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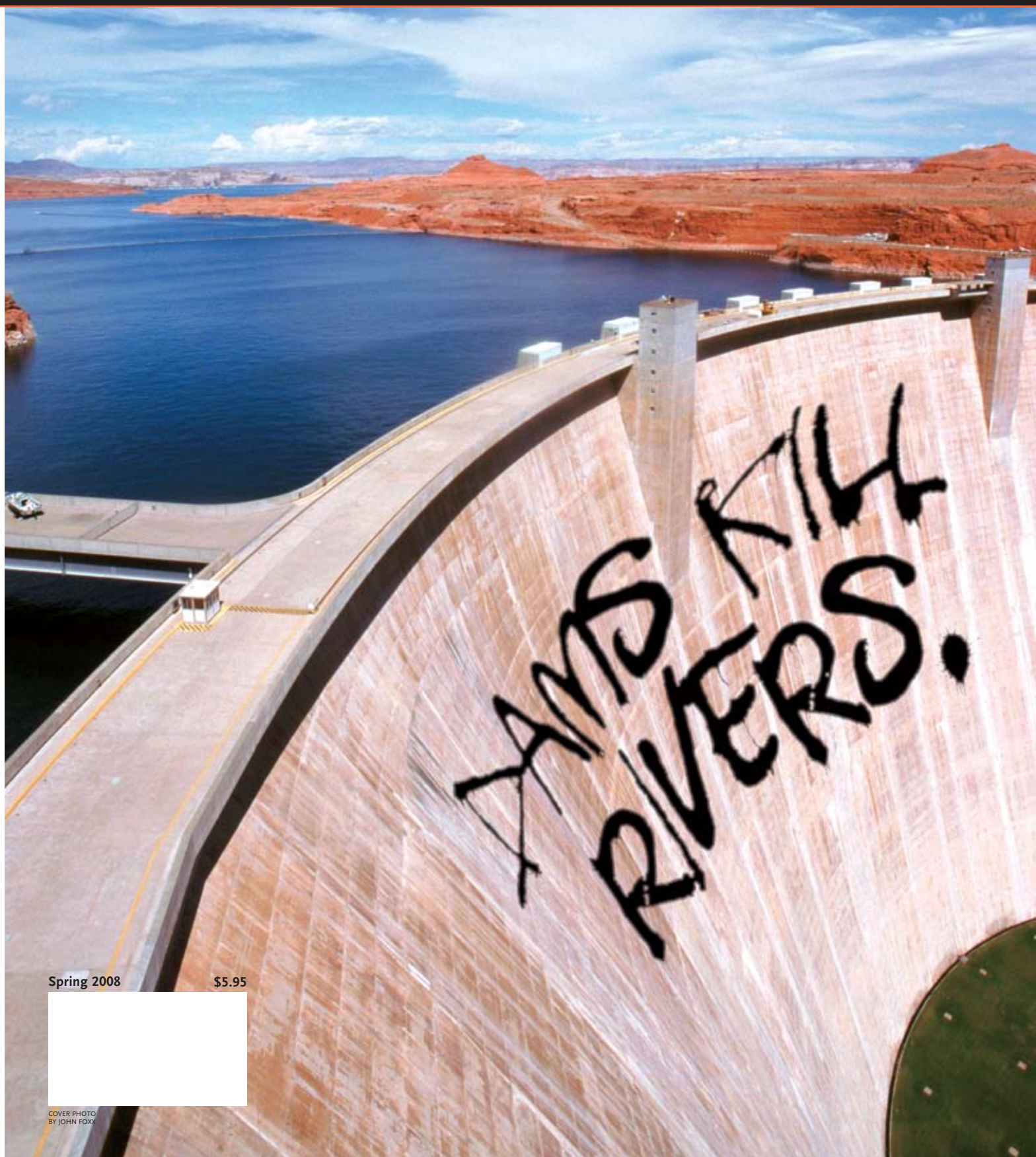

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Volume 4, Number 4

Spring 2008


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Volume 4 Number 4, Spring 2008

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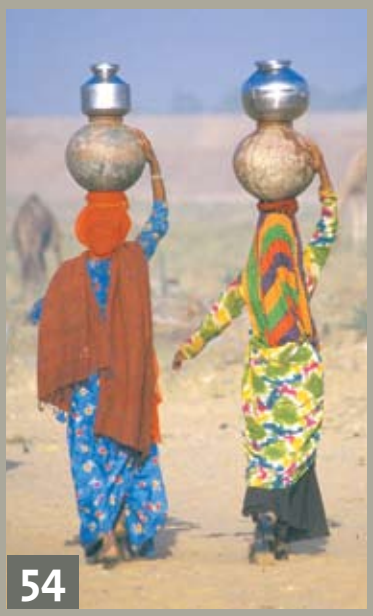


We all need clean water to survive.
Be brave. Join me, my father and all our John Paul Mitchell Systems family to help protect our world, our waterways, our people and every living creature. -J.A. DeJoria, Age 10, with non poisonous bull snake
Peace, love and happiness,
John Paul DeJoria, CEO, and the entire John Paul Mitchell Systems family,
supporters of Waterkeeper Alliance
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Letter from the Chairman

Robert F. Kennedy, Jr.

The Grand Canyon

In 1967 my father took me and eight of my brothers and sisters on a Colorado River white water trip through the Grand Canyon. Just above our put-in, Glen Canyon Dam had been completed three years before and Lake Powell was still filling. The new dam complemented the Hoover Dam nearly 300 miles downstream at the other end of the Grand Canyon. Together, they promised to irrigate a thirsty west, generate hydropower and create great lakes with recreational opportunities for millions. But critics thought Glen Canyon Dam a wasteful and reckless boondoggle to corporate agriculture and greedy developers. Environmentalists said the dam would destroy the Grand Canyon National Park's unique ecology and that the lakes would lose horrendous amounts of water to evaporation and seepage and would soon fill with sediment.

That year we camped on the Colorado's massive sandbars. In 2006, I returned to paddle the Grand Canyon with my daughter Kick, my life-long hero and Harvard classmate Wade Davis and his daughter Tara. I was sad to see that the spacious sandy beaches and massive driftwood piles where I camped with my father were gone; the sands that once fed them are now trapped above the dam. The river, which should be warm and muddy is clear and a frigid 46 degrees. Four of her eight native fish species are extinct, with two others headed there soon. The canyon's beaver, otter and muskrat populations have disappeared, as have its indigenous insect species. Sediment has already flatlined hydropower and nearly choked the upper reaches of Lake Powell, which is in severe decline as a tourist destination. The Colorado River no longer reaches the sea or feeds the great estuaries in the Gulf of California that once teemed with life. Instead, it ignominiously dies in the Sonoran desert. What was once a dynamic and specialized ecosystem cutting through the greatest monument to America's national heritage has been transformed into a cold water plumbing conduit between the two largest reservoirs in the United States—monuments to greed, short-sightedness and corporate power.

All the grave prophecies of scientists and environmentalists have come true. The reservoirs are emptying because of human consumption and evaporation, a situation now exasperated by climate change. Lake Powell is nearly 100 feet below its capacity level. Hydropower revenues have been at a standstill for six years. Recreation access at the upper reaches of Lake Mead and Lake Powell are now obstructed by savannahs of sedimentary mud. Water quality is dropping precipitously and farmers need more water to flush the dissolved solids from their fields. Yet the sprawl development and agribusiness consumption triggered by the dam's original promise continue their ferocious pace.

> In the Grand Canyon... privatization of public trust waters is occurring as governments subsidize reckless and unsustainable water use that favors greedy developers, powerful utilities and agribusiness barons over the American public.

The Colorado River is the poster-child for bad river management. Water and power agencies obstruct and control her waters to favor hydropower production over the river's management as a national park. The federal government provides oceans of money to corporate agribusiness to raise wasteful water-dependent crops like rice and alfalfa in the desert. Meanwhile, local and state governments encourage sprawling and water-hungry commercial and residential developments by offering tax breaks and by subsidizing infrastructure including roads, sewer lines and electricity. With such inducements developers are building golf courses and swimming pools in the Arizona desert. They have drained the Colorado River dry and are now depleting the 112-million-acre, ten million-year-old Ogallala Aquifer under the Great Plains states, which has dropped several hundred feet since modern irrigation practices surged following World War II.

It's not too late to implement rational water policy that serves America's citizens. If the grotesque handouts ceased, we could easily meet today's needs, while protecting the rights of our children. We must adopt healthy legal and economic rules that reward the efficient use of water and punish misuse.

The struggle for control of water is intertwined with the fight to preserve democracy from the corrosive impacts of expanding corporate power. The best measure of how a democracy functions is how it distributes the goods of the land; the air, waters, wandering animals, the fisheries and public lands, otherwise known as the "public trust," or the "commons." By their nature these resources cannot be reduced to private property but are the shared assets of all the people held in trust for future generations. Since ancient times, the law of all just and equitable nations has protected these public

trust assets as the property of all citizens be they humble or noble, rich or poor.

Roman law, our most ancient legal heritage, held that the most fundamental "natural" or God-given law required that the "air, running water, the sea, and consequently the sea shore" could not be owned as private property but were "common to all" Roman citizens. The Romans vigorously protected the waterways and the resources of the sea, seashore, estuaries, wetlands and fisheries from control by private individuals. Everyone has the right to use the commons, but only in a way that does not diminish its use by others.

The first acts of a tyranny invariably include efforts to privatize the commons. Despotic governments typically allow favored persons or powerful entities to capture and consolidate the public trust and steal the commonwealth from the public.

Following Rome's collapse, Europe's kings and feudal lords appropriated public trust assets, including rivers and streams, and dispensed them without regard to public rights. In the early years of the 13th century, Britain's King John fenced in England's forests and streams, erected navigational tolls and placed weirs in the rivers in order to sell private monopolies to the fisheries. The exclusion of the public from the rivers and waterways, and the stifling of commerce that ensued, helped prompt a citizens' revolt. In 1215 angry armed Brits confronted King John at Runnymede, forcing him to sign the Magna Carta, which laid the foundation for constitutional democracy by guaranteeing the personal liberties of the people of England. Centuries later it served as the blueprint for the Bill of Rights in the U.S. Constitution.

Among the rights reaffirmed by the Magna Carta were "liberty of navigation" and a "free fishery" so that, according to Britain's seminal legal authority, Blackstone, "the rivers that were fenced [by the King] were directed to be laid open." Subsequent court decisions interpreted that document to mean that "the King was trustee" holding public waters "as protector of public and common rights" and "he could not appropriate them to his own use." Eleventh-century French law provided that "the running water and springs… are not to be held by lords… nor are they to be maintained… in any other way than that their people may always be able to use them." Thirteenth-century Spanish law likewise ensured the public inalienable rights in rivers, springs and shores.

Neither could the King sell public trust assets to a private party. The nineteenth-century legal scholar Schultes described public trust rights as "unalienable." He explained that "things which relate to the public good cannot be given, sold, or transferred by the King to another person." Woolrych, another leading legal scholar of the period, added that "notwithstanding such a grant, if the public interest be invaded, or the privileges of the people narrowed, the grant, *pro tanto* is void."

Following the American Revolution, each state became sovereign, inheriting from King George III the trusteeship of public lands and waters and wildlife within its borders. Both the federal government and the individual states recognized the public trust in their statutes and ordinances. For instance, Massachusetts' Great Pond Ordinance of 1641 assured public access to all consequential water bodies. The federal government's Northwest Ordinance of 1787 gave all U.S. citizens unrestrained access to all the tributaries of the St. Lawrence and the Mississippi and proclaimed that those waters and "the carrying places between shall be common highways and forever free… ."

The struggle over the world's water resources will be the defining struggle of the 21st Century. In 1999, following the advice of the World Bank, the Bolivian government allowed the city of Cochabamba, Bolivia, to contract with a subsidiary of the Bechtel Company to take over the city's public water supply. The company immediately raised water rates, causing profound hardship for all but the city's wealthiest citizens. The public revolted against the rising rates. Massive street protests pitted rock-throwing mobs of Cochabamba's poor against riot police who killed and maimed them. This mini-revolution caused Bolivia's government to collapse and rescind the privatization of the city's water. This was no communist mob bent on nationalizing legitimate private property. Cochabamba's citizens were engaged in the most fundamental fight for democratic rights.

Like the citizens of Great Britain in 1215, Cochabamba's citizens saw the privatization of the commons as a threat to their democracy and their lives. While privatization controversies in this country have not yet provoked hot confrontations like Cochabamba's, public utilities across North America are conveying water supplies to private companies, often at fire-sale prices. In recent years, only vigorous protests by citizens have kept corporations from privatizing the water supplies in places like Lexington, Kentucky and Stockton, California.

MACGILLIVRAY-FREEMAN FILM COMPANY

Grand Canyon Adventure: River At Risk

In 2006 Waterkeeper Alliance Chairman Robert F. Kennedy, Jr. (rowing) and his daughter Kick (front right) joined anthropologist/author/explorer Wade Davis and his daughter Tara (front left) on a white water trip down the Colorado River through the Grand Canyon. The expedition was filmed by MacGillivray-Freeman Film Company as a 3D IMAX feature, *Grand Canyon Adventure: River At Risk.*

In the Grand Canyon and elsewhere, a more subtle but equally effective privatization of public trust waters is occurring as governments subsidize reckless and unsustainable water use that favors greedy developers, powerful utilities and agribusiness barons over the American public. Destructive government policies are draining our nation's rivers and aquifers and trampling our democratic rights. It's time for another kind of Battle of Runnymede — a peaceful uprising that will return to Americans their fundamental rights to their waterways. **W**

ON THE COVER

"Any discussion about restoring the Colorado River in Grand Canyon must begin and end with draining Lake Powell and removing Glen Canyon Dam."
— Owen Lammers, Executive Director
Living Rivers/Colorado Riverkeeper
Photo: John Foxx

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

Getting the Paper Right!

Waterkeeper magazine is printed on 100% post-consumer recycled paper generated with wind power. We hope that other publications will join us in committing to protect our environment and building the market for environmentally sustainable products. The environmental savings from this switch are enormous:

- **698** trees preserved for the future
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CO_2 Waterkeeper and Mohawk paper are proud to announce that using wind power and offsets we have achieved carbon neutral paper production.

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www.WATERKEEPER.org
The official magazine of Waterkeeper Alliance

MISSION: Waterkeeper Alliance connects and supports local Waterkeeper programs to provide a voice for waterways and communities worldwide.

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Who is Waterkeeper Alliance?

Waterkeepers enforce environmental laws. Each Waterkeeper is the guardian of the river, lake, bay or shoreline in their community, patrolling their waterway and standing up to polluters.

Waterkeeper Alliance is a powerful coalition of 177 local Waterkeeper programs — Riverkeeper, Baykeeper, Coastkeeper, and other grassroots Waterkeeper organizations connected into a unified international force for environmental protection.

Take action. Get involved. Join us.

Tom Ford is your Santa Monica Baykeeper.

BENJAMIN SHIGHMAN

WATERKEEPER® ALLIANCE

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Everyone has the right to clean water. It is the action of supporting members like you that ensures our future and our fight for clean water and strong communities. Join Waterkeeper Alliance and get **WATERKEEPER** for one year.

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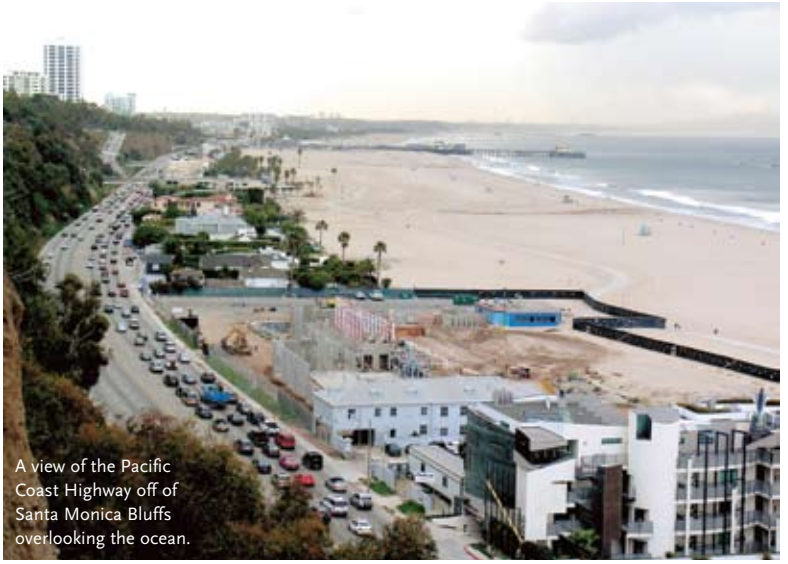
Waterkeeper Alliance is a 501(c)(3) non-profit organization. Your $50 contribution or more entitles you to receive a one year subscription to **WATERKEEPER** magazine, which has an annual subscription value of $12. The balance of your contribution is tax deductible to the extent allowed by law.

{{Ripples}}}}}}



A view of the Pacific Coast Highway off of Santa Monica Bluffs overlooking the ocean.

CalTrans to Clean Up Stormwater Pollution

Millions of gallons of pollution will be kept out of Southern California waters and beaches after Santa Monica Baykeeper and the Natural Resource Defense Council reached an unprecedented agreement in January with the California Department of Transportation (Caltrans). The agreement forces the state transportation agency to dramatically reduce dangerous runoff from 1,000 miles of highways across Los Angeles and Ventura Counties.

Each year oil, sediments, metals and nutrients wash into Southern California waters from the highways and freeways. Pollution in some stormdrains is dangerous enough to qualify as hazardous waste. The new agreement will reduce stormwater pollution 20 percent below 1994 levels and is expected to keep more than six million pounds of pollution out of area waters every year, including toxic zinc, lead and other debris.

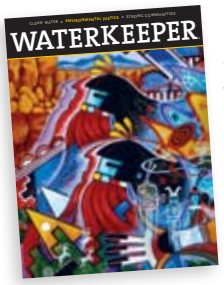
Brayton Point

The U.S. EPA reached a historic settlement with the operators of the Northeast's dirtiest coal-fired power plant last December, ending the destructive practice of once-through cooling at the Brayton Point Station in Somerset, Massachusetts. In 1985, Brayton Point began swallowing one billion gallons of water per day to cool its machinery and discharging the water back into nearby Mount Hope Bay at 95° F. Immediately, fishermen observed troubling declines in the local fish stocks, calling the once productive Mount Hope Bay a dead zone. Studies later demonstrated that Mount Hope Bay experienced an unprecedented 87 percent reduction in overall fish abundance and diversity.

Narragansett Baykeeper and its parent organization Save the Bay celebrated the settlement, the culmination of a 15-year long advocacy campaign promising full compliance with the Clean Water Act. The agreement follows a federal court ruling last year in favor of Waterkeeper Alliance stating that EPA cannot allow power plants to kill a trillion fish per year through their cooling water intakes. The Brayton Point owners will now spend an estimated $500 million dollars to build 450 foot-high natural draft cooling towers, and Narragansett Baykeeper will continue to work with a network of organizations to restore fish populations and bring the bay back to life.

Splashback

Environmental Justice Renewal Act Introduced



In January 2008 Senator Hillary Rodham Clinton (D-NY) and Congresswoman Hilda L. Solis (D-CA) announced the introduction of the Environmental Justice Renewal Act. The act will codify the 1994 Executive Order on Environmental Justice and strengthen the federal infrastructure to address environmental justice. It will increase accountability by requiring routine, independent evaluation of the government's actions to reduce and eliminate the disparate impact of environmental pollution on minority and low-income communities.

State Secrets: MD Chicken Farms, part III

Maryland big chicken is so afraid of transparency that our campaign to shine a light on their waste management practices was recognized as one of their biggest fears at a recent industry meeting.

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USDA ORGANIC

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JENNY TURPIN STUDIO

JENNY TURPIN STUDIO

The town of Murrurundi in New South Wales, Australia, came to life last November when a thousand people saw the unveiling of *River Quiver*, a sculpture created by 180 schoolchildren and environmental artist Jennifer Turpin at an event co-hosted by Upper Hunter Waterkeeper.

Working on the Railroad

In February NY/NJ Baykeeper and Hackensack Riverkeeper and the New York, Susquehanna and Western Railway Corporation (NYS&W) announced a settlement of their federal litigation regarding solid waste transload facilities in Hudson County, NJ. The Waterkeepers, represented by Richard Webster of the Eastern Environmental Law Center, originally sought to stop NYS&W from conducting activities at five facilities in North Bergen where waste materials (primarily construction debris and contaminated soils from cleanup sites) are loaded into railcars for shipment to out-of-state disposal sites. Since commencement of the litigation, three of the facilities were closed. At one of the remaining facilities, NYS&W enclosed the operations and installed systems to control wastewater and dust. At the other, NYS&W has agreed to take additional operational measures to minimize its environmental impact.

As part of the settlement — in which NYS&W does not admit any liability or wrongdoing of any kind, or of any violation of or any failure to comply with any applicable law — NYS&W has also agreed that any unpermitted facility for the loading of waste into railcars which it operates in the future will have effective safeguards to protect the environment. Additionally, NYS&W has agreed to contribute $30,000 towards a project to benefit the environment.

Valuable Waterfront and Wildlife Habitat Protected in Mattapoisett, MA

Over 100 acres of salt marsh and coastal forest, known as West Hill, has been permanently protected by The Coalition for Buzzards Bay (home of Buzzards Baykeeper) and the Mattapoisett Land Trust. West Hill supports threatened and endangered species such as diamondback terrapins as well as shorebirds like American bitterns and roseate and least terns.

NY/NJ Baykeeper Hosts Low-Impact Development Conference

NY/NJ Baykeeper invited environmentalists, academics, government officials and concerned citizens from the Hudson-Raritan Estuary area to discuss the present and future state of Low Impact Development at a conference this February. The attendees assessed the use of rain gardens, green roofs, permeable pavements and other technologies to stop stormwater from overwhelming area sewer systems during heavy wet weather events.

HONOR

Upper Neuse Riverkeeper Dean Naujoks receiving the award on behalf of the Neuse River Foundation.

Neuse River Foundation Receives Conservation Communication Award

The Wake Soil and Water Conservation District presented its Dan Wilkinson Conservation Communication Award to the Neuse River Foundation for leadership in communicating the message of natural resource stewardship.

Waterkeeper Family Album

CONGRATULATIONS!

Jack Zander, born to Waterkeeper Alliance staff member Marc Yaggi and Sarah Douglis on February 22, weighed in at a whopping 9 lbs. 7 oz. ▶

Thomas Gustvus Colhoun was born to West Rhode Riverkeeper's Amy Colhoun on January 15, 2008 ▶

Neuse River Film Festival and Puppet Show

Neuse River Foundation celebrated the 3rd Annual Neuse Riverkeeper Film Festival in four major cities across North Carolina in late January and early February. Each year the festival showcases films from diverse genres with one thing in common—water. This year the festival featured a puppet show about animals determined to help protect their habitat.

Olin Busted for Mercury Cover-Up

Savannah Riverkeeper halted Olin Corporation's plans to cover up their mercury-contaminated wastewater channel in Augusta, Georgia. The mercury-cell chlorine plant is the second greatest source of mercury pollution in the state. Two years ago, Savannah Riverkeeper brought the company under scrutiny for contaminating the nearby channel with mercury at 100 times the concentration lethal to aquatic life. The company was ordered to negotiate a proper disposal plan with the state environmental agency. But in January, Riverkeeper noticed that Olin began construction to just cover the mercury sediment without state or federal approval. The company's construction plans have been rejected by the state and Olin must now wait for state approval before proceeding further.

A view of the contaminated channel with the Olin plant in the distance.

Timber Company to Clean Up Cancer-Causing Dioxin

The Simpson Timber Company must remove tons of dioxin-laden sediment from a contaminated site near Humboldt Bay, in Eureka, California, after Humboldt Baykeeper and Californians for Alternatives to Toxics reached a settlement with the company this February. Baykeeper and their partner filed suit against Simpson two years ago after tests indicated that the bay was polluted with dioxin at levels tens of thousands of times higher than federal standards. Dioxin is one of the most potent carcinogens known. The contamination is a remnant of a now widely-banned wood preservative called pentachlorophenol that the timber company used in the 1960s.

The Simpson Timber Company on Humboldt Bay, 1947

Under the settlement, Simpson must dig up contaminated sediment from the site, adjacent to Humboldt Bay's only public fishing pier, and haul it to a licensed disposal location. The company must also restore the site as a functioning wetland and install groundwater-monitoring wells to ensure that the residual contamination does not leave the site. In addition, a Humboldt Bay Wetlands Restoration Fund will be established for restoration projects to offset damage caused by the contamination.

Precedent Setting Victory for Standing in Mexico

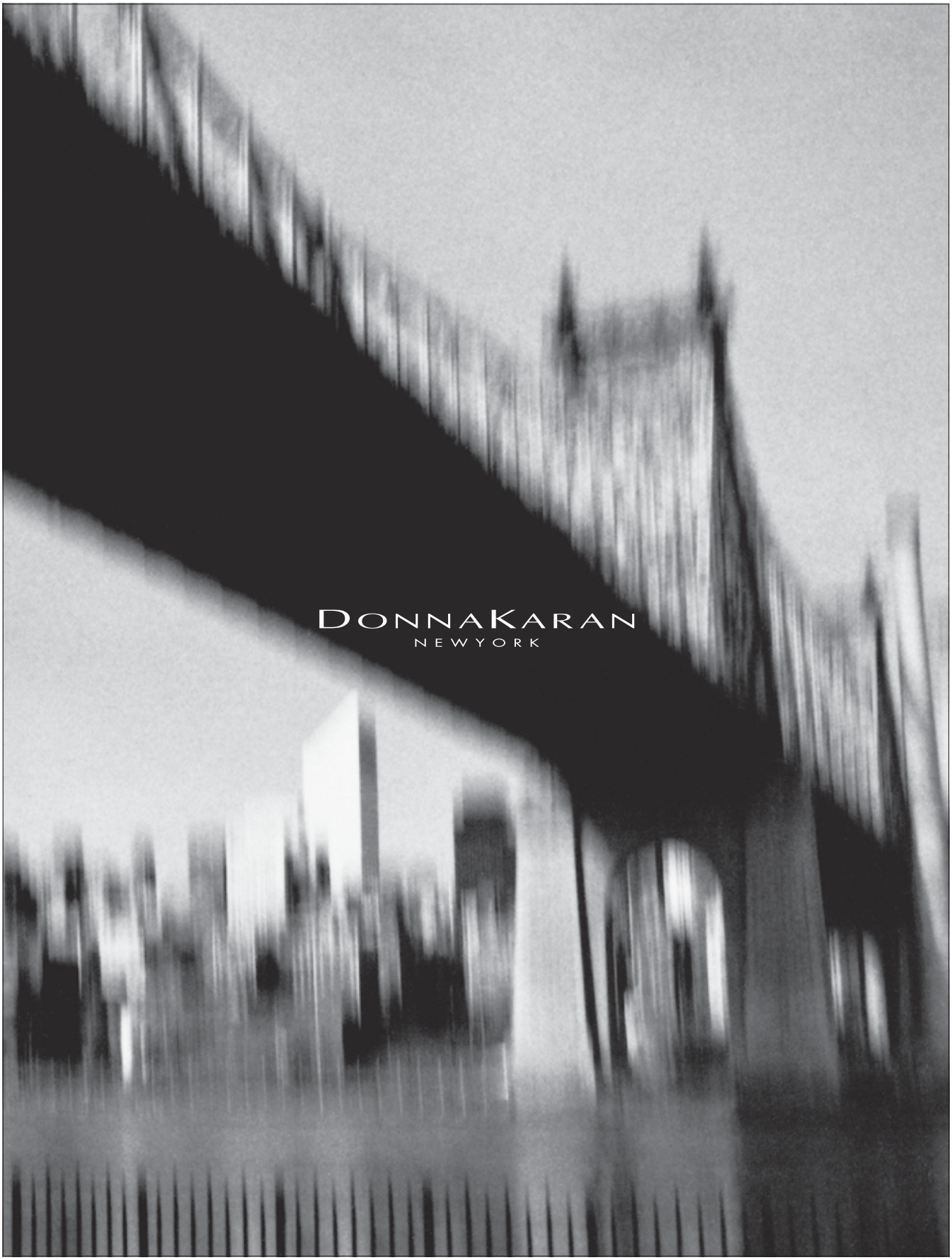
Defensa Ambiental del Noroeste (DAN), a Mexican legal advocacy group that works closely with Baja California Waterkeepers, won an important victory in Mexican Federal Court. The decision stems from litigation initiated by DAN against the federal Secretary of Environment and Natural Resources for illegally granting the company Terminal de Gas GNL Sonora permission to construct and operate a liquefied natural gas terminal on the Sonoran coast of the Gulf of California. This case establishes a strong legal precedent on standing — the ability of citizen groups to sue to protect the environment.

Historically, the Environmental Secretariat has systematically rejected appeals from civil society groups against the agency's resolutions authorizing mega-development tourism and industrial projects in sensitive ecosystems. The agency's argument has been that Mexican law does not permit citizens 'standing' in these cases, and so they cannot sue. This time was no different. In May 2007, DAN's standing in the case was denied. DAN, however, appealed the decision to a Federal Court, which ruled in DAN's favor. Mexican civil society groups and individuals now have much clearer access to use the courts to stop environmentally destructive projects and to encourage sustainable development.

Una Victoria que Sienta Precedente para Representatividad en México

Defensa Ambiental del Noroeste (DAN), un grupo de abogacía legal Mexicano y quien trabaja muy de cerca con Waterkeepers en Baja California, logro una importante victoria en una corte federal Mexicana. Esta decisión proviene del litigio que DAN inicio en contra de la Secretaria del Medio Ambiente y Recursos Naturales por haber otorgado ilegalmente un permiso a la compañía Terminal de Gas GNL Sonora para construir y operar una terminal de gas natural licuado en la costa Sonorense del Golfo de California. Este caso establece un gran precedente legal en representatividad donde grupos ciudadanos pueden demandar por la protección del ambiente.

Históricamente la Secretaria del Medio Ambiente sistemáticamente rechazaba los amparos provenientes de grupos de la sociedad civil que apelaban las resoluciones de esta Secretaria que autorizaba mega desarrollos turísticos y proyectos industriales en frágiles ecosistemas. El argumento de esta Secretaria era que la ley Mexicana no otorga a los ciudadanos representatividad en estos casos y por ende no pueden demandar. Las cosas parecían iguales en esta ocasión. En mayo del 2007, la representatividad de DAN en el caso fue rechazada. Sin embargo, DAN apelo esta decisión en una corte Federal y esta fallo a favor de DAN. Los grupos de la sociedad civil Mexicana y los individuos ahora tienen mayor y mejor acceso al uso de las cortes para evitar proyectos destructivos y promover el desarrollo sustentable.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WATERKEEPER Clean and Safe Energy Campaign:

Mercury

America's 1,100 coal burning power plants spew 48 tons of mercury each year, poisoning our waters, our fish and our communities. Human beings exposed to mercury face a grim inventory of terrible illnesses including neurological and kidney damage, liver failure and fatal heart disease. Federal scientists estimate that 410,000 American children are born each year with unsafe levels of mercury in their blood putting them at risk of mental retardation and permanent IQ loss. These health risks are unacceptable.

Waterkeeper Alliance is forcing improvements in federal mercury control policies and taking aggressive legal action against individual mercury polluters. Already in 2008 we have scored major victories on both these fronts.

VICTORY: Mercury Control Rules

In 2005 Waterkeeper Alliance, in coalition with public health and environmental groups, fourteen states and dozens of Native American Tribes, filed a lawsuit challenging weak mercury control rules issued by U.S. EPA. Those rules would have allowed coal-fired power plants to continue to dump mercury into our waterways for decades to come. On February 8, in a complete victory, the U.S. Court of Appeals for the District of Columbia invalidated EPA's rules. The Court found that EPA's removal of power plants from the Clean Air Act's list of toxic sources and the creation of an anemic "cap and trade" regulatory scheme were in violation of federal law. With EPA's rules declared illegal, the Agency is now obligated to develop new standards for power plant mercury emissions that demand proven, affordable technologies to reduce mercury emissions.

VICTORY: DTE Case

Waterkeeper Alliance Legal Director Scott Edwards, a Canadian citizen, filed charges last year alleging that DTE Energy's coal-fired energy complex on the banks of the St. Clair River violated Canada's Fisheries Act. Currently, both the Canadian and U.S. sides of the St. Clair are subject to highly restrictive fish consumption advisories because of elevated levels of mercury. Native populations along the Canadian side of the river have had their commercial fishing rights stripped away because of the devastating neurological effects on developing fetuses and young children that can result from eating mercury-contaminated fish. Canadian law allows any Canadian citizen to independently prosecute water pollution offences in the criminal courts, and potential fines under the Fisheries Act can be up to $1 million a day. On January 17 a Canadian court gave the green light for the prosecution of the U.S. energy company for mercury pollution of the St. Clair River. DTE Energy will soon have to answer to a Canadian judge for poisoning Canadian waters, fish and citizens.

The energy industry and EPA have been claiming that they are unable to control mercury emissions. But that's simply not true. A U.S. Department of Energy-sponsored test of pollution control technology in 2004 reduced mercury emissions by 94% at the same St. Clair plant that Edwards is prosecuting. Unfortunately, at the conclusion of the 30-day test, DTE Energy stopped using the mercury control technology and today continues its mercury emissions unabated. By forcing DTE Energy to reinstall this technology, while at the same time forcing EPA to rewrite its illegal mercury rule, Waterkeeper will make 90 percent mercury reduction technology the standard for all U.S. coal-fired power plants.

Vintage Petroleum to Stop Pollution

A gas production facility owned by Vintage Petroleum must now protect area waters after Santa Barbara Channelkeeper collected evidence that the facility was polluting a small creek that opens into two public beaches. Channelkeeper initially became aware of the problem during a winter storm in 2007 when a large amount of sediment was discharging from the creek mouth to the ocean. Water samples revealed unusually high levels of petroleum hydrocarbons in the surface water. Channelkeeper notified the Los Angeles Regional Water Board, which confirmed multiple pollution violations and sediment concentrations over 1,000 times benchmark levels. Vintage Petroleum, owned by the fifth largest petroleum producer in the U.S., will now have to control sediments and other pollutants from the site. The violations also send a warning to the Los Angeles Water Board that they must do their job and monitor these facilities to keep the Southern California Coast clean and safe for the public.

No Water Left Behind

By Janelle Robbins, Waterkeeper Alliance Staff Scientist

Wetlands are critical for birds, wildlife, flood protection and natural beauty.

ROSALIE WYLAND (WILD BIRDS OF THE AMERICAN WETLANDS)

Boundaries

Water has no regard for political boundaries or human law. While a waterway may be geographically or politically isolated, no waters are hydrologically or ecologically isolated. Water moves underground and out of sight, forming complex physical, biological and chemical connections between waterbodies. The destruction or pollution of any part of the aquatic system creates a ripple effect, damaging the integrity of entire ecosystems.

In the early 1970s, faced with public outrage over the state of American waterways, Congress decided that a new federal law was needed to protect our nation's waters. Many in industry agreed; federal standards would avoid different regulatory approaches in 50 different states and, some argue, allow a single point of influence for enforcement and implementation of the law.

Key to a federal approach was ensuring that the federal government had the authority to regulate waters that run through individual states. Large waterways are easy; protecting interstate commerce and the 'navigability' of waters has been a recognized function of the federal government since the 1899 federal Rivers and Harbors Act, or before. But in the case of small streams and wetlands, federal authority is derived through other legal mechanisms. The 1972 Clean Water Act includes protections for wetlands and small headwater streams.

In the 1990s developers, wanting to loosen protections, brought lawsuits that challenged federal authority to regulate wetlands and streams. Decisions by the Supreme Court in two of these cases have been used by states, developers and the Bush administration as an excuse to undermine federal authority and not protect small streams and wetlands.

The 2001 *Solid Waste Agency of Northern Cooke County v. U.S. Army Corps of Engineers* decision narrowly finds that one mechanism, use of a waterway by migratory birds, is not adequate for determining federal authority. In 2006 the Supreme Court issued a split decision in *Rapanos v. U.S.* — four versus four — with one decision in the middle. That middle decision, by Justice Anthony Kennedy, requires a test to establish a "significant nexus," or a physical, biological or chemical connection between the wetland or stream in question and a waterway that is navigable.

The Bush administration seized on the rulings and stopped enforcement of the Clean Water Act. The Army Corps of Engineers, which oversees federal wetlands protection, and EPA issued directives to their field staff to immediately stop applying Clean Water Act protections unless they first receive permission from Army Corps headquarters in Washington. Anywhere from 20 million to 80 million acres of wetlands and countless other small waterways effectively lost federal protection. Around the country developers rushed to build on wetlands and small streams that for 30 years had federal protection.

Polluters and developers claimed victory with the *SWANCC* and *Rapanos* rulings, asserting that they have the right to fill, drain and otherwise de-

stroy these small but extremely important waters. Around the nation, Waterkeepers are on the frontlines, fighting to maintain protections despite the federal government's dereliction of duty.

Black Warrior Riverkeeper, Alabama

In 2005, a jury convicted McWane, Inc. and three of its employees on 20 counts including conspiracy to violate the Clean Water Act, defrauding the U.S. and violating their Clean Water Act permit for illegally discharging hydraulic oil, metals and trash to Avondale Creek. But after *Rapanos*, an appellate court struck down the convictions, saying that Avondale Creek lacked a "significant nexus" to the Black Warrior River. The court claims that the creek is not protected by the act, yet McWane possessed a Clean Water Act permit to discharge into it. The creek is physically connected to the Black Warrior via Village Creek and the Locust Fork, which is in fact navigable. If it were not, barges could not deliver coal to the Miller Steam Plant at their confluence. This sets a bad precedent for holding other industrial polluters accountable on Avondale Creek and throughout the state, putting much of Alabama's natural resources at risk.

Shenandoah Riverkeeper, Virginia

A 1200-person campground and water park development has received a provisional permit to discharge at least 39,000 gallons of sewage per day to a nearby stream. Located on the edge of the George Washington National Forest, this stream is in a location known for sinkholes and caves, and is in an ecologically important headwaters region. Without Clean Water Act protection, this stream will literally run with sewage.

Kansas Riverkeeper, Kansas

In 2001 the State of Kansas passed their own Dirty Water Act, reclassifying roughly 40 percent of streams in the state and eliminating federal protections. Kansas Riverkeeper fought this ruthless bill, but lost to the powerful agricultural lobby, which represents the largest polluters in the state. So far the Kansas Department of Health and Environment has removed protections for 68 stream segments in the Kansas River watershed, putting the Kansas River in terrible peril.

Clean Water Restoration Act

This erosion of the reach of the Clean Water Act paves the way for development on top of streams and wetlands and the unfettered pollution of our waterways. The Clean Water Restoration Act is a bill being considered by Congress that clarifies the definition of 'waters of the United States' in the Clean Water Act:

> … all waters subject to the ebb and flow of the tide, the territorial seas, and all interstate and intrastate waters and their tributaries, including lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, natural ponds, and all impoundments of the foregoing, to the fullest extent that these waters, or activities affecting these waters, are subject to the legislative power of Congress under the Constitution.

This law will once again place all our nation's precious waterways back under federal protection, where they belong, once and for all. **W**

More than Water in Peril

Wetlands provide essential flood management. Floods cause approximately $3 billion in property damage and the loss of 200 human lives annually in the U.S.

Wetlands protect us from pollution. Restoring just one percent of a watershed's natural wetlands has the potential to provide a 50 percent reduction in nitrate and herbicide pollution from runoff.

Wetlands provide critical habitat. Forty-three percent of federally threatened and endangered species rely on wetlands for survival.

Small waterbodies afford us unspeakable natural beauty and valuable recreation. Every year, millions of Americans hunt, fish, canoe and watch wildlife. Recreational fishing in wetland-dependent coastal waters alone brings in $18 billion annually.

JEFF KELBLE, SHENANDOAH RIVERKEEPER

An intermittent stream — running only in the wetter parts of the year — may soon flow with more sewage than water.

Act of Imagination

In fall 2007 three founding members of Waterkeeper Alliance — **John Cronin** (former Hudson Riverkeeper), **Terry Backer** (Long Island Soundkeeper) and **Andy Willner** (New York/New Jersey Baykeeper) — sat down with *Waterkeeper* to discuss the founding and future of the Waterkeeper movement.

ANDY WILLNER: There was a reason, primarily John's vision, that we decided to come together as Waterkeeper Alliance. People should know something about what that vision was and why we did it.

TERRY BACKER: If you skip over how John came to Hudson Riverkeeper and the Hudson River Fishermen's Association, then you skip over the heart of what Waterkeepers are all about — people and their sense of place, their sense of ownership.

JOHN CRONIN: Yes, but I can't take credit for it. The idea that came out of the Hudson River Fishermen's Association and Bob Boyle, who wrote about it in his first Hudson River book in the 1960s called

Long Island Soundkeeper Terry Backer, Former Hudson Riverkeeper John Cronin and New York/New Jersey Baykeeper Andy Willner patrolled Long Island Sound before lunch and a conversation about the Waterkeeper movement.

EDDIE SCHER

Hudson River: A Natural and Unnatural History. Tom Whyatt was the first Hudson Riverkeeper in 1972. My first job on the Hudson was for the Clearwater organization. I worked with Tom on a project called Pipe Watch in 1973 investigating polluters to see if they were complying with their brand new Clean Water Act permits.

The Hudson River Fishermen discovered that when you called EPA or state authorities and asked for someone to talk to about the Hudson River, there was no one to talk to. They decided they needed their own person, somebody to pick up the phone and answer questions about the river or go look at a problem. Because the movement grew out of the minds of fishermen, it grew out of a strong sense of place and ownership.

BACKER: It's a sense of collective ownership. No one thought they owned it themselves, but they thought that as a community they owned it. I don't think anyone said, "It's mine."

CRONIN: It is a little bit of both. The idea behind the Public Trust Doctrine is not that anybody can do anything they want. The idea is that nobody can do anything that alienates anyone else. So, in that sense, it is a community right, but it is also an individual right that we're not supposed to be tromping on.

WILLNER: It comes from a tradition in common law that your neighbors are not supposed to devalue your property by their actions. Waterways are

public property. So when the public agencies, the trustees, don't take care of the property then it is up to the public to take a stand. It's a fairly straightforward concept.

BACKER: But it comes back to the same theme. I live here and if I don't have a right to do it, who does? If I don't have a responsibility to do it, who does?

WILLNER: Responsibility is a big part of this. Not only are we enforcing our rights as citizens to access clean water and edible fish, we are also advocating for the public's right to clean water. It's pretty straightforward stuff.

What's interesting is that a lot of us, without any training, managed to raise money and hire good people. We learned how to expand our influence and become more sophisticated politically. I was lucky because I had two great Waterkeepers close by to follow. So you guys were my model. I just did what I could to make my thing look like theirs, though New York Harbor is very different from the Hudson, which is very different from the Sound.

I think our success largely comes from a strong sense of adventure and a belief that the unexpected would direct us more than the expected.

CRONIN: When the Riverkeeper program started, all we had were all the horrors around us. We didn't have any model.

I was at the Mohonk Preserve [New York] two weeks ago and up in the wall above kids' drawings was a sign that read "pondkeepers." Pondkeepers are school children who are looking after ponds in the Shawangunk Mountains. That was the Hudson Riverkeeper model. Basically, what we did is say nobody else is doing this, it'll be a lot of fun to do, so let's just get out there and see what happens. You always want to take advantage of the experience of programs around you, but I think our success largely comes from a strong sense of adventure and a belief that the unexpected would direct us more than the expected. We had a strong sense of ownership.

WILLNER: When I started doing this I just assumed that we were going to change the way that the harbor was managed. That in 20 years we would be able to swim in the harbor; that we could save 8,000 acres of the Meadowlands. People thought I was nuts. When I asked established environmental leaders for help they would say, "Why bother?" They wrote off Newark Bay, the Passaic River and the Gowanus Canal because those are not places that anybody cares about. So I said, "Fuck you then, I'll do it." I really didn't have many people to go to for help, I could try John and Terry.

BACKER: And we'd say, "How the hell do we know?"

WILLNER: Exactly. The best advice I ever got from these two was, don't bother me anymore, just go figure it out. There are some things that we know work, having lawyers helps, having a good relationship with scientists helps. On the other hand, I was the one with experience running boats on the harbor.

CRONIN: One of the things that the early programs had in common was a tight focus on issues that were not already being tackled. So for us, directly confronting polluters, collecting evidence about violations of the law, responding to citizen complaints, these were things that weren't being done. One of the most wonderful days was when we held a news conference at the SoNo seafood restaurant in Norwalk, Connecticut. The place was packed with media and lobstermen and fishermen. We announced our lawsuits against sewage treatment plants on Long Island Sound. It was earthshaking not just because of the evidence we had collected and the constituency that cropped up to support us, but because it was simply a new way of doing business — to confront polluters and bring lawsuits.

As obvious as it might sound now, the things that Andy is talking about were not part of the agenda of environmentalists at that time. What distinguished the Waterkeeper was our belief that it was time for hands on, direct action.

I got a phone call from Andy saying he wanted to come up and talk to me. He laid out this big idea, which took all of about a minute and a half to explain, that there should be a New York/New Jersey Baykeeper. It seemed obvious. He didn't have any organizational plan or any money. Derry Bennett, the director of the American Littoral Society, and Riverkeeper supported Andy until he could get his program up and running.

ANDY: I had read an article by Derry in *The New York Times* about protecting the bay.

BACKER: There's a subtle difference; I had never read *The New York Times*. First time I ever opened it was because someone said, "Hey Backer, you're on the Metro page." Andy approached John because he wrote me a letter and I threw it in the garbage. Then he wrote me another letter and I threw it in the garbage. He started calling but I didn't call him back. Finally he just showed up. And I said, now that you're here I guess you're serious.

ANDY: You said, go do things the best way for the harbor. That was the best advice that I ever got. I was left to my own devices. And we must have done something right because within a year I had a boat and, if you could call it that, a salary.

Riverkeeper began as the Hudson River Fishermen's Association, an environmental watchdog and enforcement organization founded in 1966. In 1983 the Fishermen's Association launched a patrol boat and hired activist and former commercial fisherman John Cronin (pictured standing in the boat, far right, at the launch) as Hudson Riverkeeper.

HUDSON RIVERKEEPER

It is citizens declaring that they have the right to appoint someone to be their eyes and ears, to be their witness, to represent them and to enforce the law. It is one of the simplest, most elegant ideas to ever come out of the environmental movement.

CRONIN: Terry emerged out of nowhere. We got pulled into doing this work on sewage treatment plants on Long Island Sound in Connecticut. We held a press conference and immediately started talking about a Long Island Soundkeeper. Somewhere over the course of that work it became very obvious that Terry Backer should be the Soundkeeper. Terry emerged as a natural born activist who was willing to take on the commitment without a treasury or organization, with a boat that came to us under questionable circumstances.

BACKER: I think I ended up having to pay for that boat, eventually. But it underscores the interconnectedness of these three bodies of water. The fish that move through here, the striped bass, many times they are the same individual fish. The people share a maritime history. So it was a natural fit for us.

We were dealing with a very dramatic human impact. We had sewage treatment plants with thousands of sewage violations. Those violations translated into shellfish closures, which translated into hundreds of men standing on the dock not being able to feed their families. Long Island Sound is an amusement for some people, they kayak, fish, have fun. To us it has sustained generations of people's lives. It was not just fun for us.

CRONIN: Remember the very first newspaper ad we took out? It was the weekend of the Norwalk boat show, full page —

IF POLLUTION PUT MAYORS
OUT OF WORK,
LONG ISLAND SOUND
WOULD BE CLEAN.

BACKER: That bought me friends and enemies. They said we were ambulance chasers; we were just looking for headlines. But the public seemed to understand that we were talking about people's lives. The truth could not be hidden.

At some point we ended up with four or five Waterkeeper groups. But the hallmark of the Waterkeeper movement is an individual stepping out in front and saying take me first. It's not that anyone has to do this on their own, but someone needs to be the lightning rod, be the voice, be courageous. That's why the public grabbed onto the idea. We aren't a nebulous group. We are human beings whose life is intertwined with the environment; members of the community who not only counted for themselves but stand up for everyone. That's why it works.

As we started to get more Waterkeepers we started to notice a lot of common things. We immediately realized we could do two things for someone in Puget Sound or San Diego: we could share our experience of what worked and we could support each other morally. Because when you stand out in front it can be a pretty scary place. It was Cronin's idea to form an Alliance.

CRONIN: It was the National Alliance of River, Sound and Bay Keepers.

BACKER: I'm talking to John one day and he says, "Well, you should really get a computer." And I said, "John, I really don't know anything about computers." I used to sit in that old oyster house at night with a mechanical Remington typewriter, a guy who couldn't type, couldn't spell and certainly couldn't construct a grammatically correct sentence. I sat up there pecking away with two fingers. I remember there was some mayor who said to me, "You know Backer there's a reason they say that you can't fight City Hall." I looked up and said, "Listen pal, with a box of 20 cent stamps and a typewriter I'll make your life miserable."

CRONIN: The people who start Waterkeeper programs make substantial sacrifices to do it. It was risky, we didn't know if we were going to have a job in six months or a year. As a result, maybe even more important than dedication and commitment, was a sense of fun; a sense of being a joyful warrior. That was very characteristic of all the early programs. There wasn't a lot of worrying about success or failure. It was more, let's go out and clobber the bad guys.

ANDY: I remember the first time I stood up at a public meeting and said, "I'm Andy Willner and I'm the Baykeeper." The place went silent. "What the hell is that?"

CRONIN: In those days when Terry introduced himself as the Long Island Soundkeeper or Andy as the New York/New Jersey Baykeeper, it was the first time anyone had ever heard the work "keeper" attached to water. When we first went through the trademark process for our names there were some challenges, but it was easy to prove that the first time "Riverkeeper" entered the American lexicon was on the Hudson River. But it sounds like something that has been around for generations. What's terrific is when you fast-forward to 2008 it has mainstream acceptance.

BACKER: To me it seemed like almost too much to claim to be. I called John and asked him if I should use my title and he says, "Well yes, you have to."

CRONIN: That's like calling yourself the pope. It's a mouthful. At the heart of that dilemma is also the success of the idea. It's citizens declaring that they

have the right to appoint someone to be their eyes and ears, to be their witness, to represent them and to enforce the law. It is one of the simplest, most elegant ideas to ever come out of the environmental movement.

ANDY: I've had very few people in the community question the title and organization. It was the agencies who would say, well who appointed you? And I would say, essentially, I appointed myself. But after a couple years I had a posse, I had people who backed me up.

BACKER: When you do the job right, and you don't exaggerate — and usually you don't have to because the truth is bad enough — you take on an air of credibility that people prescribe to government. Why they would prescribe it to government I don't know, but they do.

CRONIN: I can't imagine what it was like taking two paragraphs from Bob's book, which is what started this whole thing, and making a movement out of it. Looking back, it's remarkable.

If there's one lesson I learned from my years at Riverkeeper, it's that every great idea, every great movement, every great revolution starts out with an act of the imagination. The beginning of anything great that has ever happened is that someone first imagined it. So you have to imagine yourself as the Waterkeeper. Imagine your waterway clean. If you can imagine it, that's your first step. Then don't quibble with your imagination.

WILLNER: So where will Waterkeeper Alliance go from here? The selfish answer is that it is up to someone else. We form the basis of the tradition, but we can't tell the next leaders where to go. Waterkeeper will fail or succeed, and I think it's going to be extraordinarily successful.

BACKER: If in ten years it's the same as it is today, then I would suspect that it's a failure. But my sense is that there's a guiding principle: It's about people's lives; it's about making this a better place.

Something that's happened over 20 years is that while my sense of place here on Long Island Sound remains as strong as ever, it now extends to small villages in Mexico, in Colombia, in Russia, in India, in China. My sense of place, after getting to know those human beings and their struggles, has become much more global. I will never stop doing this, because my blood is in this water for 300 years, but my sense of place has grown. I belong to all those places and what I can do for them I will.

CRONIN: History judges the success of revolution by whether the revolution becomes the mainstream. The challenge for any revolutionary idea is whether it can still have the imagination and courage it had when it imagined the revolution in the first place.

In the 1960s we had a visionary group of people who imagined the river that we have today. The challenge that we face is what river do we imagine now? Are we willing to imagine zero discharge of pollutants? Are we willing to imagine a commercial fishery that's open again? Are we willing to imagine a technological revolution with information delivered about the river just like the weather is delivered? The big challenge in a revolutionary movement like this one is identifying the new acts of imagination that will form the legacy we leave to the next generation of Waterkeepers.

Today, in Ulster County, New York, there are school kids who want to be Pondkeepers and in some ways that is the biggest success of all. Because when all of us started we didn't think that what we were doing would become mainstream, part of the education of a schoolchild. But now it's happening. So the biggest success of all would be to have the moral legacy Terry talked about, the activist legacy Andy talked about. That gives me extraordinary hope for the future. **W**

ANDY WILLNER

National Alliance of River, Sound and Bay Keepers meets in Casco Bay, Maine, 1995. Left to right: Mike Herz (San Francisco Baykeeper), Terry Backer, Andy Willner, Joe Payne (Casco Baykeeper), Cynthia Poten (Delaware Riverkeeper), John Cronin, Sally Bethea (Upper Chattahoochee Riverkeeper), Terry Tamminen (Santa Monica Baykeeper), Ken Moser (Puget Soundkeeper), Rick Dove (Neuse Riverkeeper) and John Torgan (Narragansett Baykeeper).

CORBIS

There is no shortage of water in the desert but exactly the right amount, a perfect ratio of water to rock. Of water to sand, insuring that wide, free, open, generous spacing among plants and animals, homes and towns and cities, which makes the arid West so different from any other part of the nation. There is no lack of water here, unless you try to establish a city where no city should be.

EDWARD ABBEY

Rainbow over Grand Canyon

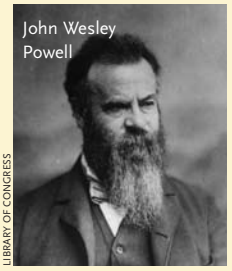
First Skeptic

The first skeptic of the taming of the Colorado River was John Wesley Powell, the father of water reclamation, founder of the National Geographic Society and the namesake for the nation's second largest reservoir, Lake Powell. In 1893 Powell prophesized:

When all the rivers are used, when all the creeks in the ravines, when all the brooks, when all the springs are used, when all the reservoirs along the streams are used, when all the canyon waters are taken up, when all the artesian waters are taken up, when all the wells are sunk or dug that can be dug in all this arid region, there is still not sufficient water to irrigate all this arid region.

I tell you gentlemen, you are piling up a heritage of conflict and litigation over water rights, for there is not sufficient water to supply the land.

Powell was vilified for his stand and forced to leave his post as director of the U.S. Geological Survey by Senator Bill Stewart of Nevada.


John Wesley Powell

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Rivers are Forever Dams are Not

Removing Glen Canyon Dam

By John Weisheit, Colorado Riverkeeper

» **THE PRIMARY** campaign for Colorado Riverkeeper is to drain the reservoir called Lake Powell and remove Glen Canyon Dam. People tell us we're loony. They look at the damming of the Colorado River as some inevitable consequence of progress. They see the engineering prowess and the massive federal subsidies that built 60 dams in the Colorado Basin over the last 100 years as an unstoppable force. But water and gravity are the only unstoppable forces at work on the Colorado River. And one thing that the engineers have always known, though few have admitted it, is that while rivers are forever, dams are not.

The Colorado River was, and remains, the key to the habitation and development of the American southwest. Through the 19th Century the nation expanded west, coming into possession of a huge amount of land with little water. The new territory presented a homeland security threat; an unsecured and unpopulated border. But without water you can't farm, you can't mine and you certainly can't support a robust population. Farmers, industry and the cities of the Southwest required a dependable source of water. And the commercial potential of the region was enormous — in warm, fertile Southern California farmers can grow crops 12 months of the year, if they have the water.

After the Civil War debates raged in Congress over whether the federal government should get into the business of building railroads and dams to populate the Southwest. The government never got into the railroad business, private corporations did that. But with the Reclamation Act of 1902 the federal government entered dam building business. One of the first places the newly created dam building agency, the Bureau of Reclamation, went was the Salt River in Arizona (which wasn't yet a state) a tributary of the Colorado River.

The Bureau didn't focus on controlling the main stem of the Colorado until the building of Hoover Dam, completed in 1935. Hoover Dam was the kingpin — the biggest, tallest dam in the world. It set the stage for the development of the west, and damming rivers around the world. Hoover was the standard-bearer for nation-building through massive publicly funded water infrastructure projects still emulated throughout the world — when the Three Gorges in China is completed in 2009 it will take the crown as the world's largest dam from the current title-holder, Itaipu Dam on the border of Brazil and Paraguay.

The Colorado is actually a small river fed by snowmelt from the Rocky Mountains. Some years the river hardly flows at all and in others it floods. Yet the Colorado is the lifeline of the Southwest. Turn on a tap in Los Angeles, San Diego, Salt Lake City, Las Vegas, Denver and Albuquerque and you are drawing water through hundreds of miles of aqueducts and tunnels from its many reservoirs. The Central Arizona Project, which supplies Phoenix and Tucson, is the most expensive water infrastructure project in U.S. history. Today more than 30 million people are dependent on water from the Colorado River. Every drop of river water is preassigned to an end user. Only in the wettest years does any water reach the river's mouth in Mexico

Lower Colorado River from Space

This satellite image shows the Colorado River flowing into Lake Powell (far upper right). From there it flows south, turns sharply west through the Grand Canyon and into Lake Mead (top center). The river then flows south, where the vast irrigated farm fields of Arizona and California are visible. It has been a decade since the Colorado flowed to its delta on the Sea of Cortez (bottom left). Today the last of the Colorado River water is diverted north to the Salton Sea, historically an ephemeral lake that would fill every hundred years or so by the flooding Colorado River. The remnant lake would then evaporate, leaving salt. Formed in 1905 by a manmade levy break, the sea evaporates 1 million acre feet of water per year. It is fed with a constant flow of fertilizer and pesticide-laden agricultural wastewater leaving a massive toxic, man-made sea.

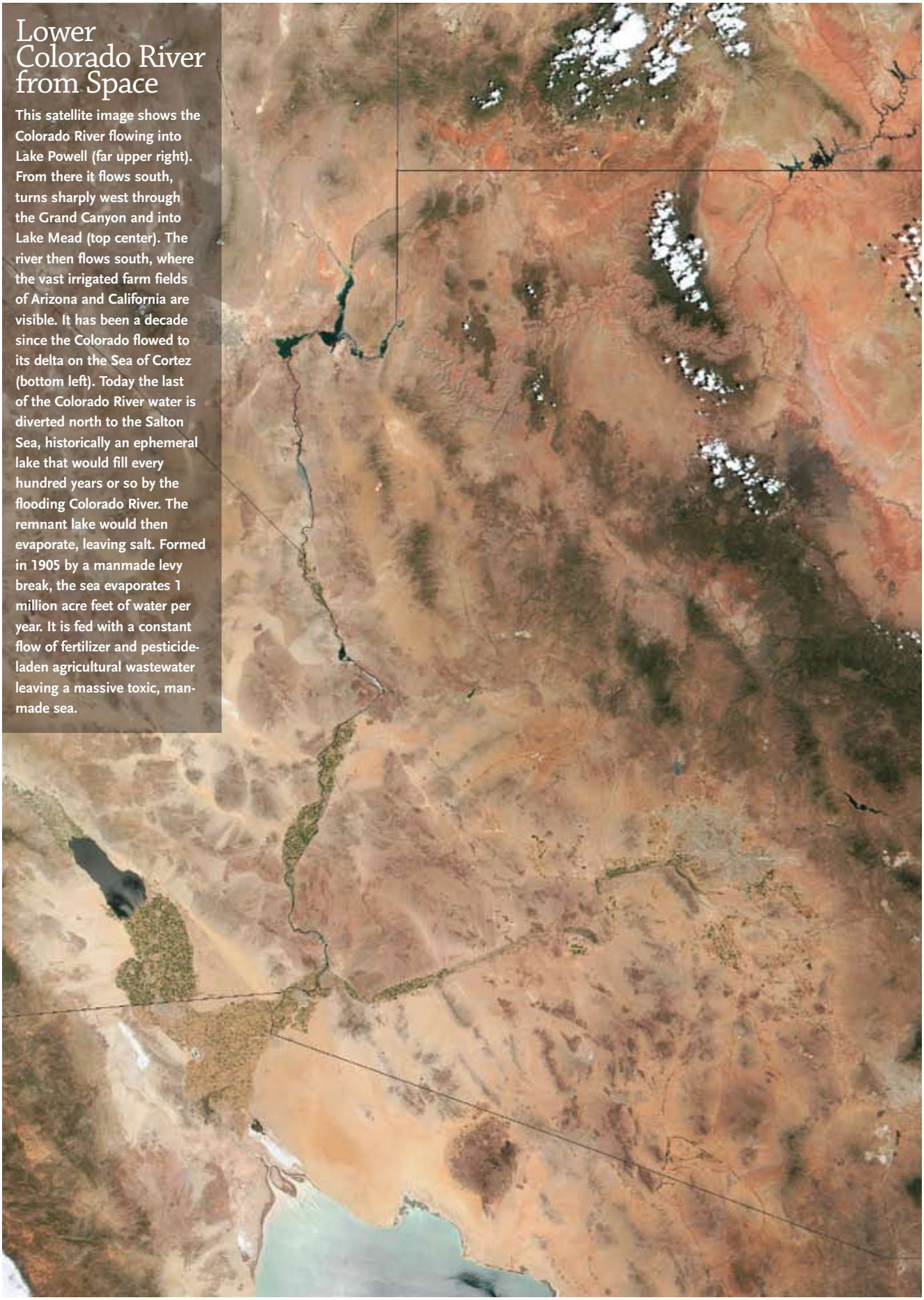


IMAGE COURTESY JACQUES DESCLOITRES, MODIS LAND RAPID RESPONSE TEAM

Cycle of Wet and Dry

It's hard to overstate the ecological impact of dams on the Colorado. Fish spawn when the river rages with snowmelt in the spring; they are nurtured in the warm, calm summer. Without this natural variation native species disappear. This is what has happened in the Colorado below Glen Canyon Dam. The Gulf of California, where the river used to flow into the sea delivering freshwater and rich nutrients and sediment, is devastated. In *A Sand County Almanac*, Aldo Leopold describes the green lagoons of the Colorado River Delta from his 1922 trip as an abundant oasis:

> At each bend we saw egrets standing in the pools ahead, each white statue matched by its white reflection. Fleets of cormorants drove their black prows in quest of skittering mullets; avocets, willets, and yellowlegs dozed one-legged on the bars; mallards, widgeons, and teal sprang skyward in alarm. As the birds took to the air, they accumulated in a small cloud ahead, there to settle, or to break back to our rear. When a troop of egrets settled on a far green willow, they looked like a premature snowstorm.
>
> All this wealth of fowl and fish was not for our delectation alone. Often we came upon a bobcat, flattened to some half-immersed driftwood log, paw poised for mullet. Families of raccoons waded the shallows, munching water beetles. Coyotes watched us from the inland knolls, waiting to resume their breakfast of mesquite beans, varied, I suppose, by an occasional crippled shore bird, duck, or quail. At every shallow ford were tracks of burro deer. We always examined these deer trails, hoping to find signs of the despot of the Delta, the great jaquar, *el tigre*.

The book, published in 1949, included this epitaph for the Colorado River:

> All this was far away and long ago. I am told the green lagoons now raise cantaloupes. If so, they should not lack flavor.
>
> Man always kills the thing he loves, and so we the pioneers have killed our wilderness. Some say we had to. Be that as it may, I am glad I shall never be young without wild country to be young in.

DENDROCHRONOLOGY Studying the width of tree rings to reconstruct the hydrological record shows that the true annual flow of the Colorado is 13.0 to 14.7 million acre-feet — 15 percent less than the 16.5 million acre-feet reflected in the 1922 Colorado Compact. With more water on paper than in the river, we face an inescapable and potentially devastating water rights conflict.

COLORADO RIVERKEEPER

The Hite Marina concrete boat ramp on Lake Powell. The reservoir is half full and the white coating from the reservoir water on the cliff face is 100 feet high.

and empty into the Sea of Cortez; this has not occurred in ten years.

Since the passage of the Reclamation Act in 1902 the upper Colorado Basin states — Wyoming, Utah, Colorado and New Mexico — wanted an agreement to secure their access to Colorado River water. With the large federal investment in dam building secured, they were nervous that the powerful farmers and cities of Southern California would dominate decisions over Colorado River water allocation. In 1922 these seven states (Arizona ratified in 1944) and federal government signed the Colorado River Compact, dividing the annual water supply of the river in half at a line about 15 miles south of the Utah border. With the Compact in place, the upper basin states next wanted their own big dam — Glen Canyon — to ensure control of their half of the river flow.

In the 1950s, Congress held hearings on the proposed Glen Canyon Dam. State and federal water managers testified that the formula for allocating water in the Colorado River Compact vastly overestimated the river's true average flow. In 1922 hydrologists had used the previous 20 years of flow data to estimate the annual yield of the river. They did not realize that their estimate included the wettest decade in the past 1,200 years, the 1910s. The Compact and the legal documents allocating Colorado River water promise the seven states of the Colorado River Basin and Mexico a firm 16.5 million acre-feet each year. (An acre-foot is 325,851 gallons.)

What Congress should have done in the 1950s was readjust the Compact to reflect the true average, closer to 13.5 million acre feet per year. But under political pressure from the upper basin states, Congress decided instead to double the storage capacity on the river. Glen Canyon Dam, even larger by volume than Hoover Dam, was approved. The State of California, which opposed the dam and later helped to kill two other dams proposed inside the Grand Canyon, is on record saying that Glen Canyon Dam would reduce total water supply. They were right; today this overcapacity depletes nearly a million acre-feet from the annual yield of the river through waste.

As early as 1959, scientists had determined the appropriate total amount of reservoir storage for the Colorado River Basin at 35 million acre-feet. Storage capacity above this amount would lead to a net water loss due to evaporation and seepage. With the completion of Glen Canyon Dam and other upper basin projects in the early 1960s, the total reservoir capacity for the Colorado River Basin went to 62 million acre-feet. The Colorado River reservoir system is overbuilt by 27 million acre-feet, the exact storage capacity of Lake Powell. Water managers in the 1950s argued that this extra

Disappearing Reservoirs

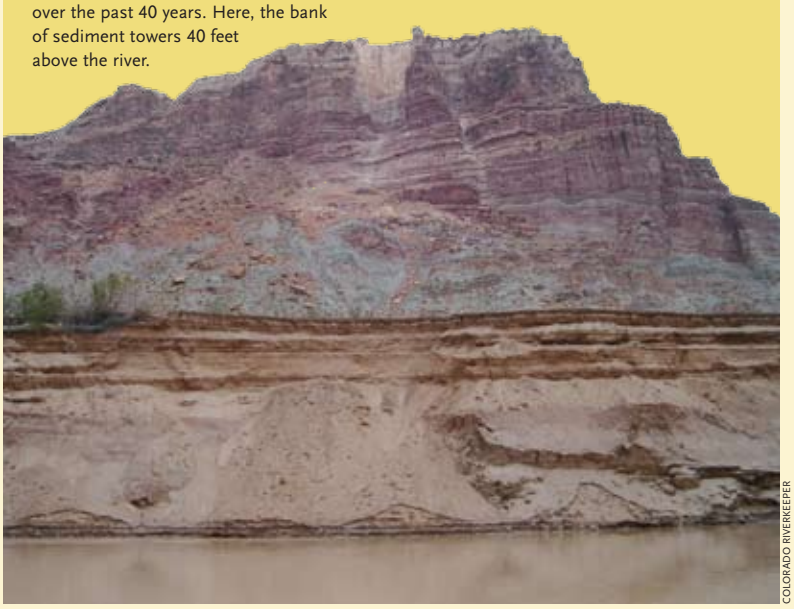
Glen Canyon and Hoover reservoirs are currently at 50 percent capacity because of overconsumption, reduced yield due to climate change and evaporative loss. In February 2008, scientists from Scripps Institution of Oceanography published a peer reviewed study estimating that there is a 50 percent chance that the two reservoirs will be dry by 2021 if the climate changes as expected and future water usage is not curtailed. In their report, Living Rivers — the parent organization of Colorado Riverkeeper — is cited for the development of a model that can calculate the impacts of climate change on reservoir storage through the 21st Century.

The drying up of Lake Powell exacerbates the sediment problem, moving previously collected sediment towards the dam and prematurely shortening the life of the dam.

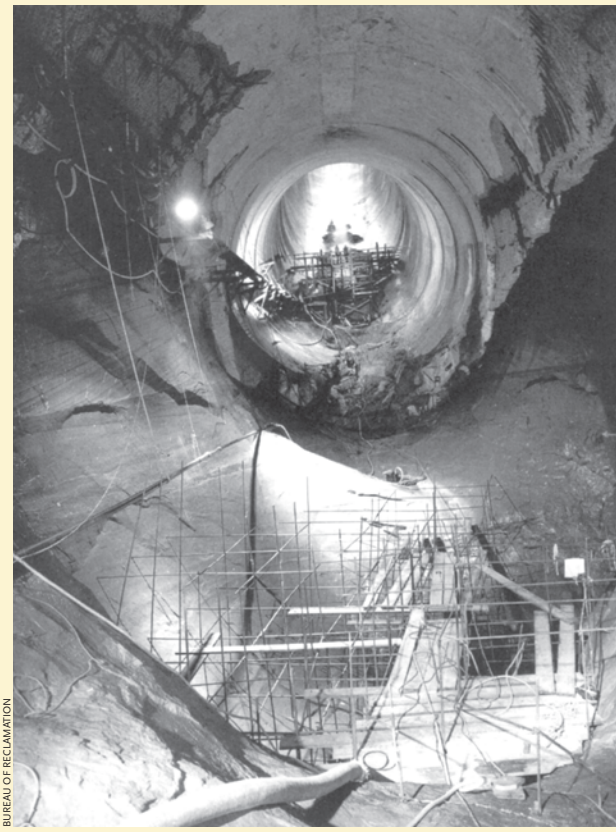
Filling Up with Muck

The Colorado River delivers 22 tons of sediment into Lake Powell every 15 seconds. Vacating the sediment from the reservoir would require two trucks rolling down the highway every 15 seconds — one to haul the existing sediment in the reservoir, and one for the sediment that just arrived. Remaining problems include where to put it and how to keep toxic agricultural and industrial chemicals in the sediment out of the water supply for 30 million people.

As the reservoir shrinks, the river cuts a new channel through sediments collected over the past 40 years. Here, the bank of sediment towers 40 feet above the river.



COLORADO RIVERKEEPER



BUREAU OF RECLAMATION

Dam Failure

The risk of dam failure is real. At Hoover and Glen Canyon Dams the spillways that relieve excess water are concrete tubes tunneled through the bedrock next to the dam (abutments). The spillways cannot run continuously because the power of cavitation is destructive; the implosion from the vacuum that's created from the falling water in the closed tube at the bend, where the spilled water is ejected into the river behind the dam, literally rips out the concrete.

This photo shows one of two Glen Canyon Dam spillways after an emergency spill in June 1983. A hole 150 feet long and 50 feet deep was excavated by the power of water rushing through the tunnel. The cost to make repairs was $40 million. The Bureau of Reclamation opened the spillways to prevent water from over-topping the dam, which would destroy the power plant at the base of the dam and undermine the dam's foundation, possibly catastrophically. If an earthquake were to damage Glen Canyon Dam, it would take up to 16 months to safely drain the reservoir.

COLORADO RIVERKEEPER

Colorado Riverkeeper John Weisheit running Big Drop Three in Cataract Canyon. This section of the rapid is called "Satan's Gut."

Colorado Riverkeeper John Weisheit

When I was 12, my parents moved from Los Angeles to Phoenix, Arizona. This modern city literally rose from the ashes of a previous water gathering society called the Hohokam, who abandoned their pueblo culture during a persistent drought in the 13th century.

Running wild rivers in boats was a hobby that I stumbled into thanks to adventurous parents and willful thinking. Eventually I began a career as a professional river guide in the Grand Canyon. Overtime I became agitated about the condition of the Colorado River in this national park because, ecologically speaking, it is near death; actually sanitized might be the better word.

Twenty years ago, I abandoned Arizona for Moab, Utah, where the river is still relatively dynamic. This decision was selfish, but it was necessary for me to take a formative step — it eventually pushed me into the fight to restore the ecology of the Colorado River.

Restoring Grand Canyon

It's ironic that President Theodore Roosevelt, who decided to protect the Grand Canyon, signed the Reclamation Act. Little did he know that his dams were going to kill the Grand Canyon.

Hoover Dam flooded the lower 20 percent of the Grand Canyon. Fifteen miles above Grand Canyon, Glen Canyon Dam stops the Colorado River's natural flow.

Natural water temperature variability ranged from near freezing to 80°F in the summer, triggering native fish reproduction and maintaining native insect populations. Water flowing from Glen Canyon Dam, extracted 200 feet below the surface of Lake Powell, is a near constant 47°F. Historically, spring snowmelt brought a rushing torrent of water into the canyon, transporting sediment, building beaches, replenishing the nutrient base on the river's shores and creating vital backwater habitat as the water receded. Today these sediments and nutrients are trapped in Lake Powell. The absence of replenishing sediment causes critical beach and sandbar habitat to disappear, and undermines the stability of archaeological sites sacred to the canyon's Native peoples.

River otters and muskrats are no longer found in the Grand Canyon. Four of the eight native Colorado River fish are extinct and two more are struggling for survival. Native birds, lizards, frogs and many of the Canyon's native insects have disappeared as well. In addition, native vegetation along the river's high water zone is absent or stunted due to the lack of nutrients and the invasion of non-native plant species.

More than $270 million has been invested in failed efforts to reverse the demise of Grand Canyon's river ecosystem. These efforts will continue to fail unless the natural system is restored. The simplest solution: decommission Glen Canyon Dam.

COLORADO RIVERKEEPER

David Brower (left) was the first executive director of the Sierra Club. His leadership was instrumental in stopping the construction of four large dams in the Colorado River Basin. Charlie Eggert (right) was a filmmaker whose film *Wilderness River Trail* was central in the campaign to defeat two dams in the Grand Canyon. Author John Weisheit (middle) became Colorado Riverkeeper in 2002.

COLORADO RIVERKEEPER

Protesting Glen Canyon Dam

capacity, and the loss of water it causes, made Glen Canyon Dam unnecessary. It underlies one current argument why Glen Canyon Dam must come down.

Another problem with Glen Canyon Dam is sediment that will ultimately compromise the need and purpose of the reservoir and dam — especially if they go empty as predicted by scientists. The Colorado River carved spectacular canyons, but it is not a large river — there are 25 rivers in the U.S. that are bigger. The dams and their reservoirs are massive because Bureau of Reclamation engineers understood that in addition to storing water, the dams were going to need to hold massive amounts of sediment. Tall dams also increase hydropower efficiency, provided they stay full.

All reservoirs collect sediment, which is deposited as flowing water enters the still water created by the dam. The Colorado carries a lot of sediment; its waters have been described as too thick to drink and too thin to plow. For the past 50 years, the flowing river entering the still water of Lake Powell has dumped 22 tons of sediment every 15 seconds. Proponents of the dams knew about this problem, but getting the dams built was the priority. Lake Powell (behind Glen Canyon) and Lake Mead (behind the Hoover) are the biggest reservoirs in the nation. The Bureau of Reclamation knew they needed to store as much sediment as possible and push the problem of removing sediment from the reservoirs as far into the future as they could.

A reservoir does not have to completely fill with sediment to exhaust its life span. This occurs when a reservoir is half full. Once the storage of sediment exceeds the storage of water the reservoir loses its ability to regulate flow through water shortages and floods. The dam then becomes a liability. The History Channel recently ran a show called "Life After People" in which they claim that Hoover Dam will be there for 10,000 years. For a bureaucracy, the Bureau has the slickest public relations imaginable. Gravity and water, which cut the Grand Canyon, are a potent force. Without constant management of water and sediment levels, these dams will fall. On the Colorado River this will happen sooner than one thinks because it is the siltiest river by volume in the U.S.

Yet no management plan exists, nor is there any funding mechanism to pay the astronomical cost for removing sediment from behind the dams. What will complicate matters is making sure that water supplies are not interrupted and downstream ecosystems are not damaged.

The damming of the Colorado, which began 100 years ago to supply Colorado River water to the public as quickly and as cheaply as possible, was a short-term solution that has created a serious

Faucets Will Not Run Dry

Each year, on average, Lake Powell loses two times Las Vegas' annual water consumption — up to one million acre-feet of water — due to evaporation into the dry desert air and seepage into the reservoir's porous sandstone bank. That number is less with the reservoir only half full, but it remains an enormous source of waste. New approaches that minimize evaporation, such as storing water in underground aquifers, are available. But ultimately, the solution lies in responsible water use. Residential consumers in the region pour half their water onto non-native landscaping unsuitable for the region's desert ecosystems. Implementing more water-efficient irrigation practices and choosing crops that require less water to grow could free up water to restore critical ecosystems such as the Colorado River Delta. Conservation is the place to start.

Dam Removal

Dam repair typically costs two to five times more than dam removal, and repair costs do not include removing sediment from reservoirs. Each year the Utah delegation sponsors a congressional amendment that bans federal scientists from studying the removal of Glen Canyon Dam.

Hydropower and Global Warming

Large dams are a significant cause of global warming. Scientists from Brazil's National Institute for Space Research estimate that methane from dams is responsible for 4 percent of the world's greenhouse gas emissions. When a free-flowing river enters a reservoir, huge amounts of organic material collect. Decaying organic matter emits CO2, methane and other potent greenhouse gases into the atmosphere. In addition, rotting material depletes the reservoir and downstream waters of oxygen.

The Glen Canyon Dam construction site in 1960.

Today we have two choices: continue to exploit the Colorado River for short-term gain (at our peril) or begin to restore the Colorado River and make it sustainable once again.

long-term problem. The Bureau of Reclamation promoted a plan to conquer nature, rather than work with nature — and Congress accepted that program. This was not an inadvertent mistake. The administrative record reflects an understanding by scientists and engineers that dams and reservoirs on the Colorado are not sustainable over the long-term. Congress created this mess 100 years ago and compounded it 50 years ago. Today we have two choices: continue to exploit the Colorado River for short-term gain (at our peril) or begin to restore the Colorado River and make it sustainable once again.

Faced with a water crisis, today's water managers are still working from the same 100 year old playbook. They are proposing new coal-fired plants to generate the electricity needed to pump (i.e. steal) water from the Mississippi or Columbia Rivers, and nuclear plants to desalinate sea water. This second wave of water infrastructure will be even more expensive than the first, with even greater environmental impacts.

We need to take a different path. The answer to the Colorado River crisis is simple: USE LESS WATER. Live within our means through water conservation, limiting growth and accepting what nature provides. Congress needs to pick up the debate where it left off in the 1950s. Congress must implement an effective basin-wide water management plan and install a funding mechanism to complete the unfinished business of sediment removal and decommissioning dams, instead of passing it on unfairly to the future.

We can't take Hoover Dam out; nature will have to do that one. We can, however, manage it better to bring nature back — especially the "green lagoons" of the delta and the Sea of Cortez. And we can remove Glen Canyon Dam. The Bureau of Reclamation resists this because it will have to admit to a big mistake. But Glen Canyon Dam must come out, and the sooner the better for the Colorado River, the Grand Canyon and the rivers around the world. Because removing Glen Canyon Dam will send a clear message that a new age of smart, sustainable water management has begun. **W**

ISTOCK

Take Down Glen Canyon Dam

The dam is an environmental, economic, technical and social liability.

It's Inevitable

The tremendous inflows of sediment into Lake Powell reservoir will soon render Glen Canyon Dam useless. Sediment is fast approaching the level of the four emergency bypass tubes, located 325 feet below the crest of the dam. Once these tubes are blocked, the dam will have to be decommissioned, or the sediment will have to be removed mechanically, which is difficult in deep water.

Evaporation

Lake Powell on average can lose up to seven percent of the Colorado's annual flow through evaporation into the dry desert air and through seepage into the soft sandstones that surround the reservoir.

Dirty Energy

The deterioration of the Grand Canyon's native river habitat illustrates that hydroelectricity is not clean energy. Glen Canyon Dam has the capacity to provide just three percent of the energy used in the Southwest and only when the reservoir is full. Energy conservation could easily eliminate this need.

Expensive Energy

Glen Canyon Dam's hydroelectric power revenues are not sufficient to repay the dam's construction and mitigation costs. Decommissioning the dam and selling the water currently lost to evaporation and seepage is cheaper than maintaining the dam.

Catastrophe

In 1983 the Colorado River nearly spilled over the top of Glen Canyon Dam and the dam's spillway tunnels nearly collapsed. Described as a once-in-25-year flood event, this scenario is likely to reoccur.

Sacred Sites

Many religious sites were inundated by Lake Powell despite protest from Navajo medicinemen and designation as a National Monument.

Restore the Joy

A redrock wonderland of nearly 125 side canyons, hidden arches, grottos and stone chambers will reemerge when Glen Canyon Dam is decommissioned. Nature's forces have repeatedly illustrated that when reservoirs are drained native ecosystems return with limited human intervention.

Sustainable Recreation

Recreation on Lake Powell is disappearing as sediment fills the reservoir. When Glen Canyon is restored hiking, rafting and biking will fast take its place.

Salmon Nation

Restoring Free-Flowing Rivers in the Pacific Northwest

By Malena Marvin and Regina Chichizola, Klamath Riverkeeper

» IN 1918 construction was completed on the 250-foot tall Copco I Dam. Several others followed over the next 40 years, effectively slicing the Klamath River in half and setting into motion a cascade of ecological effects that have reduced Klamath salmon populations by 90 percent. In 2006 and 2007, the river's ecological dysfunction and economic woes made daily headlines as commercial and Tribal fishing along Oregon and California's coasts were restricted and shut down. We're losing our salmon-based economy on the Klamath, but if we can remove the river's antiquated dams we just might get it back.

Nearly a century ago 'progress' meant sacrificing rivers, and what must have seemed like an endless supply of salmon, for hydroelectric power. But today people are learning to work with nature to achieve sustainable prosperity. And we are reversing the mistakes of the past. In 2007 the owner of the Marmot Dam in Oregon removed the dam. Though it powered 12,000 homes, the owner found it cheaper to dismantle the dam rather than to retrofit to allow fish to pass above the dam (as required under federal law). Two other dams on Washington's Elwha River, including the 210-foot Glines Canyon Dam, are slated for removal in Olympic National Park in 2010.

Klamath Riverkeeper and a coalition of Native Tribes, commercial fishermen and recreational businesses are working to secure a similar renewal on the Klamath by restoring a free-flowing river. Studies show that every sport-hooked Chinook brings $200 to the local economy. The cultural and subsistence benefits of a restored fishery to California's three largest Tribes, the Karuk, Hupa and Yurok, and Oregon's Klamath Tribe, are incalculable. The Klamath's salmon runs affect fishermen from Southern California to Oregon. Salmon Nation, the stretch of salmon-bearing watersheds between California and Alaska, is having an identity crisis as its famous salmon runs blink out, one by one, down the coast. Undamming the Klamath is an important step in rebuilding Salmon Nation.

In addition to destroying fisheries, the Klamath dams create water quality conditions that breed *Microcystis aerigunosa*, algae that releases a harmful toxin. Toxic to the touch and potentially fatal when ingested, this algae has turned the world-class Wild and Scenic Klamath River into a summer-time public health nightmare. Klamath Riverkeeper, Tribal religious leaders, fishermen and recreational businesses have filed two algae-related lawsuits against the dams, owner, PacifiCorp, which are still pending. A third lawsuit organized by Klamath River-

keeper has successfully forced U.S. EPA to list the toxic algae as a pollutant in the Klamath, a victory that will make it very difficult for PacifiCorp to obtain the water quality permit it needs from California to relicense the Klamath dams.

We are sitting on the edge of an unprecedented opportunity for river restoration on the Klamath. In a process that happens only once every 50 years the Federal Energy Regulatory Commission, the federal commission that oversees dams, is reviewing the operating licenses of the four Klamath dams that lack fish passage. Though its own economic analysts found dam removal to be cheaper than relicensing, this White House appointed commission recommended keeping the dams in a puzzling 2007 report. In parallel negotiations to the FERC process, farmers (who use the reservoirs for irrigation), Klamath Tribes and other stakeholders have reached a tentative agreement to remove Klamath dams and coordinate flow releases to benefit fish. Though PacifiCorp was included in these negotiations, the corporation is now throwing its weight behind a media spin campaign, and remains the main settlement partner on the Klamath to oppose dam removal.

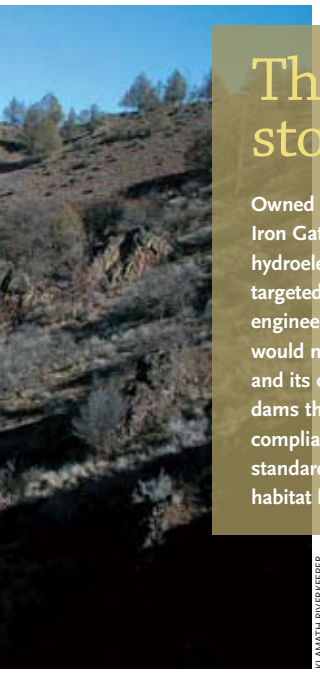
With the diverse and historically divided parties on the Klamath River agreeing on dam removal, the next step is to convince PacifiCorp and their customers. Billionaire Warren Buffett is the owner of PacifiCorp, which owns the four Klamath dams. So in May 2007 Klamath Riverkeeper and a delegation of Klamath Tribes, fishermen and environmental advocates went to Omaha, Nebraska, to Warren Buffett's Berkshire Hathaway shareholders' meeting. Working with the Klamath Salmon Media Collaborative we made a big splash, getting international coverage of the demonstration and our toxic algae nuisance lawsuits. Our message: Even as Warren Buffet fights poverty and disease through his philanthropy, his resistance to Klamath Dam removal is creating poverty and sickness among Klamath Tribes and the Pacific coastal fishing fleet.

KLAMATH RIVERKEEPER

Protesters Melissa Myers and Dana Rose at a pro-fish, pro-fisherman rally in Portland, Oregon, in 2007.

Riverkeeper is also reaching out to PacifiCorp's customers. Klamath Riverkeeper's lawsuits and direct action campaigns are urging public utilities, who buy electricity from PacifiCorp, and state water quality commissions to reject dam re-licensing. According to federal and state economic studies, re-licensing the dams could cost as much as $270 million more than removing them. The number jumps still higher if it includes the millions of dollars in federal subsidies to the foundering commercial fishing industry and the Tribes that are becoming impoverished due to the lack of Klamath salmon. PacifiCorp can only pass the costs of relicensing onto ratepayers if the Oregon Public Utility Commission approves the plan. We are educating and organizing ratepayers to urge the Commission to deny any such request.

Until these dams are removed Klamath Riverkeeper and the Tribes and fishermen that depend on the Klamath will be in Omaha, Portland, DC, in the courtroom, and in the papers making sure people know that it is time to tear down the dams and restore the heart of Salmon Nation. **W**



The salmon stop here.

Owned and operated by PacifiCorp, Iron Gate Dam is one of four hydroelectric dams on the Klamath targeted for removal. Originally engineered without fish passage, it would now be cheaper for PacifiCorp, and its customers, to remove these dams than to bring them into compliance with current federal standards. Over 300 miles of salmon habitat lie above Iron Gate Dam.

KLAMATH RIVERKEEPER

Floodplains Flood:

Controlling Floods As Nature Intended

By Tracy Carluccio, Deputy Director of Delaware Riverkeeper

» **IN 1996**, heavy rainfall caused the worst flooding in years along the lower Neshaminy Creek, a tributary of the Delaware River. The rains, as much as nine inches in four hours, reawakened a long-abandoned plan to build a flood control dam along the creek. The Dark Hollow Dam had been proposed years before by the federal government and its local partner, Bucks County, Pennsylvania. The dam was to be a 450 foot wide, 56-foot high earthen dam. Its 610 acre reservoir would destroy high quality wetlands, a mature hardwood forest, critical native vegetative and wildlife habitat, a trout-supporting stream, and a prehistoric Native American village site.

AP PHOTO/RICK SMITH

Floodwaters along the Delaware River in Easton, PA, April 4, 2005.

Delaware Riverkeeper delved head first into a five-year long campaign to convince decision-makers that the solution to flooding was to remove people and structures from the floodplain, not destroy the creek. Riverkeeper organized the community, reviewed technical and scientific details, stimulated broad public input and inserted itself in the decision-making process with gritty perseverance. Delaware Riverkeeper had the science, but efforts to convince decision-makers to set aside their political message — an easy fix to flooding — proved a major challenge.

It was nature herself who overcame this impasse. In September 1999, Hurricane Floyd sent floodwaters through streets, over lawns and into homes along the Neshaminy. The floods destroyed buildings, closed bridges and highways throughout the region and resulted in millions of dollars in damages. The immense size of the flood sealed the fate of the Dark Hollow Dam, illustrating that the only way to truly protect flood victims is to move them out of the floodplain. Decision-makers and regulatory agencies began turning to the approach that Delaware Riverkeeper advocated all along: buy out the homes along the floodplain, safely relocate the families and commit to natural flood prevention.

Delaware Riverkeeper had spent four years advocating buyouts and identifying funding sources. Decision-makers and regulatory agencies now embraced the approach. It turned out that moving potential flood victims out of the floodplain was cheaper, and less controversial, than building a dam. Homeowners in the floodplain received fair market value and credit for several years of flood insurance premiums. In the end, 82 homes located in the 100-year floodplain were bought and demolished.

Delaware Riverkeeper continues to carry forward this learned experience. We fight new demands for structural solutions to flooding with the unassailable fact that *floodplains flood*. Floodplains are supposed to flood — this is part of the natural and beneficial life of a river. We advocate for the removal of structures and people from harm's way and restoration of the floodplain to allow it to function as nature intended, as a naturally vegetated sponge that carries, absorbs and cleans stormwater. **W**

In 1999 flooding from Hurricane Floyd breached Felix Dam on the Schuylkill River. In the years that followed, the Delaware Riverkeeper Network advocated strongly for the removal of the dam, and others like it on the river. On November 1st, 2007, heavy equipment rolled in and began removing the first of two timber and earthen dams built in 1823. Removal of the second dam, built in 1855, began a few days later. Both dams are now, finally, gone.

DELAWARE RIVERKEEPER

DELAWARE RIVERKEEPER

Fish and the Seminary Dam

By Cheryl Nenn, Milwaukee Riverkeeper

>> **WISCONSIN HAS** long been a national leader in dam building. The world's first hydropower project was completed here on the Fox River in 1882. While, the state officially counts more than 3,800 dams, the actual total including unregulated and abandoned dams is closer to 10,000. It is fitting then that Wisconsin is becoming a leader in dam removal.

In 1929, the Wisconsin Lutheran Seminary built a 24-foot timber and stone dam to create a pond on their 80-acre campus in Mequon, Wisconsin. In the 1950s the dam was rebuilt of concrete that, by 2000, had badly degraded. The dam wall leaned downstream and falling concrete exposed steel rebar beneath. Dredging of built-up sediment was long overdue and in the summer the pond was choked with algae and attracted nuisance Canada geese.

When the downstream Village of Thiensville began studying flood control in the Pigeon Creek watershed, their engineering consultants recommended removal of the dam. In spring 2006, Milwaukee Riverkeeper and Will Wawryzn from the state Department of Natural Resources met with the Seminary to present a plan for removal of the dam. Repairing the dam would cost more than $100,000, plus additional funds to dredge sediment from the pond. Removal, however, was estimated to cost $38,000, which the state would pay with funds from an environmental damage compensation fund. Repairing dams generally costs three to four times more than removing them. To their credit, the Seminary responded very positively not only to the economics, but to the ecological benefits of removing the dam.

Although we were worried about possible opposition to removing the pond, most public reaction was very positive. But there were obstacles. For example, the dam breach was pushed back almost a year so the Seminary could install fire hydrants. The fire department had relied on the pond as a water supply for firefighting.

Despite its small size, removing the Seminary Dam had a significant ecological impact — opening up 25 miles of stream and more than 600 acres of wetlands to migrating Steelhead, Salmon, Northern Pike, Sturgeon and Walleye.

The dam was slowly breached in spring 2007 and water quality downstream of the dam quickly rebounded. In fall 2008, state officials doing fish surveys witnessed Chinook Salmon and Steelhead Trout adults, fish that had likely made the 23 mile migration from Lake Michigan. They also witnessed Steelhead or Rainbow Trout smolts, juvenile fish, which likely spawned in the creek the previous spring. Riverkeeper is completing more intensive surveys with the goal of formally reclassifying the creek as a trout stream. In addition, Smallmouth and Largemouth bass have returned to the creek. We are hopeful other native fishes, such as the marsh spawning Northern Pike and Walleye, will return.

Riverkeeper and our volunteers will continue our in-stream work, restoring the meandering flow of the creek, stabilizing the new stream banks and replanting native vegetation. Milwaukee Riverkeeper will conduct water monitoring to document the return of Pigeon Creek. The Seminary has announced plans to upgrade trails adjacent to the restored creek and improve access for fishing. **W**

MILWAUKEE RIVERKEEPER

Fish populations rebounded quickly after the removal of the Seminary Dam.

Pigeon Creek drains 7,740 acres of farms and subdivisions before entering the Milwaukee River. Approximately 22 miles downstream, the Milwaukee River enters Lake Michigan. This suburban Milwaukee watershed contains 640 acres of intact wetlands, and another 350 acres of additional degraded wetlands that could be easily restored.

Milwaukee Riverkeeper water quality monitoring found that even this small dam increased water temperature and decreased oxygen levels, impairing the ability of the stream to support fish.

Dam Relicensing Puts Power Companies in the Driver's Seat

By Elizabeth Nicholas, General Counsel, and Alexandra Adams, Policy Director, Upper Chattahoochee Riverkeeper

Morgan Falls Dam, Atlanta, Georgia

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License to Dam

FERC, the Federal Energy Regulatory Commission, licenses non-federal hydropower projects, dictating how such projects will be constructed, operated and maintained. These licenses determine how dam owners manage river flows to meet energy generation needs and other uses. A license has a term of 30 to 50 years, at the end of which the dam owners must apply for a renewal. At that point, the public has the opportunity to influence the process. Meaningful citizen participation can help ensure that licenses will protect and restore fish and wildlife resources, recreation and water quality of the rivers affected by these projects.

» **IN 2000**, the Federal Energy Regulatory Commission created a new process for relicensing hydropower dams that was meant provide greater opportunities for public participation. But Upper Chattahoochee Riverkeeper has found that, in the end, relicensing decisions are entirely dependant on the willingness of dam owners to work collaboratively with stakeholders. A power company that cares little about engaging the public in a meaningful way can neglect stakeholders and, apparently, get away with it.

The first use of the new FERC Integrated Licensing Process began in 2004 when Georgia Power applied to renew the Morgan Falls Dam. Georgia Power has operated Morgan Falls Dam on the Chattahoochee River in metro Atlanta for more than 100 years. Upper Chattahoochee Riverkeeper, along with the watershed protection group American Rivers, became actively involved as a stakeholder. The Integrated Process had never been used before, there were no precedents to follow. We soon learned that Georgia Power was determined to set the bar very low, ignoring the collaborative intent of the Integrated Process.

The situation was paralyzing. Georgia Power allowed little public comment at most of the meetings. They refused to provide any information beyond the absolute bare minimum required by the new process and repeatedly rejected requests for additional meetings. It soon became clear that the Integrated Process provides the *opportunity* for public input and notification, but not the requirement.

All of the stakeholders in the process were concerned about the extensive sedimentation and siltation in the lake behind Morgan Falls Dam. The U.S. Fish and Wildlife Service, the National Park Service and Upper Chattahoochee Riverkeeper asked Georgia Power to conduct studies to address these concerns. The Department of the Interior filed a dispute forcing FERC to convene an expert panel to resolve questions about two studies. The panel agreed and compelled Georgia Power to add a sediment contamination study. But on April 11, 2006, FERC announced that no new studies were necessary, completely disregarding the findings of the panel.

Upper Chattahoochee responded by partnering with the Fish and Wildlife Service to conduct the sediment contamination study ourselves. For less than $6,000 we were able to accomplish what Georgia Power and FERC refused to do. In the end, the National Park Service, Fish and Wildlife Service and Upper Chattahoochee Riverkeeper were able to tentatively negotiate a fairly robust package with FERC and Georgia Power to mitigate impacts of the dam on the river. But with the FERC renewal license now pending for Georgia Power, the Integrated Licensing Process proves to be a failure. Stakeholders had relied on FERC to ensure a fair and equitable process based on scientific data. Ultimately, FERC must put some teeth into their new Integrated Licensing Process to protect the public, or go back to the drawing board. W

Taking Down Dams Before they are Built

By Helena Kralova, Morava Riverkeeper

Sunset over flooded Morava river, April 2006, Uherske Hradiste, Czech Republic

ISTOCK

>> **ONE OF** the benefits for the Czech Republic of joining the European Union was the adoption of the Water Framework Directive, a legislative document compulsory for every member of the E.U.

The framework commits the Czech Republic to recognizing that, "Water is a heritage which must be protected, defended and treated as such," and taking action to clean up and protect our waterways. But when the Czech River Basin Management Authorities prepared a strategy to ensure the long-term health of our rivers and protection of our water supply the result was shocking. Their proposal was a plan to build 200 new dams on our rivers.

Fortunately, under the Framework, the plan had to be opened to the public for comment. The mayors and citizens of towns and villages where the new dams were planned were informed and engaged. The protest was so strong that the Czech Ministry of Agriculture, the governing body of the River Basin Management Authorities, withdrew the plan. The plan was rewritten, and approved without the 200 dams. Our efforts are now aimed at restoring wetlands, wet meadows, ponds and floodplain forests.

Right Place, Right Time

By Michael Mullen, Choctawhatchee Riverkeeper

>> **FOR ALMOST** two decades, proponents of a reservoir in southeast Alabama have been looking for a river to destroy. The effort started under the mantra of flood control in 1990, when a levee broke on Whitewater Creek submerging the town of Elba, Alabama. The mayor of Ariton, Alabama used the event and the concern it created over flood control to champion a dam for the Pea River, the largest tributary to the Choctawhatchee River, despite the fact that the Pea River did not cause the flood. He assigned newly formed Choctawhatchee-Pea and Yellow Rivers Watershed Management Authority to take on the task.

Choctawhatchee Riverkeeper followed the developments closely and contacted downstream stakeholders in Florida who were not aware of the proposed reservoir — when they found out it created a firestorm. The Authority soon learned that the river could not be killed without a long and costly fight. Proponents of the dam eventually succumbed because of opposition from downstream residents. The Little Choctawhatchee River is safe for the time being but the battle for sane water management is not over. The region has done little if anything in the area of conservation, efficiency and water reuse. Our rivers will never be safe as long as sound water management is absent.

Choctawhatchee Riverkeeper Michael Mullen and Ken Weathers, Alabama Department of Conservation and Natural Resources, pose with a Gulf sturgeon during capture and tagging project.

CHOCTAWHATCHEE RIVERKEEPER

Hydropower: Not Green, Not Cheap, Not Clean

By Clarice Blake Rudkowski, Grand Riverkeeper, Labrador, Canada

» **WHEN I** was a young girl, my father took my brother John and I up Grand River to collect a canoe that he had left there that winter. I remember the bright and glorious morning of our departure. The sunshine was glinting off the snow like a million sparkling diamonds. Our warm breath formed clouds as we scampered around with the crunching of the crisp snow under our sealskin boots. We helped load the *komatik* (sled) and fetched harnesses as the dogs strained on their chains in joyful anticipation. Dad always kept a team of eight or ten white huskies. They loved to go on trips, and in "them days," as we say in Labrador, they were our only mode of transportation in winter. Mom fussed around making sure we did not forget candles, guns, ammunition and matches. There were no corner stores in the vast wilderness we called home.

With the dogs hitched to the *komatik* we were off and running, *slinging* to the lashings for dear life so we would not fall off. On a command of 'auch, auch' the lead dog would turn right, 'etta, etta' left and 'a-a-ah' stop. We never heard the 'mush' of American movie lore.

In the week that followed we crept along the shores of the Grand River, around the rifted ice at the foot of Muskrat Falls. We slept in a tent with a warm glow from the stove, which Dad kept stoked through the night. Outside, the hoot of an occa-

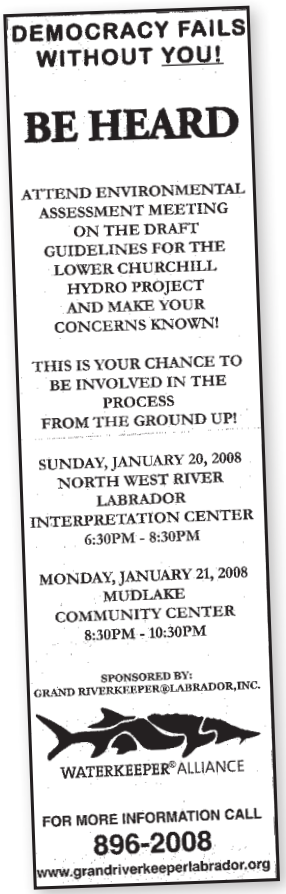
CLARICE BLAKE RUDKOWSKI

Muskrat Falls, site of a proposed dam.

CLARICE BLAKE RUDKOWSKI

CLARICE BLAKE RUDKOWSKI

Photos of Grand Falls before the completion of the Upper Churchill Hydropower Project in 1966, and today.



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SUNDAY, JANUARY 20, 2008
NORTH WEST RIVER LABRADOR INTERPRETATION CENTER
6:30PM - 8:30PM

MONDAY, JANUARY 21, 2008
MUDLAKE COMMUNITY CENTER
8:30PM - 10:30PM

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Ad in the Labradorean, a weekly community paper, by Grand Riverkeeper.

sional horned owl interrupted an otherwise silent world, while a brilliant moon cast long shadows. In the early morning the purple hills were greeted by the rising sun and the huge expanse of the river was peppered with partridges, which provided our supper. Other times, we cut holes in the ice and caught a few trout or set rabbit snares. This memory of my childhood reflects a way of life gone forever, as soon could the river that nurtured it.

The Grand River, known by the Innu People as *Mishta Shipu* or Big River, is the province's longest river and largest watershed, draining 93,415 square kilometers (36,000 square miles). It starts at the head of Ashuanipi Lake, drops over Grand Falls, broadens into Winokapau Lake and then twists through a deeply incised glacial gorge past my hometown, Happy Valley-Goose Bay, before flowing into Lake Melville and eventually Groswater Bay. It is certainly the most historic river in Labrador. A 4,000-5,000-year old Maritime Archaic site was found near Mud Lake. It has been traversed by the Innu First Nations people for eons. Fur traders in the 19th century established posts along the river's route to trade with the Innu. It sustained my family for generations, and even today my kitchen window gives me a view of this magnificent waterway where it is one mile wide. It is my river. It is my home.

Where the river once thundered down Bowdoin Canyon the mist and roar from Grand Falls could be seen and heard from 20 miles away. Today this is the site of the Upper Churchill Hydropower Project. The falls are now a trickle. At the start of construction in 1966 Upper Churchill Project — a series of dykes, spillways and control structures to impound the water– was the largest civil engineering project ever undertaken in North America. It produces 5,225 megawatts of power, the bulk of which is sold to Québec in a very lopsided 65-year contract greatly favouring that province. Hydro Québec in turn sells that power to the eastern seaboard of the United States and reaps the lion's share — 96 percent — of the profits.

My father's trapping grounds are now underwater. No one ever approached him for permission or compensation. He was never given an opportunity

The Economics of the Lower Churchill Hydroelectric Project

By Dr. Murray A. Rudd
Canada Research Chair in Ecological Economics
Environmental Valuation and Policy Lab
Sir Wilfred Grenfell College, Memorial University of Newfoundland

The primary reason for the push to develop hydropower on the Grand River is the promised windfall for Newfoundland and Labrador from the sale of electricity to the New England and Ontario markets. But determining the economic viability of the project is not straightforward. Any economic analysis of the project must include the ecological, social and cultural costs, including the loss of species, heritage sites and traditional ways of life. Why is this important? If these nonmarket impacts are not monetized, 'priceless' environmental and cultural assets will be assigned a value of zero in the economic analysis. That will make the project look more economically attractive that it really is.

The provincial governments behind these dams promote them as a way to generate hard currency from the river. But the revenue stream may never materialize. Historically it was possible to lock in long-term contracts for the sale of electricity. Forty years ago Newfoundland and Labrador locked into a 65-year contract to supply Hydro Quebec electricity from the Upper Churchill dam. But long-term electricity contracts are a thing of the past; most electricity entering the grid in major markets is sold in hourly auctions. Revenues decades in the future will depend on market conditions that are unknowable today. Because of the time lag and enormous upfront costs, the real financial viability of the project will probably be unclear for 25 or more years.

Another major selling point for Newfoundland and Labrador Hydro is that power from the proposed Lower Churchill Project will displace electricity from coal-fired generating stations. This is optimistic for two reasons. First, bringing additional power into an insatiable North American market may simply lead to higher power consumption. Second, if cheap hydroelectric power does come to market, it still may not displace dirty energy from the grid. Power from fossil fuel plants is cheap compared to cleaner power alternatives. If Lower Churchill hydroelectric power were to come to market at a competitive price, cleaner energy (which tends to be more expensive) would be displaced from the market first.

There is also a question of 'opportunity costs.' The billions of dollars invested in the Lower Churchill could be better invested in other things. Research has shown time and again that education is one of society's best long-term investments. What would happen if even ten percent of the Lower Churchill development costs were diverted to education? And if the Province does need to invest in power projects, why not invest in wind or ocean wave energy technologies and develop a competitive advantage with renewable resources that are abundant in the Province?

Damming the Grand River is a one way proposition; there will be no decommissioning the dams if we find out later that we've been mistaken about the economics of the project. The financial, environmental and social costs of dams are all incurred up front. A superficial economic analysis is a recipe for irrevocable ecological and cultural loss on the Grand River. It is imperative that a comprehensive economic analysis be undertaken and that it tackles the crucial issues, and captures the true costs to all Canadians, using state of the art methodology and economics best practices.

to retrieve his traps, canoe or anything else left behind. I've also heard a story from an old Innu man and his family who were travelling to their traditional hunting grounds in the interior and instead found a vast, previously unknown sea. The Smallwood Reservoir, created by the project, is the third largest man-made lake in the world, inundating 2,589 square miles.

In 1998 Premier Brian Tobin of Newfoundland and Premier Lucien Bouchard of Québec announced another project in our watershed. The Lower Churchill Hydroelectric Project — a $12 billion hydroelectric plan involving two salmon rivers (La Romaine and the St. Jean) in Québec and the Grand River in Labrador. The proposal included the construction of two large dams on the lower part of Grand River which will essentially convert most of the remaining free-flowing river into reservoirs. The Grand Riverkeeper first came together as Friends of Grand River/Mishta Shipu, a local citizens' organization to stop this project.

There were no public hearings prior to the announcement of the plan and Aboriginal land claims in the region were not addressed. It was déjà vu all over again and we knew we needed help. Friends of Grand River first heard of Waterkeeper Alliance when they were involved with the James Bay Cree First Nation in a successful effort to stop another massive dam proposal, the Great Whale Project, in Québec. Daniel LeBlanc, then the Petitcodiac Riverkeeper, and Susan Casey-Lefkowitz of NRDC encouraged us to explore the possibility of becoming the Grand Riverkeeper. In June 2005 we did just that with Roberta Frampton Benefiel sharing the helm of the organization.

Grand Riverkeeper Labrador advocates NO MORE DAMS. We also advocate for energy conservation, renewable sources of energy, as well as alternatives to hydropower for economic development — all of which must be ecologically sustainable.

The Newfoundland and Labrador government is pressing forward with the Lower Churchill Project while Québec has independently begun construction of a dam on the La Romaine River. The two proposed dams on the Grand River are the most serious and imminent threat in our watershed. Visionary thinking and support at the local, provincial, national and international level are necessary to stop these projects. We are a very small population with little clout at the ballot box. Our best hope is to bring pressure to bear from without.

We are spreading the word and preparing to fight. Each year we sponsor a ten-day canoe trip on the river, we have formed coalitions with other environmental groups and we have opened dialogue with Canadian Heritage Rivers aimed at designating the Grand as a heritage river for its cultural and historic values. In November we invited Dr. Martha

Kostuch to conduct a workshop aimed at developing an action plan to protect our river. Dr. Kostuch, a well-known environmental activist from Alberta, is probably best known for challenging the government for breaking its own laws and winning a precedent-setting Supreme Court of Canada decision. Now we are preparing to get involved with the environmental assessment process, which, without Dr. Kostuch's tenacity and determination, might otherwise not be happening.

Draft Environmental Impact Statement Guidelines for the Lower Churchill Hydroelectric Generation Project have been released for public comment. In January 2008 Grand Riverkeeper Labrador hosted public information sessions with the help of a number of eminent water quality, economics and environmental experts from around Canada. These sessions took place during one of this winter's coldest snaps. The last information session was held in Mud Lake where one third of the population turned out, including all five school children. Afterwards we were invited to stay for a "mug-up" — hot tea and coffee, sandwiches, cakes and cookies carefully laid out on a pretty tablecloth while we lumbered around in our snow pants and clumsy skidoo boots.

The citizens of Labrador are beginning to understand just how dangerous and damaging the damming of the Lower Grand River would be. Mud Lake, for instance, is located on the south side of the river and has no road access. The river is the residents' highway. They worry that warm water coming out of the turbines at Muskrat Falls, just 20 miles upstream, might make for dangerous ice conditions in winter and that sedimentation might prevent boat navigation in summer. Grand River was formed by a geological fault, so they also worry that seismic activity could cause the dams to fail. There is no evidence that dam proponents have considered emergency evacuation planning. Some youth at our Northwest River session observed that damage of this magnitude caused by nature would be called a disaster but in this case we are calling it development.

From a Grand Riverkeeper Labrador perspective there should be no more dams. The proposal before us will develop hydroelectricity for export while Labrador's coastal communities continue to pay exorbitantly high electricity bills for diesel generation. The dams will bring a construction job boom. But the region will be left with the bust, and the environmental consequences, forever.

Hydroelectricity is not green, it is not cheap, it is not clean and plans for new dams must be stopped on *Mishta Shipu*, the Big River, the Grand River. **W**

CLARICE BLAKE RUDKOWSKI

CLARICE BLAKE RUDKOWSKI

Eminent experts who came to our aid earned bragging rights when they braved -40 degrees Celsius to see Muskrat Falls, one of the proposed dam sites. There was a drumming ceremony to bless the river, hot caribou soup, flummie (a trapper's bread), and steaming tea to warm their bellies. From left to right: Dr. R. John Gibson, a retired Department of Fisheries and Oceans scientist; Bruno Marcocchio, the Sierra Club's Atlantic Campaigner; Economist Dr. Murray Rudd; Brett Rogers, Waterkeepers Canada; Roberta Frampton Benefiel and author Clarice Blake Rudkowski, Grand Riverkeeper, Labrador; and Philip Raphals, Helios Centre. (A video on this effort is on YouTube.com, search for Grand Riverkeeper.)

The public information session in Mud Lake on January 21, 2008. Despite being a workday and bitter cold, a third of the population of Mud Lake turned out.

CLARICE BLAKE RUDKOWSKI

Southeast Water Wars

St. Johns Riverkeeper LEGAL ACTION

On March 4, St. Johns Riverkeeper filed a lawsuit against Seminole County to prevent the withdraw of 5.5 million gallons of water per day from the St. Johns River for irrigation.

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By Neil Armingeon, St. Johns Riverkeeper

» A WATER war has come to the St. Johns, a river that flows from south Florida, through the central part of the state and into the Atlantic at its mouth in Northeastern Florida. St. Johns Riverkeeper is fighting plans to remove hundreds of millions of gallons of freshwater from the St. Johns and the Ocklawaha, one of its major tributaries. This battle is the latest in a long line of Florida's water struggles, and many believe its outcome will decide the future of the St. Johns.

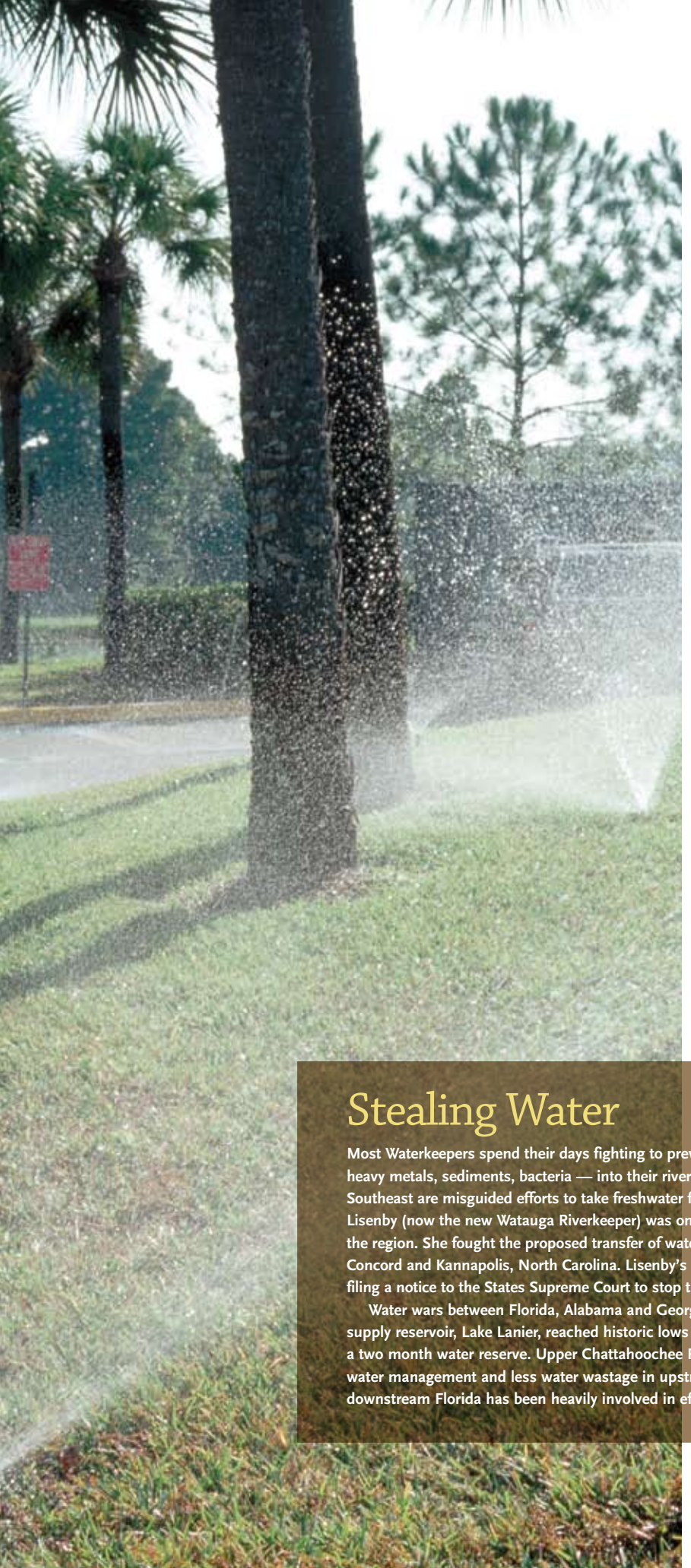
In spring 2007 the St. Johns River Water Management District announced that Orlando and central Florida will out-strip the Floridian Aquifer's ability to provide a sustainable drinking water source beyond 2013. The Water Management District directed Orlando and other communities to seek alternative water sources. The cities set their sites on the St. Johns and its main tributary, the Ocklawaha, as their primary new water source.

The Water Management District claims that 155 million gallons per day can be safely withdrawn from the St. Johns River without affecting the river's aquatic health or its ecosystem. The Water District is also focusing its attention on the lower Ocklawaha River, and although a minimum flow level for the Ocklawaha River has not been established, the agency is telling counties to expect to be able to withdraw another 90 to 108 million gallons per day from that river — total potential withdrawals from the St. Johns system could be over 262 million gallons per day.

> The only way to solve the problem, stop water wars, and save our rivers, is to drastically cut demand, per-capita water use, and begin to limit growth.

St. Johns Riverkeeper is concerned that the withdrawals will have catastrophic impact on the river's ecology. The St. Johns reached historic low flows this past summer and flows in the Ocklawaha River are down by almost half over the past 60 years. The Water Management District has masked the risks to the river's ecological health by portraying the withdrawals as a simple percentage of the river's total flows. But their calculations don't tell the whole story.

The proposed withdrawals will cause the river's salinity line to shift upstream, impacting the productive estuary at the river's mouth, especially during low flow conditions. Because river water has a high salt content, most withdrawals for drinking water will require reverse osmosis treatment. Reverse osmosis removes salt from the water, producing very-salty wastewater called 'concentrate.' Sev-



eral of the proposed withdrawals will be upstream of the Wekiva River. This river is a National Wild and Scenic River and one of the state's few aquatic preserves. Disposing of the concentrate would harm the river's health, adding additional pollutants to an already stressed system. And removing additional freshwater will potentially worsen pollution events in the St. Johns watershed, including the river's blue green algae problem (reported in the Waterkeeper fall 2007 issue.)

The estimated cost of this project will exceed $4 billion, yet it will only provide drinking water needs for 10 years into the future. Floridians have one of the highest per capita water use rates in the United States; each of us use about 180 gallons per day. Even more stunning is the fact that 50 percent of the potable water used in the state never reaches the inside of our homes or businesses; it is used to water our lawns and landscaping. Yet conservation has no part in the Water Management District's plans.

At this writing, the first permit to remove water from the St. Johns River is on public notice. We are scrambling to refine our legal strategy; we are prepared to do whatever it takes to stop this theft of our river's health and it future.

Florida's population is expected to double within the next 50 years, this will require prudent long-term solutions and dramatic changes in the way that we grow and utilize our water resources. EPA estimates within 5 years, 36 states will face water shortages. This means many of our rivers will be targeted to maintain unsustainable growth and water use.

The only way to solve the problem, stop water wars, and save our rivers, is to drastically cut demand, per-capita water use, and begin to limit growth. The health of our rivers and the quality of life of our communities require we fight for sustainable use of our water supplies. **W**

Stealing Water

Most Waterkeepers spend their days fighting to prevent polluters from putting something — nutrients, heavy metals, sediments, bacteria — into their rivers, bays, lakes and estuaries. But a growing threat in the Southeast are misguided efforts to take freshwater from our waterways. Former Catawba Riverkeeper, Donna Lisenby (now the new Watauga Riverkeeper) was one of first Waterkeepers to take on this growing threat in the region. She fought the proposed transfer of water from South Carolina's Catawba River to the cities of Concord and Kannapolis, North Carolina. Lisenby's work resulted in the South Carolina's Attorney General filing a notice to the States Supreme Court to stop the transfer.

Water wars between Florida, Alabama and Georgia also heated up this summer when Atlanta's water supply reservoir, Lake Lanier, reached historic lows and city officials noted that the region had less than a two month water reserve. Upper Chattahoochee Riverkeeper in Georgia has been advocating for better water management and less water wastage in upstream Atlanta, while Apalachicola Riverkeeper in downstream Florida has been heavily involved in efforts to maintain flow in their river.

Water Security, Water Honour, Water Flow

By Angel John Gallard, Upper Snowy Riverkeeper

» THE ONCE mighty Snowy River winds its way through some of the wildest, most rugged country in southeastern Australia before reaching its destination, the Tasman Sea. The glorious roar of the Snowy still echoes in the memories of old timers. Its historic majesty inspired the famous, century-old words of Banjo Paterson in his poem, *The Man from Snowy River.*

But death came to the river in 1967 in the form of the Jindabyne Dam and the creation of the Snowy Mountains Hydro Electric Scheme, providing 'water security' for Australia's food-bowl region and electricity for New South Wales. Lauded as a nation-building exercise, the scheme siphoned 99 percent of the river's natural flow, effectively turning the once wild and beautiful Snowy into little more than a rocky drain. The communities, human and wild, that depended on the Snowy River's sustaining flow were devastated.

The resurrection of the Snowy River began in the 1990s with a community outcry that spurred the government into action. Federal, Victorian and New South Wales governments passed the Snowy River Agreement; a landmark piece of legislation that requires the return of water to the watershed, committs $375 million and requires that the governments convene an independent scientific committee to, with public input, oversee restoration of the river. But while the plan set ambitious goals, government stumbled in its commitment to implement the agreement.

On 28 August, 2002, bells rang out and the community celebrated as the first environmental flows were released back to an upper tributary of the Snowy River, the Moonbah River. The governments accepted kudos. But it was only a charade.

Three and a half years later the water was again shut off. Behind the scenes the government had gone back on its word. The independent scientific committee was never established. The public was never consulted. The whole episode left the community anguished and bitter. But rather than dissuaded, this tragic experience only reaffirms the resolve of the Upper Snowy Riverkeeper and the community. The Upper Snowy Riverkeeper and other Snowy River community groups are now exploring legal avenues to force the New South Wales government to keep their word to restore the stolen flow.

The same community power and passion that brought about the legislated plan to save the Snowy River will again force the New South Wales government to comply with its promise to the people and its legal obligations to restore flow to the Snowy River. We will again have to fight for the life of our beloved and once wild Snowy River. This time, though, we will be wary of false hopes and the poisonous tongues of politicians. The question is not whether but when the commitments will be honoured to restore this iconic waterway. W

Author Angel John Gallard, Waterkeeper President Steve Fleischli and Snowy Estuarykeeper Rob Caune in front of the Jindabyne Dam on the Snowy River, Australia, in 2007.

UPPER SNOWY RIVERKEEPER

Spiritual Meaning of Water

My ancestry is mixed but I draw strongly on my Australian Aboriginal heritage for my understanding of water and the respect and reverence we should all have for it.

The Snowy River is a sacred river. All of our rivers have a sacred quality. Water is sacred. The water cycle shapes the earth, and us. In our Aboriginal Dreaming Stories we see the rivers like snakes twisting through the land, shaping and forming landscape. We see the creative energy contained within the water, circulating, using the energy, and power of the Rainbow Serpent according to the laws of the Great Spirit, whom we know as Byame in parts of central and south eastern New South Wales, Australia. Byame's Law is Universal.

Towards Water Democracy

By Vandana Shiva

» **RIVERS ARE** central to the prosperity and survival of Indian civilization. While our cultural heritage perceives water as the basis of all life, the contemporary approach treats water as raw material input for agriculture and industry commodity production. It generates a misconception that large man-made structures can augment water resources. The engineering bias in water supply decisions results in large projects that produce serious social and ecological instability and generate conflict.

The water cycle is the basic metaphor for ecological balance and maintaining the water cycle is a precondition for a just economic order in which neither marginal communities nor future generations are denied their right to water. Water conflicts provide an opportunity to reassess water use strategies so that our actions are in harmony with rivers. According to Aldo Leopold, the elementary step in learning how to use water effectively is to learn the logic of the river. Respecting the integrity of the river amounts to respecting all life that the river supports. Violence to the river is violence to the communities inhabiting a river basin. The resolution of conflicts over river water requires an ecological reorientation in water use which combines justice with sustainability.

Large Dams as Instruments of Hydro-Dictatorship

Rivers flowing freely distribute life-giving waters across regions and to all species, plants and animals, humans and microbes. Rivers locked in dams centralize power and control over water.

The capacity to divert rivers from their natural course increased dramatically in the post-colonial period with the transfer of large dam technology and a new culture of gigantism, financed by public funds from the U.S. With the technological euphoria of dam building came ecological disruption and social conflicts. These problems are aggravated in India because we are a riparian civilization which evolved in a monsoon climate. Most of India's river valleys are highly populated and rivers provide the primary life-support systems for our riparian settlements.

Large dams, intensive irrigation and water diversions undermine stability creating ecological refugees, ecological destruction and political conflict. Human and cultural rights issues are intimately linked with the ecological destruction of large water infrastructure projects. Displaced people are, of course, in direct conflict with those who benefit from large dams and massive irrigation systems. And when dams and canals ultimately increase water loss (through evaporation and seepage) and destroy farmland, even the 'beneficiaries' of dams join the fight against state-planned water infrastructure projects. Changes in water flows also generate potentially deadly conflicts between the people and the state, and also between states.

World Bank's Role in Financing Large Dams

The World Bank is the world's leading driver of large dams. Millions of people have been displaced and millions of acres of farmland wasted due to water logging and salinization by World Bank water projects. World Bank projects have left India with nearly $5 billion dollars of water related loans. On this huge sum, at the rate of 11 percent per year, India must pay around $530 million dollars annual interest to the World Bank.

The World Bank uses its loans as leverage to force water privatization. Privatization converts the universal water access of public utilities to privileged access for industry and guaranteed supply for rich urban areas. The World Bank forces governments and public utilities to increase water tariffs and to commodify water, undermining people's fundamental right to water as part of the right to life. World Bank loans fail to bring water to people — despite these projects India faces a severe water crisis. They do, however, successfully guarantee contracts and profits for international water corporations like Suez, Vivendi and Bechtel.

The Indian government's proposed $200 billion River Linking Project is a prime, and unfortunate, demonstration that we have not yet learned the lessons of mega-diversions and mega-dams. The first step in this nationwide (World Bank financed) water project is the construction of a 73-meter-high (240 foot or 24 story) dam on the Ken River in Bundelkhand and a 231-kilometer-long (1,423 mile) canal connecting the Ken and Betwa Rivers. Seventy-five percent of the project's cost (estimated at 20 billion rupees or $500 million) will be extracted from the local peasants from various taxes imposed over the next 25 years. To ensure locals can pay the tax hike, the government is pressuring farms to switch from traditional crops to water-intensive commodity crops.

AP PHOTO/AARON HARRIS

Vandana Shiva (वंदना शिवा) is a physicist, ecofeminist, environmental activist and author of more than 300 papers in leading scientific and technical journals. Shiva participated in the nonviolent Chipko movement during the 1970s, which adopted the tactic of hugging trees to prevent their felling. She is a leader of the International Forum on Globalization and a figure of the global solidarity movement known as the Alter-Globalization Movement. She is also the founder of Waterkeepers India.

Tehri dam is a 260.5 metre high dam (more than two-thirds the height of the Empire State Building) on the Bhagirathi River, a tributary of the mighty Ganga. The most worrying feature of the project is its location in the Himalayas, one of the most geologically unstable regions on earth. It is well known to engineers that massive reservoirs can increase the frequency and, perhaps, the intensity of earthquakes. It is feared that if an earthquake of eight or more on the Richter scale were to occur, the dam would collapse, putting six major cities and as many as 1.5 million people at immediate risk. The Tehri Dam Project is only one of the more than 40 dam or water diversion projects that have been constructed, or planned, in the region.

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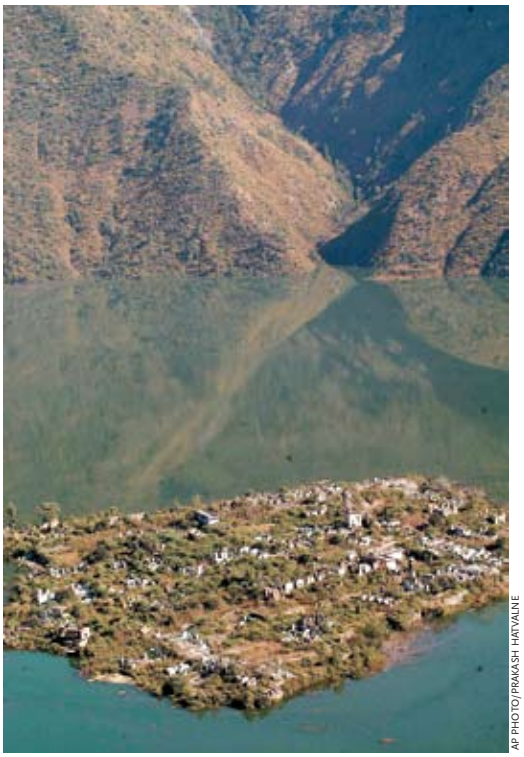


AP PHOTO/PRAKASH HATVALNE

A final view of the town of Tehri in November 2005 before it was submerged in the reservoir of Tehri Dam in Uttaranchal, India. Around 125 villages and more than 100,000 people were displaced by the project.

The project has severe ecological and cultural consequences. Fifty square kilometers of Panna Tiger National Park, the natural homeland of 10 endangered species listed under India's Wildlife Protection Act, would be submerged and hundreds of thousands of trees would be cut. The project's total of five dams would displace around 18 villages. The Ken-Betwa Link Canal would go through places where traditional irrigation has been practiced successfully for the last 500 years.

But the people of the region are determined to resist the river-linking project. As a result of the growing Water Democracy Movement the state government of Uttar Pradesh has refused to transfer the water of the Ken. Every village in the basin has passed a resolution declaring that water is a commons and that community rights have to be the basis of any water plan or project. As a local organizer said to me, "They destroyed Iraq with bombs. But patents on seeds and diversion of rivers are also bombs that will destroy us. That is why we must resist them." Far away from the glare of global media, ordinary people are making history, not by organizing arms to fight a brutal empire but by self-organizing their lives — their resources, their cultures, their economies — to defeat the empire by turning their back to it, rejecting its tools and its logic, refusing its chains and its dictatorship.

Large Dams are dinosaurs in an era of climate change — too big, too clumsy, too inflexible to survive a period of uncertainty and change. And this is our challenge — to make them dinosaurs in the public imagination with only one future: extinction.

GILES ASHFORD

Waterkeepers in India

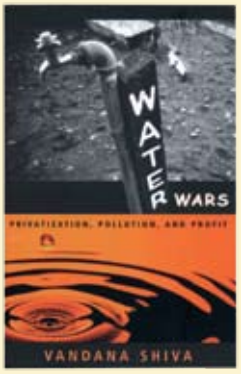
Waterkeepers in India are working to protect the integrity of rivers and the rights of riparian communities. We have taken up four rivers — the Ganga, the Yamuna, the Ken and the Betwa, all of which are part of the larger Ganges system.

One of our creative approaches is to organize River Pilgrimages (Jal Yatras) such as Ganga Yatras, Yamuna Yatras and Ken Yatras. In our organizing we have realized that we need to build on the concept and cultural experience of rivers as sacred. We need to combine the rights of people (justice) with the rights of the river (sustainability). On August 15, 2007, India's Independence Day, as part of the Yamuna Satyagraha, we put a flag of India in the Yamuna River, declaring that the freedom of the country was based on the freedom of our rivers to flow free.

Our most significant new dimension of organizing is linking climate change to the issue of rivers and dams. Scientific research shows that glaciers are rapidly receding as a result of global warming. The glacial melt will initially lead to floods by increasing river flows by 90 percent. Dams will fail both during the flooding phase and when water flows decrease. Large Dams are dinosaurs in an era of climate change — too big, too clumsy, too inflexible to survive a period of uncertainty and change. And this is our challenge — to make them dinosaurs in the public imagination with only one future: extinction.

The alternative for the future is water democracy (Jal Swaraj). If large dams are obsolete in a period of climate change and rapid changes in water regimes, then we need alternatives — alternatives that can survive climate chaos and help mitigate and adapt to an unpredictable climate. Decentralization and democracy are keys to adaption. Centralized undemocratic systems collapse under stress, under uncertainty. Decentralized and democratic systems can adapt because of flexibility and participation. **W**

Ecosystems and traditional human cultures are adapted to the amount of rainfall or snow that a region gets. For example, the desert of Rajasthan receives only 1 to 2 inches of rainfall each year, yet with ancient sophisticated water harvesting technologies, the people of the desert have grown their food and quenched their thirst. Low rainfall does not create a water crisis. The water crisis is a result of human disruption of the water cycle.



The Principles of Water Democracy

ONE

Water is nature's gift

We receive water freely from nature. We owe it to nature to use this gift in accordance with our sustenance needs, to keep it clean and in adequate quantity. Diversions that create arid or waterlogged regions violate the principles of ecological democracy.

TWO

Water is essential to life

Water is the source of life for all species. All species and ecosystems have a right to their share of water on the planet.

THREE

Life is interconnected through water

Water connects all beings and all parts of the planet through the water cycle. We all have a duty to ensure that our actions do not cause harm to other species and other people.

FOUR

Water must be free for sustenance needs

Since nature gives water to us free of cost, buying and selling it for profit violates our inherent right to nature's gift and denies the poor of their human rights.

FIVE

Water is limited and can be exhausted

Water is limited and exhaustible if used non-sustainably. Non-sustainable use includes Ecological Non-sustainability, extracting more water from ecosystems than nature can recharge, and Social Non-sustainability, consuming more than one's legitimate share, given the rights of others to access clean water.

SIX

Water must be conserved

Everyone has a duty to conserve water and use water sustainably, within ecological and just limits.

SEVEN

Water is a commons

Water is not a human invention. It cannot be bound and has no boundaries. It is by nature a commons. It cannot be owned as private property and sold as a commodity.

EIGHT

No one holds a right to destroy

No one has a right to overuse, abuse, waste, or pollute water systems. Tradable-pollution permits violate the principle of sustainable and just use.

NINE

Water cannot be substituted

Water is intrinsically different from other resources and products. It cannot be treated as a commodity.

»the way FORWARD

Working With Nature

» **FOR THE** past hundred years humanity has been on a massive dam building spree. The Army Corps of Engineers counts 82,642 dams in the United States. The World Commission on Dams counts 45,000 large dams (greater than 50 feet tall) worldwide; half the world's rivers have at least one large dam. Each of those dams dislocates people and cultures, alters water flow and ecosystems disrupts fish migration, displaces native species, contributes to global warming and puts downstream communities at risk.

Sustainable solutions to the problems of water supply, power generation and flood control all exist. They require that we democratize decisions about water use and elevate sustainability as our primary development goal. We must draw on traditional knowledge to work with nature, not try to control it. **W**

Glass Half Full

Talking Water with Sandra Postel

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Waterkeeper: Let's start with the simplest question first; are we running out of water?

SANDRA POSTEL: The short answer is no, because the earth has as much water today as it had at the dawn of human civilization. The real question is how much of that water is accessible and how are we managing and using that accessible supply. I'm concerned that the term 'water scarcity' has gotten appropriated by corporations and other private interests who say things like: water is getting scarce, so we need to privatize supplies, build desalination plants and control more water with new infrastructure. They are placing the burden on nature instead of on human stewardship. They are obscuring what is really going on: excessive use and mismanagement of water.

I was one of the people who put the term "water scarcity" on the map 25 years ago, and so I take some responsibility for this. I have begun to reexamine the terminology that I use as I hear the media say things like, 'Water scarcity is spreading, a billion people don't have clean water to drink.' That statistic has more to do with poverty and access than any physical scarcity of water. Typically there is enough water to meet basic needs, but there are no pumps, no wells, no pipes to supply poor people with the water. It's not a lack of water; it's a lack of political will.

W: So is it true what Edward Abbey says, that there's the exact right amount of water?

POSTEL: That's right, and since we can't go back and dismantle Las Vegas and Phoenix and all our desert oasis cities we are going to have to do a fairly significant adaptation. There is some serious rethinking to do about how the human enterprise rebalances itself with the natural water system. The situation in the Southeast this summer and fall was very interesting because you had Atlanta suddenly declaring an emergency and wanting flows from Lake Lanier reduced if not stopped to prevent an even more serious water emergency. Yet water use in Atlanta on a per capita basis is quite high.

W: The reaction in Atlanta from policymakers was scary — proposals to rollback the Endangered Species Act and other environmental protections. How do we avoid "water emergencies"?

POSTEL: We need to put into place triggers for action that fire much earlier so we never pit drinking water against downstream endangered species. Planning is going to be important because we're going to have more and more water shortages with climate change.

W: Some water conservation happens through public education, but the kind of problems we're talking about won't be solved by people turning off the faucet when they brush their teeth. How do you get people, cities, agriculture and industry to use significantly less water?

POSTEL: We need regulatory and economic incentives that encourage conservation and efficiency. The current water allocation system in the Western U.S., for example, makes very little economic sense. It is based on the prior appropriation water law, first in time is first in right. It results in a lot of water going to unproductive uses.

Water pricing has a role to play, though to have a significant impact, especially in urban areas, where household water often costs less than cable television, the price increases would have to be quite substantial. It's possible to use a tiered system that maintains affordable prices for moderate users and sets much higher prices for the biggest users. Incentive programs can also work. Las Vegas is giving rebates to residents who replace green lawns

Sandra Postel is director of the independent Global Water Policy Project and a leading authority on international water issues. She is author of *Last Oasis: Facing Water Scarcity*, the basis for a 1997 PBS documentary, and co-author (with Brian Richter) of *Rivers for Life: Managing Water for People and Nature* (Island Press 2003).

with native plants. If you factor in more efficient irrigation, getting rid of agricultural subsidies and shifting diets away from water-intensive animal products, then you begin to get to a more water-productive food system. If you reduce material consumption and increase water recycling at industrial and manufacturing plants, then you begin to get there on the industrial side.

What we've seen so far is only the beginning of a water adaptation that's going to have to be much greater. My sense is we need a tripling or quadrupling of water productivity across the board — in agriculture, industry and cities — if we're going to meet human needs while also maintaining a healthy aquatic environment.

W: It seems like water supply problems have traditionally been solved by engineers backed by federal coffers.

POSTEL: Yes, and that has to change and I think that's beginning to happen. In the 25 years that I've been working on this issue the number of local watershed groups has ballooned. There is more interest and involvement, people do want to have a say. But I don't like to be too hard on engineers because we need them. We're past the point where we can go back to a natural system. Most of the rivers of the world are turned on and off like plumbing works. The question is, when are we going to turn them on and when are we going to turn them off and for what reasons? What can be done is that you can manage a river with different goals in mind.

Our water management decisions have life and death consequences for other species. We have to be consistent with our values, ethics and technological capabilities. Instead of managing reservoirs only for water supply, irrigation, flood control, hydropower and recreation (the top five reasons we have dams) we can manage them in ways that help the river ecosystem too.

W: What legal mechanisms are out there to drive this shift? Do we need new laws?

POSTEL: The Clean Water Act gives all the authority we need to do this; we just haven't fully implemented the law. The goal of the act is to "restore and maintain the chemical, physical and biological integrity of the nation's waters." We focus mostly on the chemical piece — pollution. But to maintain the physical and biological integrity requires that we pay attention to a river's flow regime — the pattern of high and low flows that create the habitat and life cycle conditions to which species in the river are adapted.

States have a lot of authority over water protection and water allocation. Texas just passed an environmental flow law that basically requires enough flow to protect the coastal ecosystems that are important for fisheries, birding and tourism.

PAUL TEELING, HALLMARK INSTITUTE OF PHOTOGRAPHY

One of the biggest missing pieces is a national water policy that requires an allocation of water to protect ecosystem health. The gold standard for this type of policy was included in South Africa's 1994 post-Apartheid constitution. Their law includes a Water Reserve, guaranteeing every South African the right to the water needed for good health and basic needs. The law also does the same thing for ecosystems. It says that freshwater ecosystems also must receive the quality, quantity and timing of flows they need to remain healthy. These two entitlements come first in water allocation, before irrigation and other uses.

It's not a lack of water; it's a lack of political will.

W: The water crisis sounds a lot like pre-Green Revolution concerns about world food supply and overpopulation.

POSTEL: Yes, in a way it does, and I do believe we need some revolutionary changes in the way we use, manage and think about water. China has very serious water depletion problems. The Yellow River is running dry; groundwater is being overpumped in the North China Plain. In India, it's estimated that as much as 25 percent of agricultural production is dependant on the overpumping of groundwater. It's a food bubble. We're propping up today's food production with tomorrow's water. Unless we deal with it head on, at some point the bubble is going to burst and the ramifications will be global.

The solution is to double, triple or quadruple water productivity — do more with every drop of water that's extracted from the natural environment. It will require a major change in how we use water, but with technology and policy and an ethical underpinning, it is achievable. The adjustment may be difficult, but maybe not. How much happier are we if we have green lawns than if we don't? We are not accustomed to having to adapt our lifestyle choices to achieve a better balance with nature, but if we did, would we really see our wellbeing decrease? I'm not so sure. W


Ganymede The Waterkeeper
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DUE RESPECT, GOVERNOR. WE HAVE THE SCIENCE, WE HAVE THE EVIDENCE, AND WE HAVE THE SOLUTIONS.
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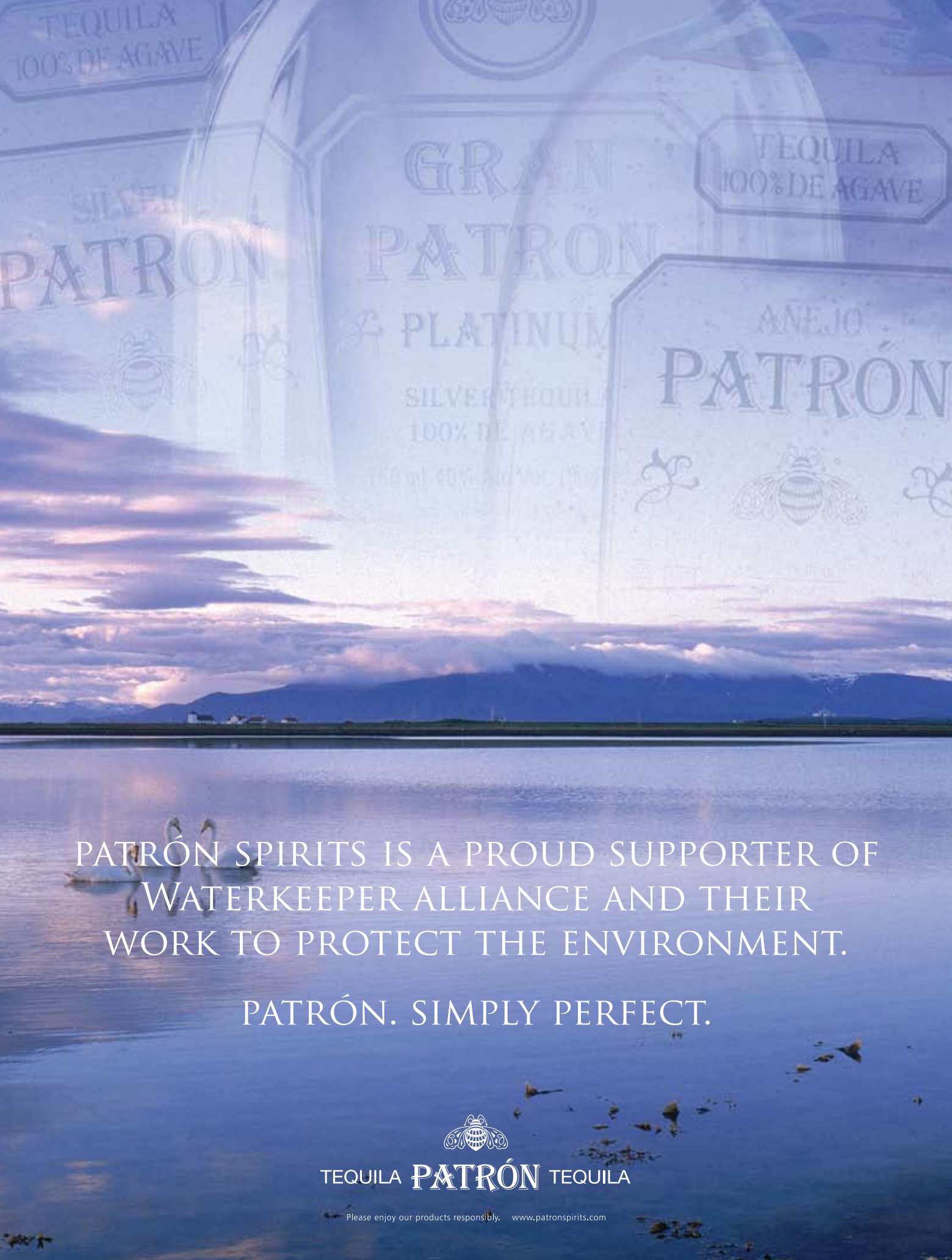
RRRRR-- THAT CARPET IS IMPORTED!
YES. THEY JUST LEFT. WHAT ARE YOU GOING TO DO ABOUT IT?
MY BROTHER'S PLOT IS REVEALED. YOUR LEADER IS COMPROMISED!
WE MUST UNLEASH THE POWER OF THE GODS-- OR WE ARE LOST!!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AS FOR YOUR "BROTHER," WELL WE OUTLASTED YOUR FAMILY THE FIRST TIME OUT, WE'RE GONNA OUTLAST HIM NOW—BY UNLEASHING THE POWER OF THE PEOPLE!
And you're paying my dry cleaning bill.
IF THE GOVERNOR'S IN SUCIAN'S NIP POCKET I'M GOING TO HAVE TO MAKE SOME PHONE CALLS.
OKAY, FLY, GANYMEDE—I THINK I HAVE A WAY TO MAKE YOURSELF USEFUL....
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SIMPERING CUR! THIS WILL BE MY FINAL WARNING. HEED IT!
SPLOOSH
AAAGH!
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I SEE IT, MS. SWAN.
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On The Water

James Holland

During his patrols Altamaha Riverkeeper James Holland takes time to capture photographs of the wildlife and beauty around him. Charles Agnew, director of the Middle Georgia College Peacock Gallery, which featured Holland's photographs in March, said of the work, "James Holland's superb sense of composition and accentuating colors will definitely draw in the viewer and make him or her want to see more of the amazing detail that the Altamaha River watershed has to offer."

Exxon Valdez Oil Spill Case has Local Implications Around Nation

AP PHOTO/STAPLETON

The Exxon Baton Rouge (smaller ship) attempting to offload crude oil from the Exxon Valdez on March 26, 1989. Oil from the spill impacted 1,500 square miles of Alaskan shoreline.

On February 26, 2008 the U.S. Supreme Court heard oral argument on the case surrounding the Exxon Valdez oil spill. In 1987 the tanker Exxon Valdez spilled 30 to 35 million gallons of Alaskan crude oil into Prince William Sound. The Court will hear arguments from Exxon why it should escape the $5 billion liability award imposed by an Anchorage jury in 1994. The High Court's decision holds relevance for oil spill prevention and clean-up everywhere.

"The issue is whether we will hold oil companies responsible for the safety of their ships," said Waterkeeper Alliance President Steve Fleischli. "If Exxon avoids responsibility for this tragic but preventable accident it will increase the risk to every waterbody and coastline in the nation from oil tanker traffic."

Among other claims, Exxon has argued that an 1818 maritime case known as the Amiable Nancy insulates shippers from the damages incurred by their vessel captains. That case hinged on the fact that ships of that era typically left port for years at a time with no contact with the vessel owner; today's modern communications obviously create changed circumstances.

"The Exxon Valdez oil spill showed that oil is considerably more toxic in the long term than scientists previously thought," said Alaska-based Prince William Soundkeeper Jennifer Gibbons. "The once lucrative herring fisheries of Prince William Sound are now gone and 20 years after the spill, along hundreds of miles of coastline, you can still scoop oil up with your fingers."

Through countless appeals and legal maneuvering, Exxon lawyers have whittled down the original $5 billion jury verdict to $2.5 billion, and Exxon is now asking the Supreme Court to disallow that award under U.S. maritime law and the Clean Water Act. In 2007, Exxon recorded the highest profits of any U.S. corporation ever, pulling in $40.6 billion — or more than $1,287 of profit for every second of 2007.

For background information on the Exxon Valdez oil spill, see: www.wholetruth.net or *H2Oil*, the summer 2007 issue of *Waterkeeper* magazine. **W**

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