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"The conservation movement may have started 50 years ago, but during that time **Waterkeeper Alliance** has enhanced it. We, the people of the world, thank you for helping all of mankind...especially for future generations."

John Paul DeJoria,
Co-founder and Chairman of the Board
Photographed with his son (and Joe)

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CONTENTS

WATERKEEPER® ALLIANCE

Volume 12, Issue 2

NEWS & UPDATES

FEATURES

AbTech Industries is proud to celebrate the Waterkeeper Movement's

Golden Anniversary

50 years ago, fishermen banded together to save their river. These grassroots advocates spawned the rapid growth of similar Waterkeeper organizations, the confluence of which formed a global movement — today's Waterkeeper Alliance. This movement is responsible for saving countless endangered bodies of water, returning them to a sustainable habitat for both fish and humans.

From its inception as a company, AbTech Industries has been an ally in this movement, addressing issues of stormwater runoff pollution with its innovative Smart Sponge® Technology.

For more information on the many clean-water capabilities of Smart Sponge® please visit our website www.abtechindustries.com.

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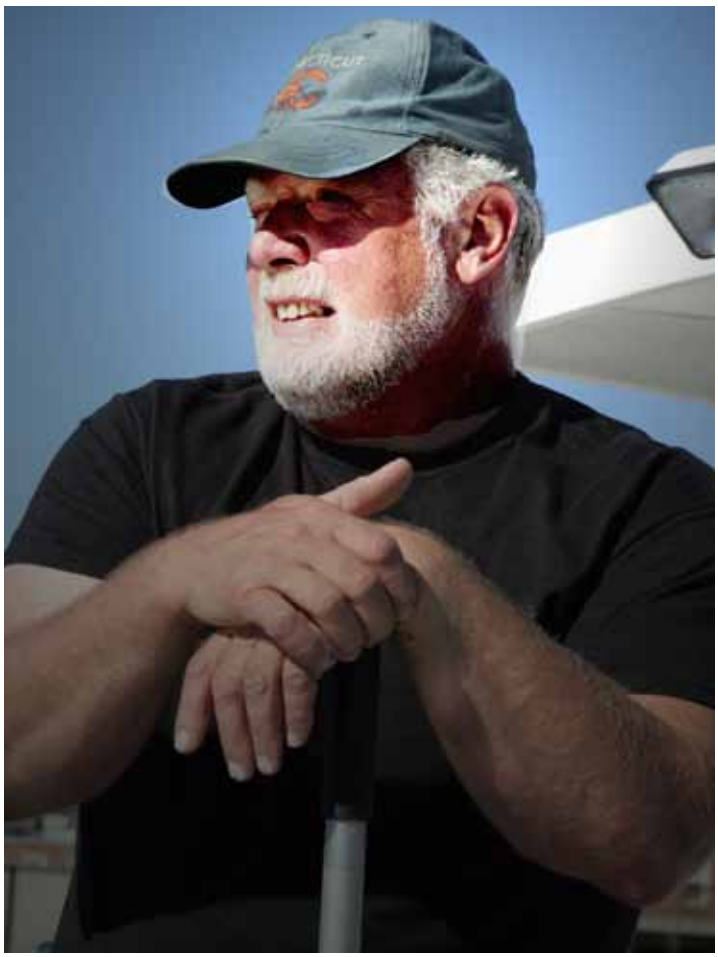
LETTER FROM THE PRESIDENT,
ROBERT F. KENNEDY, JR.



TERRY BACKER: A WATERKEEPER'S WATERKEEPER

In 1986, two burly commercial fishermen from Connecticut came to the town of Nyack, New York, on the Hudson River, to buy buck shad for their lobster pots from gillnetter Bobby Gabrielson. Chris Stabelfelt and Terry Backer were both bearded giants who reminded everyone of Bluto and Brutus from the Popeye cartoons. Terry wore an anchor earring, a ragged, faded skipper's cap stained with seagull droppings, and a Popeye squint. I always imagined that a flock of seagulls followed him even when he got off his boat. His arms were so long and thick that it seemed he wouldn't need a grappling hook to find his lobster pots on the bottom of Long Island Sound.

The two fishermen lamented to Gabrielson that it wasn't possible to sue the city of Norwalk, Connecticut, which, they explained, was mismanaging its sewer-treatment plant and illegally discharging chlorine that had killed all the oyster spat in western Long Island Sound.

"We know a couple of guys who are doing just that," Gabrielson told them:

Two days later those two guys, Hudson Riverkeeper John Cronin and I, stood on the Norwalk wharf watching sewage bubble up from submerged pipe, and 60 days later we filed suits against Norwalk, Bridgeport, Greenwich, Stanford, Branford, New Haven and West Haven. Our first settlement with Norwalk produced $180,000 in payments in lieu of penalties. We used that money to set up the Long Island Soundkeeper, and Terry Backer became its leader.

With our help Soundkeeper immediately started to sue polluters, including the famous Remington gun club at Lordship Point shooting range, which had fired 70 tons of lead into a water-bird sanctuary. We shut Remington down and took all of the sewer plants in those towns to court and forced them into compliance. Terry conducted a series of press conferences. The journalists loved him, and so did the public. I clearly remember the first time I saw one of the bumper-stickers that some fan of his had spontaneously created, touting "Backer for mayor."

Terry noticed them too, and, even though he had never graduated high school, he decided to run for the Connecticut State Assembly – and got elected and served 23 years, becoming the conscience for the environment in Connecticut, eventually landing the job of chairman of the environmental committee, and serving as the Long Island Soundkeeper simultaneously. But, though he had joined the political establishment, Terry never lost his rebellious irreverence. He delighted in sticking it to "the Hartford stiffs." When they told him he needed to wear a tie to enter the Assembly chamber, he explained that he'd never owned one. When they insisted, he bought a tie and wrapped it around his brow as a headband.

Terry became one of my closest allies in building the Waterkeeper movement, and one of my best friends in the world. He gave my son, Bobby, a summer job working on oyster boats in the Talmage brothers' fleet. The experience gave Bobby discipline and immensely improved his Spanish.

Terry and I had an identical vision of an army and navy of autonomous organizations running patrol boats on every

waterway in the world, united through shared ideals and a centralized operation. Waterkeepers would be involved in every fight for clean water. If there were a fish-kill in Siberia, a combustible oil-train spill in Montreal, a liquefied-natural-gas-plant proposal on Puget Sound, anchovy-poaching off the coast of Chile or Mexico, Terry wanted a Waterkeeper to be present.

He wanted us to lead every big battle, from the Pebble Mine in Alaska to Hann Bay in Senegal, from the Alberta tar sands to Laguna San Ignacio on the Baja California peninsula. He wanted Waterkeepers to be at every dye-house spill in Bangladesh and every illegal mine in Brazil. Wherever there was polluter with a pipe or a bully with a backhoe, a corrupt regulator or crooked politician or a greedy CEO for Monsanto, Smithfield, Duke, Exxon or the Koch brothers, Terry wanted Waterkeepers to show up with our lawyers, our boats and our detailed documentation. He shared my restlessness; neither of us could sit still for long. We had both hitchhiked and ridden freight trains across the country in our youths, and he would entertain me with stories about the commercial fisheries from Alaska to Puget Sound to Mexico where he'd worked. He had a mind that was active with intense and boundless intellectual curiosity for history, science, mechanics and astronomy.

I never got bored when I was with Terry. Coming as we did from very different places, it always struck me as extraordinary that we shared so many interests and values, chief among them integrity and loyalty. He's headed now for a distant port but I know he'll be waiting there for me to take his side again at the barricades.

As a young man in 1830, Oliver Wendell Holmes Sr. was spurred by reports of a plan to scrap the frigate known as "Old Ironsides" -- the USS Constitution – to compose an ageless poem in protest. In my mind, he might've written it in our time about Terry Backer: It concludes:

O BETTER THAT HIS SHATTERED HULK

SHOULD SINK BENEATH THE WAVE;

HIS THUNDERS SHOOK THE MIGHTY DEEP,

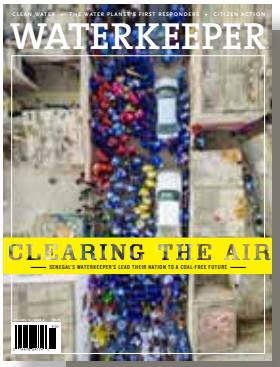
AND THERE SHOULD BE HIS GRAVE;

NAIL TO THE MAST HIS HOLY FLAG,

SET EVERY THREADBARE SAIL

AND GIVE HIM TO THE GOD OF STORMS,

THE LIGHTNING AND THE GALE!



ON THE COVER:

The March for the Climate in the coastal village of Bargny united hundreds of people from four Senegal Villages where new coal-fired power plants have been proposed.

Design by BoyBurnsBarn/John Turner

Photo by Peter Harrison

Globally, the paper industry is the single largest industrial consumer of water and the third greatest emitter of greenhouse gases.

Getting the Paper (More) Right!

You will notice that this copy of WATERKEEPER magazine is different from copies produced in the last few years. Although we are very proud of the paper selection choices we have made in the past, we have found that the industry has moved forward. Today we can print on a 100% Post Consumer Waste paper that provides dramatically better environmental savings at lower cost, without sacrificing the print quality that our readers expect.

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MISSION: Waterkeeper Alliance strengthens and grows a global network of grassroots leaders protecting everyone's right to clean water.

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Our Commitment

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over 2.5 million
square miles of watersheds

34 countries

more than 290 waterways

Who Is Waterkeeper Alliance?

Above left, Rae Schnapp, Wabash Riverkeeper on patrol. Photo: Pete Harrison

Above, Wu Yunli, Lower Yangtze River Waterkeeper. Photo: John Wathen.

Left, Alabama Riverkeepers on patrol. Photo: Pete Harrison

In virtually every part of the world, climate change is affecting the quality and quantity of water resources. As the effects intensify in the coming years, the impacts on farms and forests, coastlines and floodplains, water supplies, and human populations are becoming more and more severe.

With almost 300 Waterkeeper organizations fighting on the front lines on six continents, Waterkeeper Alliance is uniquely positioned to confront the effects of climate change and other environmental threats by engaging its grassroots network on local, regional and global levels. We are the voice for rivers, streams, wetlands and coastlines in the Americas, Europe, Australia, Asia and Africa.

We are a powerful worldwide coalition of local Waterkeeper organizations—Riverkeeper, Baykeeper, Coastkeeper and other grassroots Waterkeeper organizations—connected as a unified international force that is fighting on the front lines to defend the world's waters during this period of unprecedented global environmental crisis.

Everyone has the right to clean water. It is the action of supporting members like you that ensures our future and strengthens our fight for clean water. Join Waterkeeper Alliance and get WATERKEEPER for one year. Go to www. waterkeeper.org and click on Donate Now to join as a supporting member. You can also join by mail. Send your check, payable to Waterkeeper Alliance, to WATERKEEPER Membership, 180 Maiden Lane, 6th Floor, New York, NY 10038

Thanks for your support!

WATERKEEPER® ALLIANCE

Waterkeeper Alliance is a 501(c)(3) non-profit organization. Your $25 contribution or more entitles you to receive a one-year subscription to WATERKEEPER magazine, which has an annual subscription value of $12. The balance of your contribution is tax deductible to the extent allowed by law.

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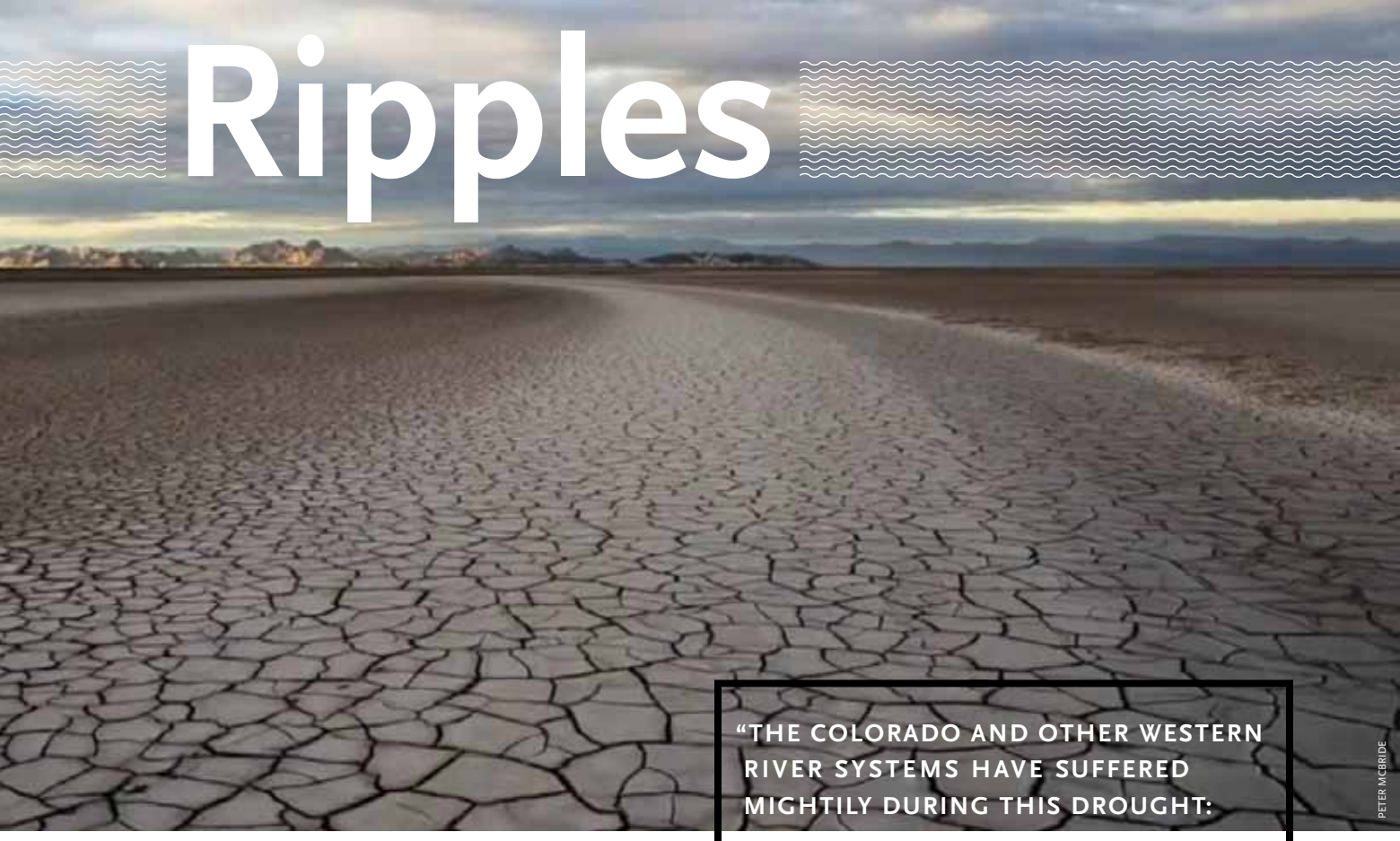

PETER MCBRIDE

SO MUCH WATER IS DIVERTED FROM THE COLORADO RIVER EACH YEAR - FIVE TRILLION GALLONS - THAT ITS DELTA IS NOW A PARCHED WASTELAND AND THE RIVER NO LONGER REACHES ITS NATURAL END AT THE GULF OF CALIFORNIA.

"THE COLORADO AND OTHER WESTERN RIVER SYSTEMS HAVE SUFFERED MIGHTILY DURING THIS DROUGHT: DRY RIVER BEDS, STRANDED AND DYING FISH, AND RECREATIONAL OUTFITTERS AND OTHER BUSINESSES FIGHTING FOR SURVIVAL."

CALIFORNIA COASTKEEPER SARA AMINZADEH

A CRY FOR THE PARCHED COLORADO RIVER DELTA

The Colorado River originates in Colorado and Wyoming and drains the entire Southwestern United States, but 91 percent of the river's flow is diverted before it reaches the border with Mexico – nearly a third of that diverted water goes to the State of California. As a result, the Colorado River Delta is a dry, parched wasteland and the river no longer reaches its natural end at the Gulf of California.

California's allotment is overseen and administered by the Colorado River Board of California, whose mission for 75 years has been to protect the interests of California, its agencies and citizens, in the water and power resources of the Colorado River System.

In January, the California Coastkeeper Alliance and the group Save The Colorado released a resolution calling for "transferring enough of California's allotment of Colorado River water back to the Colorado River Delta for the Colorado River to meet the Gulf of California on a continual basis and provide occasional pulse flows to rejuvenate the ecosystem through the river corridor." A pulse flow is a surge of water, which can occur naturally, as from a rainfall, or artificially, as from a reservoir. The resolution is supported by all 12 Waterkeeper organizations of the Alliance, which represent tens of thousands of members along the California coast that directly receive Colorado River water.

"California has taken, taken, taken from the Colorado River, and it's time for it to give a little bit back," said Sara Aminzadeh, executive director of the California Coastkeeper Alliance. "The Colorado and other Western river systems have suffered mightily during this drought: dry river beds, stranded and dying fish, and recreational outfitters and other businesses fighting for survival. I hope the impacts we've witnessed serve as an impetus for changing the way we think about and use water."

Remarkably, even though all five trillion gallons of river water are drained out every single year, and California gets more water than any other state, the mission of the Colorado River Board of California includes "maintaining or increasing " California's share of the river. Coastkeeper Alliance and other groups are calling on the State Water Board to change laws and policies that perpetuate this unsustainable practice. They have requested, for example, that emergency drought regulations, which the board is now developing, require that water suppliers reduce imports from the Colorado River and other impaired systems before qualifying for adjustments to the emergency drought regulations.

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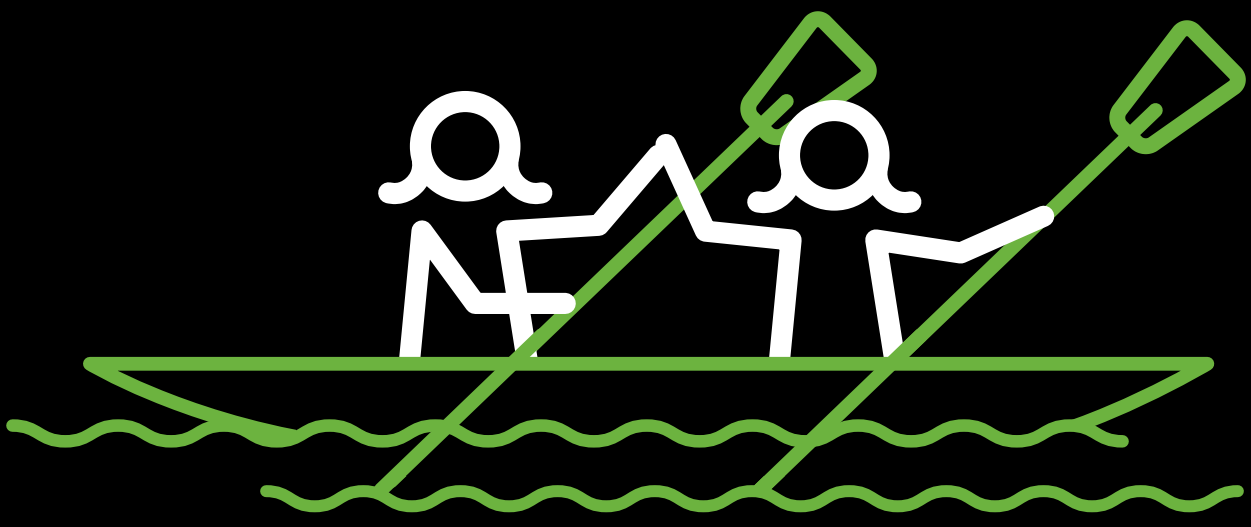

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THE PERSISTENT, WELL ORGANIZED LEADERS AND STAFFS OF ROGUE RIVERKEEPER, COLUMBIA RIVERKEEPER AND KLAMATH RIVERKEEPER HAVE DEMONSTRATED THAT DAVID CAN STILL BEAT GOLIATH.

MULTI-NATIONAL ENERGY COMPANY VERESEN WAS DEFEATED IN ITS BID TO BUILD THE FIRST LNG TERMINAL ON THE PACIFIC COAST BY A 10-YEAR GRASSROOTS CAMPAIGN OPERATING ON A SHOESTRING.

RIVERKEEPERS PLAY DAVID TO BIG ENERGY'S GOLIATH

In a stunning and unprecedented ruling on March 11th, the Federal Energy Regulatory Commission (FERC) denied permits for the Jordan Cove liquefied-natural-gas (LNG) terminal and Pacific Connector Pipeline in southern Oregon. The decision was warmly welcomed by Westerners, from the fracking fields in Rocky Mountain States to the salmon fisheries of southwest Oregon to the oyster-breeding waters of Coos Bay in northwest Oregon.

The proposed 235-mile pipeline would have exported fracked gas from Colorado, Utah and Wyoming through Oregon and crossed nearly 400 streams and rivers, many of which are critical habitats for endangered Coho salmon. The Jordan Cove LNG terminal would have been the largest emitter of greenhouse-gas emissions in Oregon. Together the projects would have accelerated fracking in the intermountain West and exacerbated the well-documented harmful effects.

"We are relieved to see that FERC finally came to their senses to deny this outrageous project," said Rogue Riverkeeper Forrest English. "This is a huge victory for salmon streams from the Rogue River to Coos Bay."

While numerous arguments could have been made based on the potential environmental impacts, FERC's denial was based on the power of eminent domain. The agency determined that the exercise of eminent domain was not justified "because the record does not support a finding that the public benefits of the [pipeline] outweigh the adverse effects on landowners."

For the last 10 years a coalition of diverse interests, operating on a shoestring, has fought a multi-national energy company, Veresen, that wanted to build the first gas terminal on the Pacific coast. The persistent, well-organized leaders and staffs of Rogue Riverkeeper, Columbia Riverkeeper and Klamath Riverkeeper have demonstrated that David can still beat Goliath.

Although the energy companies may appeal the decision, and various other state and federal permits need to be officially abandoned, these Waterkeeper organizations will continue to work to ensure that these projects are firmly put to rest in the coming months.

LESLEY ADAMS,
WESTERN REGIONAL COORDINATOR

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DELICIOUS WAY TO ADVOCATE FOR SALMON

KATIE HUISMAN

In early 2012, Fraser Riverkeeper in Vancouver, British Columbia launched WildSalmonRecipes.com to promote one of its most important issues, the consumption of wild salmon over farmed salmon. The website was originally created with support from the Vancouver Foundation and filmmaker Damien Gillis, who recently directed the acclaimed fracking documentary "Fractured Land." And last year it was revamped with help from Agentic, a web-design agency specializing in social-change strategy.

"Wild Salmon Recipes is like the Swim Guide app produced by Lake Ontario Waterkeeper," says Fraser Riverkeeper Joe Daniels. "We wanted to create a handy tool that not only serves a practical purpose, providing seafood consumers with mouth-watering salmon recipes, but also inspires them to look a little closer and think a little harder about the salmon they put on their plates."

The site features dozens of recipes, including several from acclaimed West Coast chefs such as seafood-sustainability advocate Chef Rob Clark of the Fish Counter (smoked-salmon risotto), Chef Clement Chan of Le Tigre food truck (pink-salmon miso chowder) and eponymous Chef David Hawksworth of the Hawksworth Restaurant (wild-salmon sushi salad).

Designed to reach American seafood consumers with recipes that promote the purchase of sustainable-fishery wild salmon over farmed salmon, the site has had over 60,000 visitors and 200,000 page views.

The multi-billion-dollar global farmed-salmon industry produces 2.4 million metric tons of fish annually. Its floating, net-pen CAFOs (concentrated-animal-feeding operations) have been linked to the depletion of wild salmon through sea-lice infestation and other diseases.

Consumers in Canada, troubled by the industry's use of antibiotics, flesh colorants and the shellfish toxin emamectin benzoate, to kill sea lice, are avoiding farmed salmon in droves. And Riverkeeper Joe Daniels hopes that U.S. consumers will follow.

One way to know if your salmon is farmed is if it is labeled "Atlantic"— because wild Atlantic salmon are not commercially available anywhere in the world. Spread the word and always ask your grocer or restaurateur: "Is it wild?"

PHOTOS COURTESY OF COLUMBIA RIVERKEEPER

ABOVE, COLUMBIA RIVERKEEPER BRETT VANDENHEUVEL AT PLAY BESIDE THE RIVER HE HAS DEDICATED HIMSELF TO PROTECTING, AND, LEFT, AT WORK, AT A PRESS CONFERENCE WITH WATERKEEPER ALLIANCE'S PRESIDENT, ROBERT F. KENNEDY, JR.

OREGON BAR PRESENTS ENVIRONMENTAL AWARD TO COLUMBIA RIVERKEEPER VANDENHEUVEL

The Oregon State Bar Environmental and Natural Resources Section (ENR) has awarded Columbia Riverkeeper Brett VandenHeuvel its Leadership and Service Award, selecting him from its 460 statewide members. The award recognizes him as a person who has provided leadership, service, and outstanding contributions in the area of environmental law. Besides serving as executive director of Columbia Riverkeeper, VandenHeuvel leads its legal and policy efforts.

"Brett is more than deserving of this prestigious award," said Chris Winter, a member of the executive committee of ENR. "He has a long and distinguished track record of advocating on behalf of the public interest in conservation of the Columbia River ecosystem, and he also exemplifies professionalism in the legal profession."

VandenHeuvel remarked that the award "reflects the work of our top-tier legal team at Columbia Riverkeeper, which has brought many successful legal actions to protect clean water and our climate."

He has led Riverkeeper's efforts to establish stronger limits on toxic pollution and protect the region and the planet from the harm that would be caused by construction of fossil-fuel export terminals. His organization recently succeeded in forcing the operators of eight large dams to reduce toxic oil pollution for the first time, an accomplishment that *The New York Times* called historic and The *Wall Street Journal* called groundbreaking.

During his career VandenHeuvel has started a public-interest-law practice, researched climate change during expeditions to Antarctica and New Zealand, and taught science to children at field stations in Oregon.

"I'm proud to carry on the Waterkeeper tradition of enforcing environmental law," he said, "while organizing communities to stand up for clean water."

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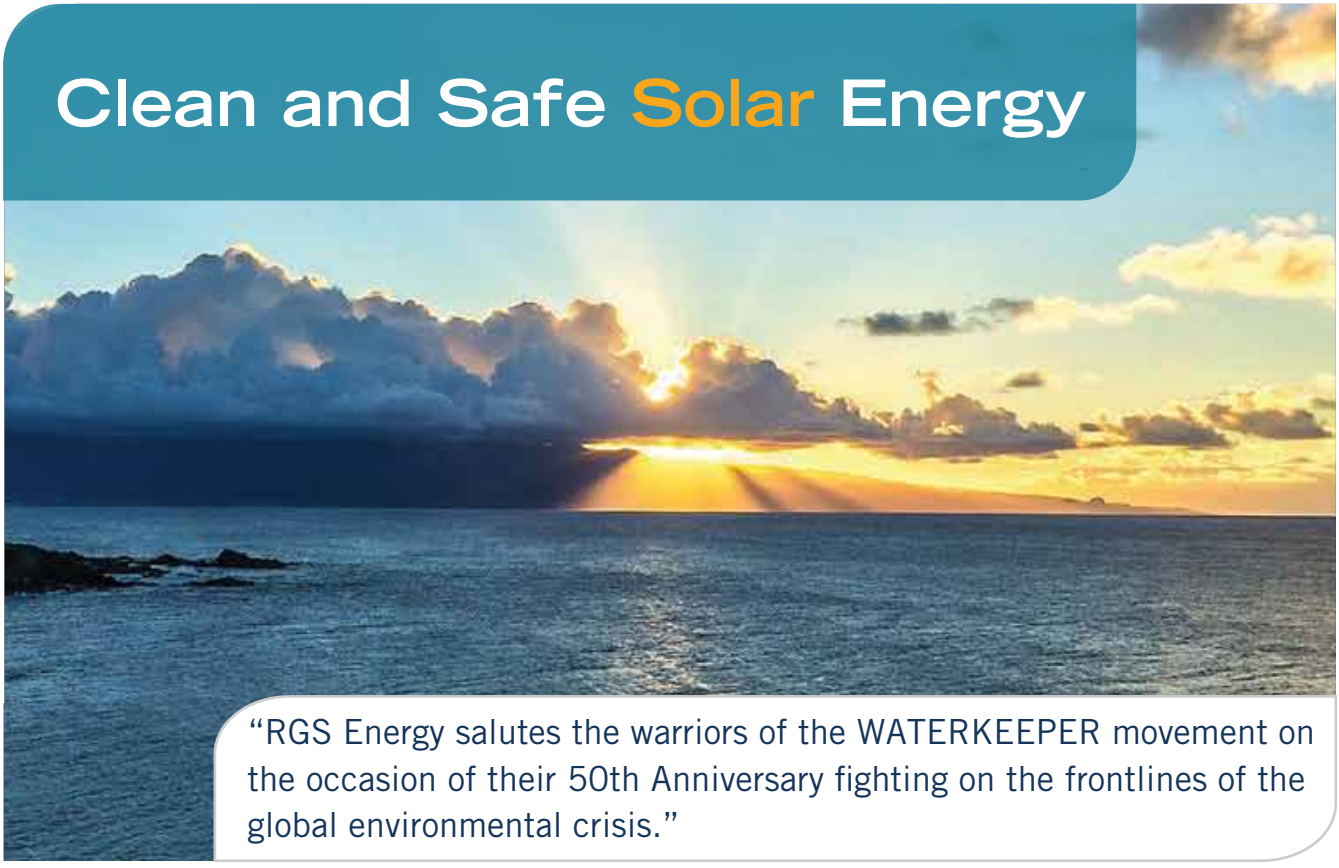

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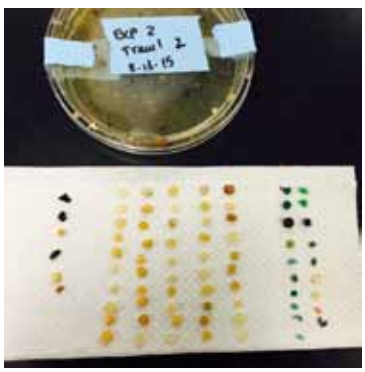
NY/NJ BAYKEEPER STUDY PROVES MICROPLASTICS ARE A MACRO-PROBLEM



SANDRA MEOLA, NY/NJ BAYKEEPER

TOP AND ABOVE, SAMPLES FROM NY/NJ BAYKEEPER'S PLASTIC COLLECTION STUDY, WHICH FOUND THAT THERE ARE AN AVERAGE OF MORE THAN 256,000 PARTICLES PER SQUARE KILOMETER FLOATING IN NY/NJ HARBOR ESTUARY WATERS.

NY/NJ Baykeeper has released the results from a first-of-its-kind plastic-collection study in the region, detailing the sizes, types, and concentrations of plastic pollution within NY/NJ Harbor Estuary waters, which encompass the ports of New York and neighboring New Jersey, and extend north on the Hudson River to the Tappan Zee Bridge and south to Sandy Hook Bay.

NY/NJ Baykeeper estimates that at least 165 million plastic particles are floating within estuary waters at any given time, an average of 256,322 particles per square kilometer.

Eighteen samples were collected from the East River, Upper New York Bay, Newtown Creek, the Arthur Kill between Staten Island and New Jersey, the lower harbor near Perth Amboy, N.J., the Passaic River, the Morris Canal and Newark Bay. The average plastic quantity from New York City samples was approximately twice that of New Jersey samples.

Samples were categorized by size and type, and then counted using a dissecting microscope. Categories included fragments, foam, line, pellets and film. The most abundant type of plastic present was foam (38 percent).

"New York City must take aggressive action like phasing out foam and plastic bags to reduce damage caused by plastic pollution," said Sandra Meola, communications and outreach associate at NY/NJ Baykeeper. "Coupled with consumer education, legislation should be a priority. We can't keep using throwaway products that are used for a few minutes, but take decades to break down."

Samples were collected using a net called a manta trawl, which collects floatable debris off the water's surface. The net has the same specifications as that used by the Five Gyres Institute for international ocean research on plastic pollution and for the survey completed in the Great Lakes region by Dr. Sherri Mason, professor of chemistry at the State University of New York Fredonia.

"Plastic pollution is everywhere, and the closer we get to the sources, the higher the counts," said Dr. Mason. "The facts are clear: we must re-evaluate our relationship with this material. Single-use disposable plastics are a plague to our waters and therefore to our society, but fortunately it is one that is easily solved. We had life before plastic and I have full faith we can find a way to break our plastic addiction."

Approximately 85 percent of all particles counted were microplastics, which are smaller than five millimeters, about the size of a grain of rice. Various experts judge microplastics to cause the most damage to aquatic life and habitat.

"Plastic trash and debris, along with microplastics, are contaminating fish, birds, mammals, even plankton," said project partner Dave Conover, education director at Hudson River Sloop Clearwater, Inc. "By gathering more data, we can get a clearer picture of the sources of this pollution and create effective strategies to reduce it."

NY/NJ Baykeeper's report includes steps the public can take to reject and eliminate plastic from everyday life, such as employing reusable water bottles and bags, and shopping in bulk at grocery stores. NY/NJ Baykeeper is also actively encouraging the public to get involved in local shoreline cleanup efforts.

Going forward, NY/NJ Baykeeper will collect and analyze more samples in the spring and summer of 2016 to support the trends observed in the pilot study. Additionally, NY/NJ Baykeeper and partners will be advocating for a strong polystyrene phase-out in New York and New Jersey.

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ENOUGH CHICKEN S—T! MARYLAND LAW WOULD HAVE REDUCED IT

M. STEPHENSON

CHESAPEAKE WATERKEEPERS, THEIR COALITION PARTNERS AND EASTERN SHORE RESIDENTS RALLY OUTSIDE THE MARYLAND STATE HOUSE IN ANNAPOLIS FOR LEGISLATION TO REQUIRE PROPER DISPOSAL OF POULTRY MANURE.

Waterkeepers Chesapeake, a regional coalition of the 19 Waterkeeper organizations in the Chesapeake and Coastal Bays watersheds, worked alongside public health and environmental organizations to introduce groundbreaking legislation in Maryland to address excess poultry manure pollution.

Previously, the Maryland Department of Agriculture estimated that 228,000 tons of excess manure was produced in Maryland in 2014. Corporate poultry operations receive subsidies from taxpayers to truck it off of broiler growing operations.

Poultry growers, who operate under contract to large poultry companies, may use other parts of their land for growing crops and use manure as fertilizer under state guidelines designed to limit excess nutrients, which can run off into the Chesapeake Bay watershed and deprive the water of oxygen. But the number of biodiverse growers is diminishing. As larger concentrated animal feeding operations (CAFOs) are installed on the Eastern Shore, with more poultry houses on each farm, the amount of manure produced is expected to further exceed what can safely be applied on the land. Each house can hold 60,000 – or more – birds. This population turns over about every 45 days. The industry estimates that these changes could bring an additional 10 million chickens and 20 million pounds of manure annually to the Delmarva Peninsula, which also includes parts of Delaware and Virginia.

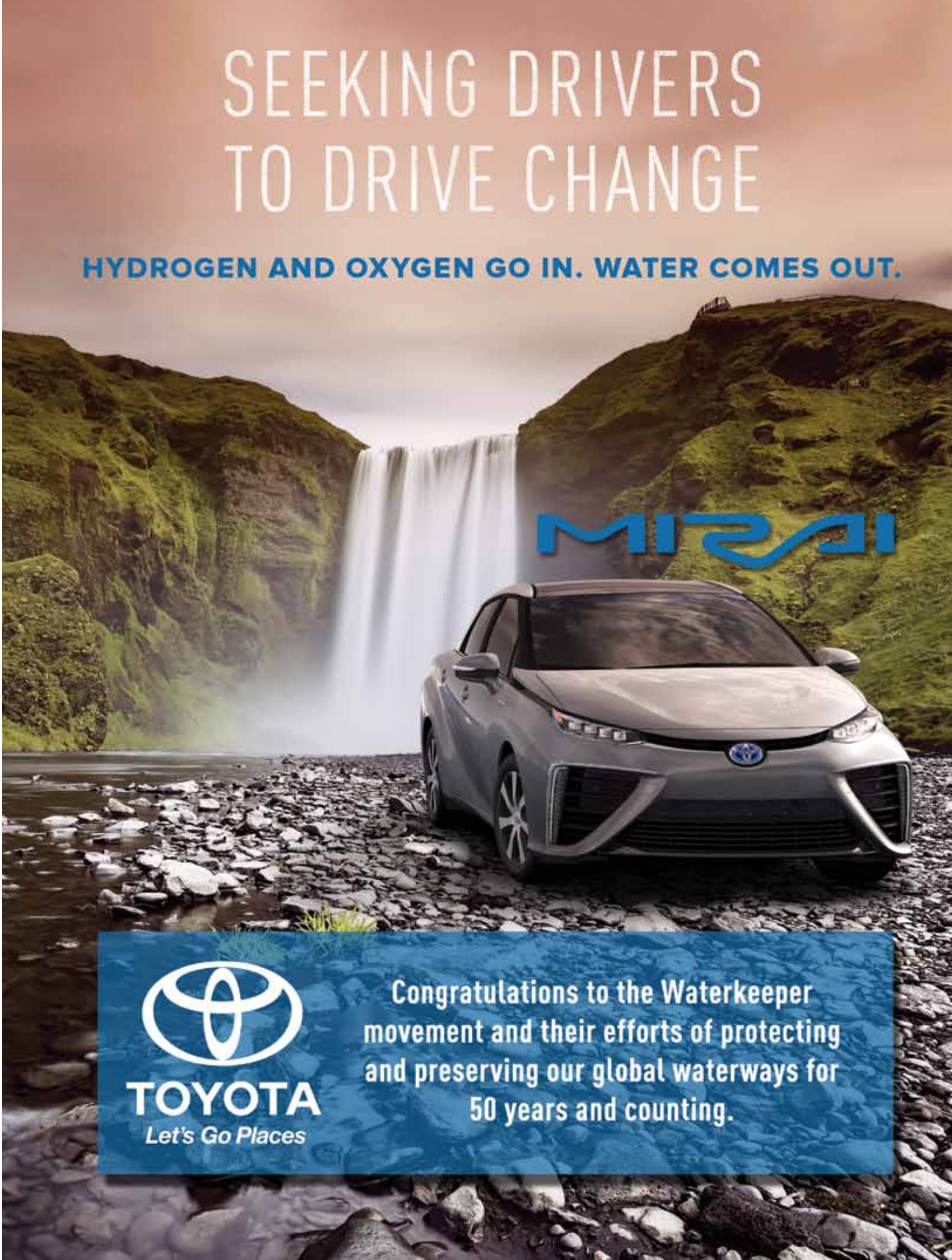
Legislation known as the "Poultry Litter Management Act," was introduced in the Maryland General Assembly in January. The bill would have required corporate poultry integrators like Perdue, Mountaire and Tyson to pay for the removal of excess poultry manure from the farms of their contract growers and verify that these farms have up-to-date nutrient-management plans. The bill would have also clarified where manure originates and ends up, ensuring that it does not foul waterways.

In February, the Waterkeepers and their coalition partners, as well as Eastern Shore residents and former poultry growers, rallied in front of the State House and testified in support of the bills, in the face of hostility from some legislators.

The industry pushed back hard, challenging the commonly respected science applied by the U.S. Geological Survey and others that poultry manure on the Eastern Shore has created one of the worst phosphorus problems in the country. The Waterkeepers and other supporters of the bill were derided as "environmental jihadists" by a poultry-industry representative who serves on the 30-member Maryland Agricultural Commission.

The bill did not pass the legislature during the 90-day session. The coalition urged legislators to study the science behind the issue and work toward introducing the bill next year. Passage of the current bill would have ensured that the corporations in charge would own the manure as well as the chicks that produce it.

THE MARYLAND DEPARTMENT OF AGRICULTURE ESTIMATED THAT 228,000 TONS OF EXCESS MANURE WAS PRODUCED IN MARYLAND IN 2014. CORPORATE POULTRY OPERATIONS RECEIVE SUBSIDIES FROM TAXPAYERS TO TRUCK IT OFF OF BROILER GROWING OPERATIONS.


SEEKING DRIVERS
TO DRIVE CHANGE
HYDROGEN AND OXYGEN GO IN. WATER COMES OUT.
MIRAI
TOYOTA
Let's Go Places
Congratulations to the Waterkeeper movement and their efforts of protecting and preserving our global waterways for 50 years and counting.

PHOTOS COURTESY OF DAVORN HONG

ABOVE, TONLE SAP LAKE WATERKEEPER SENGLENG YOUK, FAR LEFT AT TABLE, HOSTED A PRESS CONFERENCE TO CALL FOR THE INTERVENTION OF SOUTHEAST ASIAN LEADERS AND PRESIDENT OBAMA TO STOP THE DON SAHONG DAM; PROTESTER IN PHNOM PENH OUTSIDE ANGKOR BEER HEADQUARTERS, WHICH IS CONTROLLED BY THE SAME FAMILY AS THE COMPANY BUILDING THE DAM.

CAMBODIAN RIVERKEEPER AND OTHERS SPEAK UP: "STOP THIS DAM PROJECT!"

"We are people from local communities in Cambodia, who depend on the ecosystems created by the Mekong river and numerous other rivers and lakes in the region, especially the Tonle Sap and Sesan Rivers, for our food, health, livelihood, culture, society and incomes. The waters of the Mekong region sustain our lives and economic security.

"We are seriously distressed about the Don Sahong Dam, which is located at a critical area for fish migration between the upper and lower Mekong, and would severely reduce fish species and numbers in the whole Mekong river basin. Furthermore, Don Sahong dam will jeopardize the last remaining population of Irrawaddy dolphins in Laos, as well as divert water from the spectacular Khone Phapheng waterfall. This dam will have dire consequences for the food security and livelihoods of people, particularly Cambodians living along the Mekong and on Tonle Sap Great Lake, who rely on the Mekong River's rich fisheries. "

DON SAHONG DAM WILL JEOPARDIZE THE LAST REMAINING POPULATION OF IRRAWADDY DOLPHINS IN LAOS, AS WELL AS DIVERT WATER FROM THE SPECTACULAR KHONE PHAPHENG WATERFALL.

The statement above was directed to the governments of Cambodia and Laos. The proposed Don Sahong hydroelectric dam is to be built on the Mekong River in southern Laos, just 1.5 kilometers from the Cambodian border. The river runs from the Tibetan plateau through China, Burma, Laos, Thailand, Cambodia and Vietnam. In Cambodia and Vietnam alone, it supports the livelihoods of more than 26 million people. Along its 2,702 miles are 30 hydropower dams, and 11 more are being proposed.

Cambodian communities in the vicinity of the proposed Don Sahong Dam were not consulted about its construction, so, in an effort to raise awareness and prevent more dam developments on the Mekong River, Senglong Youk, the Tonle Sap Lake Waterkeeper, in partnership with the World Wildlife Fund and the Fisheries Action Coalition, organized a large-scale boat march on December 11, 2015. The event attracted hundreds of people from communities around the Mekong River basin, and from local governmental authorities and non-governmental organizations. It also received extensive coverage in the media. Subsequently, three media organizations appealed to the Laotian government to conduct a cost-and-benefit analysis and environmental-impact assessment that included full participation of all affected communities.

As one of five steering-committee members of River Coalition in Cambodia (RCC), Senglong Youk hosted a joint press conference to call for intervention to stop the dam. At this conference and at a meeting of Southeast Asian leaders and President Obama four days later in California, the coalition submitted three joint statements to the Cambodian prime minister, the president of the United States and the Association of Southeast Asian Nations. On February 29th 2016, RCC members led a peace walk in front of Angkor Beer headquarters in Phnom Penh. The company contracted to build the Don Sahong Dam, Mega First Corporation Berhad, is controlled by the family of Goh Nan Kioh, and also owns 50 percent of Cambrew, the producer of Angkor Beer, the most popular beer in Cambodia.

Tonle Sap Lake Waterkeeper, the Fisheries Action Coalition and RCC will continue to host public awareness forums and confront companies associated with construction of the dam project.

– Min Zheng, Asia Regional Coordinator

A big congratulations to Waterkeeper Alliance on 50 years of success.

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to saving the waterways we love and adventure in.
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STOP THE GREAT LAKES NUCLEAR DUMP

THE REGION-WIDE PROTEST OF GREAT LAKES COMMUNITIES AGAINST THE SITING OF A NUCLEAR DUMP WITHIN A MILE OF LAKE HURON INCLUDED HIGHWAY BILLBOARDS, LEFT; A MAP, BELOW LEFT, SHOWS THE LOCATION OF THE PROPOSED NUCLEAR DUMP, WHICH COULD CONTAMINATE DRINKING WATER FOR 40 MILLION PEOPLE.

FIGHTING A FORMULA FOR DISASTER FOR THE GREAT LAKES

U.S. ARMY CORPS OF ENGINEERS, DETROIT DISTRICT

In mid-February, Canada's new environment and climate change minister, Catherine McKenna, "paused the timeline" on ill-conceived plans by Ontario Power Generation (OPG) to construct and operate a permanent deep geological repository (DGR) for about 200,000 cubic meters of low and intermediate nuclear waste within a mile of Lake Huron, in Kincardine, Ontario. OPG is owned by the Ontario government, but the waste is generated by three private nuclear-power plants with a total of 18 reactors.

The repository would be constructed about 2,000 feet underground in limestone, which is not proven to be a safe medium for nuclear waste. A nuclear-waste repository in New Mexico was shut down in 2014 due to leaks after 15 years of operation. If the OPG repository were to leak, it could contaminate the adjacent waters of Lake Huron. The Great Lakes supply drinking water to 40 million people.

In September 2014, Great Lakes Waterkeepers sent a letter urging U.S. Secretary of State John Kerry to intervene, as the Canadian government did in the case of a similar repository proposed for Vermont in the mid-1980s. Canada has been planning this repository without any input from the U.S., in direct violation of several international agreements. The Boundary Waters Treaty of 1909 established that "neither country would pollute boundary waters, or waters that flow across the boundary, to an extent that would cause injury to health or property in the other country," and it set up the International Joint Commission (IJC) to regulate shared water uses, to investigate transboundary issues, and recommend solutions with full input from both countries. In 2014 and 2015, Great Lakes Waterkeepers advocated for passage of several resolutions and bills in the U. S. Congress that would authorize IJC involvement in the repository issue, but those efforts have stalled. Meanwhile, over 184 resolutions against the repository, several of them spearheaded or supported by local Waterkeepers, have been passed by local governments in both countries.

Minister McKenna had promised a decision on the project by March 1, 2016, but after reviewing the environmental assessment submitted by a joint review panel of the Canadian government, she has asked for additional technical studies and information on potential environmental effects. This delay bolsters the stance of Great Lakes Waterkeepers and residents that the environmental assessment for this project, over four years in the making, did not sufficiently consider the threat to the lakes, which contain 20 percent of the planet's fresh surface water. It also underscores our concern that no alternate sites were considered or assessed by the Canadian government. Protecting the Great Lakes requires continued cooperation and good faith between the U.S. and Canada, which should result in a denial of this proposal and expand concern and conversation about nuclear waste.

CHERYL NENN,
MILWAUKEE RIVERKEEPER

PHOTOS COURTESY OF WERRIBEE RIVERKEEPER

REPORT CALLS FOR AID TO MELBOURNE'S "BACKBONE" RIVER

The Werribee River, in southeastern Australia, has been a vital part of life in Melbourne since before European settlement. It was a place of great significance for aboriginal people; the name Werribee is an aboriginal word meaning "backbone" or "spine." But these days, that backbone is showing signs of wear and tear.

Now, a first-of-its-kind report, "The Health of the Werribee River," highlights the present poor state of the 68-mile-long river from the Diversion Weir in the town of Werribee downstream to its estuary, and offers a plan on how to improve it. The report was produced by the City of Windham, one of nearly 30 municipalities that make up metropolitan Melbourne, largely as the result of the Werribee Riverkeeper's successful advocacy. John Forrester, the Werribee Riverkeeper, is a member of Wyndham's Environment and Sustainability committee. Contributors include the Wyndham Department of Environment, Land, Water and Planning, Melbourne Water, Southern Rural Water, Arthur Rylah Institute, Monash University and the Werribee River Association, the parent organization of Werribee Riverkeeper.

Among the concerns raised by the report are biodiversity levels, water quality – ranging from fair in the upper reaches to very poor in the lower reaches – declining platypus numbers, algae blooms, nutrient levels, decreasing monthly water volume, and a staggering 50,000 pieces of litter.

"The report found that in recent years, 90 percent of the river's water has been used for irrigation and other water supplies," said Forrester. "That has left only 10 percent of water that actually flows into Port Phillip Bay. So the 10 percent has to meet environmental and recreational needs."

The report's recommendations include: advocating that the relevant government agencies increase water allocations, create additional water-quality monitoring sites, and hold a forum on the future of the Werribee River to strengthen collaboration between stakeholders, municipalities, water authorities, agricultural interests, government departments, community groups and universities. It also calls for the placement of floating litter traps, auditing stormwater drains to ascertain the efficiency of the traps and nutrient reduction, and increased community education about new litter and waste strategies.

"We look forward to working with our partners to enact the recommendations outlined in the report and improving the quality of the Werribee River," Forrester said.

ABOVE, THE WERRIBEE RIVERKEEPER'S CAR FORDS A SHALLOW SECTION OF THE WERRIBEE RIVER; LEFT, TOP AND BOTTOM, WERRIBEE RIVERKEEPER JOHN FORRESTER, FAR LEFT IN BOTH PHOTOS, WORKS TO EDUCATE GOVERNMENT OFFICIALS AND THE PUBLIC ABOUT THE POOR CONDITION OF THE WERRIBEE RIVER.

"THE REPORT FOUND THAT IN RECENT YEARS, 90 PERCENT OF THE RIVER'S WATER HAS BEEN USED FOR IRRIGATION AND OTHER WATER SUPPLIES. THAT HAS LEFT ONLY 10 PERCENT OF WATER THAT ACTUALLY FLOWS INTO PORT PHILLIP BAY. SO THE 10 PERCENT HAS TO MEET ENVIRONMENTAL AND RECREATIONAL NEEDS."

CAHABA RIVERKEEPER DAVID BUTLER, RIGHT, AND JUSTINN OVERTON, EXECUTIVE DIRECTOR OF COOSA RIVERKEEPER, CONDUCTED COLLABORATIVE SAMPLING OF EACH OTHER'S RIVER.

BEN MCCLAUGHLIN

FOR ALABAMA SWIMMERS, TWO RIVERKEEPERS ARE BETTER THAN ONE

In 2014, then-Cahaba Riverkeeper Myra Crawford and a small group of volunteers started water-quality testing on Alabama's Cahaba River to answer a frequently asked question about water safety: "Is it safe to swim here?" Along with David Butler, who became Riverkeeper in 2015, they discovered that several of the river's heavily used recreational areas were routinely polluted with E. coli, exceeding EPA standards. They shared their discovery with neighboring Coosa Riverkeeper Frank Chitwood, who began testing and made similar discoveries. Both organizations approached local media with their findings and received wide coverage of their sampling activities.

The organizations conducted collaborative sampling on each other's river in summer 2015, and will do so again during the 2016 swimming season, from early May to September. Coosa Riverkeeper Frank Chitwood has been a mentor to David Butler, working with him to present test-data on Cahaba's website and to implement a system to rapidly announce findings to the public. Both organizations will also be using the Swim Guide app developed by Lake Ontario Waterkeeper to keep the public informed of weekly results.

The Riverkeepers teamed up to apply successfully for a multi-year collaborative grant from a local community foundation, and this year Cahaba will join Coosa in benefiting from the technological services of IDEXX Laboratories, a company with advanced water-testing capability. They will now be better able to compare results.

The collaboration has also resulted in frequent meetings between the Riverkeepers and the executive directors of both organizations, Justinn Overton (Coosa Riverkeeper) and Myra Crawford (Cahaba Riverkeeper). "Working together has been energizing and exciting for both our organizations and it's bringing our collective work to a much broader audience," says Crawford.

Funding from the Community Foundation of Greater Birmingham has also fostered additional collaboration between Alabama's Black Warrior Riverkeeper and the Cahaba and Coosa Riverkeepers. The goal of the CFGB funds is to promote an even closer relationship between the three organizations' patrol programs and their work in the greater Birmingham area. The sampling collaboration was the first step toward this partnership, and the first major event for all three Riverkeepers was a highly successful fundraising brewfest in March. Black Warrior is also considering joining Cahaba and Coosa in the bacteriological sampling effort in 2017.

IN 2014, THEN-CAHABA RIVERKEEPER MYRA CRAWFORD AND A SMALL GROUP OF VOLUNTEERS STARTED WATER-QUALITY TESTING ON ALABAMA'S CAHABA RIVER TO ANSWER A FREQUENTLY ASKED QUESTION ABOUT WATER SAFETY: "IS IT SAFE TO SWIM HERE?"

VENTURA COASTKEEPER

VENTURA COASTKEEPER MATI WAIYA, FAR LEFT, WITH COASTKEEPER STAFF AND THE LEGAL TEAM THAT WON A COURT VICTORY AGAINST THE PROPOSAL FOR A MASSIVE HOUSING DEVELOPMENT BESIDE THE SANTA CLARA RIVER.

VENTURA COASTKEEPER WINS BIG FOR SOUTHERN CALIFORNIA RIVER AND NATIVE TRIBES

The California Supreme Court has ruled in favor of Ventura Coastkeeper to save the Santa Clara River. Since 2009, through one federal and three state lawsuits, Coastkeeper has fought the massive Newhall Ranch mega-development that would create a city of more than 60,000 people situated on nearly 12,000 acres along Southern California's last free-flowing river, the Santa Clara. In addition to its plans to channelize over six miles of the river and its tributaries and impart permanent impacts to nearly 48 acres of officially designated "waters of the United States," the project also threatens the California condor, the endangered Southern California steelhead and unarmored three-spined stickleback, local water supplies, and Chumash Native American cultural resources.

The Court's ruling upheld state statutes intended to curb global warming, prevent extinction of species, and allow for meaningful public and tribal participation in environmental-review processes. The Court said that the developer, Newhall Land & Farming Co., failed to substantiate its claim that the development would not significantly increase greenhouse gas-emissions from transportation activities, a major cause of climate change.

"This is a dose of medicine for a river and its species that are suffering," said Ventura Coastkeeper Mati Waiya, who is also the executive director of the Wishtoyo Chumash Foundation. "We did our part for climate change, native and endangered species, and the right for California tribes and the public to participate in California's environmental-review process. Our ancestors are having a celebration ceremony on the river this very moment. With more work and good government, it will hopefully continue for a long time to come."

Ventura Coastkeeper and its partners still have some heavy lifting ahead. Up next is briefing the case, involving the following acts, the federal Endangered Species Act, National Environmental Protection Act, Clean Water Act and National Historic Preservation Act, before the 9th Circuit Court of Appeals, and fighting to ensure the remand of the Supreme Court cases results in an adequate environmental review that prevents adverse impacts.

JASON WEINER,
GENERAL COUNSEL,
VENTURA COASTKEEPER

PHOTOS COURTESY OF MATANZAS RIVERKEEPER

END OF OFFSHORE BLASTING: AN ANSWER TO ST. AUGUSTINE'S PRAYERS

The Matanzas River, a small coastal estuary in St. Augustine, Florida, is connected to the Atlantic Ocean at both ends. It begins at St. Augustine Inlet, just east of the city, and ends at the Matanzas Inlet, one of the last natural inlets on the East Coast. And whatever happens in the nearshore coastal waters has a direct impact on the health of the Matanzas watershed.

So, President Obama's announcement that the Atlantic Coast had been removed from the government's Draft Leasing Plan for offshore oil and gas was good news for the Matanzas and for communities all along the East Coast.

Since its inception in 2013, Matanzas Riverkeeper had been involved in the struggle against seismic blasting and Atlantic drilling, working with the City of St. Augustine, St. Augustine Beach and St. Johns County to pass some of the first local-government resolutions against these practices.

Matanzas Riverkeeper organized a demonstration in St. Augustine against seismic blasting in the spring of 2014, and worked with the city's Environmental Youth Council to organize a "March for Ocean Justice" in early 2015. Subsequently, St. Augustine, St. Augustine Beach and St. Johns County all passed resolutions opposing seismic testing off the coastline.

Matanzas Riverkeeper also worked with Waterkeeper Alliance, other Atlantic Coast Waterkeepers and the international environmental organization Oceana to build opposition to offshore drilling and seismic blasting, informed by the knowledge that unless most fossil fuel remains in the ground we cannot avoid catastrophic climate change.

But although President Obama's announcement was an affirmation of the power of grassroots organizing, our happiness was tempered by the fact that more leasing may occur in the Gulf of Mexico and the Arctic. The expansion of any offshore drilling is unacceptable, and Matanzas Riverkeeper is committed to working with our fellow Waterkeepers to make sure there will be no new offshore drilling. Our struggle continues.

NEIL ARMINGEON,
MATANZAS RIVERKEEPER

THE HUDSON BRIDGE OF DEATH

NEW YORK'S MASSIVE BRIDGE PROJECT IS KILLING ENDANGERED STURGEON – ICON OF THE HUDSON AND SYMBOL FOR WATERKEEPERS AROUND THE GLOBE – AND RIVERKEEPER'S CAPTAIN JOHN LIPSCOMB IS DEMANDING ACTION TO PROTECT THEM.

BY BEN GOLDFARB

HUDSON'S GETO

THE CARCASSES BEGAN WASHING UP along the Hudson River in the spring of 2012 — one in February, one in March, one in May, then five in June. Concerning, yes, but maybe it was just a blip, an anomaly. Yet the carnage soon got worse — much worse. In 2013, twenty-five bodies, many mangled, appeared on the river. In 2014, the number was 43. In 2015, it was 48. Between 2007 and 2011, just 13 sturgeon had been reported dead in the Hudson River. In the four years after that, the number spiked to 124. This was no random fluctuation. It was a trend.

The bodies belonged to Atlantic and shortnose sturgeon, endangered fish that root for invertebrate prey in the river's silty bottom.

Sturgeon are among earth's oldest animals, swimming fossils that have plied the planet's waterways since before the age of Tyrannosaurus rex. Atlantic sturgeon are the strangest and grandest of the Hudson's fauna. They live up to 60 years, are bedecked in bony plates, and can grow longer than a man is tall – more than twice the size of their shortnose cousins. Each spring they migrate into the Hudson estuary from the ocean to spawn. But they have been overmatched against human industry. More than a century of harvesting has reduced the fish – once known as "Albany beef" because it was so abundant – to a fraction of its former glory. Since 2012, Atlantic sturgeon up and down the eastern seaboard have been listed under the Endangered Species Act, and a 2007 survey,

the most recent peer-reviewed study, estimated that just 870 spawning-age adults remain in the Hudson River Atlantic sturgeon population. Only around a third of those enter the river in any given year to spawn.

Every fish, then, is precious, which is what made the sudden rash of corpses so troubling. Many of the dead sturgeon found between 2012 and 2015 showed signs of mutilation, caused by nasty collisions with boat propellers. New York Department of Environmental Conservation logbooks tell the gruesome story: "large gash along belly"; "caudal severed"; "head missing." Something, clearly, was making sturgeon more susceptible to boat strikes – and the largest construction project in North America seemed like the obvious culprit.

JUST BEFORE nightfall on a damp April evening, John Lipscomb, captain of the Riverkeeper's beautiful 36-foot, wooden-hulled patrol boat, the R. Ian Fletcher, motors out of Westerly Marina in Ossining and cruises downriver toward cloud-obscured New York City. Lipscomb, tall and bespectacled, combines an environmentalist's fervor with the wry humor of a lifelong mariner. He grew up on the Hudson and managed a boatyard before he began patrolling for Riverkeeper. During the summer Lipscomb has the patrol boat out 21 days a month, testing water samples for fecal contamination. In his years on the water, he's learned the Hudson's many moods and forms; the serene gray-scale of dusk is among his favorites.

"The houses melt away, the factories melt away, and it's like a time machine," he says, smiling blissfully as he eases the boat past an osprey nest perched atop a buoy. "You go back in time and scrub away all the human stuff."

Soon, however, the human stuff becomes blatantly evident. Massive, half-finished concrete pilings rise out of the gloom, towering cranes appear atop barges, and ant-sized workers scramble over skeletal scaffolds. This is the new Tappan Zee Bridge, the largest bridge project in New York State history, which for three years John Lipscomb has been watchdogging with unwavering tenacity.

The existing three-mile Tappan Zee span, connecting Rockland and Westchester Counties, was built in 1955. In 2011, soon after taking office, Gov. Andrew Cuomo identified bridge replacement as a flagship infrastructure project for his administration. Construction began the following year. The new bridge's website trumpets that it is "proof that the great state of New York can do amazing things."

THIS IS THE NEW TAPPAN ZEE BRIDGE, THE LARGEST SUCH PROJECT IN NEW YORK STATE HISTORY, WHICH FOR THREE YEARS JOHN LIPSCOMB HAS BEEN WATCHDOGGING WITH UNWAVERING TENACITY.

From the start, however, Lipscomb and many others were less than convinced of the project's virtues. Critics, Lipscomb included, advocated for a tunnel, whose construction would minimally disrupt aquatic life and free this stretch of the Hudson – an area so wide Dutch settlers called it a "sea" – from any human structures. But political momentum made a new bridge a fait accompli, and in March 2013, Riverkeeper signed a deal with New York State. The agreement enabled the organization to monitor the project's permits, and established funding to compensate the river for the harm construction would inflict. Lipscomb turned his focus from fighting the project to scrutinizing its impacts.

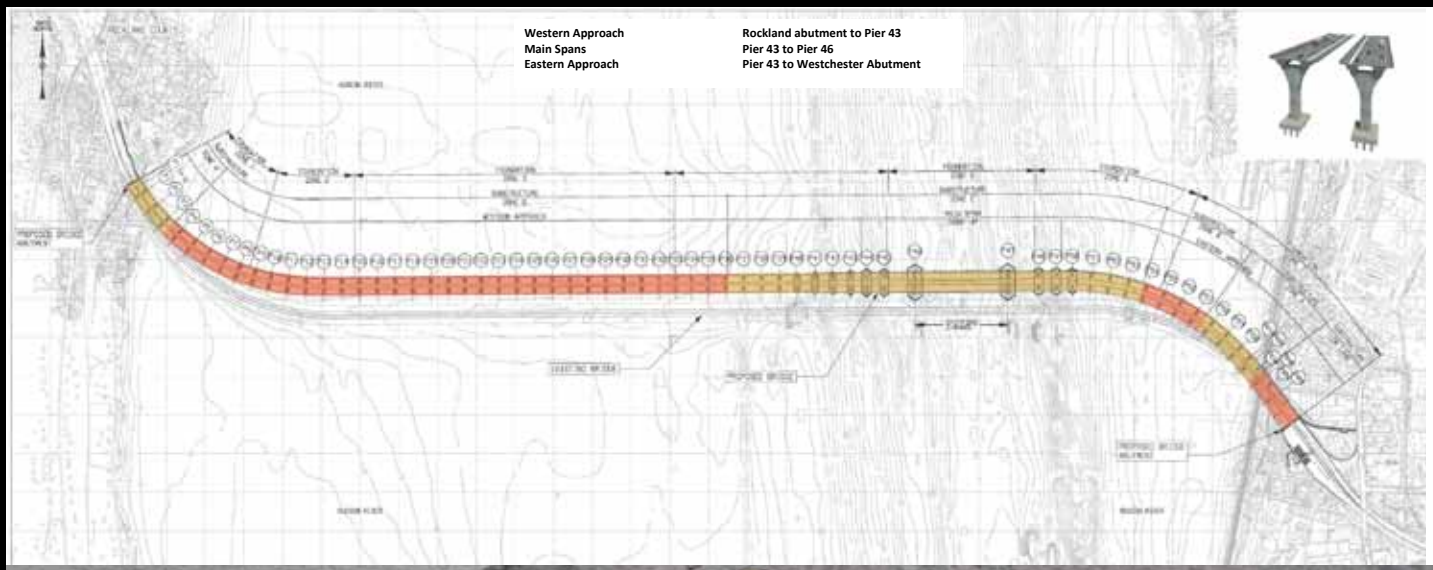
Immediately he noticed problems. To carve out a wide channel for deep-draft construction vessels, the builders deployed dredges to scoop up bucket-loads of sediment and dump it into barges, disrupting almost a million cubic yards of rich benthic habitat. The bridge's permit required these dredge buckets to move continuously, with no delay, so that the muck, tainted with PCBs and other contaminants, would not spill back into the river. But Lipscomb discovered that crane-operators were pausing mid-swing to allow turbid water to drip from the dredges. In the fall of 2013, after discussions with the state failed to stop the violations, Riverkeeper notified New York of its intent to sue. Immediately, dredging violations ceased. But the project's troubles were just beginning.

AS LIPSCOMB approaches the titanic structure on this foggy evening, the construction site buzzes with activity. A fleet of boats, ranging from sleek aluminum skiffs to chugging tugs, orbits the site like small moons. Indecipherable chatter crackles from the radio of a crew-transporter cutting across the patrol boat's wake. These boats, Lipscomb says, make thousands of trips across the river to move men and equipment for the bridge project. The propellers of the high-speed crew boats and tugs spin dangerously close to sturgeon as the fish feed along the bottom or move to spawning areas. Much of the river beneath the bridge is as shallow as eight feet. The exposed propellers present an obvious hazard to the ancient fish.

"You don't have to have a Ph.D. in marine biology to figure this stuff out," says the captain as the Fletcher passes beneath the bridge's underbelly.

Despite the commonsense connection, the state claimed that increased reports of dead sturgeon could be explained by recent research suggesting that juvenile sturgeon are growing

OPPOSITE PAGE, THE TOWERS OF THE NEW TAPPAN ZEE BRIDGE, PHOTOGRAPHED IN APRIL 2016, RISE ALONGSIDE THE EXISTING BRIDGE. BELOW LEFT, DEAD STURGEON FOUND ALONG THE HUDSON RIVER IN PEEKSKILL, N.Y. IN AUGUST 2015. RIGHT, DEAD STURGEON FOUND ALONG THE HUDSON IN UPPER NYACK, N.Y. IN APRIL 2013.



TOP, PRELIMINARY PLANS FOR THE NEW TAPPAN ZEE BRIDGE, WHICH WILL CLOSELY FOLLOW THE ROUTE OF THE FORMER BRIDGE. ABOVE, SINCE 2012, ATLANTIC STURGEON UP AND DOWN THE EASTERN SEABOARD HAVE BEEN LISTED UNDER THE ENDANGERED SPECIES ACT, AND A RECENT SURVEY ESTIMATED THAT JUST 870 SPAWNING-AGE ADULTS REMAIN IN THE HUDSON RIVER ATLANTIC STURGEON POPULATION. EVERY FISH THEN IS PRECIOUS.

more abundant in the Hudson. Another hypothesis is that people who advocate for the river became more sensitive to the Atlantic sturgeon's plight after it was listed as endangered in 2012. "While we agree that the number of reports has increased over the last few years," one official wrote, "it also seems that the level of interest and effort to report these sightings has increased."

Lipscomb has no patience with these demurrers. "The claim that more juvenile fish proves that there are more spawning age adults isn't science, it's propaganda. It could be, for example, that there are more juvenile sturgeon because there are fewer predators – a distinct possibility in a river out of balance."

He dismisses the "more eyes on the river" claim as equally specious, on the grounds that the public has long been alert to ecological disturbance. In 2002, for instance, when rapidly warming waters caused a massive die-off of white perch, Riverkeeper's phone "rang off the hook."

"Don't tell me there hasn't always been robust reporting," he says. "That shows an ignorance and a disrespect of the public's concern for this river."

The project's proponents have also been quick to point out that dead sturgeon have been found from New York Harbor to Troy, more than 100 miles from the bridge. But Lipscomb is equally unimpressed by that argument.

"When you hit a deer with your car and the deer is injured," he asks, "does it stand by the side of the road or does it run like hell into the woods? Sturgeon are tough — they don't die right away, they swim."

Moreover, Riverkeeper has determined that the center point of all the reported dead fish is less than a mile from the bridge. Despite this telling evidence, Lipscomb admits that bridge construction probably isn't responsible for all 124 slain

sturgeon. But even if only a quarter were whacked by project boats, the project would still have far exceeded its federal allowance to kill two Atlantic sturgeon and two shortnose – and none from vessel strikes.

"Whether it's 10 fish or 20 fish or 30 fish, this is clearly a violation," Lipcomb says, his voice rising in righteous indignation.

IN DECEMBER 2015, Hudson Riverkeeper filed a notice of intent to sue the New York State Thruway Authority and its contractor on the Tappan Zee project. Not only were propellers killing sturgeon, it stated, but boats were also illegally stirring up contaminated sediment farther than 500 feet from construction activity. Sediment in the area of the bridge contains mercury, copper, lead and other contaminants. Myriad aerial photographs from volunteer pilots over the years reveal snaking plumes of muck.

"Governor Cuomo promised that this would be the most environmentally sensitive infrastructure project in New York's history," says Riverkeeper President Paul Gallay. "The state has not come anywhere close to living up to that promise."

Despite ample evidence that project vessels are killing sturgeon, state and federal agencies have not added any new protections for the fish. Although the National Marine Fisheries Service acknowledges that project vessels are killing sturgeon, the agency has simply increased the number of fish that the project is allowed to kill.

"Over half a year of review by the Fisheries Service, and it appears the federal agency that's mandated to use the best available science to protect the endangered species has in fact done everything it can to protect the project," Lipscomb says. "I couldn't be more discouraged. I actually had hope that the federal agency would do the right thing."

The state, for its part, continues to deny any connection between the bridge project and even a single sturgeon mortality. At press time, Riverkeeper continues to pursue settlement and the option of a lawsuit remains open.

Lipscomb already has suggestions about how the state can meet its obligations. His first proposed change is a simple one: a speed limit. The original biological opinion from the National Marine Fisheries Service assumed that all boats would travel below 6 knots near the bridge, but no speed limits were enforced for project vessels. Lipscomb has documented boats zipping along at up to 35 knots

"If a school zone is posted at 15 mph and you have kids in the neighborhood, and you go out every morning and see a guy in a red pickup going 50, you bust him," he says. "This is the same deal."

He also wants metal cages around propellers on tugs and crew boats. This former boatyard-manager solicited a friend to scour yards in Maine and photograph vessels with cages, which are employed to avoid entanglement with lobster-traps. He also called naval architects, who directed him to vessels in Florida, Georgia and the Amazon that use similar contraptions. The Georgia example was especially telling: After a fleet of Navy tugboats that had been killing manatees was fitted with propeller cages, the manatee deaths ceased. "For a service like the Navy to be more responsive than the New York State Thruway Authority is really sad," Lipscomb says.

Still, speed limits and protective cages won't bring fish back to life, nor will they prevent the illegal disturbance of sediment. In addition to operational changes, therefore, Riverkeeper also seeks compensation to the river, perhaps in the form of new sturgeon population studies, invasive species control, or the removal of dams from the Hudson's tributaries. Just $10 million of the Tappan Zee's $4 billion budget is now devoted to environmental mitigation – a pittance, Lipscomb insists, compared to funding for other large projects.

In the decades since 1966, the year a journalist and fly-fisherman named Bob Boyle founded the Hudson River Fishermen's Association, the progenitor of Hudson Riverkeeper and Waterkeeper Alliance, Riverkeeper and its predecessors have never had to deal with a construction project as massive as the new Tappan Zee. But over that half-century they have defeated an infamous hydroelectric facility proposed for Storm King Mountain, stymied construction of a new West Side highway that would have wiped out striped-bass habitat, and hounded a never-ending succession of industrial polluters. Defending sturgeon from propellers wasn't how Riverkeeper wanted to celebrate its fiftieth anniversary, yet it's also a fitting way to mark the occasion.

"Riverkeeper has spent 50 years trying to provide for a healthy, thriving aquatic ecosystem in the Hudson River," Gallay says. "The damage that the Tappan Zee Bridge has been doing to an iconic species is the kind of thing we've always fought, and that we'll continue to fight. We've made too much progress to turn back now."

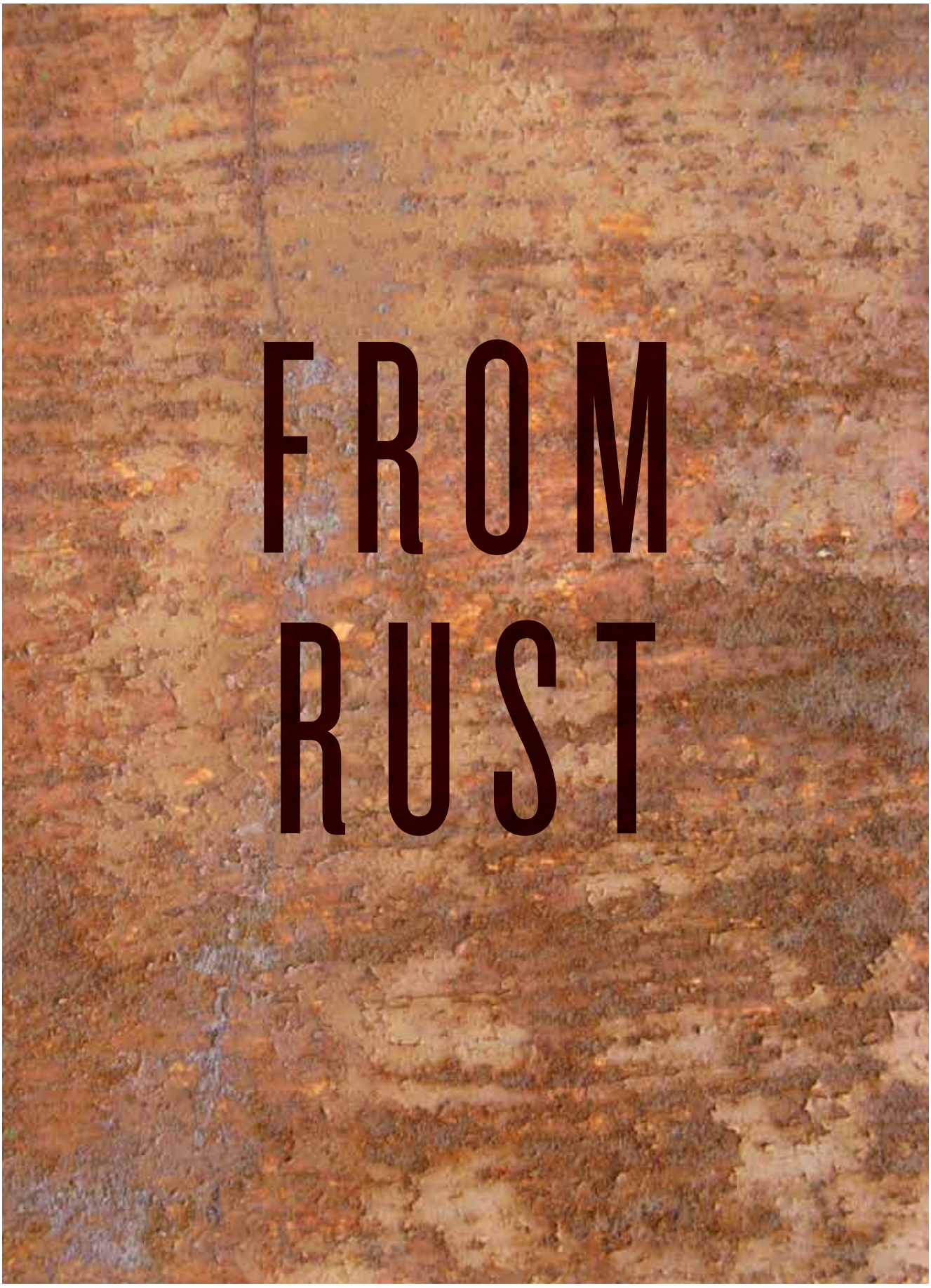
WHEREVER THAT FIGHT leads, it's a safe bet that Paul Gallay and John Lipscomb will be on the front lines. After the recent tour of the construction site, Lipscomb cruises back toward the marina, a light drizzle now spattering the R. Ian Fletcher's windshield. The boat bounces along at a leisurely 6 knots, and Lipscomb listens to the steady thrum of the engine, his ears attuned to the slightest change in pitch.

"Any sound that doesn't belong on a boat is like fingernails on a chalkboard," he says.

It's the same way the captain watches and listens to the Hudson River ecosystem —hypervigilant, alert to change, mindful not only of the river's outward appearance but of its innermost conditions.

"Even though I grew up here, I didn't have an appreciation for the river," he says. "I treated it the way most people do: as a surface that you swim and sail on. But the river you can see is not the real river." And what's the real river? It's the sturgeon, the shad, the striped bass, the bountiful hidden life migrating and feeding and spawning beneath the opaque tide. "I've come to appreciate them the same as if I were on a safari," he says. "This is a wilderness that runs right through the heart of New York City and our state." W

Ben Goldfarb is a correspondent for High Country News. His writing has also appeared in Scientific American, Earth Island Journal, and Orion.


FROM
RUST

BUFFALO NIAGARA RIVERKEEPER IS TRANSFORMING ITS REGION'S WATERWAYS FROM INDUSTRIAL CASUALTIES TO CATALYSTS FOR REBIRTH.

TO BLUE

BY DEVON DAMS-O'CONNOR

Buffalo, New York goes by two nicknames: "The Queen City of the Lakes," for its historical importance as a Great Lakes industrial hub; and "The City of Good Neighbors," given for the way her people band together without fail to help each other do what needs to be done. When it comes to the region's rivers and lakes, it was the first moniker's origins that caused the waterways to become some of the most polluted in the country. But it is the second reputation, led by non-profit Buffalo Niagara Riverkeeper, that is at the crux of restoring and reviving them.

The city sits at the confluence of the Niagara River, Lake Erie, the Buffalo River, and the original terminus of the Erie Canal. Its outskirts and shores are crisscrossed with rail lines, and by the mid-1800s, Buffalo had become a key portal for the east-to-west movement of people and products. The location, combined with ready access to fresh water and inexpensive hydropower from nearby Niagara Falls, made Buffalo a key player in the country's westward expansion, and later, in its war efforts as steel, chemicals, and grain were processed and shipped from the region.

When industry began to wane in the years following World War II, residents started to realize just how dirty their water had become. By then, decades of industrial and municipal wastewater discharges, neither governed by laws designed to protect natural resources, had already taken a heavy toll on Western New York's waterways. As early as the 1940s, local advocates like Stanley Spisiak, known as "Mr. Buffalo River," were instrumental in getting the state and federal governments to pay attention to the plight facing rust-belt waterways. In 1965, he hosted New York U.S. Senator Robert F. Kennedy on a visit to the Buffalo River, which the senator deemed "shocking" and a "danger to local water supplies." In 1966, Spisiak hosted President Lyndon Johnson to tour the area's former industrial arteries by boat, and after being shown a bucket of Buffalo River sludge, the president returned to Washington and signed an executive order halting the dumping of dredge spoils into Lake Erie. But in 1968 the rainbow-slicked surface of the Buffalo River caught fire and a lagging economy and population exodus following Buffalo's steel plant closures put environmental concerns on the back burner while the city tried to recover, leaving the rivers and lake in a state of neglect.

When, in 1989, the Buffalo River and Niagara River were named federal Areas of Concern (AOC) and two of the 43 most toxic Great Lakes hotspots a handful of community members rallied together to form the Friends of the Buffalo River, which would later become Buffalo Niagara Riverkeeper. Founders included a professor of architecture and planning, an environmental attorney, grassroots activists, citizens and elected officials, and together they drew up a plan to hold the state and federal governments accountable for river remediation plans

EILEEN EUBOL

KAYAKERS PADDLE PAST OLD GRAIN SILOS ALONG THE BUFFALO RIVER.

BREAKING DOWN BARRIERS WAS THE COMMON THEME OF OUR WORK FROM THE BEGINNING. THE UNIQUE ROLE WE TOOK EARLY ON WAS TO BOTH SERVE AS AN ADVOCATE AND COLLABORATOR, DEPENDING ON THE SITUATION.

that had stagnated.

The problems they faced were monumental. Tests revealed over 100 chemical constituents present in Buffalo River sediment. The New York State Department of Health advised children under 15 and women under 50 to avoid consuming fish caught in local waters. Abutting brownfields, habitat destruction, and limited public access were all commonplace in a region dominated by industrial abandonment. But the group remained steadfast in its mission to chip away at the industrial legacy clouding the Great Lakes city's future.

Over the next 25 years, Buffalo Niagara Riverkeeper would expand its focus to include the Niagara River and eastern Lake Erie; become the first non-profit organization in the Great Lakes Basin to be chosen by the U.S. Environmental Protection Agency (EPA) to coordinate and manage the implementation of a Remedial Action Plan; grow to include 25 staff members, a $5+ million budget, and over 40 programs; and gain the trust and support of the Western New York community.

From its inception, the lifeblood of Buffalo Niagara Riverkeeper's work has been its ability to engage its neighbors and connect public and private entities to get real work done. In the early '90s the group spent a lot of time convincing residents that clean water wasn't just an "environmentalist" issue, but one that benefitted everyone who drinks it and lives near it.

"Breaking down barriers was the common theme of our work from the beginning," says Buffalo Niagara Riverkeeper Executive Director Jill Spisiak Jedlicka (coincidentally, the grandniece of early river advocate Stanley Spisiak). "The unique role we took early on was to both serve as an advocate and collaborator, depending on the situation."

That ability has led Buffalo Niagara Riverkeeper to engage over 200 partners through its 25-year history, from local advocacy groups and public broadcasting stations to the Canadian government, U.S. agencies, and corporations with a global reach.

"We sometimes refer to ourselves as 'translators' because we have to be able to communicate with a broad range of constituents, including the U.S. Army Corps of Engineers, the EPA, state agencies, the scientific community, activists, the public…" says Jedlicka. "It sometimes means we partner and collaborate with organizations that don't always agree with each other, but that's what needs to happen to find the best means to the ends we're trying to achieve for our community."

A perfect example of aligning opposing interests is the nearly completed cleanup of the Buffalo River, a $100 million effort supported by the Great Lakes Restoration Initiative, spearheaded by the EPA and Army Corps, the New York State Dept. of Environmental Conservation, Honeywell, and Buffalo

JILL JEDLICKA

OVER 100

CHEMICAL CONSTITUENTS PRESENT IN BUFFALO RIVER SEDIMENT.

CHEAP HYDROPOWER FROM NIAGARA FALLS, ABOVE, MADE BUFFALO A KEY PLAYER IN THE COUNTRY'S WESTWARD EXPANSION.

Niagara Riverkeeper. As an industrial entity with operations on the riverbank, Honeywell has some liability in the waterway's health. Buffalo Niagara Waterkeeper considered a litigious solution, but instead chose to leverage policy tools and collaborate with the industrial manufacturer. Early on, Buffalo Niagara Riverkeeper received push back from other environmental groups who questioned the organization's integrity, but Jedlicka firmly believes the readiness to compromise was in the best interests of the river and the community in the long run.

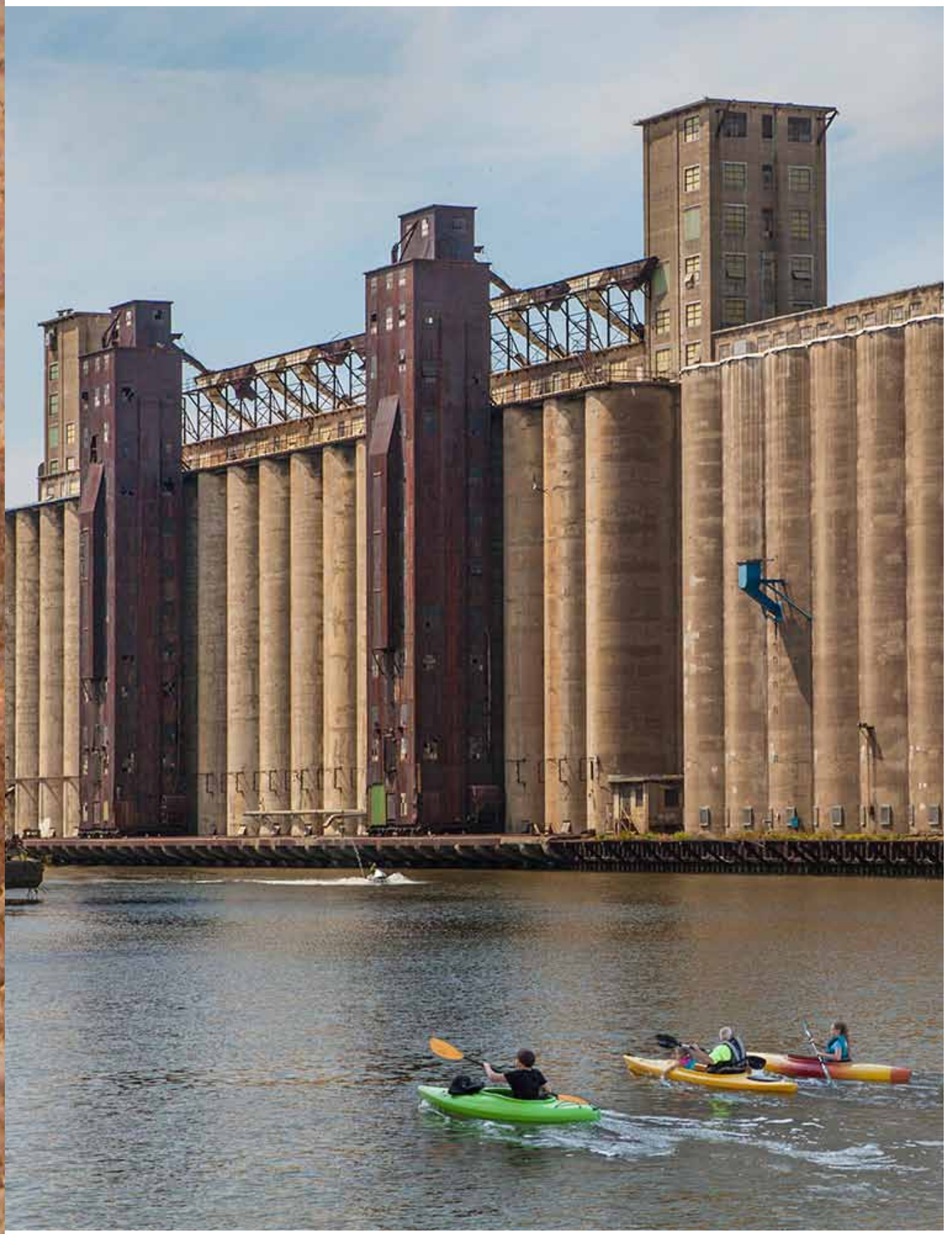
Another example of finding common ground to improve the current and future health of the region's waterways is the organization's work with the Buffalo Sewer Authority (BSA). In just seven years, Buffalo Niagara Riverkeeper went from presenting the BSA with its "Golden Toilet Award" for the sewer overflows plaguing the region for generations, to securing a $92 million commitment by the BSA that involves not only a marked increase in green infrastructure, but also a partnership with another local non-profit for workforce training to operate and maintain it.

"I don't think anyone in Buffalo has ever come up with a reason of why there is so much civic engagement in our community," says Jedlicka. "The civic culture of the city is that it just keeps drawing people in, and luring expatriates back home, to get involved. It works here, and it could work elsewhere, too."

Buffalo Niagara Riverkeeper hosts plenty of opportunities for neighbors to roll up their sleeves and help. There are watershed courses, public forums, kayak tours, rain barrel programs, environmental leadership training for disadvantaged teens, volunteer water quality monitoring, shoreline restoration, cleanups, and more.

"It all starts with community education and mobilization," Jedlicka says. "When you can get people demanding access to the waterways, coming out to public meetings, filing public comments, using social media, and generating news stories, you start to shift thinking. Elected officials, developers, and decision-makers are going to respond to what the people demand. As environmentalists and Waterkeepers, we have both a responsibility and an opportunity to drive civic engagement, and that's the beauty of what grassroots organizations can do."

Buffalo Niagara Riverkeeper's work has earned an audience beyond Western New York as well. In 2015 the organization received global recognition as the recipient of the International River Foundation's inaugural North American RiverPrize for excellence in river restoration and protection. In March, Jedlicka and members of the Healing Our Waters-Great Lakes Coalition traveled to Washington, D.C., where they met with several senior administration officials in the White House including the president's senior advisor



KAYAKERS PADDLE OUT OF MUTUAL RIVERFRONT PARK ALONG THE BUFFALO RIVER, ONE OF THE IMPROVEMENTS THAT HAS BROUGHT PEOPLE BACK TO THE REGION'S WATERWAYS. PHOTO CREDIT: WNED WBFO

BUFFALO NIAGARA RIVERKEEPER

> THE CIVIC CULTURE OF THE CITY IS THAT IT JUST KEEPS DRAWING PEOPLE IN, AND LURING EXPATRIATES BACK HOME, TO GET INVOLVED. IT WORKS HERE, AND IT COULD WORK ELSEWHERE, TOO.

COMMUNITY MEMBERS GATHER FOR THE KAYAKING FESTIVAL "PADDLES UP" ON GRAND ISLAND, AN ANNUAL WATER-BASED EVENT SPONSORED BY BUFFALO NIAGARA RIVERKEEPER. PHOTO CREDIT: BUFFALO NIAGARA RIVERKEEPER

on environmental quality. Jedlicka was invited to share the success stories surrounding the Buffalo River and discuss what kind of policy actions are needed to continue the organization's work.

But perhaps more importantly, the results of the organization's efforts are most palpable at home. The shift in public focus toward water quality has begun to refurbish Buffalo's rust-belt waterfront with community-driven investment in ecotourism, culture, recreation, and alternative energy. New waterfront developments like Canalside, Riverfest Park, and Solar City – often cited as some of the most convincing evidence of the city's rebirth – are possible because the water is cleaner; the Buffalo River is on a trajectory to be delisted as a federal AOC by 2019.

"Buffalo Niagara Riverkeeper has had a tremendous impact on the Great Lakes region's waterways," says Senator Charles E. Schumer, United States Senator for New York. "Through their vision and leadership, the Buffalo River restoration is driving the region's waterfront revitalization. Their advocacy and action is essential to protecting the health of our Great Lakes."

At the heart of Buffalo's new water based economy is a Buffalo River now lined with green spaces, performance venues, kayak launches, historical markers, and bike lanes where demolition debris, abandoned structures, and trash spilled over the banks just a decade ago. In total, close to $170 million in private investment is at work along the banks of the Buffalo River. These attractions are bringing more people than ever down to the waterfront, creating throngs of stewards with stronger connections to their waterways. A movement to dismantle a highway that has been a barrier between the community and the Niagara River promises to do the same, and this model can continue to play out throughout the 1,400 square mile watershed.

"Twenty-five years of advocacy and restoration work has helped re-connect the region to its Great Lakes heritage, and our cities and towns are now re-branding themselves around the importance of fresh water," says Jedlicka. "How many communities get to re-invent themselves like that? This is by far Buffalo Niagara Riverkeeper's greatest accomplishment." W

Devon Dams-O'Connor is a freelance journalist whose work focuses on farming, food, land, outdoor recreation, big ideas, and the people who make the stories happen. She lives and works in Buffalo, New York.

To learn more about the work of Buffalo Niagara Riverkeeper, visit www.bnriverkeeper.org.

SENEGAL'S WATERKEEPERS LEAD A SENDOFF FOR COAL-FIRED SENDOU

A WATERKEEPER-LED CAMPAIGN TO HALT CONSTRUCTION OF SENEGAL'S LAST PROPOSED COAL-FIRED PLANT WOULD KEEP THE COUNTRY'S DEVELOPMENT COAL-FREE.

by: Hannah Petersen and Peter Harrison
photos: Peter Harrison

Last November, as the world prepared for the historic UN meeting on climate change in Paris, the Conference of the Parties (COP21), nearly 2,000 people gathered in the traditional fishing village of Bargny, Senegal with a mission of their own. Led by Hann Baykeeper Mbacke Seck, Africa's first Waterkeeper, and Bargny Coast Waterkeeper Fadel Wade, they assembled from five Senegalese villages, each of them facing the threat of proposed coal-fired power plants, to march united under one message: "NON au charbon," or "NO to coal."

Bargny is 25 kilometers down Senegal's Atlantic coast from Dakar. It is a community in which anthropogenic climate change, largely attributed to carbon emissions, has already wreaked havoc. One block away from the street where the march was held, piles of rubble sat on the beach, remnants of centuries-old concrete dwellings demolished when an unprecedented storm surge, driven by Hurricane Fred last spring, pummeled the village with giant ocean waves. Powerful storms like Fred, caused by rising ocean temperatures and other climatic changes, have extended further east than ever before, threatening many villages along the west coast of Africa. And these storms are predicted to increase in intensity and frequency. The Atlantic Ocean, the foundation of life and tradition in Bargny, is now one of the greatest threats to its future.

Senegal, along with many other developing countries, faces an unprecedented dilemma. On one hand, reliable access to electricity is critical to lifting the country's population of 13 million out of poverty. On the other hand, one of the "cheapest" sources of electricity, coal-fired power plants, not only introduces new sources of deadly air and water pollution to surrounding communities, but also exacerbates the climate change that disproportionately affects people in developing countries, who are often the most vulnerable to natural disasters. Former United Nations Secretary-General Kofi Annan has said of Africa that "no region has done less to contribute to the climate

OPPOSITE PAGE, THE STORMS THAT STRUCK THE SENEGALESE COAST IN 2014 CAUSED UNPRECEDENTED DAMAGE. A LOCAL FISHERMAN IN THE VILLAGE OF BARGNY DESCRIBES THE STORM'S POWER, WITH HIS RE-BUILT FISHING BOAT IN THE BACKGROUND.

LEFT: THE VIBRANT CROWD OF CLIMATE MARCHERS GREW AS THE PROCESSION ADVANCED THROUGH THE LABRYNTHINE STREETS OF BARGNY. RIGHT, BARGNY COAST WATERKEEPER FADEL WADE (RIGHT) AND HANN BAYKEEPER MBACKE SECK (CENTER) CONSULT WITH A RELIGIOUS LEADER FROM BARGNY BEFORE THE MARCH FOR THE CLIMATE. ORGANIZING THE MARCH OCCURRED LARGELY THROUGH FACE-TO-FACE MEETINGS WITH VILLAGE LEADERS WHO THEN CONVINCED MEMBERS OF THEIR COMMUNITIES TO MAKE THE TRIP TO BARGNY.

crisis, but no region will pay a higher price for failure to tackle it" – a statement that points to Senegal's struggle to achieve both economic development and protection of its environment. For the participants in the Bargny March for the Climate, burning more coal cannot be part of the solution to this complex problem.

Currently Senegal has no operational coal-fired power plants. But less than 500 meters from the village of Bargny stands the partially built 125-megawatt Sendou power station, which would be fueled with coal. In 2008, a Swedish-led consortium backed by the Senegalese government began building this facility. Sendou is one of several new proposed coal-burning facilities that would, in addition to bellowing countless tons of climate-changing carbon dioxide out its smokestacks, generate huge quantities of coal ash laden with dozens of toxic chemicals from arsenic to zirconium that would likely pollute the groundwater beneath the village as well as surrounding wetlands, streams, and the ocean itself. Plans for the plant, moreover, call for a once-through cooling-water system, which would kill millions of marine organisms by sucking up enormous amounts

Vietnam Makes U-Turn On Road To More Coal

On January 20, Bloomberg News carried this unexpected headline: "Vietnam Premier Orders Halt to New Coal-Fired Power Plants." It meant that the country, which had planned to build more than 50 coal plants, had made an abrupt U-turn on the coal-paved road to climate hell. And Waterkeeper Alliance (WKA) had helped mount the roadblock.

WKA and partners in Vietnam had been working together since 2014 to demonstrate how coal harms water, wildlife and people. July 28, 2015 proved a pivotal moment for the partnership. On that day, a huge rainfall caused multiple coal-waste ponds to break, flooding homes, roads and businesses with black water and sludge more than a meter high. Villagers fleeing their homes had to wade through a tidal wave of contamination. Seventeen lost their lives.

Millions of gallons of polluted water then flowed into Ha Long Bay. Famous in Vietnamese legend as a habitat of dragons and a designated world-heritage site for its diversity of fauna and flora, the bay's health and survival as a global tourist destination was badly degraded by the spill and remains severely threatened by the 5,736 hectares of open-pit coal mines and three coal-fired power plants that surround it.

As soon as WKA staff in the U.S. were alerted by our partners of the disaster, we activated our rapid response protocol and quickly issued two press releases in partnership with Harvard University within 72 hours, which is the time of greatest opportunity to attract widespread attention after a disaster, and called on the Vietnam government to cut down its coal use.

In October, we followed up with an even more powerful call to action at a press conference in Hanoi with our partners, Harvard University, Greenpeace, and two Vietnamese NGOs, GreenID and the Centre for Sustainable Development of Water

VIRTUALLY THE ENTIRE ECONOMY OF COASTAL BARGNY IS BASED ON THE MARINE LIFE THAT IS THREATENED BY A WARMING CLIMATE.

of seawater, then spit it out at temperatures approaching or exceeding 100° F.

Other communities in Senegal are facing a similar predicament. To the north of Dakar is the town of Mboro, whose traditional economy has relied on mangroves and the sea-life that mangroves attract. Destructive floods, occurring yearly, have made it necessary to shift mangrove farms inland. Mangrove wood serves as a valuable fuel and material for building houses, but the Mangroves function most importantly as habitat for sea life, including oysters, that have allowed Mboro and other coastal villages to thrive. As in Bargny, the effects of climate change are disrupting ecosystems and daily life in Mboro. Yet the Senegalese power authorities and other international investors have proposed another coal-fired power plant for Mboro. In response, villagers travelled over 100 kilometers to march in Bargny, as did residents from three other villages facing similar proposed coal projects.

The Bargny March for the Climate was both an expression of local resistance and a call for global action. The Waterkeepers and other community groups that organized the March penned the "Declaration of Bargny," an appeal to Senegal's President Macky Sall, urging him to take a stand against new coal projects at COP 21 in Paris. These communities, facing the direst consequences of climate change, appealed for permanent cancellation of plans to build the Sendou plant and other proposed power plants in Senegal, and for a national shift to focus on renewable sources of energy. The Declaration also described the threats that coal poses to water resources, agriculture, fish and other wildlife, public health and the economy.

Virtually the entire economy of coastal Bargny is based on the marine life that is threatened by a warming climate. In an overview of the risks facing Senegal, the World Bank predicted that temperatures in the region will increase between 1.1 and 3.1 degrees Celsius by 2060, and it noted that "sea level could rise by up to one meter by the end of the century, and this would put at least 110,000 people, mostly in southern Senegal in the Cape Verde region, at risk of coastal flooding." Unprecedented rainfall patterns, more aggressive storms and sea-level changes would also cause erosion of the coast.

According to Daouda "Larry" Gueye, executive director of Bargny Coast Waterkeeper, the encroachment of the sea has made Bargny one of the four most endangered areas in Senegal. The havoc wrought by Hurricane Fred made climate refugees of many Bargny and Hann Bay families who lost their homes. In response to the recent displacements, Bargny's local government granted tracts of land further inland large enough to settle the 1,433 families whose homes were destroyed or who are threatened by recurring storm-surges.

But it is a bitter irony that some of the land granted to construct the coal plant overlaps with the land promised to those whose homes were destroyed. A coalition of public-interest groups has filed a legal challenge accusing the Sendou's developers of ignoring a provision of Senegalese environmental law that prohibits the construction of industrial facilities within 500 meters of a dwelling. The groups accuse the developers of failing to identify the rightful owners of the land, as well as the people who inhabited it, before beginning construction and building a wall around the disputed area.

"Some had already started building their houses," said

Resources and Adaptation to Climate Change. "Coal-waste facilities are ticking time bombs if they are not properly constructed to withstand large rainfall events," said Donna Lisenby, the Alliance's campaign manager for clean and safe energy.

Dr. Aaron Bernstein, instructor in pediatrics at Harvard Medical School, added: "Floodwaters flowing from open-pit coal mines likely contain a slurry of toxic heavy metals, including arsenic, cadmium and lead, as well as other harmful substances. We also know from past research that the soils in this region of Vietnam may be contaminated with these same pollutants, which may be mobilized by floods, as we saw in New Orleans after Hurricane Katrina. So, in addition to the usual harms that may immediately follow severe flooding, such as traumatic injuries, outbreaks of waterborne disease – or death – the floods around Quang Ninh carry the potential to exact permanent damage to the developing nervous systems of children, who are uniquely vulnerable to these toxic elements."

The January announcement by Premier Nguyen Tan Dung that Vietnam would halt construction of coal-fired power plants signaled a monumental shift by a previously unquestioning government. If constructed the more than 50 new plants would have poured tons of carbon into the atmosphere for more than 40 years.

"Before Waterkeeper Alliance called global attention to Vietnam's deadly coal disaster, no one expected their leader to call a halt to new coal plants," said Lisenby. "Waterkeeper Alliance is proud to have been instrumental in shifting Vietnam away from coal. This is a huge step forward in cutting down carbon globally and saving lives locally."

– Min Zheng, Asia Regional Coordinator

LETTER TO HIS EXCELLENCY, MACKY SALL

WE, COMMUNITIES AFFECTED BY AND VULNERABLE TO CLIMATE CHANGE, MET IN BARGNY, SENEGAL ON NOVEMBER 21, 2015. AT PARIS, FOR COP21, YOUR PEERS AND AFRICAN FRENCH-SPEAKING MAYORS HAVE MADE YOU THEIR MESSENGER IN DECEMBER. MR. PRESIDENT, WE CAN RETURN FROM COP21 AS THE HEROES OF PARIS. COMPLEX AND LENGTHY NEGOTIATIONS WILL FOLLOW, BUT BY RENOUNCING THE CREATION OF FIVE PROPOSED COAL-FIRED POWER PLANTS IN SENEGAL, YOU WILL BE THE HERO OF COP21. THE PROPOSED SENDOU, MINAME, MBORO, KAYAR, AND ICS COAL PLANTS WILL PRODUCE GREENHOUSE GASES AND WORSEN THE WATER PROBLEMS IN OUR COUNTRY. YOUR NO COAL MESSAGE WILL PROMOTE THE RENEWABLE ENERGY POTENTIAL OF THE ENTIRE AFRICAN CONTINENT.

YOUR PEERS, MR. OBAMA AND MR. HOLLANDE, ADVOCATE THE ABANDONMENT OF COAL, THE MOST POLLUTING FOSSIL FUEL AND PRIMARY CAUSE OF GLOBAL WARMING. CITIZENS OF SENEGAL HAVE ALREADY BEGUN EXPERIENCING THE NEGATIVE EFFECTS OF CLIMATE CHANGE IN THE SALOUM ISLANDS, PETITE COTE, CAPE VERDE PENINSULA AND ST. LOUIS. FOR AGRICULTURE, YOUR NO COAL MESSAGE WILL PRESERVE THE NIAYES AREA WHERE WE PRODUCE 65% OF OUR AGRICULTURAL OUTPUT FOR DOMESTIC AND INTERNATIONAL MARKETS. FOR FISHING, YOUR NO COAL MESSAGE WILL PRESERVE THE WARM WATER FISHERIES OF KAYAR AND BARGNY BY MITIGATING THE ALREADY STRONG PRESSURE ON OUR FISHERIES RESOURCES.

FOR SIGHTSEEING, YOUR NO COAL MESSAGE WILL SAVE AREAS VULNERABLE TO CLIMATE CHANGE IN PETITE COTE, AND WILL AVOID AIR POLLUTION.

FOR WATER RESOURCES, YOUR NO COAL MESSAGE WILL AVOID ADDITIONAL STRESS ON ALREADY DEFICIENT ACCESS TO DRINKING WATER.

FOR REGIONAL PLANNING, YOUR NO COAL MESSAGE WILL SPARE THE DIAMNADIO DEVELOPMENT AREA FROM THE POLLUTION FROM COAL PLANTS IN BARGNY. FOR AIR TRANSPORT, YOUR NO COAL MESSAGE WILL BENEFIT THE BLAISE DIAGNE INTERNATIONAL AIRPORT BY AVOIDING INCREASED SOOT AND HAZE IN THE AIR. FOR ANIMAL FARMING, YOUR NO COAL MESSAGE WILL PREVENT LIVESTOCK IN THE VILLAGES OF GUADD AND NGOMENE FROM EATING GRASS CONTAMINATED BY ACID RAIN FROM THE PROPOSED ICS PLANT.

FOR WILDLIFE, YOUR NO COAL MESSAGE WILL PROTECT THOUSANDS OF SPECIES OF PLANTS AND ANIMALS THAT ARE ALREADY HARMED BY HUMAN ACTIVITIES. FOR PUBLIC HEALTH, YOUR NO COAL MESSAGE WILL AVOID RESPIRATORY DISEASES, CANCER AND OTHER POISONINGS FROM TOXIC COAL ASH.

FOR THE ECONOMY, YOUR NO COAL MESSAGE WILL MOVE OUR COUNTRY AWAY FROM ITS COSTLY RELIANCE ON ENERGY IMPORTS. YOUR NO COAL MESSAGE WILL MOBILIZE SENEGALESE SCIENTISTS, BUSINESSES AND INVESTORS TO MOVE TOWARD CLEAN AND RENEWABLE ENERGY.

MR. PRESIDENT YOU ARE ALREADY A GEOLOGICAL ENGINEER AND A POLITICIAN, BUT YOU WILL BE A HERO TO YOUR FATHERS, YOUR MOTHERS, YOUR CHILDREN AND GRANDCHILDREN, IF YOU JUST SAY NO COAL.

OPPOSITE PAGE: EVEN THOUGH CONSTRUCTION OF THE SENDOU COAL PLANT HAS BEEN IDLED INDEFINITELY, WORKERS CONTINUE TO LIVE IN THE TEMPORARY BLUE-ROOFED DORMITORIES AT THE PLANT SITE (RIGHT). THE PLANT WOULD BE LOCATED ONLY A FEW HUNDRED FEET FROM BARGNY, AND EVEN CLOSER TO THE SMALL CAMPS WHERE ARTISANS SMOKE FISH MEAT SO IT CAN BE SHIPPED FURTHER INLAND. ABOVE, THE YET UNANSWERED QUESTION IS WHETHER FISHING WILL STILL BE A WAY OF LIFE FOR THIS YOUNG BOY IN BARGNY.

"AFRICAN LEADERS HAVE EVERY REASON TO SUPPORT INTERNATIONAL EFFORTS TO MINIMIZE GREENHOUSE-GAS EMISSIONS. AT THE SAME TIME, THEY URGENTLY NEED MORE POWER TO BOOST AND TRANSFORM THEIR ECONOMIES AND TO INCREASE ENERGY ACCESS."

Fadel Wade, the Bargny Coast Waterkeeper. "They came and they chased away those who were already building."

In addition to neglecting the land grants, Gueye and Wade pointed to geographical data showing the site of the plant lies 139 meters from a fish-processing site that employs 1,000 women from the village; it is 395 meters from a daycare and health center, 231 meters from the houses that those displaced by the storms had begun to build, and 520 meters from a primary school.

"Our first goal is to protect us from the sea," said Gueye, through a translator. "Our second goal is to fight the coal power plant."

The 125-megawatt Sendou power station was proposed to supplement the supply of electricity being demanded by a country bent on an ambitious program of economic development. The National Electricity Board in Senegal commissioned the Swedish company Nykomb Synergetics Development Group to develop it.

According to an African Development Bank report, the plant would provide about 12 percent of the country's annual power consumption projected for 2052, and would help spur the spread of development to the south. The cooling intake vacuums for the Sendou plant would be high-pressured to draw 15,000 cubic meters of seawater per hour. An absence of filters means that fish, along with their eggs and other marine life, would be sucked in, crushed or boiled by the heat produced. So the process would affect the entire food chain as generations of eggs are destroyed.

"The suction and discharge of seawater would be in a marine-protected co-management area funded by the World Bank, which aims to protect an important sourcing and breeding area and to restore fishery resources," said Gueye. The sudden and drastic release of large amounts of heated water could also obliterate centuries of adaptation to changing sea temperatures that the fish have undergone, and villages like Bargny, which rely so heavily on the productivity of the sea, face the demise of an economy and way of life that have bound people together for just as long.

"That's the threat from the power plant," said Donna Lisenby, the Clean and Safe Energy Campaign manager for Waterkeeper Alliance. "If it is built it will destroy the environmental and economic viability of a historic fishing heritage and this will be the last generation capable of following in the footsteps of their mothers and fathers to earn a living from the sea." Lisenby, traveled to Senegal in March of 2015 to train Waterkeepers and other nonprofit leaders on how best to organize and fight proposals to build three coal-fired power plants using data and science. Joining Donna was Waterkeeper Alliance Board Member and Pace Law School professor Karl Coplan who shared information on legal strategies.

"Since the beginning, the developers have been manipulating the information and giving the wrong information to the mayor and the mayor's officers," said Gueye.

Amid this deception and determination to complete this noxious facility, Waterkeeper Alliance staff, including Lisenby, supplied the Senegalese Waterkeepers and other community leaders with extensive information on the health and environmental concerns associated with coal-fired power plants. They in turn have been educating citizens about the threats and how to resist them.

The leaders "really wanted to know the truth and the science so that they could then go and share it with their communities," said Lisenby.

In 2015 construction of the Sendou plant ground to a halt, at least temporarily, because of funding problems and fierce resistance by Bargny residents. Even so, the Waterkeepers in Senegal decided to host the Bargny March for the Climate two weeks before COP21 in Paris, to emphasize the importance for President Sall to take a firm stand against coal at the conference. Wade explained that it was important to proceed with the march because the issues surrounding climate change and coal production weren't just about Bargny, but also about the path of development that all of Senegal will take.

Data gathered by the World Bank show that 46.7 percent of Senegal's nearly 15,000,000 people fall under the poverty line. It is clear that the country, like many others in Africa, desperately needs development in order to raise its standard of living. But carbon-dioxide emissions per capita in Senegal are, at .6 metric tons per capita, far below that of other Sub-Saharan African countries. For this reason, Senegal is in a unique position to focus development on renewable sources of energy, such as solar and wind, and remain coal free.

As Kofi Annan wrote in the Africa Progress Panel 2015 Report, "African leaders have every reason to support international efforts to minimize greenhouse-gas emissions. At the same time, they urgently need more power to boost and transform their economies and to increase energy access."

These potentially conflicting goals were emphasized in the Declaration of Bargny and a highlight of President Macky Sall's statements at COP21, where the commitments to renewable sources of energy made by the participating nations will, it is hoped, shape decisions about coal in Senegal. The countries' Waterkeepers, other civil society leaders and citizens are indeed hopeful. Two of the three proposed coal plants in Senegal more than likely have been canceled permanently. Only the Sendou plant in Bargny remains a threat. It is the country's final fight in its battle to remain coal-free. W

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Colorado Riverkeeper Takes a Stand Against Tar Sands

LED BY COLORADO RIVERKEEPER JOHN WEISHEIT, A BROAD COALITION OF GRASSROOTS ACTIVISTS IS DETERMINED TO PREVENT THE FIRST TAR-SANDS STRIP MINING IN AMERICA..

BY JENNIFER EKSTROM AND LAUREN WOOD

THE PR SPRINGS TAR-SANDS STRIP MINE TEST PIT IS IN THE WATERSHED OF THE GREEN RIVER, A TRIBUTARY OF THE COLORADO. THE STATE OF UTAH HAS NO PLANS IN PLACE TO DEAL WITH POLLUTION FROM THE MINE IF IT DOES REACH NEARBY SPRINGS.

"This stuff needs to stay in the ground." John Weisheit, the Colorado Riverkeeper, puts it bluntly, but with a studied consideration that is his trademark. He's referring to plans for tar-sands and oil-shale strip mining that would destroy massive, pristine landscapes and put the already imperiled Colorado River watershed at further risk. John is a seasoned outdoorsman but he has a professorial air about him. He also has a way of cutting to the root of things in favor of unfiltered truths. "Tar sands; they all know it's a bullshit resource," he adds unapologetically.

Strip mining tar-sands deposits in eastern Utah would jeopardize drinking-water quality and quantity for 36 million people who rely on Colorado River water in drought-stricken communities across seven Southwestern states and northern Mexico. It would disrupt entire ecosystems. It would accelerate climate change. Yet, despite these staggering risks and the already-documented catastrophic effects to human health caused by tar-sands strip mining in Alberta, Canada, Utah's State Institutional Trust Lands Administration (SITLA) facilitated its toehold in the United States when it agreed to lease 32,005 acres to US Oil Sands, Inc. for this activity.

Subsequently, Utah's Division of Oil, Gas and Mining (DOGM) issued the permit to commence strip-mining tar-sands at a place called PR Spring. US Oil Sands, the Canadian corporation that was granted the rights to try to turn Utah's rocks into what is commonly referred to as the "dirtiest fuel on earth," has so far fallen short of its goals since its first claim that it would produce fuel during the summer of 2012. Apparently turning rocks into fuel is as difficult as it sounds, but that hasn't stopped this developer from pushing forward relentlessly, ripping out vegetation, bulldozing topsoil and installing expensive equipment, all in order to put on a good show for its investors. They now claim that they'll squeeze out some barrels of "black gold" out of the rock before the end of 2016.

The initial strip mine, in the area known as the Book Cliffs or the Tavaputs Plateau, would border the tribal lands of the Uintah and Ouray Ute people. The current agreement with Utah's Division of Oil, Gas and Mining permits activity on 317 acres, but, if unchecked, this first U.S. tar-sands strip mine could stretch across the entire 32,005-acre landscape that has already been leased to US Oil Sands by the state. Strip mining for tar-sands and oil-shale in the arid Colorado Basin would create millions of tons of solvent and hydrocarbon-laden waste-rock that would inevitably pollute the Colorado River. And the exploitation would consume as much as 500,000 acre-feet of water per year during this time of extreme drought.

US Oil Sands initially and easily won the support of Utah's state agencies for the PR Spring mine, without any monitoring or regulations imposed, by claiming that there was no water above an 1800-foot-deep aquifer in what is obviously a thriving ecosystem with numerous surface springs. But after extensive protests and legal challenges spurred by Colorado Riverkeeper John Weisheit and reinforced with peer-reviewed research by Professor William Johnson of the University of Utah, proving water connectivity from the mine-site to nearby springs, the state made the decision to require limited water-quality monitoring.

"We are proud of the fact that we succeeded in having a monitoring plan in

CREDIT: LAUREN WOOD

place," said Paul Baker, environmental manager in charge of tar-sands development at Utah's Division of Oil, Gas and Mining. "We've never done this before for hard-rock mining."

Despite the urging of Dr. Johnson, nearby springs will not be tested for hydrocarbon pollution, but only for the solvent used to extract fuel from rock. DOGM staff claim that hydrocarbon pollution would be obvious, since there would be a visible oily sheen on the water. But the corporation, which has demonstrated its willingness to promulgate misleading and incomplete information – having cited its ore-drilling samples as evidence that there was no surface water in the area – would not be required to reveal an oily sheen in its monitoring reports. And the state has no funds or plans in place to deal with pollution if it does reach nearby springs.

"We don't have a contingency plan because we don't anticipate a problem to begin with," said Baker. "We can't really plan for everything. If problems are found with the samples then [the Division of] Water Quality would be called in and we'd figure out what needed to happen then."

Unfortunately for the people, wildlife, and stock animals that depend on the water, "then" would be too late.

Riverkeeper John Weisheit says he follows the laws of nature; where there's a gap, he fills it. "In 2010, when I found out about the mining application for state lands in Utah, I hit the wall," Weisheit says. "I couldn't believe it. That's when I wrote comments. And at that time I was the only person who wrote comments."

Sign-on support to Riverkeeper's letter of protest came from Peaceful Uprising, which focuses on climate justice, and the Center for Biological Diversity. Attorneys at the Salt Lake City office of Western Resource Advocates stepped in to.

COURTESY OF COLORADO RIVERKEEPER

Riverkeeper John Weisheit follows the laws of nature; where there's a gap, he fills it.

While the legal battle to stop tar-sands mining on state lands began in 2010, it advanced to federal lands in 2013 when Weisheit and allies filed a 60-day notice under Section 7 of the Endangered Species Act. On federal land the stakes are even higher, especially since the March 2013 Bureau of Land Management (BLM) land-use decision allocated 132,137 acres for tar-sands leasing in Utah and 678,279 acres for oil-shale leasing in Utah,

CREDIT: LAUREN WOOD

Colorado and Wyoming.

Now joined in the federal legal action by staff attorneys from the Center for Biological Diversity, Sierra Club, Grand Canyon Trust and several others groups, John and the attorneys argued that the BLM needed to write a biology-based opinion before opening these leases. Oral arguments were heard in the 10th Circuit in December 2015, and the decision by the court is still pending.

"This lawsuit challenges the entire 810,416-acre landscape that is opened up for tar-sands and oil-shale strip mining on federal public land," says Weisheit.

The federal tar-sands and oil-shale struggle is a clear outcome of the Energy Policy Act of 2005. This bill was shepherded through Congress by Vice-President Dick Cheney, who is also former CEO of Halliburton, Inc., a lucrative oil-field service company. The Energy Policy Act called for the Department of the Interior to develop a program to encourage these methods of extraction. Secretary of the Interior Gail Norton pushed the program into effect at lightning speed, then resigned her post in 2006 and became legal adviser for the oil-shale division of Shell Oil, Inc.

"We need to have a progressive clean-energy policy in this country, and it needs to be done as quickly as possible. Otherwise, we're toast. We're talking about the planet."

This decade-old Energy Policy Act is already outdated and bases policy on false premises – such as its assertion that the tar-sands and oil-shale program be implemented "in an environmentally sound manner" and with "an emphasis on sustainability." "That can't be done," says Weisheit. "The excavation, transportation and combustion of these dirty fuels produce roughly three times as much greenhouse gases as conventional oil development. With impacts from climate change blatantly facing us, and with tragic climate-related events like fires, floods and extreme storms occurring more suddenly and frequently, this law becomes further removed from reality every day."

But the fight to save the Colorado watershed in spite of this ill-founded statute gained strength and range. In 2012, Utah Tar Sands Resistance, Peaceful Uprising and Canyon Country Rising Tide began a series of educational camp-outs, direct actions and season-long occupations at the proposed strip-mine site on state land. Land-defenders with diverse backgrounds put their daily business aside to occupy the plateau near the test-pit for the mine. This determined mass civil disobedience brought US Oil Sands' operations temporarily to a halt in late 2013, and on the same day its stock price dropped 13 percent.

Others rallied to the activists' support. A

OPPOSITE PAGE, PILES OF EXCAVATED TAR-SANDS ORE FROM THE PR SPRINGS STRIP MINE TEST PIT THAT US OIL SANDS HOPES TO PROCESS INTO FUEL.

robust coalition called Colorado River Connected, including Colorado Riverkeeper, Waterkeeper Alliance and Alliance members in San Francisco, Los Angeles, Orange County, San Diego and Tijuana, plus many other groups, coalesced around the grassroots commitment to protect the watershed. Another coalition called Keep it in the Ground united hundreds of organizations in an appeal to President Obama to use his authority, as his term concludes, to end all fossil-fuel leasing on federal public lands. Given his decisions to prohibit oil-drilling in the Arctic and construction of the Keystone XL pipeline, hopes are high that he can be persuaded to act even more boldly against climate change. And thus far he continues to build on these landmark decisions. In the wake of the hopeful agreement reached by world leaders near Paris in December, the President provided yet another meaningful example for the rest of the world. In mid-January, the Obama Administration declared a moratorium for all new coal leases on federal lands. Multiple oil and gas leasing auctions across the country have now been cancelled or delayed, and attributed to increased public interest and concern. The Keep it in the Ground movement has been invigorated by every one of these steps forward and continues gaining momentum toward the ultimate goal of ending the fossil-fuel leasing program on federal public lands altogether.

But an administrative prohibition on tar-sands and oil-shale development on federal lands is not quite good enough for John. "I will celebrate when the state Legislature bans unconventional fuel development in Utah " he says. "And we need to have a progressive clean-energy policy in this country, and it needs to be done as quickly as possible. Otherwise, we're toast. We're talking about the planet."

It should now be clear to investors in US Oil Sands, Utah authorities and American politicians that it's not simply one man and his quixotic fight for the river he loves, but a national movement with the commitment to do whatever it takes to stop tar-sands and oil-shale mining.

"It's not as lonely as it used to be," says John, with a lilt. **w**

On the Green River, a Green Film Is Shot and a Green Movement Started

By Jennifer Ekstrom

Perched on the front of John Weisheit's weathered red raft, which is emblazoned with the titles "Living Rivers" and "Colorado Riverkeeper," I happily pointed my lens down the Green River, a Colorado tributary, and across rugged landscapes on a June afternoon in 2012. With John at the helm, I knew I was in good hands as I launched my dream project to produce a documentary film to expose America's archaic energy policy that would allow unprecedented tar-sands strip mining to begin.

Despite clear evidence of deadly health impacts from this mining practice in Alberta, Canada, the State of Utah had just approved the United States' first such mine at PR Spring in the upper Colorado River basin. Contaminated water caused by tar-sands strip mining afflicts approximately 30,000 people, mostly indigenous, downstream in Canada, while more than 35,000,000 people face the same risk in the United States. Yet it is a fuel source that climate change and clean-energy technologies have made obsolete.

In northern Alberta, where First Nations people organized a Tar Sands Healing Walk, and in eastern Utah, where splendid wildlands and rivers still team with life, the twists and turns of policies gone wrong have become abundantly clear. Audiences at screenings of our film, "Last Rush for the Wild West: Tar Sands, Oil Shale and the American Frontier," have been appalled, yet appreciative of the film's troubling revelations. Time and again, viewers have been motivated to engage in efforts to stop the strip-mining and the foolish laws that permit such practices.

John and I were joined on that first Green River shoot by Waterkeeper Alliance's National Director Pete Nichols, Zach Frankel of Utah Rivers Council and other activists. That evening, as a campfire crackled, the river babbled and guitars were softly strummed, conversation turned to practical matters. It was acknowledged that John's legal challenges might delay but not ultimately stop the strip mines from being built, and a consensus formed that a groundswell movement was needed. The result is a robust and growing coalition called Colorado River Connected, which is addressing this and other threats to the Colorado and its tributaries.

The film was released in September 2014 at the Moab International Film Festival in Utah, where it stimulated intense dialogue and earned the festival's Audience Appeal Award. The film also won the Energy Award at Cinema Verde Film Festival in Gainesville, Florida in February 2015, and was named one of the "10 Best Eco-Docs of 2014" by Ecowatch online news journal.

Screenings of "Last Rush for the Wild West" can be booked through the film's website: lastrushforthewildwest.com.

Jennifer Ekstrom is the director and producer of "Last Rush for the Wild West," a film that exposes the perils of strip mining for tar sands and oil shale on the Colorado Plateau. This past April she was selected by the Princeton Film Festival for their Emerging Filmmaker award.

Lauren Wood is the director of the Green River Action Project, an affiliate program of Living Rivers. She is also a third-generation rafting guide, and works for her family's rafting company.

Waterkeepers on the Rooftop of the World

In the Mighty Himalayas of India, Pakistan, Nepal and Bhutan, Waterkeeper organizations, governments and other non-governmental organizations are cooperating to protect fresh water for half the world's population.

BY SHARON KHAN, MARC YAGGI AND MEGH BAHADUR ALE

The Himalayan Glaciers, which stretch east from northern Afghanistan, Pakistan, and India, through Nepal and Bhutan, and into the neighboring Tibetan Plateau and China, are the source of fresh water for nearly four billion people in South Asia. The melting of snow in the Arctic and Antarctic due to global warming is reported frequently, but the melting of the Himalayan glaciers has gone largely unreported, even though far more people are affected. The glaciers of the Himalayas are, in fact, "the Third Pole." They feed the giant rivers of Asia that support half of humanity.

Three major rivers - the Indus, the Ganges and the Brahmaputra - arise in the Himalayas and flow directly into Pakistan, India and Bangladesh. The Yellow, Yangtze, Mekong, Irrawaddy and Salween Rivers arise from the Tibetan Plateau and flow directly into China before continuing into Myanmar, Laos, Thailand, Cambodia, and Vietnam.

These rivers are the source of water for drinking, washing, irrigation, fishing and industry, and have also been the source of many local and international disputes about their quality and flow from one community into another, within and across borders. But 52 Waterkeepers in these communities do not recognize borders when they apply their passion and commitment to the health of river ecosystems.

In January 2016, Waterkeeper Alliance launched an initiative to protect the Himalayan waters and its growing network in India, Nepal, and Bhutan, and work with Waterkeepers throughout the region – and across the globe – to protect the "The Third Pole."

This article highlights the challenges facing new Waterkeepers and the solutions they are developing in three parts of the Himalayas.

Lada

"Do not dirty the sacred rooftop of the world"

– His Holiness the Gyalwang Drukpa

High up on "the sacred rooftop of the world," on the Indus River in the Ladakh region of India, Himalayan Glacier Waterkeeper was founded in 2013 by His Holiness the 12th Gyalwang Drukpa, head of the Drukpa lineage of Buddhism, who has over 27 million followers around the world. He is an award-winning humanitarian and environmentalist who advocates respect for nature as one of the steps on the path to enlightenment. He was the recipient of the 2010 United Nations Millennium Development Goals Award for his cross-border humanitarian work and India's 2010 Green Hero Award for his work in sustainable development.

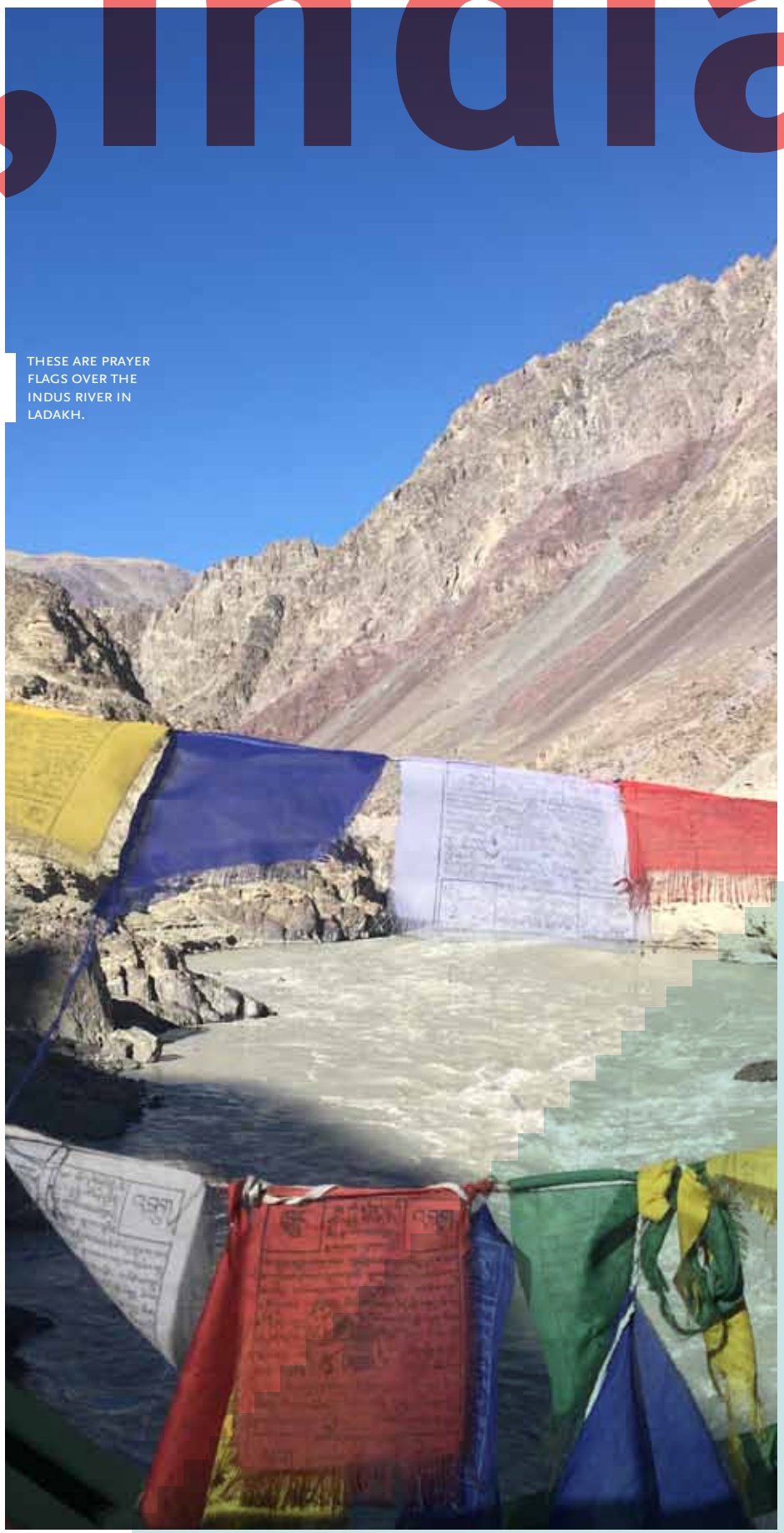
In September 2013, His Holiness visited Waterkeeper Alliance staff in New York while in the city for high-level meetings at the U.N. and at a convening of the Global Clinton Initiative. At our humble Battery Place office overlooking Lady Liberty, we discussed developing a Waterkeeper organization in the Himalayas. Two months later, Himalayan Glacier Waterkeeper, based in Leh, Ladakh, joined our ranks.

Padma Tashi, leader of the Young Drukpa Association, a non-government organization formed to draw youth into environmental conservation, is the Himalayan Glacier Waterkeeper. His reputation and influence throughout Ladakh has helped him to build a network of 20 Himalayan Glacier affiliates to protect the vast system of rivers, streams and tributaries that feed into the Indus and Zanskar Rivers in Ladakh.

The Indus and its tributaries, fed by glacial-melt waters, sustain communities throughout Jammu and Kashmir, a single state that contains Ladakh and that is a locus of dispute involving India, Pakistan and China. The headwaters of the Indus originate in the plateaus of Tibet and run through India and Pakistan to the Arabian Sea near the port city of Karachi. Along its way, its river-systems support temperate forests, plains, arid countryside and countless communities.

The natural habitat and the way of life of Himalayans are seriously affected by the forces of modernization and climate-change, as was recently discussed in the English newspaper *The Guardian.* In Ladakh, although increased tourism and new roads have facilitated distribution of goods, there is virtually no awareness of the dangers of plastic litter in the wild. There are no means of

kh, India



THESE ARE PRAYER FLAGS OVER THE INDUS RIVER IN LADAKH.

PHOTO BY SHARON KHAN

disposing of this waste, which is migrating into the region's rivers, its primary source of drinking-water. In addition, the rapid melting of glaciers caused by warmer weather is contributing to the drying up of springs and rivers used for drinking-water.

Ladakh, at an altitude of 9,800 feet, also has been facing extreme-weather, including rare and catastrophic flash floods, made worse by rapid deforestation that has removed nature's flood-defense mechanisms. In August 2010, flash floods in Ladakh damaged over 71 towns and villages, and claimed 225 lives. And floods in September 2014 killed more than 550 people in the Kashmir region and devastated the lives and livelihoods of survivors. These incidences, which are expected to become more common, have been termed "Himalayan tsunamis."

Less disturbing but also very significant is the threat of such events to Ladakh's spiritual and cultural heritage. Its nearly 1,000-year-old Hemis Monastery of the Drukpa Lineage houses its largest collection of Buddhist relics, rare murals and texts, many of which define the sacred and sophisticated administration of traditional water rights.

MEGH BAHADUR ALE IS THE FOUNDER OF BAGMATI RIVER WATERKEEPER AND NEPAL RIVERS CONSERVATION TRUST. CREDIT: BORDERLANDS, NEPAL.

Nepal

Saving Himalayan Rivers in Nepal with Megh Bahadur Ale

Six thousand rivers and tributaries flow through the majestic Himalayas to the lowlands of the Terai in Nepal, enriching the country's river-basins and valleys, providing fertile land for 85 percent of its people who depend on agriculture for subsistence, delivering drinking-water to millions of other Nepalis and supplying over 70 percent of the annual flow of the Ganges River in India.

There are currently two Waterkeepers in Nepal, the first on the Bagmati River, which flows through the capital city of Kathmandu and once provided clean water for most of its residents; the other on the Karnali River, one of the country's last remaining free-flowing rivers – and a world-class whitewater-rafting site. Both organizations were founded by Nepal Rivers Conservation Trust, an association of river-guides and conservationists working on major river-systems throughout the country.

A world-famous destination for trekkers from around the world, including those heading for Mount Everest, Kathmandu's population has exploded to over 1.5 million. People flocking to the city looking for work have settled in dense slums that have pressed closer and closer to the banks of the Bagmati and, enabled by poor river management, turned it into a dumpsite and open sewer. Even residents of other areas with better options for waste-disposal, deposit trash and waste into the rivers. Although legislation exists to protect these rivers, there are no mechanisms for monitoring and cleaning them, or for providing riverbank communities with appropriate alternatives for waste-disposal.

Bagmati River Waterkeeper and Nepal Rivers Conservation Trust (NRCT), founded and led by Megh Ale, have been participating in a "Clean Bagmati Campaign" that is becoming tremendously successful. Since 2013, between 2000 and 5000 citizens have gathered every Saturday morning to clear the river of trash. Where once one could walk across a river solid with waste, it now flows free – albeit black and toxic. As the campaign has been featured in news articles and television programs, the Department of Environment has shut down some pollution sources, and the Integrated Development of Bagmati Civilization, a government agency, has started a comprehensive action plan to restore Kathmandu's river.

Dams are a pressing issue in Nepal. The government and multinational corporations are building and planning dam projects for almost all of the country's rivers, including the Karnali. Although dams can provide clean energy for the people, they sometimes make none of that energy available to those who live on the river's banks, and they can displace residents, destroy ecosystems and reduce a river's existing economic productivity. Megh lobbies for a policy to dam only where environmental and economic impact would be small. His vision is supported by a UN report released in March 2016 that classified small but not large dams as generators of renewable energy.

Some Nepali laws – the Water Resources Act, Environment Protection Act, National Wetlands Policy Irrigation Policy, Hydropower Development Policy, and the Drinking Water Regulation – refer somewhat to rivers, but the country has no legislation that specifically addresses river-management. So there has been a strong need for a forum and strategy to address disputes over their ownership and use. In September 2014, NRCT organized a summit where stakeholders could prepare a basis for a national river-policy. It yielded a 15-point declaration proposing water-and-river-conservation practices that would ensure economic growth, social equity and ecological balance, informed by science and involving community participation. This declaration, in effect, forms the foundation for the actions of the growing network of Waterkeepers in Nepal.

Bagmati River Waterkeeper successfully concluded its first scientific expedition on April 24, 2015, with great success, results and reasons to celebrate. Then, on April 25th, a 7.8 magnitude earthquake devastated Nepal and caused more than 8,000 deaths, including some family-members and friends of the Waterkeeper team. The Bagmati River Waterkeeper and NRCT have spent much of the past year helping to rebuild the country, and the recovering Nepal has a new Waterkeeper on the Karnali River, which will host the next scientific expedition this fall.

Bhutan

CREDIT: SHARON KHAN

A FOOTBRIDGE OVER THE PARO CHU RIVER NEAR ITS HEADWATERS HIGH IN THE HIMALAYAS.

Bhutan is a small Himalayan kingdom east of Nepal, north of India and southwest of China. It contains the least impacted rivers in the Himalayan region. It is roughly 75 percent forested, and its constitution requires that it remain at least 60 percent so. These conditions have allowed the country to be one of the few in the world that acts as a carbon sink – that beneficially absorbs more carbon than it releases. Prime Minister Tshering Tobgay promises that Bhutan will remain carbon neutral – while it is in fact, carbon negative. Bhutans strong conservation ethic was established by King Jigme Singye Wangchuck, who reigned until 2006, and has been carried forward by his son, King Jigme Khesar Namgyel Wangchuck, the prime minister and the Buddhist leadership. "Where we live," the current king has declared, "must be clean, safe, organized and beautiful, for national integrity, national pride, and for our bright future. This too is nation-building."

Bhutan's main economic generator is hydroelectricity, 75 percent of which is exported to India. But as climate-change advances, more caution is required in dam building. A 2012 UN report on glacial-lake outburst-floods noted that the country's 677 glaciers and 2,794 glacial lakes had experienced over the last two centuries "more than 21 glacial lake outburst floods, of which outburst cases have been reported in the last forty years." It identified 25 glacial lakes as potentially dangerous – ticking time bombs whose outbursts could have devastating impacts on dams downstream.

Bhutan, long closed to the outside world, opened its doors to tourism in 1974, and is now rapidly modernizing. As imports of packaged foods and other commodities have increased, so have littering and unsustainable practices such as dumping and burning of waste, including plastics, combustion of which releases toxic fumes. Waterways are becoming polluted, especially in the capital city, Thimphu. A recent letter to the editor of *Kuensel*, the national newspaper, lamented the lack of proper controls of erosion and sediment on road-construction projects. And, though automobiles remain fairly scarce in Nepal, their growing number has brought more repair-shops, which discharge waste-oil and other pollutants directly into the city's Olarongchu River, tributary of the Thim Chu.

As in Nepal, several acts and plans have been established to address waste-management in Bhutan, including the National Environmental Protection Act and the National Strategy and Action Plan: Integrated Solid Waste Management in 2007, the 2009 Waste Prevention and Management Act, and the 2014 National Integrated Solid Waste Management Strategy. Unfortunately, implementation of these plans does not appear to have reached beyond Thimphu.

The Ministry of Health, which administers parts of the 2011 Water Act, has begun to focus more on water quality. It oversees a modest hospital-based aquatic laboratory, but it severely lacks equipment and training for monitoring and analyzing all the pollutants that are caused by rapid development.

Nedup Tshering, a charismatic leader who inspires citizens and leaders across the country, is the founder and executive director of Clean Bhutan, an NGO with a mission to achieve a "zero-waste Bhutan" by 2030. It was established in February 2014 in celebration of the 60th birthday of the previous king, who conceived the "Gross National Happiness Index," by which welfare is measured by good health, environmental preservation, clean air, clean water and other factors. Clean Bhutan advocates behavioral change and awareness of its programs. In September 2015, Clean Bhutan welcomed Thim Chu Waterkeeper to Thimphu.

Last November, Waterkeeper Alliance staff traveled to Bhutan with a team of scientists from Stroud Water Research Center of Avondale, Pennsylvania to conduct physical, chemical and biological assessments of water quality in three Bhutanese rivers, the Thim Chu, Paro Chu, and Punakha Chu, and various streams. Working alongside Thim Chu Waterkeeper and partners from the National Environment Commission and the HydroMet Division of the Ministry of Economic Affairs, they installed the country's first three real-time water-quality monitoring sensors.

Conclusion

Protecting the Himalayan glaciers and rivers and the countless communities that depend on them is a colossal challenge, but the Waterkeepers in the Himalayas are optimistic. They are dedicated to strengthening community efforts to monitor the quality of their waterways and inform themselves to advocate for the abundance and purity of freshwater that sustains nearly half the world's population.

18TH ANNUAL CONFERENCE EXPANDS WATERKEEPER'S REACH AND MESSAGE

Waterkeeper Alliance held its 18th annual conference from June 1st to 5th in Wilmington, North Carolina, hosted by the Cape Fear Riverkeeper, and other Riverkeepers from that state. Over 250 attendees from 20 countries got the opportunity to see and learn more about familiar Waterkeeper issues that trouble that region, and many others, including factory farming and coal-fired-power-plant pollution, and to connect, strategize, and discuss local advocacy and best practices with experts and peers.

A major initiative of Waterkeeper Alliance is to expand our diversity as a movement, and this is effectively taking place with the rapid growth over recent years in our international membership, particularly in Asia, Africa and Latin America.

FEATURED KEYNOTE SPEAKERS

Again this year the conference presented inspirational, motivating speakers:

KIMBERLY WASSERMAN, a 2013 Goldman Environmental Prize winner, who led Chicago residents in a successful 10-year campaign to shut down two of the country's oldest and dirtiest coal plants, is now working to transform 23 acres of old industrial sites into parks and multi-use spaces. As a member, and now director, of Organizing and Strategy of the Little Village Environmental Justice Organization, she has helped community leaders to build a new playground and community gardens, to remodel a local school park, and force local polluters to upgrade their facilities. Her speech on Thursday evening emphasized that the work Waterkeepers are engaged in often takes several years to complete, but is ultimately worth the dedicated effort to persevere.

FRANK SMYTH is a senior advisor for journalist security at the New York-based Committee to Protect Journalists. Mr. Smyth discussed tools that help mitigate risk and enhance security, including solidarity, technology and training, and ways to assess risk and develop contingency plans accordingly. His interactive presentation and question-and-answer session regarding personal safety was critically relevant to the many Waterkeepers who often do their work in areas of dangerous conflicts around the world.

REVEREND GERALD DURLEY is a renowned leader of the civil-rights struggles of the 1960s. He believes that climate change and environmental justice are moral imperatives and are the primary civil-rights issues of our time. In 2015, he was recognized by the White House as a "Champion of Change." Reverend Durley exhorted the assembled Waterkeepers to be "not just dreamers but dream-activators," and insisted that if we communicate our passion, excitement and knowledge of clean and healthy waterways to the public, they soon will march alongside us.

ROBERT F. KENNEDY, JR. and Rick Dove, both founders of Waterkeeper Alliance, spoke in detail about the history, impacts and challenges of industrial animal-raising in eastern North Carolina, an area that is one of America's largest producers of hogs. As head of Neuse Riverkeeper, the first Waterkeeper organization in North Carolina, Rick Dove brought national attention to the destructive practices of this industry and the horrific fish-kills and human-health impacts caused by deadly microbial organisms from animal waste. His efforts wrought major reforms in pollution practices throughout the Neuse watershed. Rick also pioneered the use of aerial footage to document concentrated animal-feeding operations. His photographs and videos have appeared in countless media reports and documentaries throughout the world. On Thursday night, Rick was presented with a Waterkeeper Hero award.

PANELS AND WORKSHOPS

Thirty-three workshops covered topics such as water-quality standards and monitoring, agricultural-pollution impacts, clean-water laws, fossil fuels, mining and dams. Communications topics included the power of maps, visual imagery and website development.

PARTNERSHIPS

Several new initiatives were also generated. London Waterkeeper and Bangladesh's Buriganga Riverkeeper, Surma River Waterkeeper and Khowai River Waterkeeper founded The Waterkeepers Bangladesh and London Waterkeeper Partnership, which aims to galvanize Britain's more than 200,000 ethnic Bangladeshis and environmental advocates to protect the rivers and wetlands of both countries and monitor the condition of Bangladesh's Sundarbans mangrove forest, a UNESCO World Heritage site.

COMMUNICATIONS

One of our communications team's biggest takeaways from the conference was a desire for Waterkeepers to be more integrated in their colleagues' work, especially when disaster strikes. So it developed the hash tag #WaterkeepersUnite, and used it during the conference when an oil-train disaster occurred June 3rd at Mosier, Oregon, within the Columbia Riverkeeper's watershed.

COMMENTS

"Year after year, the annual Waterkeeper conference serves not only as a great opportunity to learn from Waterkeepers' experiences around the world, but reinforces my love for my local waters and the need to continue to fight for our most important community resource. -- Dave Prescott, South County Coastkeeper, Rhode Island

"The Waterkeeper Alliance Conference is an essential part of building a global movement for clean water. Without it, crucial connections wouldn't happen and we'd be weaker. We need many voices gathered together so our call can be heard." -- Theo Thomas, London Waterkeeper

"Attending my first Waterkeeper Alliance Conference a scant week-and-a-half into my career at Peconic Baykeeper was an incredibly useful way to dive right into the issues facing water quality worldwide. I was inspired by the passion exhibited by each member of the Waterkeeper Alliance as a whole. I walked away from the conference feeling a part of an incredibly dedicated international movement, with tools and knowledge to tackle the challenge of protecting our precious water resources." – Sean O'Neill, Peconic Baykeeper, Long Island, New York

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CONGRATULATIONS TO THE

WATERKEEPER MOVEMENT

ON 50 YEARS

OF PATROLLING AND PROTECTING

OUR MOST PRECIOUS BODIES OF WATER

AROUND THE WORLD

RALPH LAUREN