

A closer look at N.C. coal ash

Approaching two years after the coal ash spill in the Dan River, state environmental regulators are deciding how soon each of the 32 basins where coal ash is stored in North Carolina must be cleaned up.

The calculus involves determining how structurally sound the leaking coal ash ponds are, and to what extent they might have polluted nearby



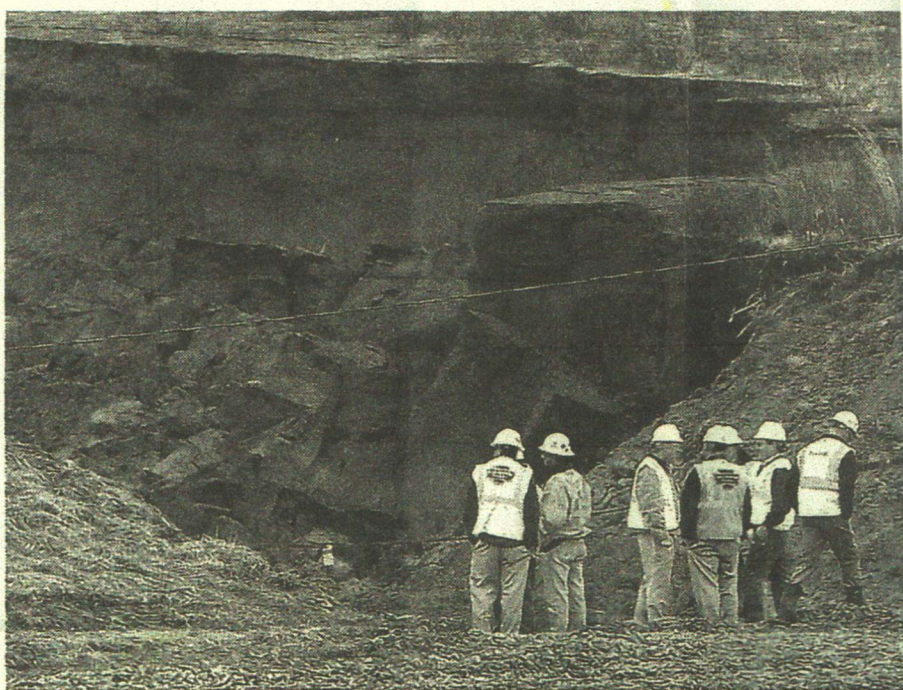
ground and surface water.

The process of coming up with a final plan has been testy between the state Department of Environmental Quality and Duke Energy, which owns the sites. It also has been contentious between the state and environmental advocates, who want the state to force the utility to excavate most of the sites and move the ash to safe, dry, lined storage.

On Wednesday, the Environmental Review Commission, made up of state legislators, will hear an update on the plan to classify the sites according to risk.

The final result will cost Duke Energy, and probably its ratepayers, a lot of money. State environmental regulators estimate it could cost up to \$10 billion if all the basins that are classified as high or intermediate risk are excavated.

The state is still sorting out which basins must be excavated and which can be left in place with less-



GERRY BROOME AP file photo

Duke Energy engineers and contractors survey the site of a coal ash spill at the Dan River Power Plant in Eden in 2014.

costly measures that still protect the environment, such as draining and capping them.

DEQ in March will hold public hearings in every one of the 14 counties where a power plant stores coal ash. The dates and locations for those hearings were released Friday. The Cape Fear Power Station in Chatham County has five basins classified as intermediate risk.

COAL COMMISSION SUSPENDED

After public comments are compiled, a final proposed report will be submitted to the Coal Ash Management Commission - an entity that has been suspended pending the outcome of a lawsuit over whether the governor or

the legislature has the authority to appoint its members.

Even if the commission remains inactive, the law provides a way for the classifications to go into effect. If it fails to act on the report within 60 days, the report is deemed approved.

When DEQ released its draft classification proposal last month, the Southern Environmental Law Center, representing several advocacy groups, claimed the process had been politicized. The center had obtained an earlier draft of the plan that emerged in legal proceedings; it listed all but one pond as high or intermediate risk.

The released report listed only 20 as high or intermediate. But DEQ said Duke Energy hadn't provided enough information to determine whether another eight sites should

be low or intermediate.

A 2014 state law identified four sites for immediate excavation and removal. The DEQ report didn't identify any additional high-risk sites, which prompted the environmental lawyers to accuse high-level state officials of watering down their proposal.

"While its own professional staff was able to determine the risk of the dangerous sites and concluded that almost all of Duke Energy's coal ash sites pose a high risk to North Carolina's communities, DEQ determined that none are high risk contrary to science and common sense," SELC attorney Frank Holleman said in a statement when the report was released.

The agency said its report was based on science.

"I am disappointed that the special interest groups

ONLINE

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plan

attempted to corrupt the process by leaking an early draft that was based on incomplete data," department Secretary Donald van der Vaart said in a statement.

THREE CRITERIA FOR SAFETY

The report says the rankings were based on three criteria: how structurally sound the ponds are, what impact they have on surface water, and their impact on ground water.

Structural integrity - After the Dan River spill, the agency inspected the coal ash basins and told Duke Energy to do the same, including using video equipment. The state issued some notices of deficiencies, took into account new federal regulations and new state law, and determined that none of the 32 ponds would be high- or intermediate-risk based on structure alone.

Surface waters - The agency looked at the landscape, 100-year flood plains, proximity to water supplies and other criteria, and determined the state's protections matched recent federal requirements.

Groundwater - Intense focus was placed on groundwater, according to the report, as all 14 sites have exceeded contamination standards. Regulators wanted to take a careful look at the potential threat to public or

private drinking water supplies.

Part of the challenge is determining whether the contaminants are naturally occurring and not the result of leaks, and are already in drinking water sources around the state. DEQ says the law requires the utility to meet "aggressive deadlines" to test and report on groundwater contamination and the extent of naturally occurring contamination, and to submit plans for stopping it.

But Duke Energy didn't provide that data by early December, as required, which is why regulators couldn't classify some of the basins, according to the report.

The utility says it has been accumulating the most comprehensive coal ash studies ever done in North Carolina and is fully engaged in excavating the four high-risk sites: the Asheville Steam Station, Riverbend Steam Station in Gaston County, Sutton Energy Complex in New Hanover County, and the Dan River Station in Rockingham County.

Duke Energy has said it plans to excavate 24 of the ponds.

The coal ash at sites designated as high-risk must be excavated and safely stored by Dec. 31, 2019. Intermediate sites must be excavated and stored safely by Dec. 31, 2024. Low-risk ponds must be safely stored by Dec. 31, 2029.

— STAFF WRITER CRAIG JARVIS

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CLIMATE

As planet warms, lakes are heating up even faster

BY JOBY WARRICK
Washington Post

Lakes around the world are growing rapidly warmer, according to a new scientific study that warns of potential consequences ranging from depleted fisheries to harmful algae blooms that kill fish and contaminate water supplies for cities large and small.

Hotter freshwater lakes are yet another sign of global climate change, and their increasing temperatures are happening at a faster rate compared with the warming seen in the oceans and atmosphere, a

team of scientists report in the peer-reviewed journal *Geographical Research Letters*.

The study is based on decades of measurements from 235 lakes that contain more than half the world's fresh water supply. On average, temperatures are rising by about six-tenths of a degree Fahrenheit per decade, a rapid increase by geological standards.

The results are a "wake-up call," especially for regions that rely on lakes for food and drinking water, said Henry Gholz, a program director for environmental biology at the National Science Founda-

tion, which co-funded the research along with NASA.

"Our knowledge of how lakes are responding to global change has been lacking," Gholz said.

The study, the largest of its kind, involved more than 60 scientists who used temperature records as well as satellite data to gauge changes over time, from Lake Tahoe on the California-Nevada border to the tropical lakes of central Africa to partially frozen lakes in Scandinavia.

The most dramatic increases were observed at far-northern lakes, which are warming at an average rate of 1.3 degrees

Fahrenheit per decade. But tropical lakes also are warming rapidly, the researchers found. Only a small number of warm-water lakes kept a constant temperature or cooled slightly, a departure from the norm that scientists attributed to local land-use changes such as reforestation that increased shade along the shoreline.

Even small variations in temperature can impact fish and other wildlife, the researchers found. Most significant for many areas was the greater potential for harmful algae blooms, an explosive growth in populations of microscopic

plants that can strip oxygen from the water and kill fish. Destructive algae blooms—such as the one in Lake Erie in 2014 that contaminated the water supply for Toledo and other Ohio cities—already are occurring more frequently worldwide.

Such events are important because of the role played by lakes in sustaining human populations in many parts of the world, said study co-author Stephanie Hampton, a professor at Washington State University's School of the Environment.

"Lakes are important because society depends on surface water for the

vast majority of human uses—not just for drinking water, but manufacturing, energy production, irrigation and crops," Hampton said. "Protein from freshwater fish is especially important in the developing world."

A separate report earlier this month predicted the number of severe algae blooms would double over the next century because of a combination of warmer temperatures and increased pollution. By 2115, disruptive events like the one in Toledo will be commonplace rather than exceptional, according to a team of U.S. researchers using climate and watershed models to project future trends. The scientists discussed their findings at the American Geological Union meeting in San Francisco.

Working Hard for Cleaner Waters

BY COLLIN O'MARA *President & Chief Executive Officer*

Water Clean water is essential for all life. It is a critical ingredient needed to restore healthy populations of fish, birds, reptiles, amphibians and mammals. It sustains many tourism and recreation economies and millions of jobs, and it makes up more than half of the human body. Simply put, our health and life on Earth depend on clean water.

Yet too often, we take clean water for granted—until it's too late. Across our nation, we are seeing the paralyzing effects of decades of decisions that insufficiently considered consequences to our water supply. In just the past few years, we've seen major oil spills in Montana's Yellowstone River and Michigan's Kalamazoo River, and in Mayflower, Arkansas, and Santa Barbara, California. We're seeing the lingering effects of the horrific BP spill in the Gulf of Mexico and a growing hypoxic dead zone in the gulf.

We've witnessed harmful algal blooms in Lake Erie, the Chesapeake, the Everglades and Long Island's Peconic Estuary. We've seen a massive chemical spill in West Virginia's Elk River and a coal-ash spill in the Dan River in North Carolina. And we're seeing historic droughts across California and flooding in Texas.

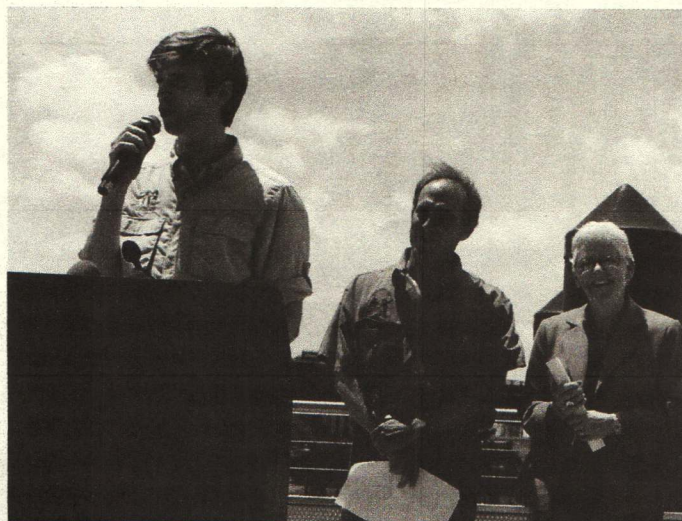
Fighting Emerging Threats

The National Wildlife Federation continues to make water conservation a priority, and we're working hard to address existing threats and prevent new ones. For example, in partnership with the Minnesota Conservation Federation and others, we're trying to protect the spectacular Boundary Waters Canoe Area Wilderness

by working to stop a proposed sulfide-ore copper mine that could lead to sulfuric acid entering the headwaters. In the Straits of Mackinac connecting Lake Michigan and Lake Huron, we're working to remove the threat of a 70-year-old pipeline that is past its expected life and threatening the Great Lakes, our greatest freshwater

treasure. In Alaska, we're working with the Renewable Resources Coalition to stop Pebble Mine, which could harm North America's last great salmon nursery. NWF doesn't oppose all mining, but there are some places where we simply cannot afford the risks to water and wildlife.

We can do better as a nation—and NWF and our affiliates are committed to leading this charge. Our efforts took a huge step forward this May when the administration unveiled the



U.S. Environmental Protection Agency chief Gina McCarthy (right) and angler Mike Bailey listen as NWF President Collin O'Mara hails the new Clean Water Rule, signed in May at the Washington, D.C., education center of NWF affiliate, the Earth Conservation Corps.

final Clean Water Rule, which will restore protections for millions of miles of streams and millions of acres of wetlands. Building upon years of leadership, NWF was proud to host the announcement with Earth Conservation Corps, our Washington, D.C., affiliate (see page 44).

There's more to do, particularly as we face escalating climate impacts such as prolonged droughts and sea-level rise. To succeed, we must convince people that rivers, lakes and wetlands are essential resources and must be cared for as such. We must address issues such as corroding infrastructure, cropland expansion due to ethanol mandates and subsidies and destruction of wetlands and forests that filter pollution. We must promote agricultural best practices and water conservation, expand water recycling and ensure sufficient ecological flows.

Despite the challenges, I remain optimistic. With the help of dedicated supporters like you, we will overcome these obstacles—and in doing so we will leave an incredible legacy for wildlife and future generations. ♦

SHARE YOUR VIEWS

Follow Collin O'Mara on Twitter at twitter.com/Collin_OMara. To share your thoughts and opinions, email him at president@nwf.org.

REPORT LINKS POPULAR HERBICIDE WITH INCREASED CANCER RISK *Mar. 2015*

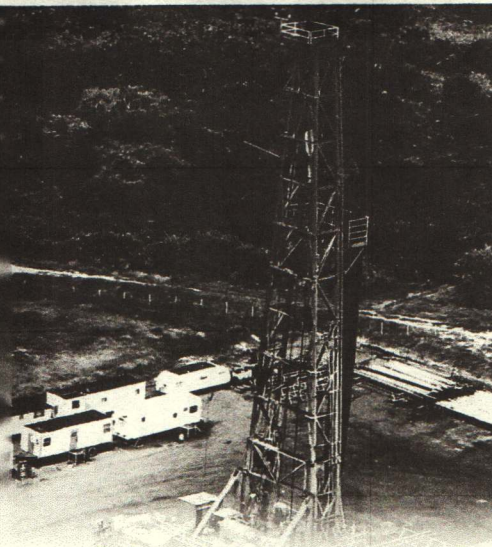
A report linking glyphosate, the active ingredient in the world's most popular herbicide, Roundup, with cancer has been creating a furor in the gardening world. In March, the World Health Organization's International Agency for Research on Cancer's (IARC) issued a release stating that glyphosate joins malathion and diazinon "as probably carcinogenic to humans." According to the release, the IARC review of more than 10 years of independent scientific studies revealed that there is limited evidence that glyphosate is carcinogenic in humans and sufficient evidence that it causes cancer in animals.

Roundup's manufacturer, St. Louis-based Monsanto, quickly issued a statement refuting the report and challenging the IARC's methodology. The IARC is not a regulatory agency, nor does it quantify increased risk of cancer due to a chemical or recommend exposure levels. In 2013, Monsanto requested, and was granted, approval from the Environmental Protection Agency for increased tolerance levels for glyphosate contamination in food and feed.

You can find an IARC press release about the report at www.iarc.fr/en/media-centre/iarcnews/pdf/MonographVolume112.pdf. The complete IARC report was published online in *The Lancet Oncology* ([www.thelancet.com/journals/lanonc/article/PIIS1470-2045\(2815\)2970134-8/abstract](http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(2815)2970134-8/abstract)).

The American Gardener

FRACKING THREAT MOVES SOUTH



When the U.S. Forest Service raised the possibility of allowing high-volume hydraulic fracturing, commonly known as fracking, in the George Washington National Forest, SELC was prepared. Fracking injects large amounts of water and chemicals into the earth to release natural gas trapped underground. The environmental impacts—water and air pollution, industrial development of natural areas, and even increased seismic activity—are evident to anyone who lives nearby.

The natural gas boom, however, wasn't stopping for anyone—or so it seemed. Residents of Pennsylvania and West Virginia were intimately familiar

with the technique, but the Marcellus Shale formation also runs under the GW, the East's largest national forest, and the drilling industry wanted access to it. Moreover, once begun, fracking operations face few regulations on either the state or national level.

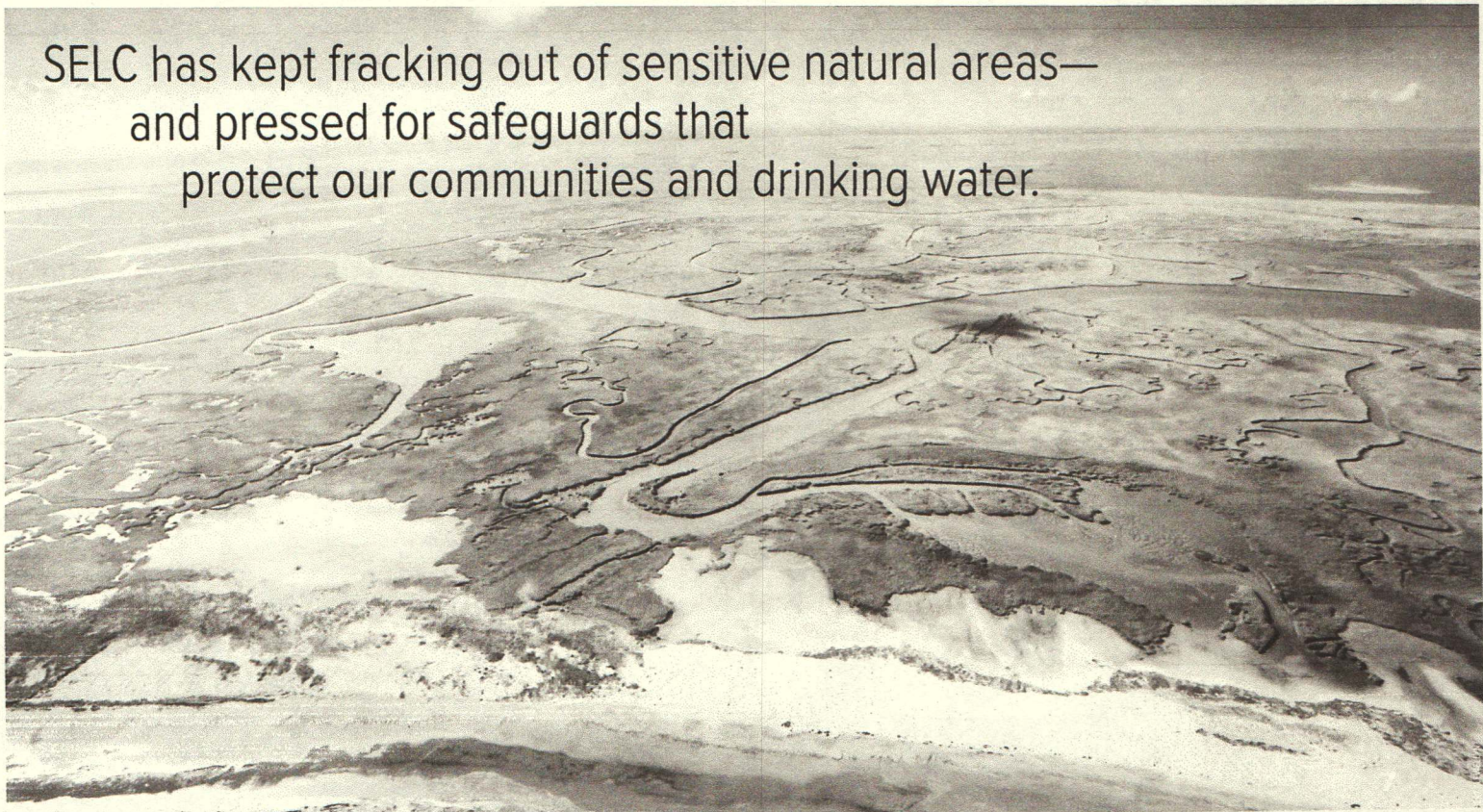
SELC had other ideas. In response to the threat we mobilized local partner groups, landowners, and governments, ensuring they understood what fracking would bring to the Shenandoah Valley. And we made sure the federal government listened to their concerns, so that in the end the Forest Service declined to open any new lands in the GW to drilling.

This strong defense of local voices extends throughout the southeast. Near the Chesapeake Bay, SELC is providing advice and legal guidance to communities in eastern Virginia concerned about fracking on nearly 86,000 acres leased for gas development. Our advocacy led to the Virginia Attorney General's landmark declaration that localities have the right to regulate fracking in their communities—a reversal of the state's earlier position.

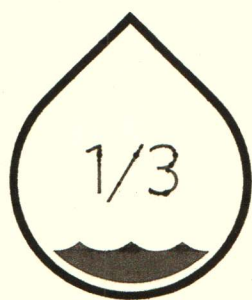
In Tennessee, we headed off a University of Tennessee proposal to frack on public lands in the Cumberland Forest by revealing it was simply a moneymaking scheme disguised as a research study. When the North Carolina state legislature attempted to fast-track fracking by taking over the Mining and Energy Commission, we stepped in with a legal challenge to maintain the state's fracking moratorium.

SELC's continued vigilance is required if local communities are to protect themselves from fracking.

SELC has kept fracking out of sensitive natural areas—
and pressed for safeguards that
protect our communities and drinking water.



WATER PRESSURE: THE DEMAND FOR URBAN WATER



OF THE
100 LARGEST
CITIES ARE

WATER
STRESSED



THE TOP 10

Largest cities under water stress:

Tokyo
Delhi
Mexico City
Shanghai
Beijing

Kolkata
Karachi
Los Angeles
Rio de Janeiro
Moscow

CITIES ARE
GROWING FAST



3.9
BILLION
LIVE IN
URBAN
AREAS

2.5
BILLION
MORE
EXPECTED
BY 2050

STRAIGHT TO THE SOURCE:

WHAT
CONSERVATION
CAN DO

700
MILLION

People living in the
world's 100 largest cities
could benefit from
improved water quality
if these conservation
strategies are used:

THE NATURE-TO-FAUCET PIPELINE: THE JOURNEY FROM WATERSHED TO CITY

wa·ter·shed

A region that drains into a body of water.



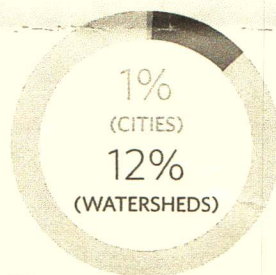
RIVERS



FORESTS



PRAIRIE



The 100 largest
cities in the world
take up less than
1 percent of the
planet's land area,
but their source
watersheds cover
more than 12
percent (an area
roughly the size
of Russia).

THE WORLD'S CITIES MOVE

130

BILLION GALLONS A DAY

(A DISTANCE OF 16,800 MILES)

THE COST:

90
BILLION
A YEAR

SPENT BY
CITIES ON
INFRA-
STRUCTURE
TO DELIVER
AND TREAT
WATER



43% OF URBAN WATER SUPPLY COMES FROM MOVING
WATER FROM ONE WATERSHED TO ANOTHER



5 CONSERVATION STRATEGIES

1
BETTER FARMING
PRACTICES

2
FOREST
PROTECTION

3
BUFFERING
RIVERSIDES

4
FOREST FIRE
MANAGEMENT

5
REFORESTATION

SOURCE: URBAN WATER BLUEPRINT, PAGE 44; © CARL LARSON/GETTY IMAGES

WATER CONSERVATION

Healing America's "Great Waters"

From coast to coast, conservation coalitions are fighting to restore major U.S. watersheds

By Laura Tangley

Until recently, the main flights onto Lake Michigan's Northerly Island were by planes landing at Meigs Field airstrip. But today this site boasts 40 acres of rolling hills and native plants that instead attract flights of winged wildlife, from butterflies to migratory birds. Transformation of the former Chicago airfield into a wildlife oasis "is an example of one of the most successful conservation efforts in America today: the restoration of the Great Lakes," says Todd Ambs, campaign director for the Healing Our Waters-Great Lakes Coalition.

Opened in a ribbon-cutting ceremony last October, the preserve is among more than 2,500 projects across the Great Lakes region funded through the \$2 billion Great Lakes Restoration Initiative (GLRI). During the past six years, this effort has cleaned up toxic waste, cut nutri-


ent pollution, controlled invasive species and restored or protected more than 150,000 acres of wildlife habitat.

"Just over a decade ago, scientists said the Great Lakes were at a tipping point, beyond which their health would be in jeopardy," Ambs says. Such concerns led clean-water advocates, including the National Wildlife Federation, to convene a 2004 conference that spawned the Great Lakes coalition. Co-chaired by NWF, the coalition now has more than 125 members, from local, state, regional and national environmental groups to museums, zoos and outdoor-recreation organizations. Such diversity has made the group a powerful force for conservation, giving rise to the GLRI as well as strong bipartisan support for its long-term funding.

National movement emerges

Thanks to the coalition's success, similar alliances have emerged nationwide. They include the Coali-

tion for the Delaware River Watershed, Restore the Mississippi River Delta Campaign and Choose Clean Water Coalition (see page 32)—all co-chaired by NWF.

The Federation and its partners also have launched a nationwide water-restoration alliance. The America's Great Waters Coalition targets "one of the seminal challenges of our time," says Adam Kolton, the coalition's co-chair and NWF's vice president for national advocacy. "From Puget Sound to the Everglades, our nation's Great Waters face similar problems, including habitat loss, nutrient pollution and invasive species. They should not have to compete for funding." He adds that greater strength can come from greater numbers. "The coalition thinks of itself like NATO," Kolton says. "An attack on one Great Water is an attack on them all." 

Laura Tangley is senior editor.



U.S. ARMY CORPS OF ENGINEERS



JUDY LYLE

At the site of a former airstrip on Chicago's Northerly Island, wildflowers and other native plants now adorn a 40-acre preserve (left). This new wildlife oasis provides food and shelter for pollinators as well as for wading birds such as the American bittern (right).