is the largest undammed river (by volume) in the continental United States. A state scenic stream, the Pascagoula River has historically been called the "Singing River," due to the notable humming sound that arises from its waters. The Pascagoula watershed is largely forested, and its streams provide habitat for rare and valuable plants and animals from the headwaters to the tidally-influenced marshes downstream. This watershed is home to resident and migratory birds, turtles, fish, snakes and a variety of other fish and wildlife.

More than 30,000 acres of the Pascagoula's streamside forests and hardwood swamps are protected by the Upper and Lower Pascagoula, Red Creek, and Ward Bayou Wildlife Management Areas, and The Nature Conservancy's Murrah, Deaton and Leaf River Preserves. These various state federal and private lands managed for recreation or conservation are used by local hunters, fishermen, paddlers, birdwatchers and visitors from other states.



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The Threat

Two recreational amenity lakes have been proposed on tributaries to the Pascagoula River (Big Cedar Creek and Little Cedar Creek) by the Pat Harrison Waterway District, Jackson County Board of Supervisors and George County Board of Supervisors. These groups claim that the lakes will protect the Pascagoula from climate change and severe drought. However, these claims have not been substantiated by the project proponents; future drought projections are uncertain. While research predicts that there may be longer droughts and higher

temperatures in this region between now and 2060 (the modeled time period), there also may be more floods, increased rainfall and more flashiness in the streams of the Pascagoula Basin. Future climate could be wetter or drier.

There is an existing, less environmentally harmful option for augmentation of low flows in the Pascagoula River – water releases from Okatibbee Reservoir in Lauderdale County and from other smaller lakes in the Pascagoula basin. Also, opportunities for water conservation should be exhausted before asking for a new water storage source such as lakes that will destroy wetlands, submerge farmland and habitat and displace people.

Furthermore, the storage function of the lakes is in question given the widely accepted concept that lake surfaces exposed to wind and sunlight will evaporate much more water than the surfaces of creeks. Consequently, the lakes will be of little use to the Pascagoula River during severe drought. In addition, researchers have determined that soils in this area allow significant seepage. Digging the lakes may drop the local water table and force users of shallow wells to deepen them or connect to community water systems. In fact, Curt Craig, the lead engineer for this project, admitted under oath that much more data was needed on soil characteristics before work could begin on the lakes.

In November 2015, the Environmental Protection Agency (EPA) wrote a letter to the Army Corps explaining that they consider the Pascagoula River to be “a resource of national importance.” EPA advised that the lake project is not necessary for drought resiliency and that it will have substantial and unacceptable adverse impacts on Big and Little Cedar Creeks and downstream waters. Then in January 2016, due to political pressure from constituents, the Jackson County Board of Supervisors voted to remove support from the Cedar Creek dam projects and the Army Corps’ Mobile District was informed that the county no longer co-sponsors this wetland fill application.



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What Must Be Done

The Army Corps should reject the permit applications for these avoidable and environmentally harmful dams to create luxury lake communities. However, in the event that the Cedar Creek lake construction project is allowed to move forward, the Army Corps must require the applicants to prepare a full Environmental Impact Statement (EIS). Project proponents have previously submitted an environmental assessment to the Army Corps. However, when proposed actions are those “significantly affecting the quality of the human environment,” the National Environmental Policy Act requires that a full EIS be prepared. This project’s effects on habitat, wetlands, local geology, residential water wells, plus the shrinking of floodplains and placement of high hazard dams upstream of occupied structures all support the finding of a significant effect on the quality of the human environment and require an EIS.

How You Can Help

- Go to www.americanrivers.org/Pascagoula and take action!
- Retweet from @americanrivers on Twitter and use the hashtag #WeAreRivers
- Share Pascagoula River posts on [Facebook](https://www.facebook.com)