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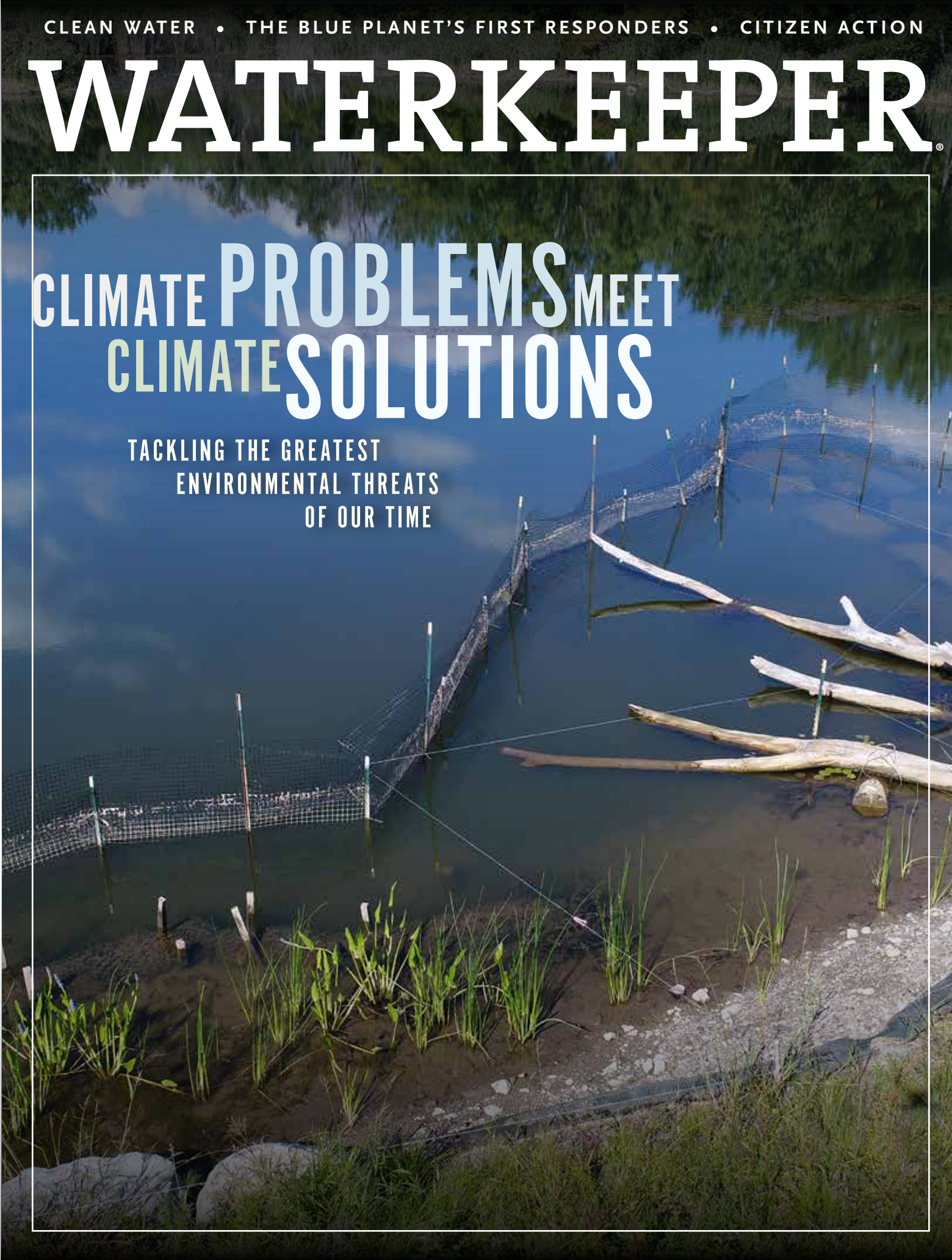

CLIMATE PROBLEMS MEET CLIMATE SOLUTIONS

TACKLING THE GREATEST ENVIRONMENTAL THREATS OF OUR TIME

ON THE COVER:

Buffalo Niagara Waterkeeper employed barrier rock reefs, anchored root wads, shoreline grading, and native plantings to restore the eroding shoreline of Little Beaver Island in New York state. Photo by Buffalo Niagara Waterkeeper.

Design by BoyBurnsBarn/John Turner

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WATERKEEPER® MAGAZINE

WATERKEEPER® ALLIANCE

180 Maiden Lane, Ste. 603, New York, N.Y. 10038
info@waterkeeper.org for questions or comments
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Tom Quinn Editor
Maia Raposo Consulting Editor
Lindsey Muzzio Photo Editor
BoyBurnsBarn/John Turner Art Direction
Janet Piorko Contributing Editor

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WATERKEEPER® ALLIANCE

Volume 17

SECTIONS:

TURNING A WATER CRISIS INTO A PATH TO PEACE

Waterkeeper Alliance isn't a movement that just identifies problems; we also solve them. And that's what Waterkeepers around the world are doing in the face of climate change — growing oysters in Hawaii, preserving carbon sinks in Cambodia, restoring mangroves in Vietnam, stopping fossil fuel infrastructure projects in the U.S. Pacific Northwest, and addressing water security in Southern California.

In a movement of problem solvers, EcoPeace Middle East, home to the three Jordan River Waterkeeper groups in Israel, Jordan, and Palestine, is pursuing a plan so visionary and audacious that it offers all of us a paradigm for tackling climate change.

The proposal, which they call the water-energy nexus, takes on nothing less than peace, energy, and water in a region where all are in short supply. It's premised on the idea that, faced with a climate disaster that threatens everyone, leaders may reach for the type of brave solutions they'd otherwise ignore.

The idea: Parched Jordan has plenty of uninhabited desert and land that gets 320 days of sunlight a year, but it faces grave water shortages and has very little access to the sea. Densely inhabited Israel and Palestine don't have much land for large-scale renewable projects, but they do have access to the sea. Investments in capturing solar power in Jordan that can run new energy-intensive desalination plants — plants that have other environmental impacts — in Israel and Palestine would allow Israel and Palestine to buy renewable energy from Jordan, and sell water back to Jordan.

Each party would have something to sell — and something essential it needs to buy from its neighbor.

A 2017 pre-feasibility study found that by 2030, with an expected population of nearly 30 million people, the region will need an additional 574 million cubic meters of water annually just to maintain current levels of domestic consumption. The study found multiple win-win scenarios for the region, including, among others: water security and revenue generation (3-4 percent GDP) for Jordan; diversifying energy sources for Palestine and reducing its reliance on Israel for fossil fuel; and diversifying energy sources and promoting regional stability for Israel. The study concluded that the water-energy nexus idea had enough merit to warrant further study.

EcoPeace is the only trilateral organization in the region with Israelis, Jordanians, and Palestinians working together, with three co-directors, one in Tel Aviv, one in Amman, and one in Ramallah, each of whom serves as the Jordan River Waterkeeper for each of their countries. Almost every member of its 50-person staff has a counterpart in the other two locations. A 26-year-old group, it became a member of Waterkeeper Alliance in 2019.

The organization's mission is to build shared water resources in a region beset by conflict. To do this, the organization has grown a cadre of unlikely allies. It arranged for Jordanian, Palestinian, and Israeli mayors to join hands and jump into the Jordan River together. It enlisted schoolchildren to interview their grandparents about the Jordan River of their youth. It convinced academics to follow the trails of animals to avoid land mines and create an unassailable study of the river's flows.

Nada Majdalani, who has a master's degree in environmental assessment and management from the U.K., has been the Palestinian co-director since 2017. Yana Abu Taleb, who has a degree in archeology, has been the Jordanian co-director since 2018. Gidon Bromberg, an environmental lawyer who co-founded EcoPeace, has been the Israeli co-director for 26 years.

Bromberg says the thought behind the water-energy nexus is to "turn a good idea into something that is bankable."

Bromberg compares the EcoPeace plan to a similar agreement that helped lock in peace in Europe six years after the end of World War II. In 1951, six European countries agreed to jointly regulate coal and steel production, forming a compact that became a precursor to the European Union.

The French foreign minister at the time, Robert Schuman, saw the European Coal and Steel Community as a bulwark against renewed conflict, especially between historic enemies France and Germany, saying the accord would make war "not merely unthinkable, but materially impossible."

"World peace cannot be safeguarded without the making of creative efforts proportionate to the dangers which threaten it," Schuman said.

The same can be said of the climate. It's time for audacious and creative solutions, solutions that are proportionate to the threats we all face.

As one Middle Eastern peace activist said: "We in social change are viewed as naive. But the reality is the opposite. The status quo is naive because it fails to confront the reality that these strategies have been given ample time to work, and they have failed, so it's naive to think they will. It's actually much more realistic to assume they will not and other strategies — new strategies — may work."

The EcoPeace plan is big, bold, and expensive. And I hope we see more such plans in the coming years — plans that acknowledge the magnitude of the challenges we face, and the amount of cooperative labor, investment, imagination, and audacity that we'll all have to deploy to meet those challenges.

To clean water,

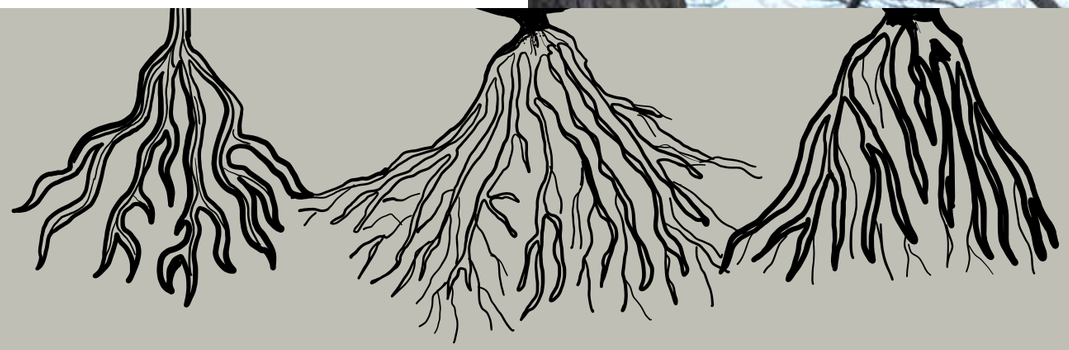
Marc Yaggi
Executive Director

PHOTOS BY ECOPEACE MIDDLE EAST

PHOTOS BY ECOPEACE MIDDLE EAST

PHOTOS BY ECOPEACE MIDDLE EAST

PHOTO BY CHRISTOPHER SPRAKE/SHUTTERSTOCK



Using, Not Abusing, Mother Nature

BUFFALO NIAGARA WATERKEEPER IS RESTORING SHORELINE ALONG THE BUFFALO AND NIAGARA RIVERS TO STOP EROSION, RESTORE WILDLIFE HABITAT, AND FILTER CERTAIN TYPES OF POLLUTION — LIKE LAWN FERTILIZER AND PET WASTE — BEFORE THEY REACH WATERWAYS.

By Lisa W. Foderaro

Golf courses are notoriously unnatural, with their chiseled links, gouged-out sand traps, and fastidiously clipped putting greens. It should come as no surprise, then, that where many golf courses meet water bodies, the interface is only vaguely reminiscent of a natural shoreline.

So it was at Spicer Creek, a major tributary of the Niagara River that flows through River Oaks Golf Club in Grand Island, New York, between the city of Buffalo and Niagara Falls. Because the golf course met the creek abruptly, without a soft or natural edge, both erosion and nutrient pollution were recurring problems.

Enter Buffalo Niagara Waterkeeper. For the past decade, the organization has embarked on a series of shoreline restoration projects along both the Buffalo and Niagara rivers, as well as tributaries like Spicer Creek. The idea behind its "Living Shorelines" initiative is to reclaim natural features of riverbanks to stop erosion, restore wildlife habitat, and filter certain types of pollution — like lawn fertilizer and pet waste — before they reach waterways.

"Our shores have been severely degraded through land-use changes and development," said Emily Root, director of ecological programs for Buffalo Niagara Waterkeeper. "But shorelines are some of the most ecologically productive places on earth. So for us, they are a high priority for improving the ecological health of the region."

The project at River Oaks, completed last fall, represents a critical part of the Waterkeeper's work, especially in the face of climate change. Jill Jedlicka, the organization's Waterkeeper and executive director, says restoring shorelines — so that they harness nature's healing powers — is every bit as important as removing contaminated sediment or boosting access to riverfronts. On a warming planet, re-establishing native plants, from emergent aquatics to shrubs to trees, can absorb and store carbon, while also making properties more resilient against floods and extreme weather.

At River Oaks Golf Club, the group set out to take a highly manipulated landscape and reconnect it to the creek. Along 5,000 feet of shoreline, the Waterkeeper engineered a more gradual slope, oversaw the

LITTLE BEAVER ISLAND, PART OF BEAVER ISLAND STATE PARK ON THE UPPER NIAGARA RIVER, PRE-RESTORATION. THE SHORELINE WAS EXPERIENCING SEVERE EROSION AND UNDERCUTTING, WHICH LED TO THE LOSS OF PROPERTY, TREES, AND PICNIC BENCHES.

PHOTO BY BUFFALO NIAGARA WATERKEEPER

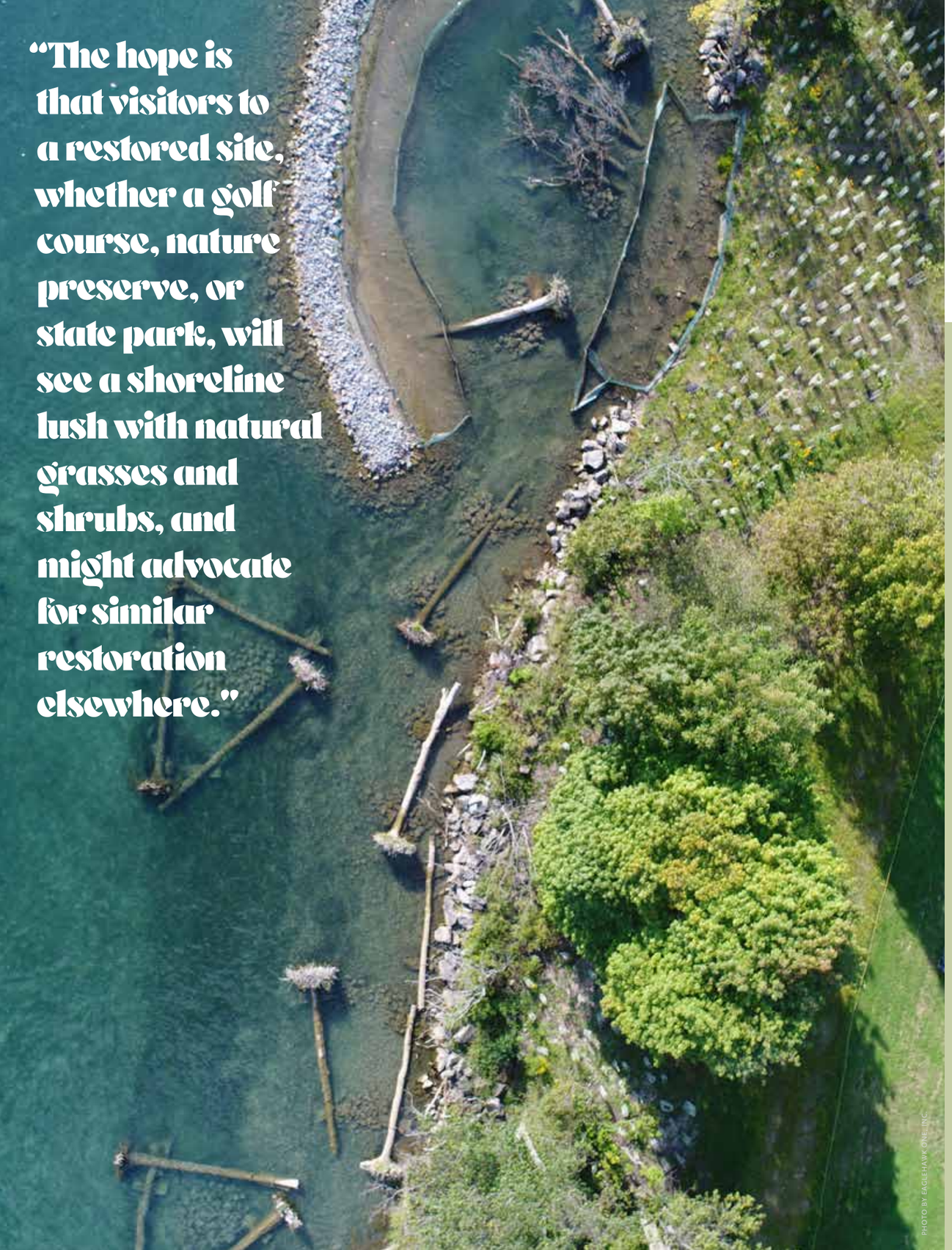


PHOTO BY EAGLE HAWK ONE, INC.

"The hope is that visitors to a restored site, whether a golf course, nature preserve, or state park, will see a shoreline lush with natural grasses and shrubs, and might advocate for similar restoration elsewhere."

PHOTO BY BUFFALO NIAGARA WATERKEEPER

LEFT AND ABOVE; THE SHORELINE OF LITTLE BEAVER ISLAND IS CONSTANTLY CHALLENGED BY WINDS, WAVES, AND BOAT WAKES. TO MINIMIZE EROSION, BUFFALO NIAGARA WATERKEEPER USED A VARIETY OF RESTORATION TECHNIQUES INCLUDING BARRIER ROCK REEFS, ANCHORED ROOT WADS, SHORELINE GRADING, AND NATIVE PLANTINGS THROUGHOUT.

"Science really drove this project."

installation of native species like pickerel weed and little bluestem, and convinced the golf course to stop mowing some 80 acres.

"Science really drove this project," Root said. "This was an area with a lot of runoff, and so we created step pools to capture the water as it flowed through the landscape. We also regraded the shoreline to reconnect it to the flood plain. In springtime, there are a ton of tadpoles in that area now."

But the task of restoring shorelines is enormous, not to mention time-consuming and costly — factors that might make less fierce advocates shrink from the challenge. Along the Buffalo River, within the city limits of Buffalo, work to improve habitat across 17 sites is now finished. But work along the Niagara River Greenway, which began in 2013, continues.

About 80 percent of the shoreline along the upper Niagara River has been altered from its natural form, according to Buffalo Niagara Waterkeeper's own estimates. The group has partnered with local municipalities, state agencies, and private landowners on the projects. And it chooses its restoration sites judiciously.

"How do you reach a golfing community and the demographics of people who love to golf?" Jedlicka asked. "When you understand your local waterways, you can start to prioritize better, and it helps to have a highly visible project like this."

The hope is that visitors to a restored site, whether a golf course, nature preserve, or state park, will see a shoreline lush with natural grasses and shrubs, and might advocate for similar restoration elsewhere. Homeowners fortunate enough to live along rivers and creeks are encouraged to landscape their own properties in a way that harmonizes with nature.

But while the restored shorelines may look as if they have sprung from nature, returning them to their origins involves complex planning and design. A process known as bioengineering is deployed, with stones, boulders, log barriers, and native plant species all bolstering the shore against wind and waves. Plant species that withstand drought and floods are favored over fragile ones.

Such was the case at Tifft Nature Preserve in Buffalo. In the 1970s, the preserve was carved out of a long-abused property — a 264-acre patch of land connected to Lake Erie via a long culvert. Historically, the land was a fertile network of wetlands next to the great lake. But during the city's industrial heyday, it was used as a turning basin for ships. Later, it became a dump for garbage, chemical waste, and construction debris.

Yet nature has slowly reclaimed the area, and pied-billed grebes and American wigeons — ducks prized by bird-watchers — are commonly seen there. Before the pandemic, school groups would arrive at the visitor center throughout the year for education programs, learning about the preserve's transformation.

The visitor center sits next to Lake Kirsty. Once part of a sprawling wetland, the manmade lake was created to accommodate ships. Buffalo Niagara Waterkeeper decided to renovate a portion of the lakeshore to show visitors the ability of native plants to attract wildlife, even along once-

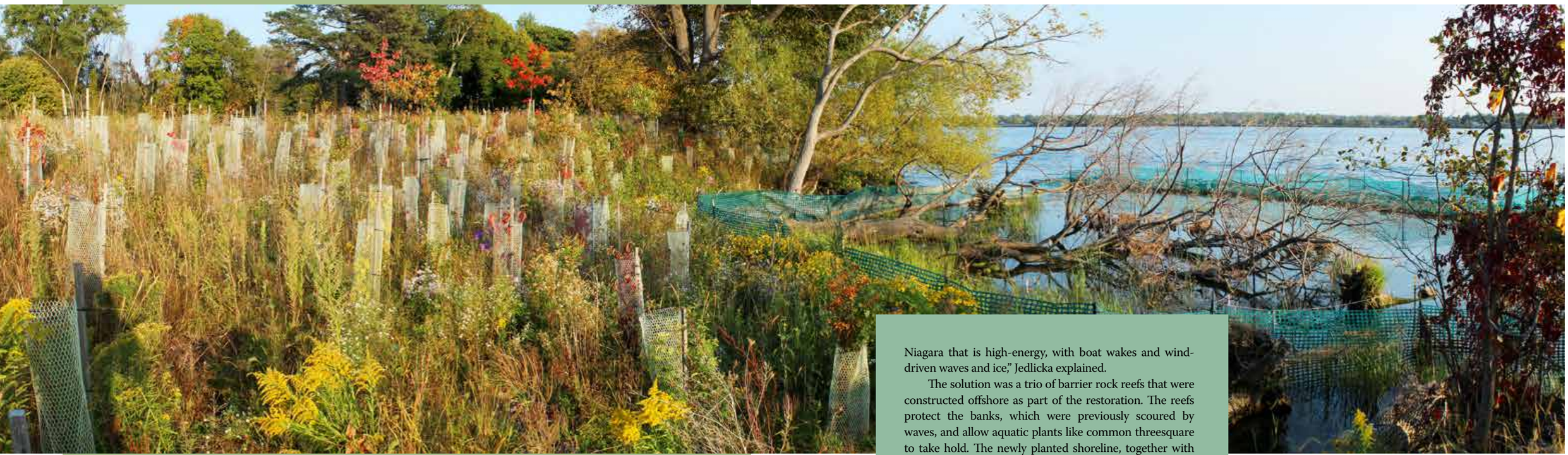


PHOTO BY BUFFALO NIAGARA WATERKEEPER

APPROXIMATELY 120 TREES, 1,380 SHRUBS, 360 LIVE STAKES, AND 5,000 WETLAND PLANTS WERE INSTALLED THROUGHOUT THE LITTLE BEAVER ISLAND PROJECT ALONG 800 LINEAR FEET OF SHORELINE.

contaminated water bodies.

The preserve staff had already managed to rid the shoreline of Japanese knotweed, a highly invasive plant. In order to raise the bed of the lake where it met the land, Waterkeeper brought in tons of clean soil, depositing it along 500 feet of shore. (Using construction equipment to regrade the slope was not an option, since it could stir up contaminants.)

"There was no gradual transition before," said Zach Goodrich, the preserve steward, who worked closely with Waterkeeper on the project. "It was a rocky shoreline and then it dropped a couple of feet immediately. Now there is a nice gentle slope. And it's a great example of an emergent plant community that kids can see right outside the visitor center, where we hold workshops."

Goodrich hopes to extend the restoration to other parts of the lakeshore. The aquatic plants provide important cover for fish like rock bass, sunfish, and perch, he said, as well as spawning habitat. As the plants mature, he expects birds like American bitterns and herons, which are seen in the preserve's 75-acre wetland, to discover the lakeshore as well.

As in all of Waterkeeper's shoreline projects, the plants at the Tifft preserve are not limited to the lake's edge. They extend from beneath the water's surface to the uplands, some 30 feet from shore. Forty different plant species were used in the restoration, ranging from aquatics like American white water lily to shrubs such as fragrant sumac and elderberry and trees like gray birch and hackberry.

The new plants at Tifft Nature Preserve not only look beautiful; they strengthen the shore. Climate experts say flooding, and extreme weather in general, are likely to worsen with global warming. *cont. on page XX*

"There is a constant fluctuation in water levels because we are connected to Lake Erie," Goodrich noted. "The level can rise or fall by one or two feet in only an hour due to wind. When we have a big wind event, the elevations of the lake go down by Toledo on the west, and the water on our side goes up."

Those forces are also at work on Little Beaver Island, part of Beaver Island State Park on the upper Niagara River. There, a four-acre project is centered on a portion of shoreline that is buffeted by waves. "It's in an area on the Niagara that is high-energy, with boat wakes and wind-driven waves and ice," Jedlicka explained.

The solution was a trio of barrier rock reefs that were constructed offshore as part of the restoration. The reefs protect the banks, which were previously scoured by waves, and allow aquatic plants like common threesquare to take hold. The newly planted shoreline, together with the reefs, offers habitat for birds, native mussels and turtles.

"Certainly the turtles we watch in New York State are the eastern spiny softshell, which is known to use the other side of the island," said Aaron W. Heminway, a biologist for the New York State Office of Parks, Recreation and Historic Preservation, a partner on the project. "And, of course, painted turtles."

Dying ash trees — victims of the invasive emerald ash borer — were also cut down, cabled together and deposited offshore as part of the $1.78 million project. "The upper Niagara is known for game fish like musky, pike and largemouth bass," Heminway added. "The cabled logs create habitat for them and provide shelter for minnows and other species that are preyed upon."

The project, completed in 2019, has already proved its worth, Jedlicka said. "We had some really crazy ice storms the winter after this was constructed, with car-sized ice chunks," she said, pointing out that the shore came through relatively unscathed. "We knew right away that it was resilient."

With climate change posing an existential threat, Jedlicka believes shoreline restoration can address both prevention and preparedness. "We know the work we do is not going to save the planet," she said. "But any time you put a plant or tree in the ground, it sequesters carbon, even on a micro-scale. In terms of resiliency, we're using Mother Nature to deal with whatever is thrown her way." W

The new plants at Tifft Nature Preserve not only look beautiful; they strengthen the shore.

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Australia's Government Heeds the Yarra River's Call of the Wild

Written by Andrew Kelly

Our Yarra Riverkeeper team is pursuing a vision of regenerating the Yarra corridor of Victoria, Australia. Rivers are one of the great connectors in the landscape, and climate-driven migration is going to be a critical issue globally. Rivers, with their rich water supply, are also biodiversity sinks, places of refuge in the dry times from which species can repopulate the catchment, i.e., the total area of land from which water flows into a river.

We have picked up on the rewilding ideas of the environmentalist Dave Foreman in the U.S. and the author Isabella Tree in the U.K. However, in this country, where the Traditional Owners have managed the Yarra corridor landscape for tens of thousands of years, we have settled on the word "regeneration" to describe our work in restoring and building resilience into river ecosystems.

Our staff has been thinking about how to make a better-connected river for some time. The implementation of this project has been driven by a series of grants from our federal government, including a significant Federal Restoration Grant. We are now bringing other funders on board.

Our regeneration programs are targeted at building a resilient green corridor along the catchment so that species such as wombats and echidnas, and the Southern Boobook owls and sea eagles, can move around the catchment in response to climate change, and as the seasons change. The regeneration program is also looking to help seed to spread to self-regenerate the catchment with native species. The vision is of a healthy, self-organizing, self-regenerating ecosystem that is resilient to changes in temperature and rainfall to keep the catchment robust.

In the Yarra, the hydrology has changed drastically. Soft, absorbent soils that you could stick your finger into have been compacted by hooves and traffic of all kinds. Trees have been cut, and bushes removed. More recently, with urbanization, the catchment has been covered by roofs and asphalt. Now every eroding torrent from more intense rainstorms carries a toxic load into our creeks and rivers. There is a need to plant more native species to increase the ability of the land to absorb water again and to make the landscape resilient. The river also has a significant cooling effect on the landscape of the catchment and especially the city of Melbourne.

A crucial part of our program is looking at confluences where the tributaries meet the Yarra. If we can restore the confluences, we can connect the Yarra corridor to the grasslands at the ends of tributaries; and, further up the river, connect the river to forested foothills. That will enable wildlife and vegetation to flex and adapt toward and away from the river.

It is early days yet in our project. We are learning how to help our river adapt to a drier climate with few but more intense rainfall events.

"We need to help the landscape to recover the resilience it has lost, so it is able to flex and respond to climate change. Climate change is a crisis not only for us as people but also for our rivers and waterways."
Andrew Kelly,
Yarra Riverkeeper.

Approximately 120 trees, 1,380 shrubs, 360 live stakes, and 5,000 wetland plants were installed throughout the Little Beaver Island project along 800 linear feet of shoreline.

PHOTO BY RHIANNON CHANDLER-'IAO

Native Oysters Return to Their Namesake Waters: Pearl Harbor

BY ELLEN SIMON

Hawai'i's Pearl Harbor was named for its oysters, which were once so plentiful that Native Hawaiians named the area Wai Momi, or "Pearl Waters."

Sadly, the number of wild native oysters has declined steadily over the last century. In response, O'ahu Waterkeeper, the U.S. Navy, and the Pacific Aquaculture & Coastal Resources Center at the University of Hawai'i at Hilo have outplanted more than 10,000 native oysters at Pearl Harbor and four other locations around the island. These oysters have already begun to reproduce, exponentially expanding the project's impact.

The oysters clean up contaminants as they filter feed, improving water quality and clarity.

They also provide a climate benefit. Oceans absorb one-quarter of the earth's carbon dioxide. Oysters, which naturally absorb carbon from the ocean's water column to build their shells, are an important form of biosequestration, defined as a way to safely keep carbon out of the atmosphere using nature itself.

As O'ahu Waterkeeper and its partners build oyster colonies, they're also building future carbon sinks — at a moment when our oceans desperately need them.

Central to the oyster project is teaching schoolchildren about bioremediation. As Executive Director Rhiannon "Rae" Chandler-'Iao explains, "Working with nature, humans are capable of solving the very problems we have created."

NEPAL'S KARNALI RIVER IS ONE OF THE LONGEST UNDAMMED RIVERS ON EARTH, AND KARNALI RIVER WATERKEEPER MEGH ALE HAS DEVOTED HIS LIFE TO MAKING SURE IT STAYS THAT WAY.

YOU WILL NOT DAM THIS HOLY RIVER

BY LISA FODERARO

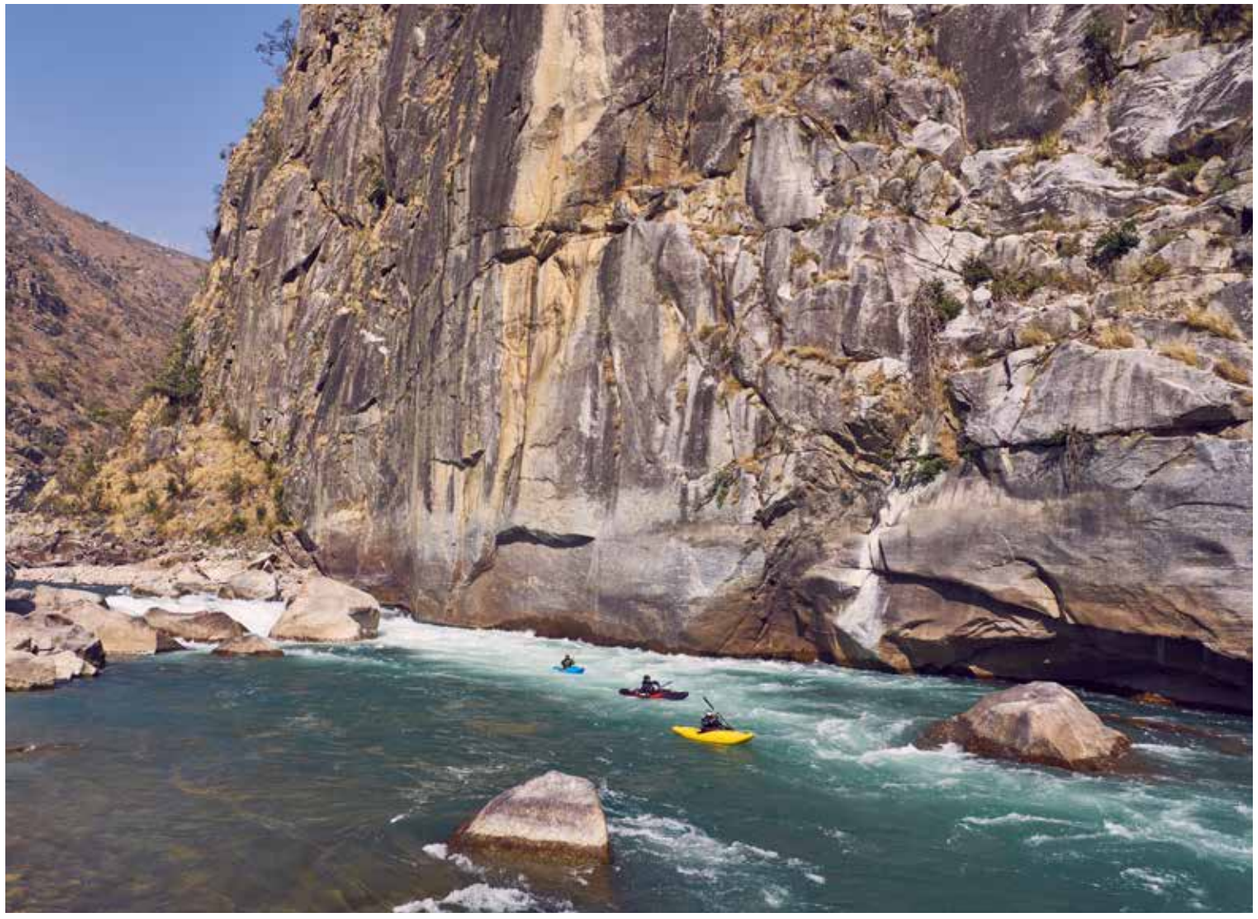


PHOTO BY ANUP GURUNG

When Megh Ale made his first commercial rafting trip on the Karnali River, he was floored by its grandeur. It was 1991, and the Karnali, in far western Nepal, was virtually unknown among tourists, who gravitated to the eastern side of the country where Mount Everest looms.

"This is the most pristine river we have in our country," Megh, a veteran river guide and conservationist, told me in a phone call from Nepal. "Looking at the forest and birds — it was so beautiful. The people there had never seen tourists before."

The Karnali, the longest river in Nepal and the only one that is still free-flowing, is better known now, but just marginally. That is largely due to its remote location, accessible in many places only by footpath. It courses 670 miles (1,078 kilometers) from the Tibetan Plateau in China, down through the Himalayas in Nepal — where it slices through rocky gorges — and across the plains of India, where it meets the mighty Ganges River.

Those who have seen it, and ridden its currents, are part of a small but lucky group. The ethereal color — a pale blue-green — derives from the glaciers that feed it. Its Class IV and V rapids are considered some of the best in Asia, with names like "God's House," "Juicer," and "Flip and Strip." And its biodiversity is extraordinary: Ganges river dolphins, crocodiles, and the golden mahseer, a prized sport fish, ply its waters, while Bengal tigers, small brown bears, and jackals roam its banks.

In recent years, however, it has become known for something else — the site of a proposed 900-megawatt dam that would effectively put a giant kink in one of the longest unfettered rivers on Earth. The project would be a so-called "run-of-the-river" dam, in which the water's flow is diverted into tunnels that descend to a powerhouse where electricity is generated. In the case of the Karnali, the tunnels would cut more than a mile through a mountain, right where the river forms a long switchback. That 44-mile (71-kilometer) bend would become, in civil engineering parlance, "dewatered," or dried out.

For Megh, who is the Karnali River Waterkeeper, the dam on the Upper Karnali would sow destruction in every direction. Although the dam's developer has pledged to release 10 percent of the river's flow into the bend, Megh said such promises have not been kept at similar dams elsewhere. The Indigenous people who rely on that section of the Karnali for food and fresh water would be forced to leave. The dam would impede fish migration, as well as the movement of sediments and nutrients that nourish the river downstream. One of the legendary rapids on the Karnali, which roils through this bend, would disappear.

For the climate, the project

PHOTO BY ANUP GURUNG

PHOTO BY ANUP GURUNG

"IT DEPENDS ON THE GEOLOGY OF THE RIVERBED AND WHAT GROWS ALONGSIDE IT, BUT CERTAINLY YOU'D LOSE A LOT," SAID DR. PETEET, WHO TEACHES A COURSE ON WETLANDS AND CLIMATE CHANGE. "EVEN THINGS GROWING ON GRAVEL BARS LIKE WILLOWS WOULD SUFFER. AND THAT LOSS WOULD HAVE A TREMENDOUS EFFECT ON WILDLIFE, TOO, STARTING WITH INSECTS AND IMPACTING BIRDS AND OTHER ANIMALS."

would also spell disaster. While hydroelectric power doesn't emit toxic pollution like coal or gas, a run-of-the-river dam would devastate the trees and plants in the dried-out portion, both on the shore and in the wider flood plain. That vegetation plays a crucial role in fighting climate change by absorbing and storing carbon dioxide, the main greenhouse gas responsible for global warming. In addition, many more trees would be felled to make way for power lines that would deliver the electricity to markets as far away as India and Bangladesh. Then there are the emissions that would be produced by the manufacture of the dam's components, as well as during its construction.

With extreme weather on the rise, the entire project would make the Karnali corridor less resilient to floods. The dam itself, which is expected to cost more than $1 billion, could be vulnerable. In early February, a glacier in the Himalayas of northern India suddenly broke loose, unleashing a torrent that decimated two hydroelectric dams and killed dozens of people. Flash floods in the same region in 2013 wiped away whole villages and killed thousands.

Two other dams on the Karnali River are in earlier stages of development, both south of the proposed run-of-the-river dam. One would generate 426 megawatts, while the other would produce 688 megawatts. The trio are part of a wave of dam projects across Nepal and, indeed, the world.

"Globally, we are seeing a dam-building boom that seems to be driven by the dam construction industry and not always based on an actual need for the power," said Chris Wilke, the global advocacy manager for Waterkeeper Alliance. "Even worse, hydropower is often touted as a green energy solution. But it is not carbon neutral and it is not sustainable — especially considering the many benefits that living rivers provide. It's Megh's goal to keep the Karnali as the last free-flowing river in Nepal and we are proud to support him in that effort."

A recent study in the scientific journal Nature found that almost two-thirds of the planet's longest rivers no longer flow freely, and that is mostly the result of dams and reservoirs.

For now, the dam proposal on the Upper Karnali appears stalled. The Indian company behind the project, GMR, got a boost in 2014 when it signed an agreement with the government of Nepal to transmit three-quarters of the electricity to India. But a lack of private and public investment has delayed the project, and a survey license the company had received (the first of three licenses it needs for the dam) has expired, according to Karnali River Waterkeeper. The pandemic has created yet more uncertainty.

That has opened a window for Megh to make the case for a different sort of economy along the Karnali River, one driven by ecotourism and sustainable energy. He envisions a Karnali

River corridor flecked with solar panels and wind turbines that harness the planet's natural resources without harming it. He sees the Karnali as a vibrant travel destination for the growing number of wilderness adventurers.

"In this country, we have many national parks under big mountains like Everest," Megh said. "We also have parks named for lakes and lowland jungles. But we have 6,000 rivers and rivulets. Why not create a national park to celebrate our rivers?"

In 2018, to draw attention to the Karnali, Megh led a 44-day expedition for a dozen scientists, including hydrologists, geologists, biologists, and anthropologists, as well as activists and filmmakers. They traveled all the way from the river's source, in the shadow of Mount Kailash (considered sacred in four religions), to its confluence with the Ganges. The scientists made observations, collected samples, and talked to residents who call the Karnali home.

The following year, the Nepal River Conservation Trust, which Megh founded in 1995, produced a 101-page report documenting the findings and recommending new conservation laws. Also in 2019, the Conservation Trust chose the Karnali as the site for its third National River Summit during four days in March, with presentations about the hydroelectric plan and alternatives for sustainable development. "We had close to 300 people on the banks of the Karnali," Megh said.

Last year, Megh had organized a 150-mile (241-kilometer) rafting race on the Karnali in November, inviting teams from all over the world. The pandemic upended those plans, but he has rescheduled the event for 2022.

If the Karnali's stature continues to rise, as Megh hopes, a tourism industry will be needed to support it. To that end, Megh is working to establish a Center for Ecotourism, which would train local residents in adventure activities like hiking, rafting, and kayaking so that they can become guides. The center, to be built near the site of the proposed dam on the Upper Karnali, would also promote organic agriculture and handicrafts.

"We are working with the river communities, places where the Karnali would be dewatered," Megh explained. "We are constantly in touch with the residents to make them aware. We can't say no to the dam and then have nothing in its place. People need help with their lives. At the moment, it's centered on farming, but most of the time the farming is not good enough, and they leave the country for India and abroad."

Comparing Nepal with Australia, Megh said there is no reason his country cannot also prosper by showcasing its natural resources. "Australia can afford to have free-flowing rivers, but Nepal is one of the wealthiest nations in the world in terms of rivers," he pointed out. "If we can still make the country rich without damming this river, why not?" W

GLOBALLY, WE ARE SEEING A DAM-BUILDING BOOM THAT SEEMS TO BE DRIVEN BY THE DAM CONSTRUCTION INDUSTRY AND NOT ALWAYS BASED ON AN ACTUAL NEED FOR THE POWER.

THE MASSIVE DAM PROJECT THREATENS INDIGENOUS NEPALESE VILLAGES THAT CALL THE RIVERBANK HOME.

PHOTO BY ANUP GURUNG

PHOTO BY ERIKA PIÑEROS

PRESERVING CAMBODIA'S WATERY "SOUL"

SENGLONG YOUK LENDS HIS EYES, EARS, AND SOUL TO WATCHING OVER TONLE SAP LAKE, A VAST INLAND SEA COMMONLY REFERRED TO AS "THE GREAT LAKE."

Tonle Sap Lake, in the heart of Cambodia, is the soul of the nation. It provides more than 75 percent of Cambodia's freshwater fish catch and water that millions rely on. It is a source of immense national pride. Sustainable management of this highly productive ecosystem is necessary to ensure food security for Cambodians. And preserving its rich biodiversity and effective carbon sinks will be crucial in combating the impacts of climate change.

Despite its incredible importance to Cambodians and its recognition as a Biosphere Reserve by UNESCO, Tonle Sap Lake is threatened by illegal fishing activities, deforestation of the flooded forest for private development and agriculture, population growth, pollution, hydropower dams, and climate change.

"Within the past decade, the lake has annually experienced severe impacts from climate change," said Senglong Youk, the Tonle Sap Lake Waterkeeper and deputy executive director of the Fisheries Action Coalition Team (FACT). "Thousands of flooded forests have been impacted by fire."

FACT, a national NGO in Cambodia and the parent organization of Tonle Sap Lake Waterkeeper, was established in 2000 by a coalition of national and international partners, to address the threats facing the lake. It is dedicated to improving the conservation and management of Tonle Sap Lake's fisheries, strengthening natural resource policies, and highlighting Cambodia's fisheries issues at the local, national, and international levels.

Tonle Sap Lake Waterkeeper works to empower local communities to claim their right to natural resource management and mobilizes partners to build evidence-based advocacy campaigns in support of preserving Tonle Sap's fisheries. Through capacity building, empowerment of the affected communities, and cooperation with local partners, the fishery sites protected by the communities are more successful in improving biodiversity and endangered species than those managed by the local government. FACT and Tonle Sap Lake Waterkeeper established and support more than 100 Fish Conservation Areas spanning 1,200 hectares (about 4.6 square miles) across Cambodia's Tonle Sap, Coastal, and Mekong regions.

Although the size of community-managed fisheries is still relatively small compared with Tonle Sap Lake, which encompasses 270,000 hectares (over 1,000 square miles), they are instrumental in addressing the loss of fisheries and biodiversity brought on by climate change. Tonle Sap Lake Waterkeeper continues to expand its fisheries program and aims to convince the government to provide financial support to conserve Cambodia's fisheries resources. Diversifying the incomes of local fishers, who depend on fish catch, can help mitigate economic harm from biodiversity loss.

"At least 300 tons of fish have been killed by flash storms and rising temperatures in the lake," continued Youk. "Water used to flow from the Mekong River into the lake in late June or early July and flow back into the river in late October or early November. Now, the water only flows in around mid-August and stays for less than a month."

PHOTOS BY RÍO MAPACHO WATERKEEPER

RIO MAPACHO WATERKEEPER MITIGATING GLACIER MELT IN CUSCO, PERU

RÍO MAPACHO WATERKEEPER RONALD CATPO LED THE FIGHT TO CREATE THE 66,514-HECTARE AUSANGATE REGIONAL CONSERVATION AREA.

Among all the major impacts of climate change in Peru, the loss of 40 percent of its glaciers in the last 40 years stands out. The Department of Cusco, with a current glacial mass of approximately 65,000 hectares (250 square miles), has not escaped this global problem.

There are many efforts to combat this environmental deterioration. One is the creation of "areas for conservation," which entails the establishment or legal recognition of areas of territory with the aim of maintaining ecosystems, natural resources, biodiversity, and the provision of environmental services. This status is ultimately given by the state through a legal norm; there are conservation areas of a national (state), subnational (regional government), and local (private) order.

"For us as Rio Mapacho Waterkeeper, we rethink our work and bet on this type of more comprehensive landscape strategy," said Ronald Catpo, the Waterkeeper. Together with its parent organization, Conservación Amazónica, Rio Mapacho Waterkeeper has supported the recognition of two local conservation areas in territories belonging to Indigenous populations, located in the middle and lower parts of the Mapacho basin and protecting an area of 2,000 hectares (7.7 square miles) of forests. And on Dec. 11, 2019, after five years of hard work formulating technical files in partnership with the Regional Government of Cusco, the Ausangate Regional Conservation Area was declared. This conservation area is considered a subnational area, with 66,514 hectares (257 square miles) protected, which covers the territory where the thin streams of water from the chain of glaciers run, giving origin kilometers downstream to the Mapacho River.

The management of the Ausangate Regional Conservation Area becomes a challenge for the program. "Maintaining the effective and sustainable conservation of these valuable ecosystems is not an easy task; but we proudly integrate the regional and local community to envision our Mapacho River as the living space we want — with healthy ecosystems, with populations valuing their environmental services, and sustainably managing the natural resources it houses," concluded Catpo.

PHOTO BY XAVIER BOLUDA/SHUTTERSTOCK

NEW HOPE FOR CLIMATE PROTECTION ON THE HUDSON — AND BEYOND

BY PAUL GALLAY, HUDSON RIVERKEEPER

As we take greater steps to protect our coastlines from flooding, we need to make sure we don't inflict further damage to our rivers or the environment. Instead, we need rational, adaptable solutions to this ever-increasing challenge. And we need to make sure community voices are heard — particularly those of the most vulnerable and least powerful.

The Water Resources Development Act of 2020 (WRDA 2020), Congress' boldest climate legislation ever, charted a new path forward for a climate-safe future for the Hudson River.

Riverkeeper and its partner organizations the Waterfront Alliance, Environmental Defense Fund, and Rise to Resilience coalition lobbied for WRDA 2020, which will require the Army Corps of Engineers to update its dangerously outdated coastal protection project guidelines.

As Sen. Chuck Schumer of New York puts it, WRDA 2020 will "cement our progress and commitment towards building resilience to climate change, all while ensuring that climate change and environmental justice and impacts are now required to be at the core of these critical projects."

Now, for the first time, we can build our coastal protection plans from the community outward, using a range of site-specific solutions designed to work synergistically, giving us an unprecedented new chance to protect our rivers and communities from climate disruption.

Just two years ago, thousands of Riverkeeper members and activists spoke out against the Army Corps' plans to build giant storm surge barriers across New York Harbor. Such a project, with huge walls, gates, and artificial islands, would choke off tidal flow and the migration of fish and damage the Hudson River Estuary forever, while failing to address the threat posed to our coastal communities by climate-induced sea level rise.

The tidal ebb and flow is essential to the Hudson and to the creatures that rely on it as a spawning ground and nursery. The river evolved to have this exchange with the sea. Disrupting the exchange could end the river as we know it. Riverkeeper and our allies demanded comprehensive, science-based flood protection strategies that will safeguard communities and the environment — without sacrificing the health of the Hudson.

The New York area study is one of several large-scale feasibility studies by the Corps along the East Coast. Like others, it failed to weigh the environmental damage and focused too narrowly on flood risk posed by storm surge — and not the larger, urgent, and far-reaching certainty of sea level rise.

Real solutions include shoreline features like berms, walls, dunes, and levees that can be adapted over time and built in consultation with communities. Unlike storm barriers — which have gates that remain open except in major storms — shoreline measures address flooding from both storms and sea level rise. Wetland buffers and managed retreat from some low-lying areas will also be part of the picture. This layered approach can incorporate living shorelines, green infrastructure to store water, and more sustainable design standards for infrastructure and buildings.

We have the right priorities in place — on paper. Now, for the sake of our rivers, our coasts and our communities, we need to make sure the Corps will refashion its Hudson River study, and others like it, accordingly. We need to demand that our city and state governments become true partners in this larger scope of study. We need communities, scientists, planners — all of us — to be engaged.

WRDA 2020's arrival late last year was deemed "a holiday miracle." Given how infrequently miracles come around these days, Riverkeeper will do everything in its power to take full advantage of this one.

Greening China's Test-Frenzied Classrooms

Qiantang River Waterkeeper's River Angels program, one of the first of its kind, offers China's schoolchildren a chance to get involved in the country's efforts to improve its air, water, soil, and ecology.

BY KATHERINE OLSON

PHOTOS BY WATERKEEPERS CHINA

IF there's one thing the Chinese educational system is known for, it's exams.

Starting from early childhood, kids in China are inundated with mathematical equations, poems, names of historical figures. They are engaged in years of rigorous academic training leading up to the biggest exam of all, and virtually the sole factor in college admissions: the gaokao. This exam looms, perpetually menacing, on the horizon, pushing the entire country's education system to revolve around memorization and tests; middle schoolers learn math that I, having gone to school in the U.S., could barely do in college, and it's normal for kids to be in tutoring sessions until late at night.

In such a rigorous environment, is there space for kids to be kids, to get their hands dirty, to explore? Is there time for learning that develops other skills and mindsets: creativity, innovation, a sense of social responsibility, problem-solving? Despite the challenges and obstacles, Qiantang River Waterkeeper is making this a reality, one school at a time.

Despite the prevailing attitude that children — especially high schoolers — should dedicate almost all their energy to preparing for the gaokao that plays such a critical role in their future, schools and parents alike are slowly starting to acknowledge the importance of providing children with a more diverse array of educational opportunities. Established in 2018, Qiantang River Waterkeeper's River Angels program is one of the first of its kind, a unique opportunity for children to get involved in the country's large-scale efforts to improve its air, water, soil, and ecology damaged by decades of relentless industrial pollution.

Modeled after the nationwide River Chief system, in which various sections of a river are assigned community watchdogs who field complaints and monitor for pollution, River Angel teams are recruited from partner schools and are given a river section to patrol on a regular basis. The program gives students a sense of purpose; sharpens their problem-solving and investigative abilities; improves their social skills; provides them with hands-on experience; and lets them develop various other important capabilities that are difficult to gain in a traditional classroom setting.

Despite having just over two years of history, the River Angels program already has over 95 partner schools in provinces around the country. It has gained widespread recognition for its contributions to local environmental protection efforts as well as its importance as a well-rounded and hands-on educational tool. The program's work on Sustainable Development Goal #14, Life Below Water, earned it the honor of Outstanding Flagship Project from the United Nations University's Institute for the Advanced Study of Sustainability.

Qiantang River Waterkeeper is perpetually unearthing new, exciting, and technologically advanced ways for students to explore the environment around them and tell a story through data. Students are exposed to endless opportunities for experiential learning, and the program is much more than observing waterways and taking samples. For example, River Angels mixed high-tech innovations with water quality monitoring when they took a submarine robot out for a spin in their local river, observing underwater conditions

Despite having just over two years of history, the River Angels program already has over 95 partner schools in provinces around the country.

The activities of the River Angels extend beyond China's borders; the program is eager to connect with like-minded schools and environmental organizations in other countries, too.

and taking water samples. Another exciting opportunity for students is an app that allows them to upload their water-quality findings onto an interactive map, helping them visualize the environmental information they are collecting and contributing to the effective protection of local waterways.

Many River Angels have had opportunities to be engaged on an even deeper level through technology innovation competitions, experiments, conferences, tours of waste treatment facilities, and various types of interactive training; for example, a mock environmental court session in which students learned how to calculate environmental losses and how to use the Chinese legal system to win justice for polluted rivers.

The activities of the River Angels extend beyond China's borders; the program is eager to connect with like-minded schools and environmental organizations in other countries, too. River Angels in China, as well as their discussion partners in Thailand and Cambodia, are in the midst of preparations for a model UN discussion on watershed management in the Mekong River planned for spring 2021. Chinese River Angels collaborated with a newly established River Angels group in Bangladesh to create a "Happy River" mural, which was added to the Qiantang River Seawall Mural, a long-running project of Qiantang River Waterkeeper.

River Angels are also an important part of Qiantang River Waterkeeper's Earth Successor program, which takes experiential learning one step further by integrating it with traveling. Students have an unforgettable trip filled not only with memories of an exciting destination, but also with new knowledge and skills gained along the way. Earth Successor trips have taken students on exciting and highly interactive tours with local Waterkeepers, education centers, and other partners in and out of China. Trip locations include international destinations such as Hawaii, the Bahamas, and South Korea, as well as scenic and historical locations throughout China.

At a very young age, River Angels begin to develop thought patterns necessary for future jobs in fields such as environmental management, urban planning, design, and much more.

At a very young age, River Angels begin to develop thought patterns necessary for future jobs in fields such as environmental management, urban planning, design, and much more. One partner school, for example, assigned students the task of designing a new artificial wetland to replace a plain concrete fountain on their school grounds. Instead of following their usual schedule of test preparation, students immersed themselves in their new task: drawing designs, strategizing with peers, and preparing presentation materials.

Mixing up the normal study routine helps students engage with their learning and gives them chances to discover things they are passionate about. Both these factors are important for success in the future, yet a lack of passion and interest is something that plagues countless students — regardless of what country they are from — as they prepare to enter the outside world.

Programs such as those offered by River Angels give students a window to another world outside the four walls of their classroom, and ignite a passion for environmental protection in China's newest generation. Qiantang River Waterkeeper has gotten an early start on a trend that is going nowhere but up — diversifying education, inspiring students, and giving children back the stomping-through-the-brush, hands-in-the-mud childhood they deserve. W

THE RIVER ANGELS PROGRAM OFFERS A MOCK ENVIRONMENTAL COURT EXPERIENCE WHERE THEY LEARN ABOUT ENVIRONMENTAL LAWS, VISIT THE ZHEJIANG ACADEMY OF ENVIRONMENTAL SCIENCES, AND LEARN HOW TO CALCULATE THE MONETARY COSTS OF ENVIRONMENTAL DAMAGE.

TOP LEFT AND ABOVE; THANKS TO THEIR ANNUAL SEAWALL MURAL PAINTING EVENT, QIANTANG RIVER WATERKEEPER VOLUNTEERS HAVE PAINTED A MURAL WALL THAT IS NOW OVER 11 KILOMETERS (6.8 MILES) LONG. BELOW; THE RIVER ANGELS VISIT THE BAHAMAS.

PHOTO BY SARAVUTPICS/SHUTTERSTOCK

TO FIGHT CLIMATE CHANGE, LOOK TO THE TREES

BY MY PHAM

In Vietnam, the densely populated city of Hue (also a UNESCO World Heritage Site) and surrounding areas — home to more than 350,000 people — have been affected by severe flooding from the sea, rivers, and heavy rainfall. Notably, the Huong River that runs through the city has been profoundly affected by climate change and rapid urbanization, causing unpredictable and extreme levels of flooding. In response, the Centre for Social Research and Development, host organization of Huong River Waterkeeper, and partners are implementing a project entitled "Enhancing Flood Resilience in Urban and Coastal Areas in Thua Thien Hue Province." They are using ecosystem-based adaptation by planting mangroves in the lagoons. The project also focuses on gender issues in relation to disaster risk management and climate change adaptation by exploring and empowering women's roles in disaster response and environmental protection.

Planting mangroves in the lagoons reduces the impacts of flooding on people and properties by diminishing the force of wind and waves. It also provides an improved habitat for aquatic species, leading to a better and more sustainable livelihood for local people. Finally, it increases carbon storage and water purification for aquaculture.

In partnership with the local Women's Union, more than 13,000 mangrove seedlings were planted in about five hectares (12.36 acres) around two coastal communities near the Tam Giang Lagoon to address the restoration, conservation, and sustainable management of natural retention and drainage areas in Hue city.

From 2018 to now, the survival rate of the mangroves planted is at 70 percent. The mangrove forest also played roles in the recent flood disaster in central Vietnam, which lasted about a month, by reducing the waves' energy and protecting embankments as well as the fish and shrimp ponds further inland. The mangroves were damaged by the floods, but they still survive and protect nearby communities, embankments, and fish ponds.

"Mangrove planting is an ecosystem-based flood resilience method working well at the grassroots level. It is also a means to mobilize the contribution of women and poor people to climate change adaptation."

PHOTOS BY BLUE WATER BALTIMORE

RIDDING BALTIMORE'S WATERS OF A PLAGUE OF POLLUTANTS

BY ALICE VOLPITTA

Blue Water Baltimore, home of the Baltimore Harbor Waterkeeper, is a science-based watershed organization in central Maryland that protects and restores the waterways that flow into the Patapsco and Back Rivers. The organization is tackling Baltimore's top pollutants of sewage, trash, toxins, and polluted stormwater runoff by taking a holistic approach that includes a wide variety of eco-literacy offerings for all ages. With projections of more frequent, more intense rainstorms in our region due to global climate change, sewage overflows in Baltimore City will, over time, become even more common than they already are. We simply do not have the leisure to wait for the green and gray infrastructure projects that will resolve them — we must act now.

Our sanitary sewer system carries everything that is flushed, washed, and poured down our household drains — everything — and sends it to a wastewater treatment plant. But when discarded, liquid grease starts to cool down and coagulate as it moves through our pipes; it becomes "sticky" and captures all sorts of things along the way — hair, floss, un-"flushable" wipes, and everything else that shouldn't be flushed down the toilet but often is. These small "greaseballs" coagulate into larger "fatburgs" that get lodged in the pipes and cause sewage overflows and backups into Baltimore's streets and homes. While our region benefits from having a dedicated sanitary sewer system and a separate stormwater conveyance system, the pipes are not always as separated as they should be. Our pipes are old and cracked, and rainwater infiltrates the sewer system with every storm. This means that even a small "fatburg" will restrict pipe capacity and cause a sewage overflow during rainy weather.

Baltimore Harbor Waterkeeper is using the unfortunate prevalence of "fatburgs" in the city's pipes as a way to educate people about the city's underground pipe systems, how pollutants enter our waterways, and what they can do about it. Blue Water Baltimore's eco-literacy team offers a virtual workshop, the F.O.G. Monster Mash, to help children understand the downstream effects of disposing of Fats, Oils, Grease, and all sorts of other substances, down the drain. In this program, children make "F.O.G. Monsters" by decorating used soup cans with wide mouths to "gobble up" all the slimy and sticky byproducts of cooking, which keeps them out of our sewer pipes.

"The science is clear, and it's telling us that global climate change will result in more frequent and intense rainstorms in the Baltimore region. Our pipes are old and leaky, so excessive rainfall will put a greater burden on our sanitary sewer system. The creative approach of our eco-literacy programming not only teaches families about our urban water cycle, but it also prevents sewage backups and overflows from happening within our city. It's a win-win for residents and the environment."

— Alice Volpitta,
Baltimore Harbor Waterkeeper

PHOTOS BY MARIAM RANGEL

UNIFYING IN THE FIGHT AGAINST CLIMATE CHANGE IN CARTAGENA DE INDIAS

BY RAFAELA ITURRALDE & ELIZABETH RAMIREZ

Cartagena Baykeeper is stepping up to protect against climate change in Colombia. Extreme weather conditions, such as torrential rains, floods, high tides, and intense summer weather, are just a few of the new climate change realities facing Cartagena de Indias. Historically, these events have been destructive enough, often causing damage to the economy and heritage of coastal communities surrounding Cartagena. However, with rising sea levels on the horizon, and the intensity and frequency of extreme weather poised to increase, the city must take protective measures soon or face significantly worse consequences tomorrow.

Joining in the effort to protect the area is the District Mayor of Cartagena, who released a public policy in 2014, called the 4C Plan: A Competitive and Climate Compatible Cartagena, which endeavors to make the city more resilient against the impacts of climate change.

"This is a great opportunity for Cartagena Baykeeper, in association with the Universidad Libre, the Fundación Universitaria Antonio de Arévalo UNITECNAR, and both public and private entities as well as civil society, to act early on the challenges of the climate change, transforming it into opportunities for development, innovation and competitiveness," said Elizabeth Ramirez, executive director and Baykeeper at Cartagena Baykeeper.

One of those opportunities is the International Congress on Climate Change in the Coasts and Mountains of Latin America, the first of which was held on Sept. 19 and 20, 2019 in the auditorium of Universidad Libre in Cartagena.

"This event symbolizes the union of efforts between the public and private sectors to promote the productive hubs of the city — like industries, ports, and tourism — as compatible with the climate of the future. The challenge is to achieve a greener Cartagena that is more efficient in its use of resources, and is in symbiosis with our beaches, mangroves, and swamps," said Ramirez. "By adapting to the climate of the future, more tourists will appreciate Cartagena's beauty and quality of life, ensuring the next generation of jobs and promoting a more sustainable and equitable future for all."

The work of Cartagena Baykeeper doesn't end there. The organization is also focusing on creating two ambitious leadership schools: the Leadership Training School to Prevent Climate Change and the Community School for Sustainable Fishing. These schools aim to create opportunities for communities in and around Cartagena to engage in climate action efforts and adapt to local threats. Since 2016, Cartagena Baykeeper has carried out three workshops in different localities near Cartagena, training a total of 62 people.

The Leadership Training School works with the community to promote social development and create community leaders. The group also learns about the benefits of mangrove forests and the effects of deforestation on sea level rise. On the other hand, the Sustainable Fishing School teaches communities near the coast to implement practices such as rotational fishing, where the community fishes for six months and lives off agriculture the other six months.

A healthy and habitable future for the Cartagena area depends on these types of collaboration and innovative solutions. There is no time to spare in confronting these new climate realities. But, luckily, there is no shortage of enthusiasm and effort from Cartagena Baykeeper.

"BY ADAPTING TO THE CLIMATE OF THE FUTURE, MORE TOURISTS WILL APPRECIATE CARTAGENA'S BEAUTY AND QUALITY OF LIFE, ENSURING THE NEXT GENERATION OF JOBS AND PROMOTING A MORE SUSTAINABLE AND EQUITABLE FUTURE FOR ALL." - ELIZABETH RAMIREZ

POLLUTING INFRASTRUCTURE

THE THIN GREEN LINE

How a Grassroots Movement Fought Fossil Fuel Exports in the Pacific Northwest—and Won.

BY MARGARETT WATERBURY

OVER THE PAST DECADE, THOUSANDS OF ACTIVISTS HAVE WORKED TOGETHER TO STOP A WAVE OF PROPOSED DEVELOPMENTS THAT WOULD TRANSFORM THE REGION INTO A COAL EXPORT HUB.

PHOTO BY ALEX MILAN TRACY

An LNG rally in Salem, Oregon in 2015.

The Columbia River is the aquatic arterial of the Pacific Northwest. It reaches more than 1,200 miles from the mountains of British Columbia to the Pacific Ocean, draining a watershed that extends as far east as Yellowstone National Park. Rich and diverse cultures of Indigenous peoples have stewarded the Columbia Basin for thousands of years, and continue to defend and protect the river's future. Its wide, steady flow links rural ranching communities and federal lands with tech hubs and fishing communities. Salmon and sturgeon navigate its 14 hydroelectric dams to travel between critical spawning habitat and the sea, while above them, a network of barges, tankers, and trains transports millions of tons of grain from the dry inland west to markets around the world.

But in 2010, Columbia Riverkeeper, based in Hood River, Oregon, got word that the Columbia River might be forced to play unwilling host to an export far more toxic than wheat or corn. "Just two years after negotiating a settlement to shut down Oregon's only coal-fired power plant in 2020, it's mind-boggling that Big Coal would think coal export would fly under the radar," mused Lauren Goldberg, legal and program director at Columbia Riverkeeper.

With the domestic coal market in decline, anxious energy companies had hatched plans to double down on exports, complete with massive new terminals throughout the Pacific Northwest. Millennium Bulk Terminals planned to build a facility in Longview, Washington, that would export 44 million metric tons of strip-mined coal from Wyoming and Montana per year. In Cherry Point, Washington — a sacred site the Lummi nation calls Xwe'chi'eXen — a new proposed terminal called Gateway Pacific would add another 54 million metric tons of new export capacity. Supplying the new terminals would draw an estimated 30 coal trains — about 45 miles worth of uncovered coal cars — through Montana, Idaho, Oregon, and Washington State every single day en route to Asian markets.

The global climate implications were obvious. Coal produces the most greenhouse gas emissions per energy unit of any source of electricity. Shipping it across the Pacific Ocean only enlarges its footprint. The local impacts were also significant. Each rail car could spew hundreds of pounds of coal dust and chunks along its path, polluting air, land, and waterways. The massive length of coal trains also snarled traffic everywhere they went, delaying emergency vehicles and impeding residents' ability to get around their communities.

Coal trains, by their very nature, are a regional problem. Existing rail lines traversed some of the most sensitive landscapes in the Northwest, including the Columbia River Gorge and Puget Sound. So in 2011, Columbia Riverkeeper became a founding member of the Power Past Coal coalition, which brought together affected communities across the entire coal supply chain, from Idaho to India, to fight the wave of development.

"In my involvement as a citizen activist, I have been inspired by the commitment, knowledge, and passion of volunteers and coalition members in this growing movement in and around the Pacific Northwest. Our motto is: 'We can do better'— we certainly deserve better, however, 'better' is not free."

–Sandra Davis, member of Columbia Riverkeeper

POLLUTING INFRASTRUCTURE

Let Our Rivers Run Free

Dam Removal in Sweden

BY MARGARETHA SVENNING, ENVIRONMENTAL LAWYER, ÄLVRÄDDARNAS WATERKEEPER

Dam removals, no matter how small or large, are desirable for both biodiversity and climate action.

There are approximately 11,000 dams in Sweden, with only about 2,000 of those dams producing energy and only 200 of them producing more than 10 megawatts of energy. These dams have destroyed river ecosystems and important fisheries. Historically, there were more than 80 rivers in Sweden supporting wild salmon and sea trout in the Baltic region. Today, there are fewer than 30 — dams have severely impaired the majority of them.

But Waterkeeper groups in Sweden have been successfully advocating for dam removals and the restoration of free-flowing rivers. If a considerable number of small dams in Sweden can be removed in the near future, not only will the impacts for biodiversity be great, but the implications for climate action will become more politically relevant.

Since 2010, grassroots environmental advocates have held discussions about the Åby Mill dam in Mönsterås on the southeast coast of Sweden, which destroyed habitat and blocked passage for imperiled Baltic salmon and trout. Meanwhile, the new owners had hopes of installing a turbine for small-scale hydroelectricity production. In 2015, Älvräddarnas Waterkeeper Christer Borg began discussions with the owners about a dam removal; the owners finally understood that they would not get permission to install a turbine, since small-scale hydrodams were a thing of the past.

The Swedish Environmental Code is described as governing both de-exploitation and sustainable exploitation of natural resources. Environmentally hazardous ventures, such as hydropower plants, must be established and run in environmentally appropriate locations and under legal restrictions. But if this is physically and legally impossible, the government will assume control of the environmentally hazardous venture and, if necessary, liquidate it. "Exploitation" shall be "sustainable," and there are no legal doubts on that matter. On the other hand, the Swedish Environmental Code is the ultimate example of what is known as a "frame law," where the concept of sustainability is a matter in which opponents try to avoid legal action to reach consensus — normally toward further development, not in the direction of "de-exploitation" (i.e., dam removal). However, in this case, Älvräddarnas Waterkeeper was able to convince the dam owners that removal was their best option. After further talks with Borg and his team, which included how the dam removal would be financed, the local municipality of Mönsterås bought the dam and started the process of removing it.

In September 2019, Älvräddarnas Waterkeeper celebrated the removal of the Åby Mill dam. This marked the beginning of a new era for the community and local biodiversity — the removal opened up five kilometers of salmon and sea trout habitat and cleared a path for widespread dam removals in Sweden.

The removal of the Åby Mill dam is an example of how government action, market-related decisions, and, of course, strong environmental advocacy from nongovernmental organizations can lead to powerful climate action. And thanks to these efforts, more dams will be removed.

THE REMOVAL OF THE ÅBY MILL DAM MARKED THE BEGINNING OF A NEW ERA FOR THE COMMUNITY AND LOCAL BIODIVERSITY.

Photo by Peter Johansson, Emåförbundet

"With so many years of climate inaction in D.C., this is a really empowering way to make a difference in climate."

"What made these campaigns so personally fulfilling to work on was the incredible people that came together to fight for our climate and clean water," said Goldberg. That included Indigenous people, members of local and national environmental groups, and faith leaders; businesspeople, farmers, fishers, ranchers, and other local residents whose health and livelihoods depended on a future free from fossil fuels.

The coalition adopted a two-part strategy that combined grassroots and legal activism. Legal challenges were often led by Tribal governments, which became a powerful force for change by leveraging their legal status as sovereign nations. "They put their treaty rights on the line and came with their attorneys, elected officials, [and] tribal members to make the case for how fossil fuel development would have devastating impacts on salmon, clean water, and their way of life," said Goldberg. Grassroots turnout at hearings for even "obscure permits" helped bolster the legal pushback. "It really was this powerful combination of brilliant lawyering and incredible storytelling that ultimately secured this whole series of victories for the Northwest and for our climate," said Goldberg.

In 2011, the coalition notched its first major win: Ambre Energy Ltd., the Australian company behind the Millennium Bulk Terminals, announced it was withdrawing its permit application for the expansion. While the Longview project wouldn't be dealt a fatal blow until 2017, when the Washington Department of Ecology denied a key water quality permit, the feeling of progress began to build. "Momentum is everything," said Bart Mihailovich, then the Spokane Riverkeeper and currently the U.S. organizing manager at Waterkeeper Alliance. "Once you get a victory, it's intoxicating. You want more."

PHOTO BY ALEX MILAN TRACY

"What made these campaigns so personally fulfilling to work on was the incredible people that came together to fight for our climate and clean water." - Lauren Goldberg

FROM COAL TO OIL AND GAS

More was in store. Oil and liquefied natural gas (LNG) companies had also begun to jockey for a piece of the Northwest coastline. "Twelve years ago, we were fighting liquefied natural gas import facilities," said Goldberg. But new fracking technology had made it cheaper to extract gas, another fossil fuel in demand in international markets. "Suddenly, those multibillion-dollar import projects turned into export projects," Goldberg said.

The scale of some of the proposed facilities was truly shocking. In Kalama, Washington, Northwest Innovation Works, a company backed by the Chinese government, proposed a 90-acre fracked gas-to-methanol refinery that would be one of the largest in the world. Direct carbon dioxide emissions for the facility were estimated at almost a million metric tons a year, making it one of Washington State's top 10 largest producers of greenhouse gas. Taking into account indirect emissions from gas extraction and transportation, that figure ballooned to 4.5 million metric tons each year.

Oil, too, was on the agenda. New crude oil terminals were proposed for Vancouver, Grays Harbor, and Anacortes, Washington, all of which would be supplied by a massive increase in trains carrying explosive oil. Yet the organizing muscle built by Power Past Coal was up to the task. Two new organizations spun off from the existing coalition — Stand Up to Oil in 2015, and Power Past Fracked Gas in 2018 — and the groups continued working together as allies.

The successes began to snowball. Together, the coalitions have celebrated the defeat of over a dozen fossil fuel projects in Oregon and Washington, including the Bradwood Landing Liquefied Natural Gas export terminal near Astoria, Oregon, which called for dredging sensitive salmon habitat and put local communities at risk of spills and explosions; and the Tesoro Savage oil terminal in Vancouver, Washington, which would have been the largest crude oil rail terminal in the country.

The remarkable triumphs have highlighted how even hyperlocal change can have a global impact. Many of the legal "hooks" organizers targeted — permits to contest, hearings where testimony could be offered — were at the state, county, or city level. That made direct action possible in a way that would be unimaginable at the federal level. That many of the wins were notched during the Trump administration made them even sweeter.

"With so many years of climate inaction in D.C., this is a really empowering way to make a difference in climate," said Goldberg. Even as exporters look to California and British Columbia for paths to the Pacific, Mihailovich is confident the Northwest's successes have meant less mining, fracking, and drilling in the Intermountain West. "There is no doubt that stopping all these projects has resulted in keeping fossil fuels in the ground," said Mihailovich.

And still, the work continues. In January 2021, Power Past Fracked Gas celebrated a major permit denial by Washington state's Department of Ecology for that massive Kalama refinery. While it doesn't officially kill the project, it likely marks the beginning of the end. "So many people, inside and outside of Columbia Riverkeeper, worked on this proposal for so long, especially the activists who live in Kalama, who would have to live in the shadow of this petrochemical facility," said Miles Johnson, senior attorney at Columbia Riverkeeper.

"They poured their hearts and souls into this campaign for years."

"It's a long road — and not entirely over — but I think we finally prevailed on the state of Washington and Gov. [Jay] Inslee," Johnson said. "We can't just keep going on building fossil fuel infrastructure and consuming huge amounts of fossil fuel and pretending we're also addressing climate change."

Dams are a Climate Disaster

BY ELLEN SIMON
PHOTOS BY BEN WEBB

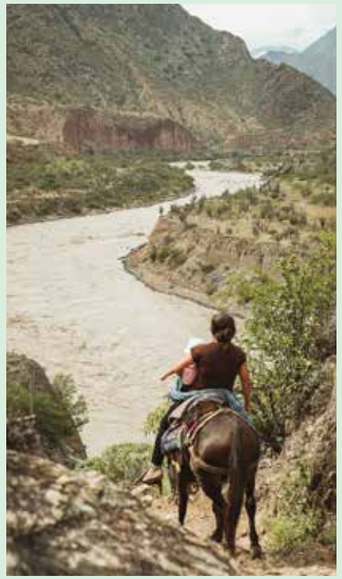
A study published in the journal BioScience calculated that reservoirs created by dams are emitting the equivalent of one gigaton — or one billion metric tons — of carbon dioxide into the atmosphere every year as trees and plants in the areas flooded by the dams decompose. That's over 25 percent more than previously thought and more greenhouse gas than the entire nation of Canada produces.

Twenty planned dams on Peru's Marañón River present a threat not just to the climate, but to the people, ecology, and culture of the Marañón Canyon, which is deeper than the Grand Canyon, and arguably every bit as majestic.

Marañón Waterkeeper in Peru, working in partnership with Waterkeeper Alliance and the Peruvian Society for Environmental Law, is fighting the dams. It won an important victory in 2020 when Enel, a global energy company that had the contract to build the Veracruz Dam, one of two dams that have made

continued on page X

IF BUILT, THE VERACRUZ DAM WOULD DISPLACE 1,000 PEOPLE; FLOOD FARMS AND CAVES CONTAINING ANCIENT PICTOGRAPHS; BLOCK THE PATH OF MIGRATORY FISH; AND IRREPARABLY HARM THE AMAZON.



it through the approval stage, said in a letter to Waterkeeper Alliance that it had formally asked the Peruvian government to terminate its contract.

The next move is up to the Peruvian government. Marañón Waterkeeper is pushing hard to convince the government to abandon plans for the dam, which would create a climate-threatening reservoir in one of the worst possible places by flooding more than 3,000 hectares (about 7,400 acres) of Marañón dry forest. There are 143 species that exist only in the Marañón Valley, which has one of the highest levels of endemism, defined as species unique to a location, in the world, rivaling the Galápagos Islands.

If built, the Veracruz Dam would displace 1,000 people; flood farms and caves containing ancient pictographs; block the path of migratory fish; and irreparably harm the Amazon, which depends on the Marañón River as its main hydrological source.

These dams would also be huge emitters of greenhouse gases. It has been estimated that the Veracruz Dam alone would emit 98,138 metric tons of carbon dioxide equivalent over its lifetime, while the combined emissions of the five most damaging dams planned on the Marañón would emit more than 350 million metric tons of carbon dioxide equivalent.

"It's time the Peruvian government and other concession-holders for dams on the Marañón realized this is not the investment they should make," said Bruno Monteferri, Marañón Waterkeeper. "These dams would serve their purpose for only 35 years, but they would forever destroy the connection that has existed for millions of years between the Andes and the Amazon and would be a climate catastrophe. The country has an opportunity to move to truly green energy, and that's what it must do."

It Takes a Village... to Say No to Coal

BY CHRIS WILKE AND DAOUDA GUEYE

After years of advocacy, Bargny Coast Waterkeeper is celebrating the closure of the Sendou coal-fired power station in Senegal.

The small coastal fishing village of Bargny is located just 35 kilometers (22 miles) from the Senegalese capital city of Dakar at the westernmost tip of the African continent, on the shores of the Atlantic Ocean. The community is deeply tied to the sea, and its artisanal fishery employs thousands of fishermen and fish processors.

Since 2008, a community coalition — including the first Waterkeeper in Senegal, Hann Baykeeper — had been locked in a pitched battle against the proposed 125-megawatt Sendou Power Plant due to the severe risks it posed to community health and the surrounding ecosystems. The leaders of this community movement would eventually form Bargny Coast Waterkeeper.

Paradoxically, the plant was located on land intended for rehousing victims of sea level rise, coastal erosion, and climate change. Also located there was a processing zone for fishery products where 1,000 women work. The proximity of this coal-powered plant to living areas and waterways clearly violated the rules of Senegal's Environmental Code.

Enter the Waterkeeper. To fight the proposed plant, Bargny Coast Waterkeeper and its allies would use a variety of approaches anchored in solidarity with the community. With support from a growing coalition, including Waterkeeper Alliance and nearby Hann Baykeeper, they marched, they educated, they strategized, and, eventually, they litigated. In November 2015, in advance of the historic United Nations COP21 meeting on climate change in Paris, nearly 2,000 people gathered in the small town of Bargny to say "Non au Charbon," or "No to Coal," and "No to the Power Plant at Bargny." The following year, after a series of public workshops and trainings on environmental law hosted by Waterkeeper Alliance and other experts, an official complaint was filed by Daouda Gueye, executive director of Bargny Coast Waterkeeper, and Cheikh Fadel Wade, the Waterkeeper, on behalf of the community coalition.

However, citizen complaints like this often take time to resolve, and despite the clear violations of land use regulations, the power plant moved forward and came online in October 2018 over intense community objections. It was, however, plagued by technical problems from the outset, and never ran at full capacity, due in part to community demands that led to several changes in the process. In July 2019, after less than a year of operation, the plant had to shut down due to technical problems and the litigation. In this brief time, the plant spewed air pollution into the community, and the improperly stored coal ash, pushed aloft by desert winds, remains a health threat to this day.

"Litigation was a strong contributing factor to the power plant shutdown and abandonment of coal as an energy source," stated Gueye. "Although no court ruled in our favor, the National Assembly made a memorandum in our favor to the head of the state of Senegal, which led to the ultimate decision."

In December 2019, in the face of increasing pressure and lobbying, the President of Senegal declared the country was giving up coal. Though the plant has been shut down, dangerous coal ash continues to blow through the community, and a thorough cleanup assessment of the plant site has not been done. And while the plant will not use coal as a fuel source moving forward, a planned transition to natural gas has not been evaluated for risks and faces threats from sea level rise at the site. Offshore oil drilling also looms on the horizon, indicating the fights are far from over.

Fadel Wade maintains the group's first duty is to the community. "The project promoters have never taken into account the concerns of the community, nor sought solutions to reduce the negative impacts of the project on the population, economic activities, health, and the environment," stated Wade.

In 2020, amid the COVID-19 pandemic, Bargny Coast Waterkeeper continued its work of safeguarding the local community by distributing hand sanitizer and face masks. The group took time to celebrate the historic fossil fuel victory through virtual meetings, and it continues fighting dangerous fossil fuels by informing people of the risks and demanding a more thorough evaluation and oversight by the government.

Moving forward, Bargny Coast Waterkeeper turns to ensuring the existing coal ash is cleaned up and the continued development of fossil fuels in Bargny is stopped.

EN FRANÇAIS (VIA GOOGLE TRANSLATE)

Par Chris Wilke et Daouda Gueye

Après des années de plaidoyer, Bargny Coast Waterkeeper célèbre la fermeture de la centrale au charbon de Sendou au Sénégal.

Le petit village de pêcheurs côtiers de Bargny est situé à seulement 35 kilomètres (22 miles) de la capitale sénégalaise de Dakar à la pointe la plus occidentale du continent africain, sur les rives de l'océan Atlantique. La communauté est profondément liée à la mer et sa pêche artisanale emploie des milliers de pêcheurs et de transformateurs de poisson.

Depuis 2008, une coalition communautaire - y compris le premier Waterkeeper du Sénégal, Hann Baykeeper - avait été enfermée dans une bataille rangée contre la centrale électrique de Sendou de 125 mégawatts proposée en raison des risques graves qu'elle posait pour la santé de la communauté et les écosystèmes environnants. Les dirigeants de ce mouvement communautaire finiraient par former Bargny Coast Waterkeeper.

Un élément clé de la lutte concernait l'utilisation de terres qui avaient paradoxalement été destinées au relogement des victimes de l'élévation du niveau de la mer, de l'érosion côtière et du changement climatique. Le terrain de l'usine abrite également une zone de transformation des produits de la pêche où travaillent 1 000 femmes; cette proximité des lieux de vie et des voies navigables a clairement bafoué les règles du code de l'environnement du Sénégal.

Entrez le Waterkeeper. Pour lutter contre la plante proposée, Bargny Coast Waterkeeper et ses alliés utiliseraient une variété d'approches ancrées dans la solidarité avec la communauté. Avec le soutien d'une coalition grandissante, y compris Waterkeeper Alliance et le voisin Hann Baykeeper, ils ont marché, ils ont éduqué, ils ont élaboré une stratégie et, finalement, ils ont plaidé. En novembre 2015, avant la réunion historique de la COP21 des Nations Unies sur le changement climatique à Paris, près de 2 000 personnes se sont rassemblées dans la petite ville de Bargny pour dire «Non au Charbon» ou «Non au charbon» et «Non au pouvoir» Usine à Bargny. » L'année suivante, après une série d'ateliers publics et de formations sur le droit de l'environnement organisés par Waterkeeper Alliance et d'autres experts, une plainte officielle a été déposée par Daouda Gueye, directeur exécutif de Bargny Coast Waterkeeper, et Cheikh Fadel Wade, le Waterkeeper, au nom de la coalition communautaire.

Cependant, les plaintes des citoyens comme celle-ci prennent souvent du temps à être résolues et, malgré les violations manifestes des réglementations relatives à l'utilisation des terres, la centrale a progressé et a été mise en service en octobre 2018 suite aux vives objections de la communauté. Il a cependant été en proie à des problèmes techniques dès le départ compte tenu des revendications des communautés ayant entraîné plusieurs changements du processus et n'a jamais fonctionné à pleine capacité. En juillet 2019, après moins d'un an de fonctionnement, l'usine a dû fermer en raison de problèmes techniques et de litiges. Pendant cette brève période, l'usine a craché de la pollution atmosphérique dans la communauté, et les cendres de charbon mal stockées, poussées en altitude par les vents du désert, restent une menace pour la santé à ce jour.

«Les litiges ont fortement contribué à l'arrêt de la centrale électrique et à l'abandon du charbon comme source d'énergie», a déclaré Gueye. «Bien qu'aucun tribunal ne se soit prononcé en notre faveur, l'Assemblée nationale a adressé un mémorandum en notre faveur au chef de l'Etat du Sénégal, qui a conduit à la décision finale.

En décembre 2019, face à une pression croissante, le président du Sénégal a déclaré que la centrale à charbon ne rouvrirait pas. Bien que l'usine ait été fermée, des cendres de charbon dangereuses continuent de souffler dans la communauté, et une évaluation de nettoyage approfondie du site de l'usine n'a pas été effectuée. Et bien que la centrale n'utilisera pas le charbon comme source de combustible à l'avenir, une transition prévue au gaz naturel n'a pas été évaluée pour les risques et fait face aux menaces de l'élévation du niveau de la mer sur le site. Le forage pétrolier offshore se profile également à l'horizon, indiquant que les combats sont loin d'être terminés.

Fadel Wade maintient que le premier devoir du groupe est envers la communauté. «Les promoteurs du projet n'ont jamais pris en compte les préoccupations de la communauté, ni cherché des solutions pour réduire les impacts négatifs du projet sur la population, les activités économiques, la santé et l'environnement», a déclaré Wade.

En 2020, au milieu de la pandémie COVID-19, Bargny Coast Waterkeeper a poursuivi son travail de sauvegarde de la communauté locale en distribuant du désinfectant pour les mains et des masques faciaux. Le groupe a pris le temps de célébrer la victoire historique des combustibles fossiles lors de réunions virtuelles, et il continue de lutter contre les combustibles fossiles dangereux en informant les gens des risques et en exigeant une évaluation et un contrôle plus approfondis de la part du gouvernement.

À l'avenir, Bargny Coast Waterkeeper s'assure que les cendres de charbon existantes sont nettoyées et que le développement continu des combustibles fossiles à Bargny est arrêté.

GROUNDBREAKING LEGAL VICTORY COULD CHANGE WATER MANAGEMENT IN CALIFORNIA

LOS ANGELES WATERKEEPER'S CONSTITUTIONAL CHALLENGE COULD PAVE THE WAY FOR MASSIVE WATER RECYCLING IN THE GOLDEN STATE.

BY BRUCE REZNIK, EXECUTIVE DIRECTOR AND WATERKEEPER, LOS ANGELES WATERKEEPER

Thanks to a lawsuit brought by Los Angeles Waterkeeper (LAW), the days may be numbered for California's environmentally disastrous, climate-impacting, and economically costly "pump-and-dump" approach to water planning. This approach requires transporting massive amounts of water hundreds of miles across California and other Western states to places like Los Angeles, to be used once and disposed of through sewage and storm drain systems.

Los Angeles Waterkeeper prevailed in a historic lawsuit against the State Water Resources Control Board in August 2020, when a Superior Court judge ruled that the agency violated Article X, Section 2 of California's Constitution by not assessing whether recycling hundreds of millions of gallons of wastewater rather than discharging it to the ocean could provide a new source of local water and a viable approach to reducing the region's water imports.

A LEGACY OF WASTE AND HARM

"Whiskey is for drinking, water is for fighting!", a quote often attributed to Mark Twain, is usually employed to describe the situation in the arid West. For more than a century, a mind-boggling amount of investment has gone into engineering ways to get water from Northern California and the entire Western region to quench the thirst of the ever-growing Southern California metropolises. And nobody has been thirstier than the Los Angeles region, which today encompasses 88 cities and more than 10 million residents (which is more than 41 states). Titans like William Mulholland and former California Gov. Edmund G. "Pat" Brown became legendary figures for masterminding the Los Angeles Aqueduct and the State Water Project, respectively, that bring water from the once-lush Owens Valley and San Francisco/San Joaquin Bay-Delta to Southern California. Their exploits have been documented in books like "Cadillac Desert"; songs such as Frank Black's "Olé Mulholland"; plays like "A Mulholland Christmas Carol," a modern take on the Dickens classic; and, probably most famously, fictionalized as the backdrop of the iconic 1970s Oscar-winner "Chinatown."

And there can be no disputing that the water provided from these projects has shaped the Los Angeles region, helping make it the third-largest metropolitan economy in the world and serving as the engine for LA's leading role in aerospace, entertainment, and tourism, to name a few industries. Even today, nearly two-thirds of the region's water is imported, and that total is closer to 80 percent for the city of Los Angeles. But these massive infrastructure projects have also ravaged the Bay-Delta, Owens Lake, and the Colorado River; have helped contribute to making the water sector the single largest user of electricity in California (and thus a major driver of climate change); and continue to devastate California's ratepayers as these concrete behemoths start to crumble and need repair. Moreover, knowing we could always rely on an "endless" supply of water from elsewhere meant we never had to truly invest or innovate in local, sustainable, and low-carbon water supplies.

AN OPPORTUNITY AND BOLD ACTION

When first arriving at LAW in fall 2015, I quickly huddled with our board and legal staff as we agreed we wanted to do something bold about Los Angeles' water waste. During a seven-year historic drought that included the three driest years in California's history from 2012 to 2014, the LAW team felt the opportunity was ripe to test an obscure, often misunderstood, and largely untested Constitutional provision known as the "waste and unreasonable use doctrine."

Recognizing the critical role that water plays in California, the state's constitution since 1928 has mandated that "the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented." Historically it has been invoked only in very limited circumstances to prevent upstream water waste from impacting a downstream user, but LAW contended that what constitutes "waste and unreasonable use" must be more expansive considering today's increasingly strained water supplies — especially as climate change makes California's water future even more uncertain.

Knowing that "waste and unreasonable use" was going to be the tool, we next needed to decide where we wanted to focus our efforts. San Francisco Baykeeper had success in applying the basis for the reasonable use doctrine — public trust — in limiting sand mining. Following that, Wishtoyo Foundation's Ventura Coastkeeper program had attempted without success to ensure

"AS MASSIVE AS THE LA REGION IS, IT IS OF LITTLE SURPRISE THAT NEARLY A BILLION GALLONS OF SEWAGE RUNS THROUGH NEARLY 10,000 MILES OF PIPES AND IS TREATED AT MORE THAN A DOZEN WASTE WATER PLANTS EVERY SINGLE DAY."

that recycled water would replace pumping and diversions in overburdened waters. Wastewater discharge from the massive Los Angeles sewage treatment system presented the clearest opportunity yet for the application of "reasonable use" to compel wastewater recycling and reuse.

As massive as the LA region is, it is of little surprise that nearly a billion gallons of sewage runs through nearly 10,000 miles of pipes and is treated at more than a dozen wastewater plants every single day. About 500 million gallons of highly treated wastewater — enough to fill the world-famous Rose Bowl nearly five times — is discharged into our coastal waters every single day, where it serves no use other than to impact our already stressed marine environment. The vast majority of this wastewater runs through two primary systems in the region — Hyperion, managed by LA Sanitation and Environment, and the Joint Water Pollution Control Plant that treats wastewater from 78 cities and LA County.

As LAW was considering bringing a lawsuit, the discharge permits for four plants that help make up the Hyperion system — Tillman, LA-Glendale, and Burbank in addition to Hyperion itself — were up for renewal. This was the hook that LAW was looking for in bringing a challenge. Knowing that these agencies were thinking about recycling — but feeling they might need a little extra push to bring these projects to fruition — LAW started making the case that the Regional Water Board that issues their discharge permits, as well as the State Water Board that ultimately affirms the permits, must examine whether the nearly 300 million gallons a day that these four plants send into the LA River and out into Santa Monica Bay could be better used through purification and recharging our groundwater basins.

After failing to get an agreement from the Regional or State Water Board or the sewage agencies themselves, in September 2017 LAW filed suit arguing that the discharges from these facilities constituted a waste and unreasonable use in violation of the California Constitution.

A WATERSHED RULING AND WHAT IT MEANS

Filing the suit was, of course, just the beginning. The California Attorney General's office, which represented the Regional and State Water Boards, threw everything but the kitchen sink at LAW during the three years it took to get the case decided.

But in the end, Superior Court Judge James Chalfant agreed with LAW, finding that "The State Board is the state agency in charge of the comprehensive planning and allocation of water …" and its duty extends to "prevent … unreasonable use of wastewater discharge." Judge Chalfant then concluded that "Having conducted no analysis, the State Board cannot demonstrate a rational

GROUNDBREAKING LEGAL VICTORY COULD CHANGE WATER MANAGEMENT IN CALIFORNIA

PHOTO BY DOC SEARLS

connection between its decision to do nothing to prevent waste and its constitutional and statutory duty to do so," and ordered the State Water Board to assess how agencies could prevent the waste of such "wastewater" through purification and reuse.

It is hard to overstate how revolutionary this ruling was. Not only was it the first time a judge had found that the duty to prevent waste and unreasonable use extended to wastewater, but it also provided a compelling argument as to how far the State Water Board's duty should extend.

Judge Chalfant himself recognized this when his ruling noted that "… the State Board has a general, mandatory duty under Article X, section 2 … to assess the four [wastewater treatment plants'] waste and unreasonable use when they discharge wastewater. This is the key issue in this case, and the court acknowledges that no court has ever so held" (emphasis added).

ABOUT 500 MILLION GALLONS OF HIGHLY TREATED WASTEWATER — ENOUGH TO FILL THE WORLD-FAMOUS ROSE BOWL NEARLY FIVE TIMES — IS DISCHARGED INTO OUR COASTAL WATERS EVERY SINGLE DAY.

To put it mildly, this ruling has sent shock waves through California's water world. So it was not surprising that the State Water Board appealed the ruling, joined by the Cities of Burbank and Glendale. To its credit, the City of Los Angeles chose not to join the appeal, as it is already working with LAW and other environmental leaders to dramatically expand wastewater recycling.

In fact, since LAW initiated this lawsuit, Mayor Eric Garcetti has announced plans to recycle 100 percent of the City of LA's wastewater by 2035. Also, while not part of this suit, a 150 million-gallon-a-day recycling project at the region's other major wastewater treatment facility, the Joint Water Pollution Control Plant, continues to move forward, with $30 million having been allocated recently by the Metropolitan Water District of Southern California and Sanitation Districts of LA County to undertake needed environmental review for the project.

A SUSTAINABLE, LOW-CARBON WATER FUTURE FOR LA AND CALIFORNIA?

If upheld, this ruling would help the LA region:

- Reduce water imports and provide greater water security for more than 10 million residents
- Lower our carbon footprint by minimizing the reliance on energy-intensive imports and offsetting the need for energy hogs like ocean desalination
- Strengthen our green economy by providing thousands of construction and operations jobs
- Protect ratepayers from the need to invest massive resources into more costly projects like the proposed Delta tunnel that would continue our "pump-and-dump" approach to water planning
- Reduce pollution of our inland and coastal waters
- Play a vital role in allowing ecosystems throughout California and the West to slowly come back to health

As far-reaching as this decision is, though, LAW hopes it is just the beginning. While it applies directly only to the four plants that make up the Hyperion system, it is already helping provide more incentive for all sewage agencies in the LA region to move forward with large-scale water recycling projects that, when fully implemented, would provide more than 320 million gallons a day of purified water — enough to serve nearly 3.5 million Angelenos. Moreover, we envision these requirements applying to major wastewater facilities throughout California.

However, wastewater reclamation is just one part of LAW's strategy to make LA's water supplies more sustainable, climate-friendly, and cost-effective. LA Waterkeeper has long advocated for a four-part approach to water planning: Reduce (water waste), Reuse (treated urban and stormwater runoff), Recycle (wastewater) and Restore (contaminated groundwater). If upheld, Judge Chalfant's ruling could open the door for similar challenges in these other areas where agencies throughout California are not doing enough to prevent water waste.

Ultimately, Judge Chalfant's courageous ruling is a victory for Los Angeles; a victory for California and the West; a victory for more holistic water planning and a sustainable water supply for our future; and a victory toward climate resilience and a green economy. LAW is proud to have been at the center of this groundbreaking decision, and we thank all our attorneys who worked so hard on this case, and everyone who provided funding and other support for this massive effort. W

Click here to support LA Waterkeeper's efforts to defend this decision on appeal, and to help us ensure safe, healthy water for all Angelenos.

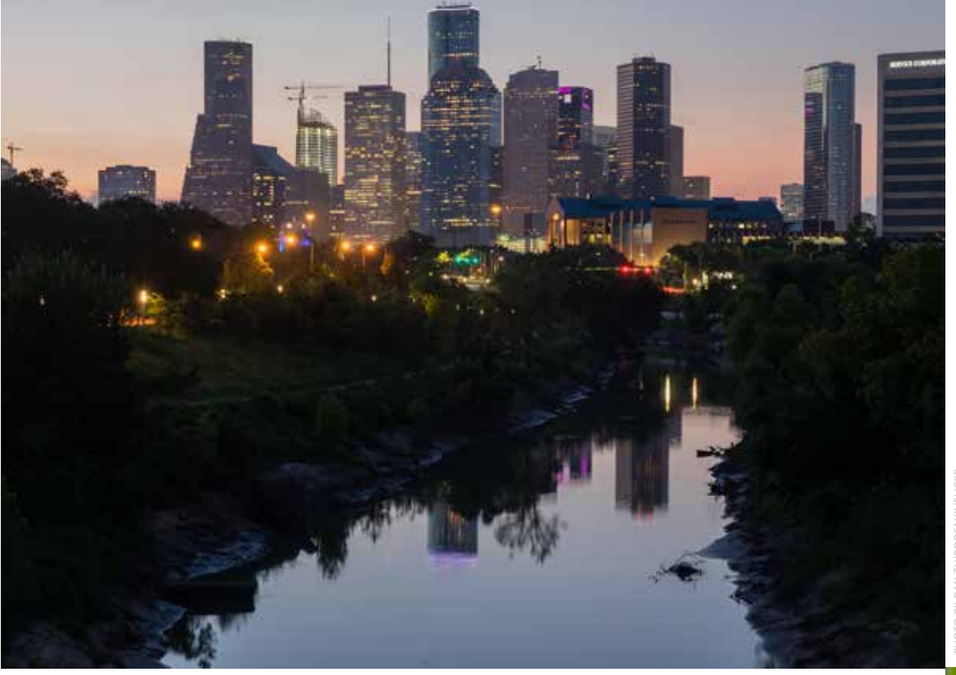


PHOTO BY DAN THIBODEAUX/FLICKR

PHOTO BY KEMP HEMPHILL FOR BAYOU CITY WATERKEEPER

KRISTEN SCHLEMMER, BAYOU CITY WATERKEEPER'S LEGAL DIRECTOR AND WATERKEEPER

PHOTO BY DAN THIBODEAUX/FLICKR

PUTTING PEOPLE AND NATURE FIRST IN TEXAS'S PETROCHEMICAL CORRIDOR

BY JULIA WIDMANN

Few cities embody the complexity of the climate crisis more than Houston. The low-lying city along the upper Texas coast faces the compounding climate threats of sea-level rise, increasingly intense hurricanes, and sewage overflows, all of which exacerbate the existing health and housing inequities in the Greater Houston area. It's also home base for many industries in the largest petrochemical corridor in the United States.

Houston-based Bayou City Waterkeeper recognizes the urgency of this crisis. The organization remains attentive to the climate emergency and environmental justice across all its work, from advocating for nature-based flooding solutions to fiercely defending the remaining wetlands that give the "Bayou City" its name.

However, Houston's failing sewage infrastructure may be one of the more pressing environmental and human health impacts of climate change. Bayou City Waterkeeper's Legal Director and Waterkeeper Kristen Schlemmer described the problem, which varies from untreated wastewater flowing directly into the bayou to raw sewage in school grounds or backed-up toilets in private homes. Schlemmer wrote:

"Whatever form an [sewage] overflow takes, it dirties Houston's water, harms public health, and potentially violates the federal Clean Water Act."

Bayou City Waterkeeper sued the City of Houston over these unchecked sewage overflows in 2018 and successfully forced the city into negotiations with the U.S. Environmental Protection Agency and the Texas Commission on Environmental Quality. However, Bayou City Waterkeeper was ultimately excluded from the lawsuit's negotiating table, and according to Schlemmer, "This consent decree represents an important first step to giving Houston residents a real solution to the sewage problems we see and smell after every major rain. But the settlement falls short in one key respect: it shortchanges our low-income neighbors who regularly deal with sewage backing up into their homes and pooling in the yards where their children play."

In the latest development, Bayou City Waterkeeper filed a brief in September 2020 in federal court to alert the judge of the settlement's failures. The filing was accompanied by a citywide analysis by civil engineer Lauren Ross and Naomi Walker, Bayou City Waterkeeper's Mapping Water Injustices Fellow, clearly illustrating the high concentration of sewage overflows in low-income or Black, Latinx, and Chinese neighborhoods.

Schlemmer knows that fair sewage regulations and updated infrastructure for the rapidly changing climate are only part of an extensive web of necessary climate solutions.

"Meaningful resilience requires all of us to take necessary steps to improve water quality, limit the worst effects of flooding and storm surges, and protect our communities," Schlemmer said. "After Hurricane Harvey, our decision-makers began to understand what we've always known: We can't continue to address the flood and climate risks in our region in the same ways and expect a different result. Advancing justice and equity for all our neighborhoods, combined with recognizing the powerful role of the area's natural systems, must be part of the answer. Continued development in floodplains and reliance on outdated hard infrastructure, coupled with the paving over of our wetlands and coastal prairies, have proven to be a recipe for disaster as the impacts of climate change intensify in the region, especially in communities that have been underinvested in over time."

"Our region is taking important steps to remedy decades of underinvestment in flood infrastructure by prioritizing communities across the region who have suffered the most human impacts from flooding," Schlemmer continued. "Bayou City Waterkeeper is working closely with community leaders and decision-makers to ensure that all residents — regardless of what neighborhood or watershed they are in — have better protection from flooding and pollution. It's been three years since Hurricane Harvey, and we're excited about this new regional vision — one which puts people, communities, and nature first and clears the path to resiliency for generations to come."

PHOTO BY CONSTANCE MIER

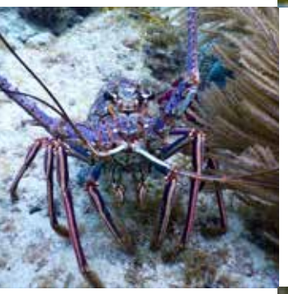


PHOTO BY MIAMI WATERKEEPER

RACHEL SILVERSTEIN SERVES AS THE MIAMI WATERKEEPER AND ADVOCATES FOR SOUTH FLORIDA'S WATERSHED AND WILDLIFE.

REGULATORY WINS

ENDING THE DANGEROUS FOLLY OF NUCLEAR POWER IN SOUTH FLORIDA

BY ELLEN SIMON

Sunny-day flooding, record-setting hurricane seasons, and an increasingly saline source of freshwater are some of the climate change threats Miami lives with daily. Add to those a ticking time bomb in a time of rising seas: a waterfront nuclear power plant just 25 miles away.

The plant, the Turkey Point Nuclear Generating Station, has won regulatory approval to keep operating until the 2050s. At that point, it will be 80 years old, making it the world's oldest operating nuclear plant. Worse, it's the only nuclear plant in the world that uses unlined outdoor canals — canals that sprawl over 6,000 acres — to cool its water.

Miami Waterkeeper fought the renewal of Florida Power & Light's plant in 2018 when it was before the U.S. Nuclear Regulatory Commission. Incredibly, the regulator approved the license renewal before the appeals process was even over — despite the fact that the plant is already leaking contaminated water into the Biscayne Aquifer, the city's drinking water source, and into Biscayne Bay.

The regulator failed to take into account new data showing sea-level rise in the area could reach as high as 4 1/2 feet by 2070. It also failed to factor in the most conservative projection from the Army Corps of Engineers, which is that the plant and its canals will experience daily flooding within 20 years. It has also failed to protect the threatened American crocodile, a species that uses the cooling canals as a primary nesting area, but whose numbers are declining as water conditions there deteriorate.

The threat the plant poses is so dire that Philip Stoddard, a biology professor who served as mayor of South Miami, about 18 miles away from the plant, told Bloomberg News that his city keeps a store of potassium iodide, used to prevent thyroid cancer in the event of nuclear disaster, that's large enough to provide for every child in his city.

With partners, Miami Waterkeeper is appealing the license extension at the federal level. And together they regularly mobilize their formidable grassroots army to oppose the polluting plant.

"The idea that this plant could still be operating in 2052 is sheer folly," said Rachel Silverstein, executive director and Waterkeeper of Miami Waterkeeper. "The site is predicted to experience chronic flooding in about 20 years. Decommissioning a plant takes decades. The best time to start that work was decades ago. The next best time is now."

While Miami Waterkeeper is also fighting climate change by promoting green infrastructure and natural defenses, such as coral reefs, mangroves, and dunes, it's a team of realists.

"Let's work to find other sustainable energy solutions before the flooding and contamination gets worse," Silverstein said.

PHOTO BY LISA GROSSMAN

PHOTO BY GREG ZOLNEROWICH

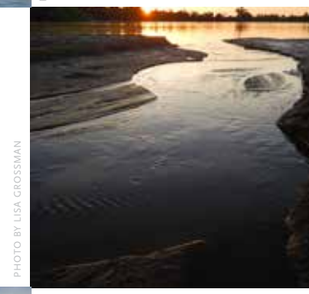


PHOTO BY LISA GROSSMAN

PHOTO BY DAWN BUEHLER

AS THE KANSAS RIVERKEEPER, DAWN BUEHLER ADVOCATES FOR THE RIVER BY ACTING AS A LEADER, SCIENTIST, EDUCATOR, SPOKESPERSON, AND INVESTIGATOR.

REGULATORY WINS

NATURE-BASED SOLUTIONS TO CLIMATE CHANGE IN THE HEARTLAND

BY JULIA WIDMANN

In the American Midwest, the climate crisis is nearly synonymous with the water crisis. The country's heartland may not face threats of rising sea levels, but states like Kansas are already experiencing devastating floods along the United States' most voluminous river — the Mississippi — and its tributaries.

Kansas Riverkeeper Dawn Buehler and her organization, Friends of the Kaw, see these changes firsthand and alert their community of changing river conditions, including flooding and potential safety concerns. These Kansas Riverkeeper updates became especially valuable during the Great Flood of 2019.

The Great Flood was a multipronged crisis, but Buehler narrowed in on one regulatory area in need of improvement and increased awareness: the Army Corps of Engineers' manual for dam management along the Kansas River. "Its guidance is incredibly outdated," says Buehler, "and these old regulations exacerbated the flooding and disaster in our watershed."

Buehler and Kansas Riverkeeper's advocacy for better regulations has only increased since. She serves on the Sustainable Rivers Program steering committee, a partnership between the Army Corps and the Nature Conversancy working on revising dam management plans on select rivers, including the Kansas River.

Additionally, in 2019 Buehler was appointed as chair of the Kansas Regional Advisory Committee, one of 14 committees responsible for crafting regional goals for the Kansas Water Vision, which will be included in the Kansas Water Plan.

As regional chair, Buehler recommended and advocated for the inclusion of a new goal for the Kansas River basin that centers around natural solutions — such as reforestation, regenerative agriculture, and reconnection of the wetlands and floodplain — to better prepare for the changing climate. Once approved by the state agency in spring 2021, the committee's language around climate change and nature-based solutions will become a permanent fixture in the state's water vision.

Buehler's dedication has brought new attention to her role in the water conversation; in February 2021, she was lifted from her regional chair position and appointed to statewide Chair of the Kansas Water Authority.

"The people of Kansas are already experiencing the impacts of climate change and are having conversations about how to better prepare our communities," said Buehler. "In a state that has historically been skeptical of well-established climate change science, we are happy to have been a part of including natural solutions into goals that can help to mitigate the impacts of climate change."

Having lived through the historic flooding that lasted for much of 2019, Buehler and her team understand the climate crisis is accelerating.

"We believe that our efforts to push for conversations and action around the impacts of devastating floods and drought will have enormous impact on Kansans. Collectively, we can better prepare our farmers, our people, and our communities for what's ahead."