

« ASTRONAUT BUZZ ALDRIN »

WATERKEEPER

Fall 2005

Hawks & Doves



*Waterkeeper
Air Force*

*Founder
Joe Payne*

*Restoration
Hardware*

*Million Acres of
Wilderness*

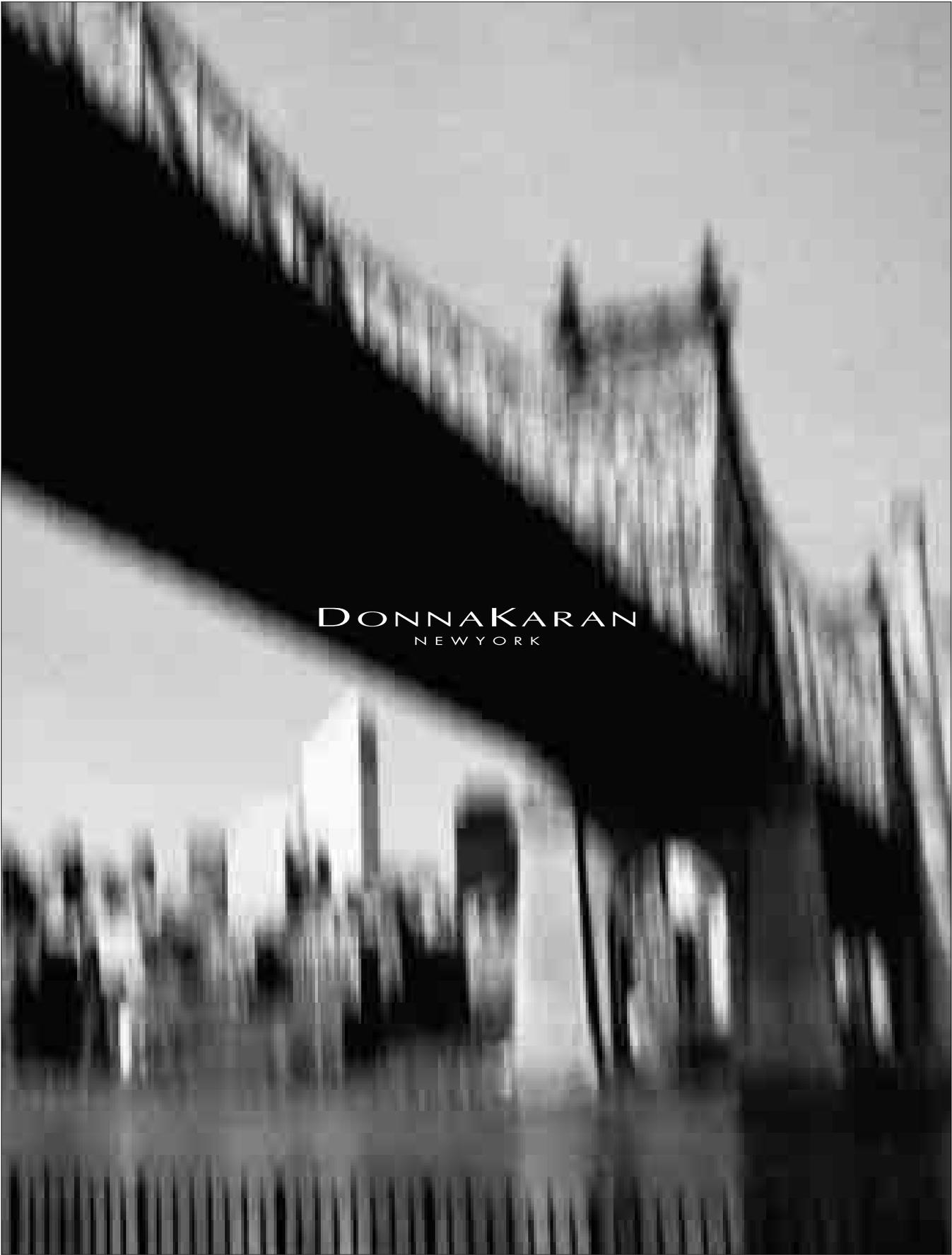
Every coastal state has a beach pollution problem. In 2004, beach pollution prompted at least 19,950 closing and swimming advisory days at ocean, bay, and Great Lakes beaches. -NRDC

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DONNA KARAN
NEW YORK



WATERKEEPER: Hawk and Dove

There's no one else in the world who has done more to advance the vision and accomplishments of the Waterkeeper movement than Rick Dove.

Like the founders of the Waterkeeper movement Rick is a former Marine. He saw two tours in Vietnam and served as a military judge, Congressional Liaison and Provost-Marshal.

This organization was started by Marines. It was a group of 300 veterans, mostly Marines and their wives, who first met in an American Legion Hall in 1966. They came together because they saw the Hudson River being stolen from them by industrial polluters. They concluded that government agencies were in cahoots with polluters and decided that the only way they could reclaim the river for themselves was to confront the polluters directly. One of these Marines, a Sports Illustrated writer named Robert Boyle, discovered an ancient statute, the 1888 Rivers and Harbors Act, which allowed individuals to participate in the prosecution of polluters with the U.S. Attorney's Office, and collect bounties. The new group started going after polluters on the Hudson and the Waterkeeper movement was born.

The Marines who met that first night in Crotonville, New York were mainly recreational and commercial fishermen and crabbers on the Hudson River. Similarly, Rick Dove, after 26 years in the Marine Corps, retired to become a commercial fisherman and crabber on the Neuse River. He also saw his fishery being destroyed. By 1994 most of the Neuse River's fish stocks were collapsing. The

fish were covered with lesions. Fishermen contracted debilitating respiratory infections and skin eruptions that wouldn't heal, and even brain damage. Rick contracted the lesions himself. The sickness, caused by exposure to Pfiesteria, was killing fish by the millions and leaving people with brain damage. Rick helped trace the disease to the untreated waste from hundreds of thousands of hogs pouring into the river. In Rick's view, the billionaire hog barons were literally stealing the river from the people of North Carolina. Rick was the first person to confront the hog industry in that state and anywhere else in the nation. In his soul he was still a Marine. He was still fighting for democracy.

The best measure of how a democracy functions is how it distributes the goods of the land, the public trust assets, the commons, the air and the water. These are things that by their nature cannot be reduced to private property. They are owned by all the people and held in trust for future generations. They are community assets: part of our commonwealth. How are these resources distributed? Are they maintained in the hands of the public or do we have a government that allows them to be captured, privatized and consolidated by large corporate entities?

This is, without any doubt, a battle to save American democracy.

We are not here to protect the fishes and the birds simply for their own sake; Waterkeepers recognize that nature is the infrastructure of our communities.

That's the whole battle of Waterkeeper Alliance and that's why the whole environmental movement is really a battle to save democracy. Rick Dove saw this fight in these terms from day one and he's kept the movement on track by teaching people what it means to be a Waterkeeper.

The hog industry is a paradigm for what happens to government when corporations take control. The *Raleigh News & Observer* won the Pulitzer Prize for a five-part series on the hog industry called "Boss Hog." The story showed how public officials in North Carolina were corrupted by this industry. Meat factories cannot produce a pork chop or a pound of bacon cheaper than a tradi-

tional family farmer unless they break the law. Their entire business plan is predicated on their ability to corrupt public officials and make the public pay for disposing their waste with poisoned water.

Twenty years ago when Rick started doing this work, there were 27,500 independent hog farms in the state of North Carolina. Today, except for the Niman Ranch sustainable farmers, there are none left. They have been replaced by 2,200 factories, 1,600 of them controlled by one corporation, Smithfield, which now dominates the landscapes of North Carolina. Corporate agriculture is driving the final nail into the coffin of Thomas Jefferson's American democracy, rooted in tens of thousands of independent freeholds, owned by family farmers, each with a stake in our system of government, each with a stake in our country. Now the landscapes of North Carolina are controlled by huge corporate interests, who have no loyalty to our country, who are the first ones to move their headquarters to the Bahamas and their operations to Poland, Canada, Brazil or Mexico. They don't care about America.

Rick started the battle against these companies and executed it like a military operation. He helped start 11 Riverkeeper programs on all the major rivers and estuaries on the east coast of North Carolina. He organized an air force of 22

airplanes that fly over the hog fields to document their practices.

These companies get laws passed at the state level that take away the power of local towns and counties to regulate factory farms. They take away the ability of citizens to control the destiny of their own communities, or even to publicly criticize their practices. This is a war on free speech and on our democracy. These companies have to crush local democracy and local control – they have to crush public officials – or they can't compete and can't survive.

This is, without any doubt, a battle to save American democracy. And Rick pitched it as that to the public from the very outset. We are not here to protect the fishes and the birds simply for their own sake; Waterkeepers recognize that nature is the infrastructure of our communities. If we want to meet our obligations to our children, we must provide them with the same opportunities for dignity, enrichment, safety and democracy as our parents gave us. We must start by protecting our environmental infrastructure by going to war against the big corporations who want to plunder our country.

I'll say one more thing about this democracy. Corporations, under our law, can't practice true philanthropy, or altruism. They do not take control of government officials to protect our democracy. They don't want democracy and they don't want free markets. They want profits. And the best way for them to get profits is to use our corrupt campaign finance system – which is essentially a system of legalized bribery – to get their hooks into a public official and then use that public official to dismantle the market by giving them competitive advantage and privatizing the commons. All they want is plunder, and under our laws, that's the only thing they are legally entitled to want, because if they want something else, their shareholders can sue them.

Rick Dove saw this flaw and said this is an enemy that I am very familiar with, because it is an enemy of democracy. This is a man who gave 26 years of his life to protect our country. He risked his life in Vietnam. He went because of his idealism, because he loved our country, because he loved democracy. And when he retired, he came to work with us. If you know Rick, you know he uses military imagery all the time and I deeply appreciate that. Waterkeeper is a band of brothers and sisters, fellow warriors, and Rick Dove is number one among us who is willing to fight and has dedicated his life and enormous energies to protect our shared environment. **WK**



Rick Dove retired from the Waterkeeper Alliance Board of Directors in June to take on new challenges, including the role of photo editor of Waterkeeper magazine.

WATERKEEPER

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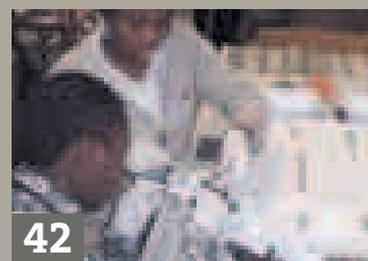
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On the Cover



Pilot Ron Smith, retired Marine Colonel and combat aviator, now flies various aircraft for the Neuse Riverkeeper and Waterkeeper Alliance, including the QuickSilver ultralight. This photo is not a composite, the QuickSilver airplane can safely bank on a lift close to water as depicted in this photo.

Photo: Rick Dove

LETTERS TO THE EDITOR

Is there anything you'd like to say? Submit your letter to the editor via email editor@waterkeeper.org or by mail to **Waterkeeper Magazine, Suite 100, 828 S. Broadway, Tarrytown, NY 10591**. Please include your full name.

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DONNAKARAN
COLLECTION

Everyone has the right to clean water.

Your local Waterkeeper is the defender of the river, lake, bay or shoreline in their community, patrolling the waterway and standing up to polluters.

Waterkeeper Alliance is the international guardian of more than 140 local Waterkeepers. The Alliance supports our members with legal, scientific and policy expertise and takes their clean water campaigns to the national and international level.

Waterkeeper Alliance is the most effective protector of clean water because we act locally and organize globally.

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Catawba Riverkeeper
Donna Lisenby



Court Backs Trout

In June 2004, the Catawba Riverkeeper Foundation, along with American Rivers and Trout Unlimited, filed a petition to designate the Catawba River below the Lake James dam as a trout stream. The North Carolina Department of Environment and Natural Resources initially agreed that the supplemental trout classification (and increased protections that go with it) should be applied. Then Duke Power got involved. Soon after Duke Power indicated they did not support the reclassification the state officials reversed their position.

The Environmental Management Commission subsequently denied the petition. But the Riverkeeper and her allies appealed the decision to North Carolina Superior Court. An important legal principle was at stake: the state's non-discretionary duty to comply with the Federal Clean Water Act. No one disputed that the stretch of the Catawba was prime trout habitat. The state agency's reversal was based solely on placing the interests of a power company over the interests of the public. Further, because the agency has a history of bowing to the power company's preferences, this action set an important precedent.

The court agreed. On July 19, 2005, NC Superior Court Judge Beverly Beal decided the appeal in our favor and reversed the Environmental Management Commission's decision.

Lawsuit Award Funds Study of Mobile-Tensaw Delta

Between 1999 and 2002 Mobile Area Water & Sewer Service released more than 2.5 million gallons of partially or fully untreated sewage into Mobile Bay each year. But thanks to a lawsuit brought by Mobile Baykeeper, the utility will now make a major investment to restore water quality in the bay. A portion of these funds will also be used for a new study focusing on the Delta.



Mobile Skyline as seen from the bay

The Mobile-Tensaw Delta is the terminus of the fourth largest watershed in the continental United States. Dams on its feeder streams, a large causeway, and multi-state water compacts threaten the health of the estuary. The study will establish a series of monitoring stations in the upper regions of the watershed that will record variations in temperature, salinity, dissolved oxygen and turbidity, and collect data on the Delta's flora and fauna. This information will help define the degree to which the causeway and upstream hydrological changes have reduced ecosystem productivity and species diversity in the Delta. Ultimately, this information will help both the community and its entrusted resource managers make better policy decisions for the Delta, its fisheries and the people who depend upon it.

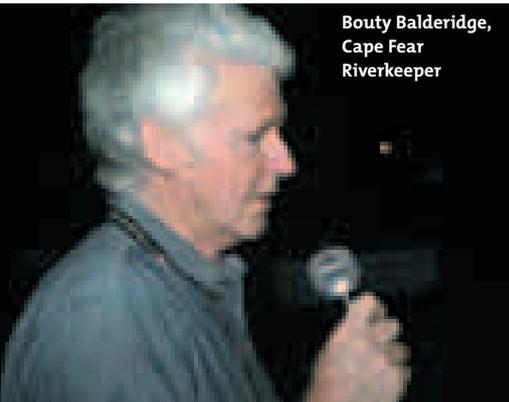
Rick Dove and Donna Lisenby, Catawba Riverkeeper, pictured here with Rick's retirement pig cake. Waterkeeper Alliance welcomes Donna as the new Southeast region board member.



Stormwater pollution remains the number one challenge to the revitalization of the Los Angeles River.

L.A. To Pick Up Trash

The U.S. Ninth Circuit Court of Appeals rejected the fifth attempt in one year by California cities to thwart a U.S. EPA rule requiring them to remove trash from the Los Angeles River. EPA issued the rule following a 2002 lawsuit initiated by Santa Monica Baykeeper, NRDC and Heal the Bay. The top source of pollution along the California coastline is trash-laden stormwater from municipal stormdrains. Discharge from these drains flows untreated into the L.A. River, polluting the Pacific coastline. The coalition of 22 cities in Los Angeles County has challenged the rule to avoid cleaning up their trash. It is time for cities to stop avoiding the Clean Water Act and to start coming up with solutions to protect public health, beaches and wildlife.



Bouty Balderidge,
Cape Fear
Riverkeeper

Farewell Bouty Balderidge, Cape Fear Riverkeeper

Any one who studies nature quickly learns that change is constant and inevitable. Sometimes it is fast and chaotic, like a flood or a forest fire. Sometimes it is slow, steady and predictable, like the march of a glacier or the life cycle of the cicadae. With time you learn to study natural change without judging it. Rapid and chaotic change is not always bad and slow methodical change is not always beneficial. Life is a work in progress.

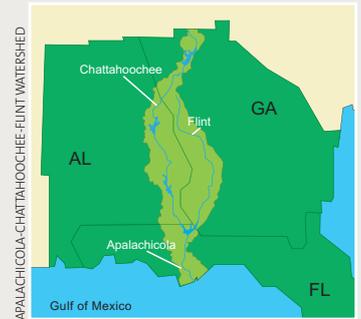
Like a tree falling from the bank of a river, Bouty Balderidge's retirement leaves a void that will be difficult to fill. However, like a tree that leaves generations of seedlings and other plants in the protection of its shadow and the soil held in the nooks and crannies of its roots, Bouty has given Cape Fear River Watch a rich and diverse legacy and a strong bank to build on.

One person can make a difference. The first Lower Cape Fear Riverkeeper has shown us this through his values, his learning, his teaching and his determination to understand and improve the environmental quality of the Lower Cape Fear River Basin. We will continue to build on the firm foundation of his stewardship.

— Bill Murray, Executive Director, Cape Fear River Watch, Inc. (host of the Cape Fear Riverkeeper)

Apalachicola Riverkeeper Named Florida's #1 Water Advocate!

Apalachicola Riverkeeper was recognized as the Florida Water Resource Organization of 2004 by the Florida Wildlife Federation in recognition of their efforts in the Apalachicola-Chattahoochee-Flint Water Wars and their work to stop a U.S. Army Corps of Engineers dredging project.



Water Wars

The state of Georgia and the U.S. Army Corps of Engineers have been seeking to increase surface water withdrawals from the Apalachicola River to meet rising demand fueled by the explosive growth of Atlanta. Riverkeeper is working with Florida and Alabama to prevent such withdrawals from compromising the water quality, health and productivity of the river and bay.

Dredging for Dollars

In yet another battle involving the Army Corps, Apalachicola Riverkeeper is helping the Florida Department of Environmental Protection head off an economically and environmentally unacceptable dredging project aimed at increasing the navigability of the river. Riverkeeper worked with others to produce a study that found that a navigable channel is available without dredging an average of 4 to 5 months of the year. Dredging will increase the availability by only 30-45 days. A decision to deny dredging now looks likely, but the issue is not over with the Army Corps still defending the project.

Neuse Pollution Trade Defeated

The largest water pollution trade ever proposed in the U.S. was soundly defeated! And this time it is final.

This is great news for Falls Lake, the Neuse River and the citizens of North Carolina who opposed the plan to allow a developer to increase pollution loading in Falls Lake through the purchase of pollution credits. Neuse River Foundation (home of the Upper and Lower Neuse Riverkeepers) was joined by the City of Raleigh in a lawsuit opposing the trading permit. The state Division of Water Quality, the municipality, local utility and developers supported the trading scheme. But the Attorney General's office representing the state agency knew that this was a losing proposition. They had received more than 1000 public comments opposed the pollution trading plan. So they did a complete reversal and denied the developer the use of pollution credits they had already authorized. This decision avoided a legal battle that could have ended up in the courts for a year or more.

One of the most important outcomes is the considerable attention that this fight has brought to Falls Lake. This important natural resource is used by more than a million recreational users each year and is the drinking water source for eight municipalities serving 350,000-plus people. The water pollution trading scheme would have put these people and this resource at grave risk.

Georgia Dam Removal

Chattahoochee Riverkeeper has taken a leadership role in a project to remove two dams and restore 2.3 miles of rare fall-line habitat. The dams are located on the Chattahoochee River between Columbus, Georgia and Phoenix City, Alabama. The removal of two dams on the main stem of a major southeastern river is unprecedented. Chattahoochee Riverkeeper is investigating techniques to minimize erosion along the newly exposed shoreline – a shoreline

that has been largely underwater for more than 170 years. This effort could prove challenging because nine major dams will remain upstream of the project area. The Army Corps of Engineers may start drawing down water in the impoundments as early as Fall 2005 to allow engineering work and an assessment of culturally significant objects. Removal of the dams could start in earnest by the summer of 2006 and be completed by the summer of 2007.



Court Opens Access to Jersey Shore

The New Jersey Supreme Court has ruled in favor of New York/New Jersey Baykeeper, ensuring public access to private beaches along state shores. Baykeeper has been advocating the public's right to access their waterways since its inception 15 years ago, and beach access has always been a part of this advocacy. Along with two other groups, Baykeeper filed a "friend of the court" brief last year and was represented before the Court by attorney Andrew Provence.

The decision upholds a previous appellate ruling that requires privately held beaches to be opened under the public trust doctrine – citing precedent dating as far back as Roman Law. Andrew Willner, the NY/NJ Baykeeper, calls this public right to beaches "unassailable," and plans to use this ruling as a basis for further litigation elsewhere in the state. "We are ready to challenge the exclusionary tactics of other private beach clubs, condominiums, and some municipalities and are turning our eye to the more urbanized north-eastern part of the state for appropriate cases," Willner said.

Chesapeake Champions

On June 29 the Chesapeake Area Waterkeeper Programs honored Maryland State Attorney General Joe Curran as the 2005 Chesapeake Champion. As Attorney General, Curran has consistently demonstrated his commitment to protecting our waters, our communities and our Chesapeake Bay. From the creation of the Environmental Crimes Unit to the steady defense of the Critical Areas Law in the courts, to challenging polluters and the Federal government when they fail to protect our environment, Attorney General Joe Curran and his staff are there, on the front lines and behind the scenes, enforcing the laws that protect our waters. Waterkeeper Alliance and the 12 Chesapeake Waterkeeper programs recognized him for those achievements and his ongoing commitment to protecting our environment.



Maryland Attorney General Joe Curran accepts his Chesapeake Champion award from the 12 Chesapeake regional Waterkeepers.

Keith Campbell, whose Campbell Foundation supports many groups working in the Chesapeake region, reminded attendees that we've got to focus on getting the political will to clean up the Chesapeake Bay and all our Maryland waterways. We've got to build up the grassroots, talk to others, and get a movement going to make change for the better.



A flotilla of Waterkeeper patrol boats parade past Fort McHenry and out of the Baltimore Inner Harbor.

Making the Clean Water Act Work: The Oconee River Wins

After a year of negotiation, Altamaha Riverkeeper and S P Newsprint reached an agreement this summer that will reduce discharges of plastic in the Oconee River. The recycled newsprint company, located in Dublin, Georgia has agreed to construct and install new technology to reduce the plastic in its effluent. The new equipment is expected by December 31, 2005.

S P Newsprint receives newspapers from 230 suppliers and more than 7,000 recycling receptacles, located at schools and businesses in 10 states. It shreds the old newsprint to produce recycled paper. Many of the newspapers in recycling receptacles are left in plastic sleeves and in S P's manufacturing process the plastic is shredded and as much as six pounds can end up in the wastewater discharge in the river on any particular day.

In the summer of 2004, after following up on reports from fishermen in the area who observed the plastic in the river, the Altamaha Riverkeeper

filed a sixty-day notice of intent to sue S P Newsprint under the Clean Water Act. S P and the Altamaha Riverkeeper disagree over whether the six pounds of plastic discharged daily in the river is legal under state and federal law. However, instead of resolving the matter in court, Riverkeeper and S P have agreed to concentrate their efforts on identifying and implementing solutions to keep the plastic out of the river as soon as possible.

In addition to installing new technologies to reduce plastic in the discharge S P will continue evaluating its operating practices and equipment for improvement and provide discharge information to the public for four years. S P will also conduct two years of water quality sampling in the river. Part of the agreement outlines a consumer education effort by the company and Riverkeeper to inform the public about the necessity for removing all plastic before discarding any paper for recycling.



Oconee River

"Our goal is to clean up the river and we believe that this agreement is a good example of a how a company can work with the community to achieve that goal."

Deborah Sheppard, Altamaha Riverkeeper Executive Director

Waterkeeper Alliance Founder Joe Payne's Maine Way

In the fall of 1991, two months after accepting the job as the Casco Baykeeper in his native state of Maine, Joe Payne attended his first meeting with the six other Riverkeepers, Soundkeepers and Baykeepers destined to become the founders of Waterkeeper Alliance. "I was awestruck as each Waterkeeper described the daunting battles they were winning," Joe recalls. "Each was making history and setting new precedent for the Clean Water Act on behalf of their waterbody."

Driving home, he wondered how their approach would work in Maine. Hauling polluters to court can be very effective. If you win the case you can stop pollution and generate recognition for the organization. But Joe takes a very long view of his watershed, "Lawsuits may reap only temporary benefits, as polluters look for other ways to avoid cleaning up." Plus, there simply weren't that many big polluters in Casco Bay to sue.

There was a paper mill, a power plant that operated only during peak power demands, and runoff and discharge from 12 small cities and towns around the Bay. Those 12 towns together had six sewage treatment plants and 100,000 people – a very different landscape from the other Waterkeeper programs. Most importantly, perhaps, Joe "knew that our community would quickly tire of an organization that *sought out* people to sue." Litigation would remain a tool in his toolbox, but didn't fit as the lead strategy for cleaning up Casco Bay. Knowing that other Waterkeepers used different approaches when appropriate, he wondered, "How could we achieve the same results in Maine, which was – and remains – to stop pollution?"

By Mary M. Cerullo
Associate Director, Casco Baykeeper



RICK DOVE



CASCO BAYKEEPER

Casco Baykeeper Joe Payne is a certified quality assurance engineer.

In many places, environmental activists are like Davids battling corporate Goliaths. Mike Herz, former San Francisco Baykeeper, insists, “Polluters live up on the hill, hiding out in offices heavily guarded by lawyers. If we want to talk to them, we have to sue.”

In contrast, Joe kicked off his fight against pollution in Casco Bay by talking with his neighbor. “You see the owners of local business at PTA meetings or the Shop’n’Save,” says Joe. “The reason residents live in a state whose seasons are winter, mud season, and the 4th of July, is Maine’s incomparable natural beauty.” The shared environmental values of those

who live, work and play along Casco Bay, and their centuries-long connection to the sea, allowed the Casco Baykeeper to focus on a solution-oriented model of protecting his waterway. With the exception of the paper mill, all the polluters in the bay were locally owned.

Casco Baykeeper began by identifying the sources of pollution and approaching responsible parties to work with them to end the pollution. If they did not respond, he next went to the regulatory authority and demanded enforcement. The last step, only when all else failed, was to sue the polluter. “This approach enabled us to acceler-

ate our actions and go beyond simple compliance with laws by working *with* parties instead of against them,” explains Joe. “We’d save the lawsuits for those who wouldn’t work with us or dragged their feet.”

Casco Baykeeper has made extraordinary progress cleaning up Casco Bay with this community-based approach.

Building Credibility With Quality Data

Friends of Casco Bay (FOCB) was founded in 1989 by a group of concerned citizens after the release of a report called *Troubled Waters*, asserting that Casco Bay was one of the most polluted estuaries in the nation. The claims were not well documented, however, and no one had a handle on the specific pollutants entering Casco Bay. There were concerns about sewage, potential oil spills, and the number of recreational boats the bay could handle. Yet no hard data was available on the health of the bay.

A Maine native, marine biologist, licensed boat captain, research diver and the grandson of a Portland fisherman, Joe Payne was hired in 1991 as Casco Baykeeper by Friends of Casco Bay, the parent organization of the program. With a wealth of local knowledge, Joe quickly established himself as a frank, honest advocate who made sure he knew the facts before he spoke.

Using Data to Stop Pollution

Joe knew he needed data to determine the environmental conditions in polluted parts of the bay before advocating for change. Joe needed the facts to justify forcing businesses and municipalities to spend money to change their practices.

So Casco Baykeeper launched a volunteer water quality monitoring program to collect baseline data on water temperature, salinity, pH, water clarity and dissolved oxygen at multiple sites around the bay. He was determined to train his “citizen scientists” as rigorously as professionals. Under his guidance, the Friends of Casco Bay water quality monitoring program was among the first marine programs in the nation to receive EPA’s approval for its Quality Assurance Program and standards of data collection. Although dozens of volunteer monitoring groups now exist in Maine, the only volunteer-generated data the state uses in its annual water quality report to Congress is Friends of Casco Bay’s.



CASCO BAYKEEPER

A clam digger harvests soft-shell clams from the mudflats on Casco Bay in southern Maine. Nearly half the 11,582 acres of tidal flats in the bay were closed to harvesting until a restoration project by the Casco Baykeeper and Friends of Casco Bay removed pollution sources.

The data proved invaluable against the corporate giant, Sappi Paper, a South Africa-based pulp and paper mill on the banks of the Presumpscot River emptying into Casco Bay. The paper mill was the bay's largest single source of pollution for more than 100 years. Not only did the nearby town of Westbrook reek of pungent exhaust from the plant, the river below the mill was a dead zone. In 1999, after two years of intense negotiations with Sappi attorneys, the Maine Department of Environmental Protection was about to cave in to the company's demands and issue a Clean Water Act permit allowing the paper mill to continue polluting the river and Casco Bay.

The permitting process was opened for public comment for 30 days. Once complete, the permit would have allowed Sappi Paper to pollute Casco Bay for at least another five years. The Casco Baykeeper and environmental advocates from the Presumpscot River wrote lengthy rebuttals to proposed license limits. Joe recalls, "The weight of our argument – based on the sampling we had done – was so compelling that the state improved every parameter of the license."

Public opposition to the permit was so intense that Sappi Paper executives didn't publicly fight the permit. Instead, Sappi closed the largest polluting division, the pulp mill, to avoid investing in environmental upgrades. It claimed that environmentalists made it too costly to continue business, although the company made similar upgrades at other plants around the world. Normally such an accusation against environmentalists would raise public outcry, but the immediate improvements in air and water quality diverted the attention of area residents. Within days the air lost its fetid smell and two months after the pulp mill closed the reinvigorated river ran cleaner than it had in generations. Wading birds, fish, frogs and other wildlife appeared, as did hikers and paddlers, buoyed by the rapid and remarkable recovery of the lower Presumpscot River.

Opening Maine Clam Flats

One thing about a public asset (i.e. nature) is that it can be difficult to identify who is responsible for making changes to protect it. In 1992, 49 percent of clam flats in Casco Bay were closed to harvesting by pollution threats. Friends of Casco Bay



CASCO BAYKEEPER

Keeping Pollution Out of the Water

A woman once asked one of Joe's colleagues, "If you are the Waterkeeper, then *where* are you keeping the water?" He replied, "In the public eye." Outreach projects such as field trips, citizen forums, publications, extensive media coverage and storm drains stenciled with "Don't dump! Drains to Casco Bay," helped rally the community around Casco Bay. Education and outreach are important but ancillary elements of a successful Waterkeeper program. Joe cautions that, "Talking about the issues is not enough. What distinguishes Waterkeepers is that we stop pollution."

sampled for fecal coliform to identify and eliminate pollution sources keeping the flats closed. It took two years of persuasion, but Joe Payne finally convinced the Maine Department of Marine Resources to analyze water samples collected by well-trained volunteers. Some of the flats had been closed since the Eisenhower Administration simply because the state lacked the manpower to conduct water quality sampling. Today, only 13 percent of Casco Bay clam flats remain closed to commercial clamming.

Friends of Casco Bay's Clam Flat Restoration Project also researched the productivity and predation of clam flats, seeding selected flats with thousands of clam spat and testing ways to protect juvenile clams from voracious green crabs. The model Joe helped develop was emulated along the entire coast of Maine.

First On the Water: Oil Spill

Portland Harbor, in the heart of Casco Bay, annually ranks as one of the Eastern Seaboard's top oil-receiving ports. In his early years as Baykeeper, Joe worked closely with port officials to improve safety procedures for oil spill prevention and remediation, encouraging training and collaboration among many different stakeholders.



A stormdrain stencil reminds residents that what they do can impact Casco Bay.

CASCO BAYKEEPER



A lobsterman heads out to sea with his boat filled with lobster traps near Harpswell, Maine.

Casco Bay

- Casco Bay has 578 miles of shoreline, 785 islands and 229 square miles of water.
- More than 850 species of marine life have been identified in Casco Bay.
- Water from 41 communities flows into Casco Bay from as far away as Bethel, Maine.
- One of every eight Maine residents lives in the 12 communities that border Casco Bay, and one of every four state residents lives within the Casco Bay watershed.
- Casco Bay is impacted by the stormwater runoff from 41 communities, the treated waste from 17 effluent discharge permits and 42 Combined Sewer Overflows, as well as accidental or intentional discharges from 700 large ships (tankers, fishing boats, cargo vessels and cruise ships) and approximately 5,000 recreational boats that visit Casco Bay annually.
- Portland Harbor in Casco Bay handles more than 20 million tons of crude oil and oil products annually.

On the morning of September 27, 1996, the collaboration was put to the test when the oil tanker *Julie N* passed through the drawbridge into Portland Harbor. The tanker, loaded with 8.8 million gallons of fuel oil, struck one of the bridge's concrete pilings. The impact damaged four tanks, discharging 180,000 gallons of oil into the Bay, marking the worst spill in the harbor's history.

Joe Payne was among the first to reach the scene, and his dogged efforts made him the eyes and ears of the recovery effort. After 36 hours, it was apparent that the clean-up crew was losing the battle to contain the spill against shifting wind and tides. Joe contacted the Coast Guard Captain of the Port to alert him that more people and boats were needed. The Captain of the Port, Burt Russell, brought Joe to meet with the

representative of the responsible party, the shipping line that owned the *Julie N*. The Coast Guard Commander introduced him by saying, "This is the Casco Baykeeper Joe Payne. If he's not happy, we're not happy."

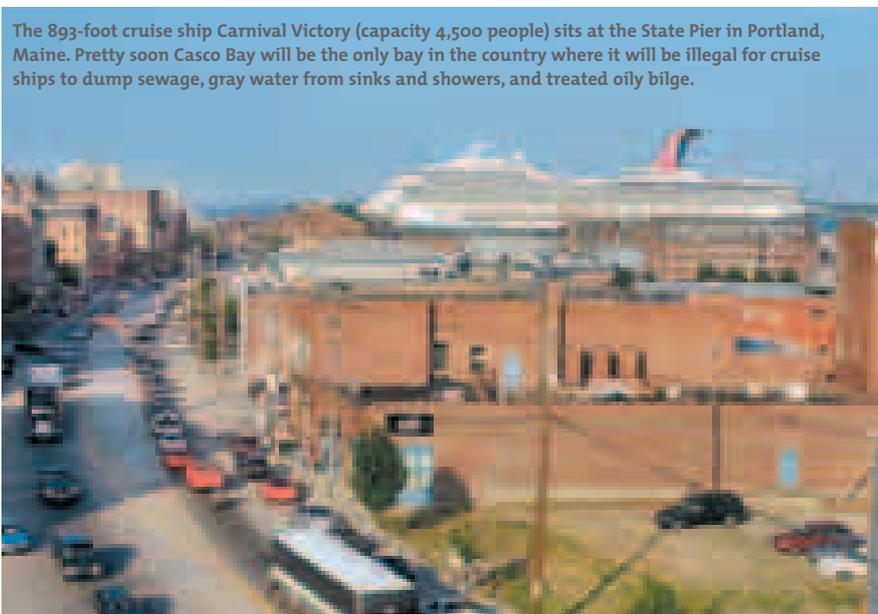
Within hours, 14 more vessels and 140 additional workers were brought in to combat the spill. Joe Payne and the rest of Friends of Casco Bay's staff and volunteers helped recover injured birds, surveyed the Bay for environmental damage and monitored the effects of the spill. Thanks to the port's disaster preparations, an unprecedented 78 percent of the spilled oil was recovered, a remarkable feat considering a 15-20 percent recovery is usually considered success. Maine's governor Angus King and the U.S. Coast Guard recognized the Casco Baykeeper's leading role in the recovery effort.

Confronting Cruise Ship Pollution

Public support was critical when battling the cruise ship industry over a proposed state law curbing cruise ship pollution. In October 2002, Friends of Casco Bay and the Maine Conservation Voters Education Fund hosted a forum on *Pollution Solutions to Cruise Ship Discharges*, attended by nearly 100 legislators, candidates and local residents. National speakers and citizens discussed the impact of cruise ships legally dumping partially-treated sewage and "gray water" from galleys, sinks and showers in Maine's coastal waters.

The public forum became the catalyst for state legislation. Joe participated in stakeholder meetings, legislative hearings and work sessions to help frame the language for a bill to ban cruise ship discharges. He was successful in defeating the cruise ship industry's proposal to implement a non-binding (i.e. voluntary) memorandum instead of a law. Working with the Maine Conservation Voters Education Fund, Friends of Casco Bay countered industry pressure with an email campaign by hundreds of Maine citizens, urging legislators to regulate cruise ship pollution. In 2004, a state law passed, marking the success of a two-year effort to educate residents and state legislators about cruise ship pollution. Because of Friends of Casco Bay and Casco Baykeeper's efforts, Maine will become the first state to ban the discharge of treated sewage, gray water and treated oily bilge water.

The 893-foot cruise ship *Carnival Victory* (capacity 4,500 people) sits at the State Pier in Portland, Maine. Pretty soon Casco Bay will be the only bay in the country where it will be illegal for cruise ships to dump sewage, gray water from sinks and showers, and treated oily bilge.

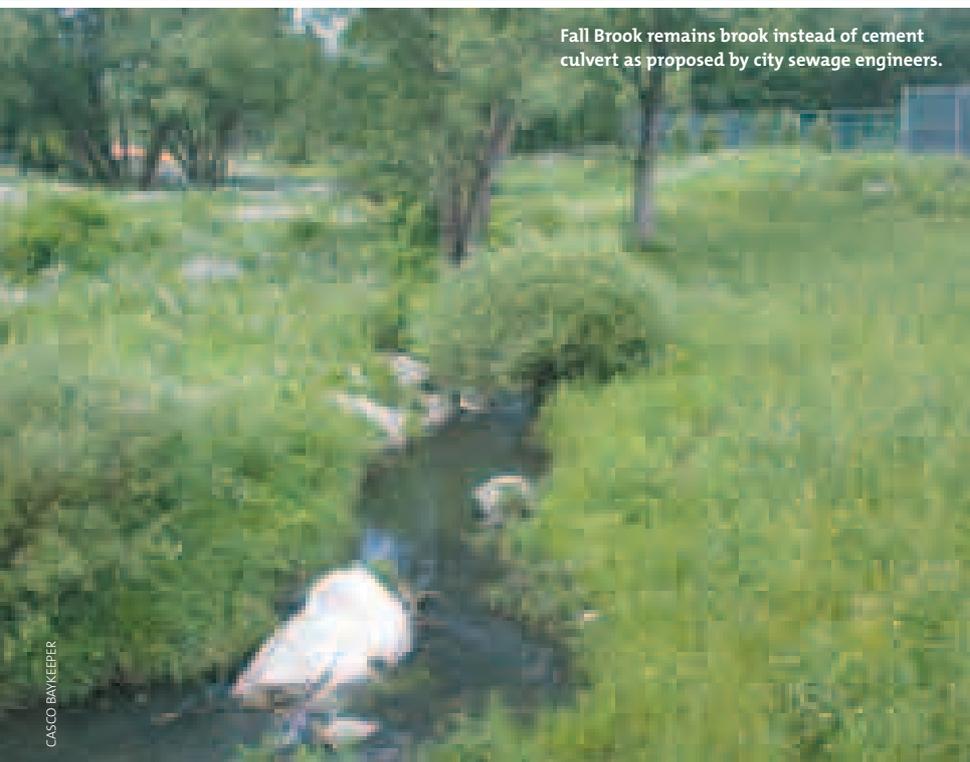


Combined Sewer Overflows have a dramatic impact on water quality in Casco Bay.



CASCO BAYKEEPER

Fall Brook remains brook instead of cement culvert as proposed by city sewage engineers.



CASCO BAYKEEPER

Persistence Pays

In 1992, Joe heard about a meeting scheduled with the Portland Water District and its engineering consultant. A decree directed the city to decrease discharges from combined sewer overflow (CSO) pipes that carry both stormwater runoff and raw sewage directly into the bay during heavy rainfalls. The consultant was hired to exam-

ine Portland's 42 CSOs. Some would be eliminated, others redesigned to reduce polluted runoff into Casco Bay by 90 percent.

Joe attended the meeting, and although many curiously glanced at him, no one challenged his presence. Soon Joe was making recommendations on dealing with pollution from the city's CSO pipes. The largest CSO, at Fall Brook, flushed an average of 140

million gallons of wastewater into Casco Bay every year. The consulting engineers recommended turning parts of the stream into a giant cement culvert. Joe protested their simplistic solution, "It was a brook before we interfered with it. Make it what it once was!" The city and its engineers soon recognized that Joe was gracious, but tenacious. When momentum slipped, Joe kept pressuring the city. After 12 years and over \$50 million, in 2004, the resurrection of Fall Brook was complete. Today, miles of naturalized stream weave a ribbon of green through Maine's most populous city.

Movement

Joe Payne has seen significant changes in his time as the Casco Baykeeper. He says, "We will continue to eliminate sources of pollution, but the Bay is still suffering from polluted runoff. Today, eastern Casco Bay is challenged by coastal development, while the more populated western Bay suffers from toxic pollutants carried in by snowmelt and stormwater runoff. We have to do more."

San Francisco Baykeeper emeritus Mike Herz, now a Maine resident himself, acknowledges that Joe's kinder, gentler approach is best for Casco Bay. Maine's independent-minded citizens don't like to be told what to do, but given the opportunity to help out a friend or a community, they pitch in wholeheartedly. Most have a deeply-rooted social conscience, and they don't pass civic responsibility off to their neighbors.

The same can be said for the Casco Baykeeper. In 1998, Joe Payne received the City of South Portland's Spring Point Light Innovation & Leadership Award, given for contributions that benefit the community for at least a generation. In presenting the award, Town Manager Jeff Jordan said, "When Casco Baykeeper Joe Payne sees a problem, he doesn't stand on the shore and complain or call authorities. He wades in and finds a solution. Joe has set a new standard for working cooperatively with business and government to protect the environment."

Joan Benoit Samuelson, winner of the first Women's Olympic Marathon in 1984, gave perhaps the best, and most brief, assessment of the work of the Casco Baykeeper and Friends of Casco Bay. When asked why she devotes considerable energy to the board of Friends of Casco Bay, she simply replied, "Because they DO stuff!" **WK**

FROM EARTH TO MOON TO EARTH



By Edwin E. "Buzz" Aldrin Jr.

This view of the Earth rising over the Moon's horizon was taken from the Apollo 11 spacecraft.

NASA

There is something surreal

that happens every time you take to the air. Whether it's a commercial jet, a Cessna, a fighter, or a Saturn V rocket, there is an instant of disbelief, a hyperawareness of the moment when you defy gravity and become airborne. Disbelief is a natural feeling that accompanies flying because defying gravity is a pretty unnatural act for a human. Gravity is one of the fundamental forces that shapes our world and our universe. Escaping gravity is one of mankind's ancient dreams.



Author Edwin E. "Buzz" Aldrin Jr., pilot of the Gemini 12 spacecraft, performs extravehicular activity during the second day of the four-day mission in space.

In 1961, soon after Alan Shepard became the first American in space (and Yuri Gagarin became the first Russian), President Kennedy, in his characteristic ringing tones, expressed a vision that Congress and the public took up as their own:

I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth.

At the time I was an Air Force fighter pilot working on my doctorate. After tours in Korea and Germany I decided that I wanted to join the new NASA astronaut program. I knew that being a great pilot wasn't necessarily enough to get me into the program, so I entered the astronautics department at M.I.T.

"Flying" a spacecraft is very different than flying a plane. There is no true up or down and the dynamics of orbital flight make

maneuvering to dock, or rendezvous, two spaceships very complex. I focused my research on solving the problems of speed and centrifugal energy which lead to an "orbital paradox" – a situation in which a pilot who speeds up to catch another craft in a higher orbit will end up in an even higher orbit, traveling at a slower speed and watching the second craft fly off into the distance. The solution to this paradox is counterintuitive, and required new orbital mechanics and procedures. Later, after joining the NASA astronaut corps, I spent time translating complex orbital mechanics into relatively simple flight plans for my colleagues – they thanked me (with a mixture of respect and sarcasm) with the nickname "Dr. Rendezvous."

After two and a half years training and watching space flights from Mission Control, my turn to fly finally came on the last of the Gemini missions. On November 11, 1966 Gemini XII launched from Cape Kennedy. Sitting in the capsule with Jim Lovell, I heard the last

seconds of the countdown as if from a great distance through my earphones: “three, two, one, zero. We have ignition...” There was no noise at first, but then a growling rumble began as the spacecraft rose, slowly at first, from the ground. As the acceleration increased, the sky became a deeper blue. As we approached the speed of sound, the Titan booster rocket now sounded like a subway train and the horizon bent like a bow below us.

Twenty-one hours into the mission I began my first space walk. We were 160 miles above Ethiopia when I pushed the hatch open and floated out of the capsule, secured to the ship by a tether containing my oxygen hoses. I felt the immensity around me. We – the spacecraft and me – seemed to be stationary, while the gigantic polychrome sphere turned slowly beneath us. I had no sense of our actual speed – 17,500 miles per hour, or five miles per second. But I could feel the curve of the Earth. It wasn’t the flat, map-like landscape you see from an airplane. Africa’s Great Rift Valley snaked through the dry mountains and disappeared into the horizon to the south. As I studied the brown mass of East Africa I saw that the day-night terminator line stroked southeast to northwest, from the Indian Ocean through the Middle East. I felt a mental geometric tumbler fall into place. Earth is tilted 23.5 degrees on its axis, which explains the sloping line between day and night and the short winter days in the northern latitudes and short summer nights ahead of us to the south. I could actually see Earth’s relationship to the sun. I

could also see flashing thunderheads over the Timor Sea and a shower of green meteors disappear into the cloudless desert void over central Australia. After two days in space, Gemini XII – the last mission of the Gemini program – splashed down, safely and successfully, just south of Bermuda.

The Apollo program, however, began tragically when Gus Grissom, Ed White and Roger Chaffee were killed in a fire in the cockpit during a test. After redesigning the program and the spacecraft, the Apollo program got back on track with a series of unmanned flights. The manned space program got started again with Apollo 7 and progressed mission by mission until Apollo 10 successfully circled the moon, setting the stage for a landing.

At 9:32 on the morning of July 16, 1969, Mike Collins, Neil Armstrong and I lifted off the ground on our way to the moon. We spent only two hours in Earth’s orbit before firing our third stage rocket, accelerating towards the moon. Looking out the window as we left Earth’s orbit I could make out the cloud-covered mouth of the Amazon. Checking back out the window as we approached 19,000 miles above the Earth we were finally far enough to make out the complete bright disk.

On our second day outbound, *Apollo 11* flew into the shadow of the moon. From here, the moon eclipsed the sun, but was lit from the back by a brilliant halo of refracted sunlight. There was a milky glow of Earthshine highlighting the biggest ridges and craters. After

establishing our orbit around the moon, Mike remained in the orbiting Columbia module while Neil and I took the *Eagle* landing craft down to the surface. We touched down, shut off our engine and I stared out at the rocks and shadows of the moon. It was as stark as I’d ever imagined it. A mile away, the horizon curved into blackness. “Houston,” Neil called, “Tranquility Base here. The *Eagle* has landed.”

It was strange to be suddenly stationary. Space flight had always meant movement to me, but here we were rock-solid still. I reached across and shook Neil’s hand, hard. Five months and 10 days before the end of the decade, two Americans had landed on the moon.

Seven hours later we depressurized the landing module and Neil opened the hatch and moved carefully down the ladder on the forward landing leg. From the window I watched Neil move his blue lunar overshoe from the metal dish of the footpad to the powdery grey surface. “That’s one small step for... man, one giant leap for mankind.”

Lunar gravity was so springy that coming down the ladder was both pleasant and tricky. I took a practice run at getting up to that high first step, then hopped down beside Neil. For as far as I could see, pebbles, rock fragments, and small craters covered the surface.



NASA NEIL ARMSTRONG

Aldrin inside the Apollo 11 lunar module.

With a half-Earth in the background, the Lunar Module ascent stage with Moon-walking Astronauts Neil Armstrong and Edwin Aldrin Jr. approaches for a rendezvous with the Apollo Command Module manned by Michael Collins.



NASA KENNEDY SPACE CENTER (NASA-KSC)

One of the experiments we set up on the moon was an angled array of 100 small mirrors to reflect a laser beam from Earth to help measure continental drift. A main reason for coming to the moon was to gain perspective and better understand Earth.

I looked high above the dome of the landing module. Earth hung in the black sky, a disk cut in half by the day-night terminator. It was mostly blue, with swirling white clouds, and I could make out a brown landmass. A wisp of color on the black velvet of space – a living Earth, floating like a space flower over the dead moon. Glancing down at my boots, I realized that the soil Neil and I had stomped through had been here longer than any of those brown continents. Earth was a dynamic planet of tectonic plates, churning oceans and a changing atmosphere. The moon was dead, a relic of the early solar system. Looking back from the dust of the moon enabled me, and millions of others around the world, to truly see Earth as a finite oasis of life in the universe, an organism capable of death, an organism that requires our stewardship.

After 123 hours and 58 minutes on the moon, we lifted off to rejoin Mike Collins and headed back home.

Just three years after Neil Armstrong and I landed on the moon, the U.S. Congress set another goal for the nation, one that was perhaps as bold as the one President Kennedy set for us ten years earlier. In October 1972 Congress passed the Clean Water Act, setting a target of “fishable and swimmable” for all waterways nationwide

by 1985. Now you probably realize that unlike the one President Kennedy set, we have not reached this national goal.

Getting pollution out of our waterways is difficult, but like all goals, entirely achievable. We will solve it using the same pragmatic, patient but unrelenting approach that I learned in the U.S. Air Force, at M.I.T. and at NASA, where we achieved one of the biggest aspirations ever conceived by humankind – *flying to the moon*.

This is Waterkeeper Alliance’s approach to achieving the national clean water goal. Their local-based approach is laudable. Waterkeepers have managed to remove problems and allow natural processes to repair themselves. One of the ways they’ve done this is by using airplanes. Light airplanes, at a couple of thousand feet, allow tremendous views that are not obvious to people looking horizontally – you can see subsurface features, structures and sediment, even swimming mammals and schools of fish. The human eye is superior to any other sensor or equipment for scanning a wide area and detecting problems or areas of interest for future study.

I believe that despite the delay, Waterkeeper’s approach will inevitably get us clean water.

Incidentally, President Kennedy also said, “We choose to go to the Moon in this decade and do the other things, not because they are easy, but because they are hard.” I would add that achieving the goal of clean water is not only hard, but necessary for our very survival. **WK**



WATERKEEPER

AIR FORCE



Waterkeepers are typically identified by their patrol boats, but on occasion Waterkeepers take to the skies. It's a natural connection – the work of patrolling our watersheds is in large part monitoring and observation. An aerial platform provides an unfettered view of terrain, water and human activity. Getting a bit of elevation allows you to patrol above stretches of rapids and other obstructions that make upstream areas difficult to access and to see things that cannot always be seen clearly from the ground or water.

THE Neuse River AIR FORCE

By Phil Bowie
Photos by Rick Dove



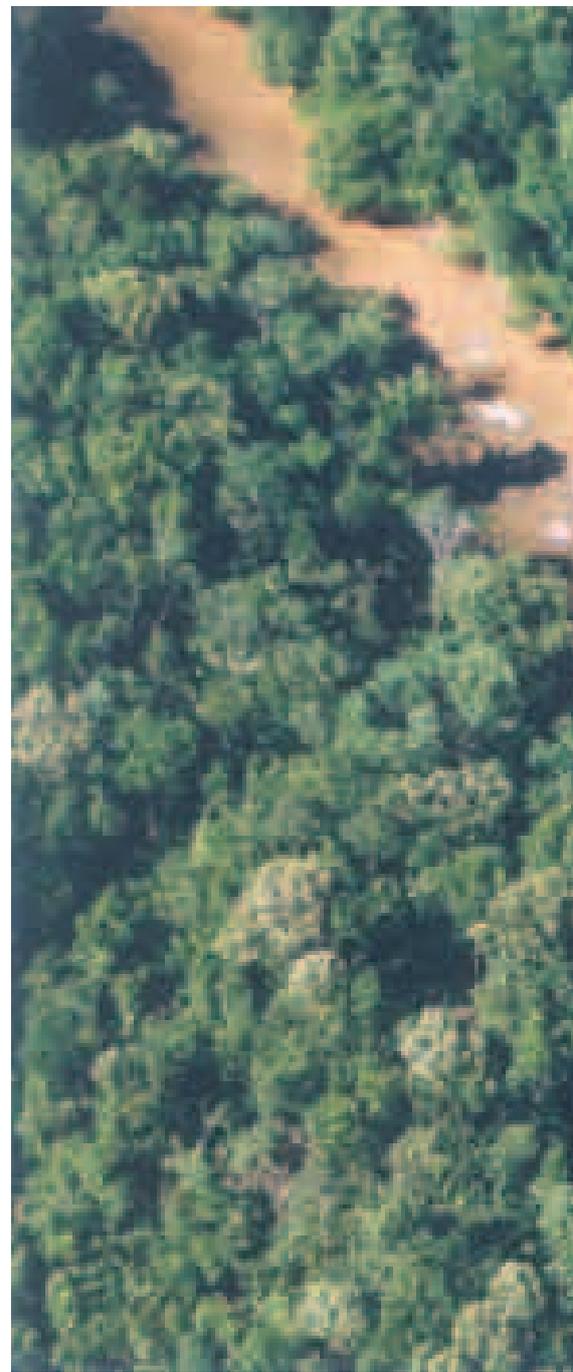
About the author: *Phil is a Neuse River Foundation board member. He's an instrument-rated New Bern-based private pilot and freelancer with 300 published credits in magazines. His first crime thriller novel Guns (with a pilot protagonist, of course), will be available in 2006 from Medallion Press; for more info check out medallionpress.com.*

We're probably the world's smallest air force – originally about 20 pilots strong – but Neuse River polluters have learned we can sting painfully despite our size.

Early in 1994, I heard that Neuse Riverkeeper Rick Dove, a retired Marine Corps judge, was looking for a few good pilots. Along with a dozen or so others, I tentatively volunteered. Rick was concerned about the large corporate hog factories that were cropping up all across eastern North Carolina with virtually no regulation. He deduced the best way to check up on the situation was from the air. Most of the operations had been posted against trespassing and were located out of sight from public waters and roads. He had every legal right, however, to fly 1,000 feet or higher over such operations, take photos and shoot video. To the polluters' chagrin, there are no "no trespassing" signs in the sky.

Within a short period of time, our group was regularly patrolling the 6,100 square mile watershed, scouting for pollution sources. They were not hard to find. From the air they stuck out like a sore thumb – overburdened wastewater plants discharging untreated human waste; oil and gas leaking in rainbow ribbons from boats, barges and junkyards; sediments from logging and construction; and, worst of all, hog operations with their sprawling waste lagoons and sprayfields discharging waste to the river.

Rick's initial attempts to bring pollution situations to the attention of state and local government agencies were met with indifference. But the photo evidence was growing and his doggedness would soon show results.





The job of following sediment pollution upstream to its source becomes much easier by the air. The sediment seen here running into the Neuse River from Crabtree Creek in Raleigh, North Carolina was tracked 250 miles downstream to the Neuse Estuary. Photos taken along the way showed all other tributaries sediment free. Volunteers from Raleigh immediately took photographs from a number of ground sites showing illegal sediment discharges into Crabtree Creek. The ground and air photographs received a great deal of media attention and ultimately led to reform of the state's sedimentation regulations in 1996.

**AIR
FORCE**

Dredge and fill operations along North Carolina's coast are common. Many of these operations are related to so-called beach re-nourishment, as pictured here. Oftentimes these projects result in the illegal discharge of sediments. This picture was taken several years ago during an aerial flight of Ted Wilgis, Cape Fear Coastkeeper, near Wilmington. Ted used this and other similar photos to force state officials to address the problem.



From left to right, Lower Neuse Riverkeeper, Larry Baldwin and two of the Neuse River Air Force pilots, Ron Smith and Phil Bowie, with their planes at the New Bern Airport, North Carolina.



An illegal discharge of raw sewage from the Peachtree Wastewater Treatment Plant in Kingston, NC, is clearly visible. Aerial photos like this one were key to getting this poorly operated and highly polluting facility shut down. Often, photos such as this provide the only evidence of illegal activity. The Neuse Riverkeeper has successfully advocated and litigated many cases based solely on photographic evidence.



An oil slick on the Trent River near New Bern coming from an anchored barge and crane is clearly visible from the air. In this case, August 1999, photos taken from the air immediately after the spill were made available to the Coast Guard upon their arrival. This simplified their job identifying the source and scope of the spill, and greatly aided the cleanup. A fine was assessed in the case. The Neuse River Air Force has discovered and reported many similar oil pollution events on the Neuse. If not for the air patrols, many spills like this one would go unreported.



One passenger was Andrzej Lepper, Leader of the Polish Samoobrona Party. He understood little English, but he got the message from what he saw with his own eyes. Poland has since fought hard to reject corporate confined hogging without adequate environmental safeguards.

Gradually our group was reduced to a hardcore half-dozen well-trained pilots and photographers. Our main mission was to fly evidence-gathering sorties to directly support lawsuits that Rick and the Neuse River Foundation initiated. Sometimes the flight schedule was grueling. From March to June 2003 alone we logged more than 100 flight hours. We also educated a lot of folks along the way. We flew environmentalists, state officials, campaigning politicians, members of the Neuse River Foundation, and, perhaps most importantly, the media. Stories about the river's plight soon numbered in the thousands, with news crews visiting from Canada, Britain, France, Japan, Australia and Germany.

The 400 hours of video and some 40,000 stills we shot were irrefutable evidence, convincing many skeptics of the damage being done. Reporters came back to the ground to write compelling stories about the vista from 2,000 feet: 50

or more hog operations, vivid skirts of algae blanketing the wetlands and streams near their lagoons and the stench of the gasses rising in invisible noxious clouds filling their nostrils.

From the air, the pollution damage was clear. We saw vast fish kills and massive algae blooms that clogged many of the Neuse creeks so that some people could no longer use boats from their home docks. But no event glaringly illustrated the pollution threat more than Hurricane Floyd in 1999, which left hundreds of hog waste lagoons and hog confinement buildings flooded. We documented millions of hogs, turkeys and chickens dead in heaps with some carcasses floating down the river. Video and stills that Rick took tell the sad story vividly, and can be seen on two of his websites: www.neuseriver.com and www.doveimaging.com.

Under the pressure of lawsuits and the relentless media heat, with even *Dateline* and *60 Minutes* joining the fray, the state had to pay attention. They allocated funds to relocate junkyards and upgrade several failing wastewater plants. They enacted a moratorium – still in effect today – on any new hog operations, and entered into an agreement with major hog producers to phase out the lagoon/sprayfield system.

In his speeches, Rick credits the Neuse River Air Force as being the single most important resource in bringing about the restoration of the Neuse River.

These days our Air Force flies expanded patrols for the Waterkeeper Alliance as well as for the Neuse River Foundation. Well-known lawyer and environmentalist Bob Epting and retired Marine Corps jet pilot Ron Smith have been especially active in the effort.

The hog population in North Carolina is 10 million strong and still polluting, and, as always it seems, there are too many others in addition to hog operators among us who carelessly abuse our public waters for their own gain. But the Neuse River Foundation has 3,000 caring members supporting the ongoing work of our current energetic Neuse Riverkeepers, Dean Naujoks and Larry Baldwin, whose victories are numerous and varied.

We're winning, but there is still a long tough fight ahead.

The Neuse River Air Force will be there to help. **WVK**



QuickSilver, a flying boat that is within your reach – really!

Pictured on patrol for the Neuse River Foundation's Riverkeeper is a QuickSilver floatplane owned and operated by Neuse River Air Force Volunteer pilot, Ron Smith. This plane is made by QuickSilver Aircraft Company of Temecula, CA (www.quicksilveraircraft.com). It is a "fair weather" aircraft that is easy to fly and maintain, well suited for environmental patrols. It is also one of the safest aircraft of its kind. One of the many options available is a ballistic parachute that will safely deliver the aircraft and its occupants to the ground or water in an emergency.

Flight STURGEON

By Fred Tutman, Patuxant Riverkeeper

From an aerial vantage point, Waterkeepers can better view factory farms, stormwater outflows, excavations, mines and other sites that are less accessible from the land. The view can be quite stunning from the air, providing a unique way of visualizing the relationships between land and water. Flying, when coupled with guerrilla-style photographic tactics, can also produce compelling visuals for use in advocacy.



PAMLICO-TAR RIVERKEEPER

A clear-cutting operation of a cypress wetland on the Pamlico-Tar River, NC, violates the 50 foot buffer rule.



PAMLICO-TAR RIVERKEEPER

The Pamlico-Tar Riverkeeper's patrol area includes the PCS Phosphate Company's Aurora mine, the largest phosphate mine in North Carolina and one of the largest in the U.S.



PATUXANT RIVERKEEPER VOLUNTEER KELLY COFUS

Runoff from a construction site has filled this small creek feeding the Patuxant River with sediment.

Waterkeepers Take To the Air

Jeff Turner at the **Blackwater/Nottoway Riverkeeper** in Virginia has used a helicopter to patrol his 85-mile watershed. From the air he has located polluting paper mills and hog lagoons that were red with live bacteria and located only 100 yards from his river. Jeff remembers a blustery day in a chopper fighting 30 mph winds and updrafts that plummeted him through the air as much as 20 feet at a time. Jeff now considers Dramamine a standard part of his flying kit, but nonetheless considers flight time a valued tool in his work.

South Riverkeeper Drew Koslow uses an airplane to survey for endangered mute swan nests, observe oyster reefs and to document the impacts of large-scale development near Annapolis, Maryland. In a comical or surreal twist, on one of his survey missions Drew observed a 24-foot boat running at top speed in circles with a ring of onlooking boats around it. Apparently the operator of the boat had fallen overboard while at full throttle. Onlookers were trying to figure out how to retrieve the craft. Eventually, a plucky bystander threw a rope into the path of the boat, snagging and stalling the propeller.

Heather Jacobs at North Carolina's **Pamlico-Tar Riverkeeper** Program uses air-

planes four or five times a year to pinpoint areas that she will later inspect on the ground or from her patrol boat. For Heather, flying is a diagnostic tool for identifying the sources of problems and identifying new ones. She has observed hog farmers spraying waste illegally and sedimentation from forestry activities where new "cuts" are being made in protected buffer areas. Heather is strategic about her flights; these are rarely "fishing" expeditions. She carefully reviews maps of her 5,500 square mile watershed and pinpoints areas of concern. For Heather, the flyovers and the public awareness of them is a great deterrent, putting violators on notice that the Waterkeeper is vigilant.

Gordon Hensley the **San Luis Obispo Coastkeeper** in California uses an airplane supplied by a friendly attorney and relies on flyovers as a core part of his monitoring work. Gordon points out that it would be impossible for him to keep an eye on his large patrol area without a plane. The ability to fly over private property that is inaccessible or illegal from the ground provides a powerful avenue for identifying enforcement issues.

Jay Charland the **Assateague Coastkeeper** on Maryland's eastern shore uses airplanes on occasion and is sold on

the practicality of being able to see deeper into private property than is possible solely with water patrols. He believes that making it publicly known in your watershed that you conduct air patrols intensifies the public perception that the Waterkeeper is vigilant and watchful. Perhaps it discourages pollution too – as flying is a technique rarely used by governmental enforcers and polluters rarely hide their activities from an observer above.

Jim Holland, Georgia's **Altamaha Riverkeeper** tries to take to the skies at least two to three times per year. Using a Cessna provided by a nearby non-profit charter service, Jim has observed ditching and draining of wetlands, unorthodox logging practices and chicken farms with lagoons right next to his river. He reports sewage treatment plants and other point sources such as pipes and foaming colored discharges that would be hard for him to see through the ordinary water-based patrols. Jim has a patrol area of some 14,000 square miles. On a flight earlier this year he tracked nearly 75 miles up his watershed to Lake Jackson following churning waters rich with dark colored mud. Nearly all the sediment flowed from a single new housing development site on the river. **WK**

Alabama Air DAM FAILS, REGULATORS FAIL

A story that could only be told from the air.

By John L. Wathen
Hurricane Creekkeeper
Photos by Hurricane
Creekkeeper

I was on my way to pick up pizza for supper one evening when something fell out of sorts. As I crossed over the bridge near my house the creek was clear as usual for that time of year: clear skies, no rain.

But on passing over the second bridge on Hwy. 216 I noticed that the creek had come up some and was thick with mud. I pulled over. Indeed the creek was up and extremely muddy. There was a smell of rotten eggs that, in our region, points to coal mining. Sulfuric acid is produced when mine waste comes in contact with air and water, producing a sulfur or "rotten egg" smell.

I contacted both Alabama Department of Environmental Management (ADEM) and Alabama Surface Mining Commission (ASMC). Normally ADEM is slow on the uptake but this time they responded with great haste and were on the site within an hour. The mining inspector for ASMC, Frank Evans, did not show up for another 36 hours.

Next I called a local airplane charter outfit here in Tuscaloosa, Bama Air. They paired me up with a young pilot named Chacy Dubose. Within an hour of the first report I was in the air. I hadn't flown so low since my stint in the Navy. When we got over the site we were not only able to observe the damage, but could clearly see and photograph evidence of the series of events that led to the contamination: a massive dam failure.





Pit to Pit Transfer

In strip mining around Tuscaloosa, a large amount of groundwater pours into the pits from breached aquifers. Strip miners pump water from one side of the pit to the other to expose the coal seam for excavation. The rock coffer in the middle separates the water side of the mine from the digs side of the mine. Evidently, the pump was left on and the pit overfilled. Water started pouring out, cutting through the road around the pond. (For scale, see the 50-ton truck in the upper right.)



BLACK WARRIOR RIVERKEEPER

Up Over Vulcan

Black Warrior Riverkeeper Nelson Brooke added aerial patrolling to his tactics by engaging SouthWings in February 2003. "I have done quite my visual inspecting from the ground and through reading permits," Brooke explains, "but aerial photography is often the most telling way to see the water." Indeed, in 2004, Brooke's bird's eye view of a quarry pumping brown water into a Black Warrior tributary prompted a subsequent ground investigation where he collected evidence and brought a lawsuit against Vulcan Materials for 465 violations of the Clean Water Act.



Dirty Mouth

Toxic-laden mud flowing downstream from the Black Warrior Minerals site at the confluence of Hurricane Creek and Black Warrior River.





Blow-out

The dam failed when water running over the road caused it to slump into the final pit. This caused a tidal wave effect that pushed all the water over the dam into the receiving pond. This photo was taken after the company had restored the dam. The mining company pushed new (still wet) dirt to rebuild the road. The pump in the picture was the cause of the problem. Now it is being used to back-pump all the water from the final pit for repairs.

When the water surged into the final pit, the spillway crumbled and slid down the bank of the creek in the torrent of water. Concrete spillways built to specs will not break in this fashion. Steel reinforcement bars are supposed to support and reinforce the concrete so that even if it cracks it will not completely fail. The permit called for steel and it was not there. ASMC inspector Evans did not catch it, nor did he know (his story) that steel was required. He then included the missing steel into the original violation of "Failure to maintain spillways" instead of a new violation of, in my opinion, "Failure to properly construct and certify according to permit." An interesting note here is that P.E.R.C. engineers falsified a document stating that the dam was constructed exactly according to plan and certified it safe. The engineering company received no reprimand and is still being used by a large number of mining companies across the state. Business as usual in Alabama coal country. **WK**



SouthWings

Hurricane Creekkeeper works with the non-profit outfit SouthWings, whose tagline "Conservation through Aviation" says it all. SouthWings flew our entire board of directors over Hurricane Creek to see firsthand the condition of our watershed. The response was incredible. Later this year, Hurricane Creekkeeper is hosting a regional conference with SouthWings to expose as many Southeastern leaders to the value of flying with SouthWings. All Waterkeepers in the area are welcome to attend. For more information, contact Hurricane Creekkeeper.

New York BY CHOPPER

By Basil Seggos, Chief
Investigator, Hudson River

Riverkeeper boat captain John Lipscomb knows the Hudson better than anyone. Since 2001, he has logged 21,000 miles and 4,200 hours on the 140-mile stretch of river. But as well as a river can sear itself into one's memory – its currents, its rocky outcrops, its salty personalities – John knows that a birds-eye is crucial for tracking down the most elusive polluters. Riverkeeper board member Howard Rubin jumped at the chance to make this happen. On May 6, 2005, *New York Times* reporter and photographer Giles Ashford, John and I took to the skies in a Bell 206L chopper, piloted by former Israeli Air Force lieutenant colonel Yossi Ben Bassat. We patrolled Newtown Creek and the Gowanus Canal in Brooklyn, two of New York Harbor's most polluted waterways, then turned north at the Arthur Kill in Staten Island for a hundred-mile run up the Hudson to New York City's reservoir system. We investigated a long rap sheet of crimes from above, including oil spills, leaking junkyards, plumes of sewage and discharge pipes. It was John's first flight over the river, and for all of us, a crucial opportunity to cement cases against persistent and often invisible polluters. The sky offers an invaluable perspective but is not without danger. A month after the flight, the same chopper malfunctioned with Yossi at the controls and crashed into the East River shortly after takeoff. The world's press hailed the ever-steady Yossi as a hero for saving the lives of each of his passengers. **WK**

GILES ASHFORD, WWW.ASHFORD7.COM





Newtown Creek

Riverkeeper's Newtown Creek campaign aims to clean up one of the dirtiest waterways in the country. Riverkeeper is suing ExxonMobil for a 55 acre, 17 million gallon underground oil spill in Brooklyn, which is constantly seeping into the creek. The flight gave the crew an unparalleled view of the former oil terminal, the community affected by the spill and the plume on the creek.

Clinton Point Quarry

The huge gravel quarry at Clinton Point on the Hudson requires constant groundwater pumpout. But the daily discharge from this pipe, millions of gallons visible only from above, is highly turbid. Riverkeeper will challenge the issuance of a Clean Water Act permit on these grounds.



GILES ASHFORD

Newburgh Barge

Spotting a sheen on the Hudson, Riverkeeper discovered a leak in the side of this gasoline barge. A similar barge had run aground that week just down river, spilling tens of thousands of gallons of fuel. While in flight, Riverkeeper summoned the state's spill response team to the site.



GILES ASHFORD



GILES ASHFORD

The team: Pilot Yossi Ben Bassat with John Lipscomb and Basil Seggos



THE WAVE

of the PRESENT

By Fred Tutman

Flying is one of many tools available to water quality advocates to monitor our watersheds. It is a tool that is, ironically, also used extensively by those who have different plans for the environment. The building and oil exploration industries, for example, rely heavily on planes and choppers in their work. In fact, in the small rural community where I live, right near the banks of Maryland's Patuxent River, early morning flyovers from housing developers looking for new places to put homes are so common that my family jokes about whether we live on a farm or at a M*A*S*H unit.

With the explosive growth in private and recreational aviation, it is fitting, proper and more importantly, increasingly practical for Waterkeepers to find innovative ways to use aerial tools to provide advocacy on how things are done at water level.

As a former news producer I have worked in helicopters, winged aircraft and hot air balloons. I have had my share of daredevil pilots who enjoy stalling the plane in a climb to see if "I was fully awake," or matching air speed to wind speed in a strong headwind to demonstrate how well they can "hover" the plane – hi-jinks guaranteed to make your blood run cold and your stomach try to leave your body. **WK**

WATER elementary

Education —

whether with boats, bugs or legal briefs — is ultimately the key to clean water. Learning about water, wildlife, boating, science, law and maritime history not only builds skills, it fosters a greater appreciation and understanding of our communities and our world.



A student poses in front of the schooner, the Lettie G. Howard.



were rapt. Most of these kids had never seen New York Harbor.

Murray Fisher founded the New York Harbor School to introduce high school students to the Harbor in their backyard – the busiest seaport in the world, less than two miles from their urban homes. The goal of the Harbor School is to use hands-on learning and the skills of a waterman to teach and empower underserved kids. Partners include Urban Assembly, a non-profit organization dedicated to creating college-prep schools in urban areas, the South Street Seaport Museum and Waterkeeper Alliance.

The school opened its doors in 2003 to 125 ninth graders from the Brooklyn neighborhoods of Bushwick, Crown Heights and Bedford-Stuyvesant. Ninety-five percent of our student body is eligible for free lunch. Twenty-five of our students had limited English proficiency and 12 were mandated for special education services. Others came from some of the city's best middle schools, bringing with them top-notch reading and writing skills. At the beginning, the only thing our diverse student body seemed to have in common was a universal unawareness of the Harbor.

But that changed quickly. Students were immediately challenged to learn seamanship skills aboard our 100-year-old historic schooner, the Lettie G. Howard. Along with math, English and science, students learn boat building and navigational techniques in our Marine Technology course. They learn the basic tenets of conservation and environmental science in our Harbor Science program. Students who had never been on the subway before now travel throughout the city to sail on the Hudson, row boats on the Bronx River, or do water quality testing in Central Park Lake. Slowly, our ragtag crew of ghetto fabulous thugs, recent Latin American immigrants and overachieving college-prep stars were adding words like “starboard” and “bow,” “salinity” and “poly-chloralinate biphenyls” to their vocabularies.

Harbor School

By Melissa L. Jones
Photos by Harbor School

In September of 2004, I boarded an M train at the Myrtle/Wyckoff station for a field trip with 25 thirteen and fourteen year-old native New Yorkers. Riding underground beneath Brooklyn my students snacked on barbecue chips, chatted about their new crush and sat listening to headphones. Suddenly, the train burst from the tunnel into the light of the Manhattan Bridge. The kids jumped from their seats and leaned against the Plexiglas on the south-facing windows. The East River, Statue of Liberty and Governor's Island rolled by. “Ahhh, tight, Miss! Look!” They



Students learn maritime skills on the century-old schooner.



Our little school certainly faced many challenges in its first year. Most of our students came from failing elementary and middle schools. The rigorous academic environment here requires that they perform at or above grade level in order to succeed. We faced resistance from parents, unsure of our experiential learning techniques, to taking their kids onto the water and on overnight sailing trips. We also struggled with how to connect the academic learning students did in the classroom with the hands-on learning they completed on water.

Part of the answer came with the inauguration of the Waterkeeper Mentor

Project. In 2004 we launched an interdisciplinary project to connect our students with local Waterkeepers around the globe. As mentors, the Waterkeepers help students connect their studies with real world problems that Waterkeepers face protecting their waterways.

The project began with a discussion of the processes that Waterkeepers follow when they solve problems in their region. We discussed how “stewards” care for something by identifying problems, generating questions, gathering data, developing and then implementing solutions and then reflecting on the process. This Waterkeeper Stewardship Model serves as a structure for our learning throughout the course – and throughout their high school career.

To begin the project, each student chooses a mentor from the list of Waterkeepers around the globe. Some chose Waterkeepers whose names sounded glamorous. Octavia loved the name, “Buzzards Baykeeper.” Tenesha loved “Blackwater Nottaway Riverkeeper.” Others chose Waterkeepers in regions where they have family, like Juan, who chose the New Riverkeeper, or Vimla with the Thames Canalkeeper. There were spirited arguments over the various Latin American regions, including Vieques and Punta Abreojos. Daniel, always an original, chose Georges Waterkeeper for its sheer exoticism.

Students began Web research gathering information on the waterbody. Next, they wrote letters to their Waterkeeper request-



Students of the Harbor School, Brooklyn, NY.



In the classroom

ing information. Writing the letters was tough. Most students had never written a professional letter before. We went through many drafts to remove the “yo”s, curse words and misspellings. We mailed our letters and waited.

Soon, responses from Waterkeepers started pouring in. Sammy was one of the first students to hear back: the Upper Chatahoochee Riverkeeper sent him a thick, heavy packet. Sammy tore it open excitedly in front of the whole class, then let out a loud, frustrated cry. “What is it? What’d you get?” we asked him.

“It’s a book!” he said, disappointed, as if he had requested candy and not information. He began reading the book during silent reading, though, and took copious notes.

Other students received email responses, and we worked hard to keep ourselves organized. We called in our science teacher, Roy Arezzo, several times during the project to define scientific terms like “catchment.” We created outlines and started working on our reports. As the pieces fell into place, I was impressed by how much my students were able to find out through research and by working with their mentors about their waterways around the globe.

This fall we’ll welcome a new cadre of 10th graders into the project, engaging another 50 Waterkeepers in the mentorship process.

The Waterkeeper Mentor Project blends the twin aims of our school almost seamlessly. Students created an academic research project that required high-level reading, writing, research and technological skills. Meanwhile, they were able to connect this academic learning to the experiential, hands-on learning they do in their Harbor courses.

We look forward to the coming school year and continuing our interdisciplinary projects that involve the vast, multi-cultural resources of the Waterkeeper Alliance in the education of some of the neediest kids in New York City. **WK**

LEAF PACK:

Using Bugs To Monitor New York City’s Watershed

By William Wegner & Marc A. Yaggi, Hudson Riverkeeper

Photos by Hudson Riverkeeper

Hudson Riverkeeper, along with the Stroud Water Research Center (Stroud) and the Hudson Basin River Watch, have been harnessing kids’ fascination with bugs to help measure water quality in the New York City Drinking Water Supply Watershed. The program – the “Leaf Pack Network/Hudson Basin River Watch Project” – is less invasive than most sampling programs and was developed as a pilot project in Pennsylvania by Stroud in 1999. Then, in 2000, with support from Congress through the Safe Drinking Water Act, the three groups transferred the program to the 2,000-square-mile New York City watershed, which supplies unfiltered drinking water to more than 9 million New York City and upstate consumers.

Here’s how it works: In fall and/or spring, school students place plastic mesh bags of leaves in streams. After two to three weeks, aquatic organisms colonize the leaf packs as a food source; students then retrieve the leaf packs and sort and identify the bugs. Each species is assigned a pollution tolerance index that reflects its sensi-



Measuring stream velocity.



After removing them from the stream, students sort contents of the leaf packs and identify macroinvertebrates. The quantity and types of organisms living in the leaf pack is a good indicator of the health of the stream.



Above: Mapping stream sites for Leaf Pack Experiments.

Right: Students fill mesh bags with leaves (leaf packs) and weight them before placing in streambed.



tivity or tolerance to water pollution. By monitoring the richness and diversity of the organisms that colonize the leaf packs, students can determine stream health. Students post their data on Stroud's Website to share their data and compare the health of their streams with others around the watershed.

Riverkeeper spearheaded the project by approaching more than 100 secondary schools in watershed communities on both sides of the Hudson. River Watch, a volunteer river-monitoring project whose goal is to improve the water quality of the Hudson River and all its tributaries, had a network of schools already involved in stream monitoring and helped recruit some of the initial Leaf Pack Network participants. The funding allowed us to provide teacher training workshops and equipment kits for any schools willing to sample in the New York City watershed.

Now in its third year, the Leaf Pack Network has more than 40 classes sampling streams in the New York City watershed. To increase awareness and recruit additional participants, Hudson Riverkeeper produced an 8-minute video that demonstrates the Leaf Pack Experiment in a designated secondary school. In 2001, the children's television network Nickelodeon featured the Leaf Pack Network in its Big Help program to encourage student participation in water quality issues on a national level.

Riverkeeper also partnered with the Seeing Necessary Alternatives Photographically (SNAP) program. SNAP provides cameras and film processing for students to document their Leaf Pack Experiments. The SNAP representative provides display boards featuring student photos, which Riverkeeper uses to showcase the Leaf Pack Network on Websites and at water quality related events.

The Leaf Pack Network builds a real-world connection between students and their watersheds, fosters a sense of ownership and responsibility for water resources and provides useful information on water quality. **WK**

Students Bring Meaning to Ontario Laws

By Krystyn Tulley, Executive Director
Lake Ontario Waterkeeper



Leslie Newman on the Lake Ontario Waterkeeper Patrol Boat

Pro Bono Students Canada

Pro Bono Students Canada was established at the University of Toronto Faculty of Law in 1996 to engage law students from early on in the noble pro bono tradition of the legal profession. The format is simple – match pro bono law students with public interest and community organizations that are ineligible for legal aid but need legal and law-related services. Since its inception, the program has involved more than 6,000 students, transforming the legal profession by developing leaders committed to pro bono and public interest law. These future leaders will influence public policy and strengthen the voices of the disenfranchised.

Between 1993 and 1995, the Ontario government introduced ambitious new rules to protect our province's waterways. The program – called "MISA" or, the Municipal/Industrial Strategy for Abatement – seeks to virtually eliminate persistent toxic substances from the wastewater of nine major industrial sectors in Ontario, including Iron and Steel Manufacturing.

But after 10 years the rules have done little to protect the Great Lakes. Now, a team of volunteer law students from Pro Bono Students Canada are working with Lake Ontario Waterkeeper to change this. The students began by studying a number of MISA facilities on Lake Ontario. Their research results were shocking: The MISA rules for steel plants give four of Ontario's large polluters permission to dump a combined total of up to 87 kg – almost 200 lbs – of lead into the Great Lakes in a single day. Averaged out over a year, that's a combined 13,000 kilograms (14.5 U.S. tons) into the Great Lakes without ever breaking Ontario's rules. Lead is widely considered one of the most toxic substances humans can release into the environment.

Law student Leslie Newman wanted to follow up on this research and won a Donner Fellowship to spend the summer working with Lake Ontario Waterkeeper pursuing the lead permitting issue. Leslie's research uncovered serious concerns with the steel plants in question. Two of the facilities are located in

"The oath that lawyers take when admitted to the bar compels them to work for greater justice. This does not mean that they work only for justice when they get paid, but perhaps more idealistically, that they work to create a more just society."

– Canada Supreme Court Justice J.C. Major

the same Lake Ontario port – Hamilton Harbour – where lead is a contaminant of concern. What's more, the International Commission for Environmental Cooperation recently singled out those two steel plants as two of Canada's largest emitters of known cancer-causing substances.

Though Hamilton Harbour has been an industrial port for generations, it used to be the most productive fishery on the lake. Troubled by MISA's apparent failure to eliminate lead from steel plant discharges, Leslie helped Lake Ontario Waterkeeper draft an administrative challenge to the lax permits. Waterkeeper Mark Mattson filed the challenge with the Province of Ontario in July and expects a decision later this year.

This challenge is just one demonstration of how law students and nonprofit organizations can team up to make a real impact in their communities. For the nonprofit, the partnership brings resources, talent, and enthusiasm. For the students, it brings experience. Just ask Leslie: "I cannot speak highly enough of the experience this fellowship has given me. Perhaps most valuable of all, it has reinforced my belief that individually and collectively we can make a difference in this world and the study of law gives us invaluable tools with which to do so." **WK**



One of Hamilton Canada's steel plants on banks of Lake Ontario.

DYLAN DEILD (HTTP://DYLANDEILD.CA/)

The New York/New Jersey Bay once contained 350 square miles of oyster beds and 400 active oystering boats. The bay is now the most urbanized area where successful oyster restoration is occurring. Here, the N.Y./N.J. Baykeeper is blowing shells into New York Harbor to create a new oyster reef.

N.Y./N.J. BAYKEEPER



The background of the entire page is a photograph of the Statue of Liberty on Liberty Island, New York. The statue is the central focus, with its crown and torch visible. The water of the harbor is in the foreground, and the New York City skyline is visible in the distance under a clear blue sky.

Restoration HARDWARE

Waterkeeper programs are taking the lead restoring kelp beds, oysters reefs, stream banks and wetlands in their watersheds to health and productivity.

Garibaldi's and Kelp,
Emerald Cove,
Catalina Island, 2004

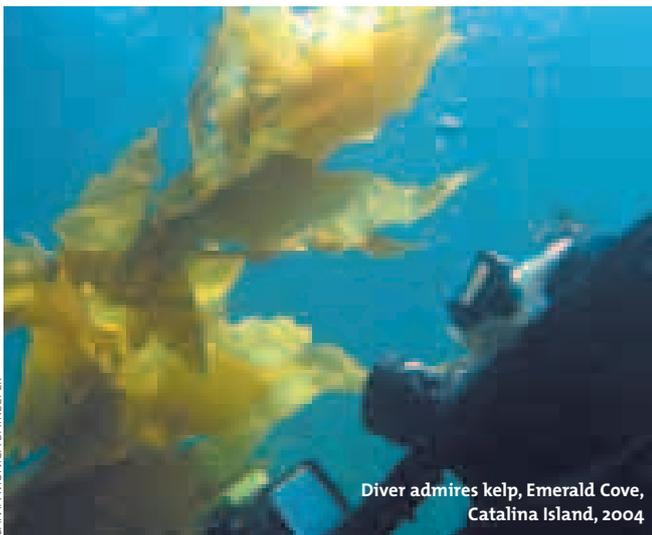


Kelp Help

By Colleen Wisniewski, Marine Biologist, San Diego Baykeeper &
Tom Ford, Kelp Project Director, Santa Monica Baykeeper

SANTA MONICA BAYKEEPER

DIVING INTO Restoration



Diver admires kelp, Emerald Cove, Catalina Island, 2004

SANTA MONICA BAYKEEPER



Macrocystis pyrifera

Giant kelp is a brown alga that can grow two feet a day to lengths of 120 feet. The kelp grows off of rocks, reefs and other sediments on the sea floor. Buoyed by gas filled bulbs, kelp reaches the surface and spreads to form a canopy. Kelp forests provide food and shelter to more than 800 individual species of marine mammals, fishes, birds, invertebrates and other algae. Giant kelp is harvested for algin, used in ice cream, lipstick, beer and hundreds of other products. The destruction of the giant kelp forests leaves our coast vulnerable to increased erosion, displaces native species and causes damage to coastal communities that add up to billions of dollars.

Scuba diving in giant kelp is often compared to flying. Imagine soaring through the oaks and maples of New England, gliding slowly through the trees and branches, meeting eye to eye with a wild turkey on the wing. This is precisely the feeling of plunging below the ocean surface and streaming through kelp looking at the perch, gathered in schools, hiding from the sea bass and barracuda only meters away.

Up and down the Southern California coast you'll find wetsuit-clad scuba divers emerging from the sea, chatting about encounters with sea lions, lobsters, giant sea bass, garibaldi and sea slugs. All these animals and hundreds more, reside in and depend upon our local kelp forests – brown algae that grow in clear and nutrient rich ocean waters. The health of our majestic forests of the sea, however, are threatened by unchecked sewage outfalls, urban and coastal development, the effects of recreational and commercial fishing, the extinction of the southern sea otter and El Niño.

In 2000, several of the southern California Waterkeeper programs got together to form the California Coastkeeper Alliance to coordinate their kelp restoration efforts. The program is supported by the National Oceanic and Atmospheric Administration (NOAA) through their community-based restoration program. But the volunteers are the key to the program's success.

The California Coastkeeper Alliance was formed in 2000 by San Diego Baykeeper, Orange County Coastkeeper, Santa Monica Baykeeper and Santa Barbara Channelkeeper to restore the giant kelp forests.

Kelp Grant

This August the National Oceanic and Atmospheric Administration awarded \$220,000 to the California Coastkeeper Alliance to support their kelp reforestation program.



SAN DIEGO BANKEEPER

Divers in Del Mar prepare for a data collection dive

Volunteer divers, recruited from the local diving community, are involved in every aspect of the program. Planting new kelp forests requires many different types of complicated dives. Divers collect data at potential sites, construct and evaluate sites, perform restoration activities and monitor the progress of restored sites. California Coastkeeper Alliance biologists train volunteer divers in species identification, data collection methods and kelp forest ecology. Because diver safety is paramount, the Coastkeeper Alliance joined the American Academy of Underwater Scientists and created an intensive diver safety program.

Volunteers' diving backgrounds vary from recreational divers, to diving professionals, scientists and students. Despite their diverse backgrounds, the volunteers share a strong desire to actively protect the marine environment, often because they have personally witnessed a decline in ocean health, shrinking kelp beds and decreasing animal stocks over recent years.

During the first three years of the project, 582 dive trips were completed and volunteers assisted on nearly every dive. Nearly 200 volunteers donated more than 5,600 hours of underwater service to the project, restoring thousands of square meters of giant kelp to provide food and shelter for millions of organisms. **WVK**



SANTA MONICA BANKEEPER

Fish Cathedral

Kelp Ed

Even when California Coastkeeper Alliance staff and volunteers are not flying through the cold, clear shallow coastal waters, their restoration activities go on. On dry land, the Coastkeeper Alliance members strive to preserve the giant kelp forests through legal and educational efforts.

Coastkeeper Alliance is working to ensure that regulations take into account the impacts of bacteria, trash and metals on the health of the kelp forests and limit this pollution accordingly. Another threat is a

boom in the sea urchin population, an animal that grazes on the kelp.

The urchin population is booming because their predators – fish such as the California sheephead and lobsters – are being over-fished. The Coastkeeper Alliance is working with the California Department of Fish and Game to revise the size limits of fish and lobster, to ensure stable populations that will control the urchins and maintain the kelp forests.

Coastkeeper Alliance also has an active education program using a combination of hands-on classroom lessons, portable marine aquaria for kelp cultivation and field trips. Students learn kelp cultivation

techniques and grow kelp for eventual planting into restoration areas. Coastkeeper Alliance then coordinates field trips to help students make the direct connection of their work to the fragile kelp forest environment.

The Kelp Education Program has worked in 41 different schools and educational facilities. The program has reached almost 7,000 schoolchildren in 108 classrooms, focusing particularly on underserved and diverse school districts.

Each component of Coastkeeper Alliance's kelp restoration program – underwater restoration, policy change and education – relies on the success of the others. And there is much evidence to believe this approach is working. Where no kelp existed beneath the waves only 10 months ago, the California Coastkeeper Alliance and our volunteers have reestablished giant kelp forests that are full of life. With stronger laws and enforcement, and a growing appreciation of these giant underwater algae, we can preserve the long-term health of these forests of the sea.



SANTA MONICA BANKEEPER

Student meets a kelp forest animal

Ready for a field trip to the forest



SANTA MONICA BANKEEPER

Squandered Resource

TO

Historic Riverfront Park

By Laura Calwell, Kansas Riverkeeper
Photos by Kansas Riverkeeper



Before. Debris covers the future site of the Lewis and Clark Historic Park in Kansas City, Kansas, with the Kansas City, Missouri, skyline in the background.



Volunteers pour the access ramp at Kaw Point (January 2004.)



Over the next several days thousands of visitors came to commemorate the accomplishments of Lewis and Clark's expedition and stroll in the newly restored park. **WK**

April 2004, Kansas Riverkeeper & members of Friends of the Kaw land at Kaw Point (from left to right kneeling: Laura Calwell, Kansas Riverkeeper; Chip Farley. Standing: Mike Calwell, Hank Ernst, Tom Lowe, Marsha Farley.)

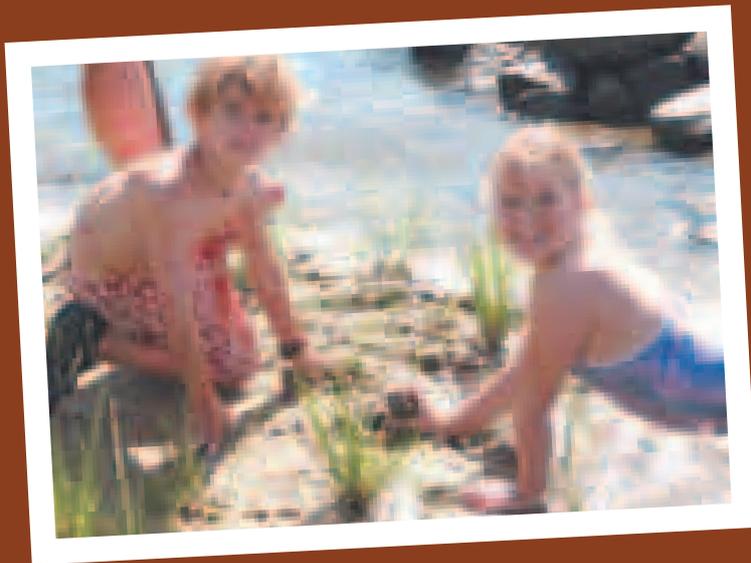
By Drew Koslow,
South Riverkeeper

Since our inception in 1999, the South River Federation and South Riverkeeper has focused on implementing meaningful restoration projects around our watershed. We are able to design, permit and build projects ourselves because we have a dedicated board of directors who donate their time and technical skills to the Federation.

In February of 2003, the Fullerton Beach Living Shoreline project was funded by the Chesapeake Bay Trust to restore 750 linear feet of low-marsh (intertidal wetland) that had eroded away. We chose this site when we were approached by officers from the Londontowne community who asked for our help and partnership on this ambitious project.

South River Federation Director, John Flood donated his professional services and came up with a design, obtained permits and managed the volunteers at the 12 work parties that were held over two years to complete this project. Our first work party was held April 19, 2003, and by August 2003, 160 volunteers had contributed 600 hours on this project.

Volunteers moved approximately 220 tons of stone and 200 tons of sand to form low-profile stone sills that protect the sand and marsh grasses that were placed behind them.



Hard at work

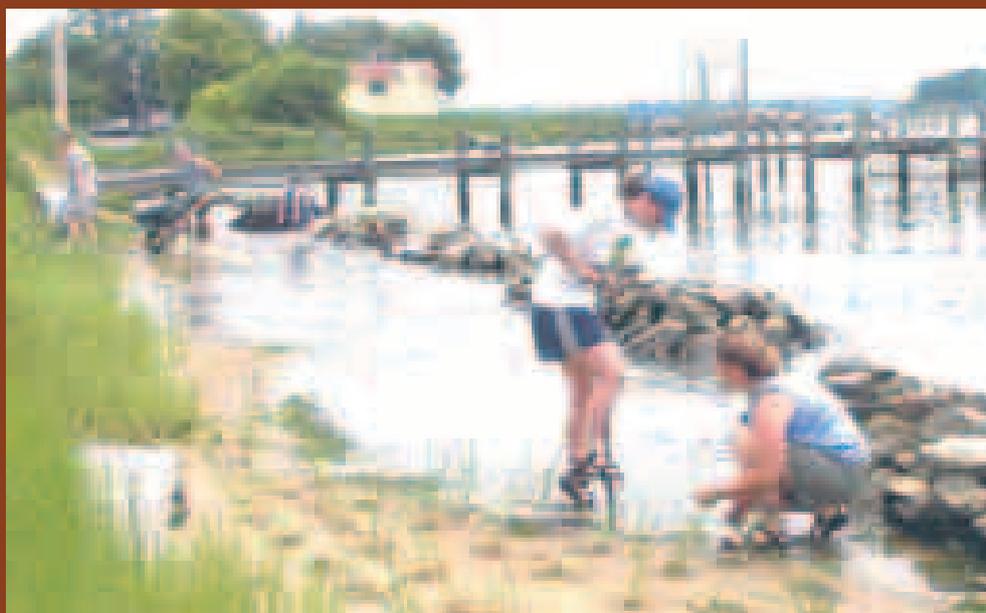
Before the project was completed it was put to the test by Hurricane Isabel. The Chesapeake Bay region was inundated by a seven foot tidal surge. Many shorelines around the South River suffered erosion as a result of the incredible tides and pounding surf. Our shoreline at Fullerton Beach was actually built up in the storm, even as residents of the community borrowed sand from the project to protect their homes.

The project was completed on June 19, 2004 when 50 volunteers moved 20 tons of rock and 10 tons of sand. Maryland Public Television filmed the work party and plans to feature it in an upcoming telecast of *Outdoors Maryland*. **WV**

Living SHORELINE



Volunteers move heavy stones to build sills...



...then fill them in with sand marsh grass.

In May 2005 the shoreline was healthy, providing a natural barrier against erosion and tidal surges.



BRINGING Nature BACK IN OREGON

By Sue Marshall
Tualatin Riverkeepers
Photos by Tualatin Riverkeepers



Tualatin Riverkeepers is helping communities to get down and dirty with their hands to restore their watershed. Restoration of the watershed, in this case, is just the beginning.

“This is not only good for water quality, fish and wildlife habitat, it is good for the economic vitality of our community,” says County Commissioner Dick Schouten who cites a local economic study that touts environmental quality as a key factor attracting high tech employees to the Tualatin River Watershed. This claim appears to be well founded as the Tualatin River is in the heart of Oregon’s silicon forest.

Establishing strategic partnerships has been critical to the success of the Tualatin program. The cornerstone is a partnership with the metropolitan regional government (Metro) Parks and Greenspaces Program that leverages significant funding, community involvement and volunteer support.

In 1995, a regional greenspace acquisition bond measure was passed in the greater Portland region. These funds were used to purchase 8,000 acres, largely along stream corridors. But the bond did not include funds to restore and maintain these sites. Seizing on this opportunity, the Tualatin Riverkeepers entered a partnership with Ash Creek Forest Management, an emerging small business specializing in restoration of natural areas. Together, they developed restoration plans, put together funding packages, wrote grants to support community involvements and began work on three sites.

Their work has had a remarkable ripple effect in the community. Contract work for portions of the restoration project has generated local jobs in the rural community. The project’s need for native plants helped foster the formation of a native plant nursery, Scholls Valley Nursery. Centro Cultural, a local Latino service organization, became involved as a training opportunity leading to jobs in the nursery and landscaping industry. Tualatin Riverkeepers, working with nearby schools and community groups, is building a service learning program to instill an interest in natural sciences and lifelong stewardship.

“The Tualatin Riverkeepers have not only stepped up in a major way to restore some very important sites in their watershed, they have developed a restoration prototype that we hope to replicate in other parts of the region,” says Jim Desmond, Director of Metro Parks and Greenspaces Program.

Maria Felix Vazquez, a student of the Adelante Mujeres (Forward Moving Women) organization participated in the Restoration Education program of the Tualatin Riverkeepers. She wants her two year old son, Fernando, to learn respect for the natural environment. “I want my little boy to see how wonderful it is to be able to plant a tree and see it grow,” Maria says. **WK**



500 volunteers have logged 5,000 hours removing invasive plant species, planting trees and shrubs, collecting seed, monitoring amphibian egg masses, tracking plant survival rates and counting the return of bird species to the restoration sites.



One of the first sites was Gotter Bottom, which was restored from a muddy field back into a productive meadow.





THE Incredible OYSTER

By Janelle Robbins,
Waterkeeper Alliance

Aphrodite, the Greek goddess of love, emerged from the sea on one. Roman emperors used to pay their weight in gold. Casanova started every meal by dining on 12 dozen of them. For millennia oysters have captivated the human imagination, satiated hunger and fanned the flames of desire. These marvelous mollusks also work tirelessly to filter and cleanse Earth's precious water. But nearly a century of ecological abuse has put Mother Nature's cleaners in hot water. Waterkeepers are now working to restore the oyster to its place of prominence.

HISTORY

By all accounts, North America was teeming with oysters in pristine bays and unadulterated estuaries when colonists arrived. The colonists were no strangers to oysters, but their ample size and bounty astonished them. Native Americans in coastal areas relied on oysters as a staple food source, building great jetties of oyster shells into the ocean after feasts. Initially, settlers collected oysters and other shellfish for personal consumption. At half the cost of beef, chicken or eggs at the time, oysters were a common and affordable fare. Settlers found many uses for the versatile oyster shells – they were crushed and used for paving roads and paths, as ballast in ships, as soil amendments to bolster depleted soil, burned for lime and as fill for wharves and lowlands. As new villages sprang up and old ones developed into cities, commercial harvesting of oysters boomed.

The westward expansion of railroads in the mid- and late-19th century created an all-out oyster industry explosion. Now, the tasty bivalves could travel by railcar, shucked and on ice, to be served up in speakeasies as far away as Chicago. There were soon oyster parlors, oyster cellars, oyster saloons, oyster bars, oyster houses, oyster lunchrooms and oyster stalls lining the streets of many American cities. In its heyday, the oyster industry supported 38,000 oystermen nationwide and 27 million bushels of oysters were harvested each year from 1880 to 1910. But by the end of the 20th century only around 4,000 oystermen were left, bringing in a meager 5.9 million bushels of oysters.

THE OYSTER CRASH

The growing industrial economy exerted enormous environmental pressure on the oyster reefs of the Atlantic coast. The mining of oyster shells to make lime and for other uses depleted the amount of hard substrate for juvenile oysters to grow on, leaving the seafloor desolate instead of the dynamic undersea mountain range it once was. Sediment-choked runoff from developing cities smothered the oyster reefs, and those that were left were considered a navigational hazard and subjected to mechanical dredging, utterly destroying oyster habitat.

Along with declining oyster populations, the biggest blow to the oyster industry was poor sanitation. Raw sewage from early cities was piped, pumped and dumped, untreated, directly into coastal waters, contaminating oyster and other shellfish beds. While the sewage didn't kill the oysters, the diseases that tainted oysters carried could infect and kill human consumers. Fouled oysters carried a plethora of human diseases, including cholera, vibrio and typhoid. The hysteria surrounding typhoid turned oysters from a gourmet delicacy to a scourge. Oyster saloons and bars were shuttered, oyster villages became veritable ghost towns and oystermen were left unemployed.

OYSTER ECOLOGY

Oysters grow in bays, estuaries, sounds and tidal creeks and rivers – anywhere from slightly salty to full seawater. In general, oysters are hardy creatures that can withstand relatively wide swings in temperature, salinity, suspended solids and dissolved oxygen.

Oysters are an integral part of a healthy marine ecosystem. Oyster reefs stabilize bottom sediments and create a habitat for other bottom-dwelling organisms, such as clams and aquatic vegetation. The reefs are home to barnacles, sea anemones and mussels. Nooks and niches in the reefs provide hiding spots for crabs and grass shrimp, and attract predators such as striped bass, bluefish and weakfish. Oyster reefs also serve as breakwaters, protecting adjacent shorelines from erosion.

But the oysters' most ecologically important task is to filter and clarify water. Oysters are "filter feeders" – they suck water in, filter

The abundance of oysters is incredible. There are whole banks of them so that ships must avoid them... They surpass those in England by far in size, indeed they are four times as large. I often cut them in two, before I could put them in my mouth.

- Swiss writer Francis Louis Michel, 1701, after a visit to Virginia

Legal Protection

Laws to protect against overharvesting were passed as early as 1719 in New Jersey, 1812 in Delaware and 1872 in North Carolina. But overharvesting was just one of a myriad of problems plaguing the North American oyster population. A 1775 New Jersey law prohibited the burning of whole oysters for lime, as it was a "great waste that endangers the entire oyster bed community." Modern legal protection focuses on limiting fishing in oyster sanctuaries and protecting humans from harvesting or consuming contaminated shellfish.

suspended particles out, and expel the clean water. An adult oyster can typically filter about 50 gallons of water a day. Over a century ago, the oyster population in the Chesapeake Bay could filter the entire bay volume, about 19 trillion gallons, in about six days. Today, it takes more than a year. Oysters filter out algae, improving clarity and putting the brakes on eutrophication – the filling in of a waterbody with sediment. Excess nutrients and phytoplankton are also strained out, as are suspended sediments from runoff and erosion.

OYSTER BIOLOGY

Oysters are members of the phylum Mollusca, a group that also contains snails, squid, octopods and 100,000 other species. Oysters are bivalved, meaning they have two shells; an oyster's shell is hinged on the narrow end, unlike a clam, which hinges on the wide

end. The shell is approximately 80% of the oyster's total weight and, since oysters don't move, the shell is the only protection they have against predators. The mantle, a membrane-like organ, secretes nacre, which forms the inside of the shell. Under the mantle are the gills, which are used for respiration and moving water in and out of the oyster. Oysters also have a tentacle-like appendage called a foot. The foot is used for sensory reception and for cleaning the interior of the oyster shell. Oysters can tightly close their shell to avoid contact with an unhealthy environment, but the shell will open if the muscle tires, exposing the oyster to the dangerous outside world.

For an organism that is known as an aphrodisiac, oysters reproduce in a very unromantic manner. Males expel sperm into the water column while females release eggs. Only by a chance meeting does an egg become fertilized. About six hours after fertilization, the baby oyster is a soft free-swimming larva. Twelve to 24

WATERKEEPERS AT WORK



◀ NOAA scientist Rich Takacs hands a sample taken to Assateague Coastkeeper Jay Charland on one of the annual spring survey dives.



▲ Assateague Coastal Trust volunteer Kim Quillin measures oysters raised by oyster gardeners before planting them on the restored St. Martin River oyster bed.



◀ Oyster restoration program director Ron Pilling (left) and volunteer Ken MacMullin admire oysters raised by oyster gardeners to seed the St. Martin River oyster bed.

ASSATEAGUE COASTKEEPER (Berlin, Maryland) has oyster restoration efforts in St. Martin River and Chincoteague Bay. On the St. Martin River, Assateague Coastkeeper built a one acre oyster bed with 32 Taylor oyster floats and 80 additional bushels of oysters. A year later, a "spatfall," or new generation of oysters, spawned and set on the shell substrate – a great affirmation of successful restoration efforts. Assateague Coastkeeper has a goal of creating ten acres of oyster beds in the St. Martin. A research oyster bed in Chincoteague Bay was seeded with one million spat bred to resist oyster diseases like MSX, Dermo and Seaside Oyster Disease. Oyster restoration can be risky business though – in a bout of over exuberance, the Assateague crew piled a pontoon boat high with oysters for transporting out to the Chincoteague Bay reef. Jay Charland realized en route to the reef that when he stepped to the edge of the craft it tilted perilously, threatening to capsize, so he jumped ship to save the oysters. Another time he found himself under attack while sampling the reef in St. Martin River from all fronts – jellyfish stinging his legs and vampire-like deer flies swarmed his face and arms.

JAY CHARLAND, ASSATEAGUE COASTKEEPER, COASTKEEPER@ACTFORBAYS.ORG

LONG ISLAND SOUNDKEEPER (Norwalk, Connecticut) and their Yankee Oyster Project is busy protecting oyster aquaculture in Long Island Sound. The project seeks to limit the vulnerability of the Sound's aquaculture fishery by identifying and promoting the growth of

indigenous species of oysters that exhibit resistance to MSX and Dermo, and developing spawning, production and cultivation techniques that enhance oyster harvesting yields while reducing capital and operating costs.

TERRY BACKER, LONG ISLAND SOUNDKEEPER, SOUNDKEEPER@AOL.COM



SOUTH RIVERKEEPER

Newly planted oyster reefs in the Harness Creek on the South River.

hours later, the larva begins excreting a protective shell around itself. For the next three weeks the tiny oyster rides the currents, enjoying a brief period of motility. Finally, the oyster larva settles to the bottom, looking for a hard surface to attach to. The best substrate is an adult oyster shell, and oysters are gregarious – where one larva settles, others follow. This behavior creates reefs. After the larva settles and bonds to hard substrate, it is known as spat. The spat will metamorphose into an adult and live out the rest of its life on that spot. Oysters are ready to eat when they are about three years old.

RESTORING REEFS

Replacing the oyster habitat destroyed in the early 1900's requires new reefs where the baby oysters can attach and grow. This is done one of two ways: using manmade substrate or using shells.



PHOTOS BY SOUTH RIVERKEEPER

▲ The Patricia Campbell, Chesapeake Bay Foundation's oyster restoration vessel, spreads a six inch layer of oyster shell to build the foundation for a new oyster reef in Glebe Bay near the South River. South River Federation (home of South Riverkeeper) and Chesapeake Bay Foundation are partnering with University of Maryland Horn Point lab to construct an oyster reef adjacent to a reef built 4 years ago in the South River. The site was selected because the oysters grew well, had low mortality and no incidence of Dermo, a disease that kills many oysters when they reach three years old.



▲ South River Oyster Gardeners at work

SOUTH RIVERKEEPER (Annapolis, Maryland) started oyster restoration projects six years ago by moving shell from a marine mining operation to a reef site by the bucket-load. The restoration efforts have gained speed and support, and South Riverkeeper now collaborates with the Maryland Department of Natural Resources, University of Maryland Horn Point Lab, Chesapeake Bay Foundation and Oyster Recovery Partnership to provide the best restoration they can. South Riverkeeper has built nine oyster reefs that vary in size from several hundred square feet to about one acre. Oyster garden projects provide South Riverkeeper with about 500 bushels of oysters a year for planting. In all, South Riverkeeper has planted about six million spat and approximately two million oysters have been grown by volunteers in 1,000 oyster gardens.



◀ Spreading oyster shells the old-fashion way, one bucket at a time.

DREW KOSLOW, SOUTH RIVERKEEPER, DKOSLOW@VERIZON.NET

NEW YORK/NEW JERSEY BAYKEEPER (Keyport, New Jersey) is restoring oyster habitat in three locations – Liberty Flats by the Statue of Liberty, Keyport Harbor in Raritan Bay and Oyster Point on the Neversink River. New York/New Jersey Baykeeper oyster program staff have provided 1,350 New York and New Jersey res-

idents with oyster education, and 730 volunteers have contributed 8,920 volunteer hours in planting 124,000 oysters and 88,000 spat, some of which were grown at 56 volunteer oyster gardening sites. Additionally, oyster program staff also monitor for MSX and Dermo.

KATIE MCCRONE, NY/NJ BAYKEEPER OYSTER PROGRAM TECHNICIAN, KATIE@NYNJ BAYKEEPER.ORG



SOUTH RIVERKEEPER

Reef balls are prepared as substrate for new South River oyster reefs.

Reef balls are constructed from marine-friendly concrete with tiny niches where oyster spat will be out of reach from predators. Alternatively, clean oyster or clamshells can be dumped by the

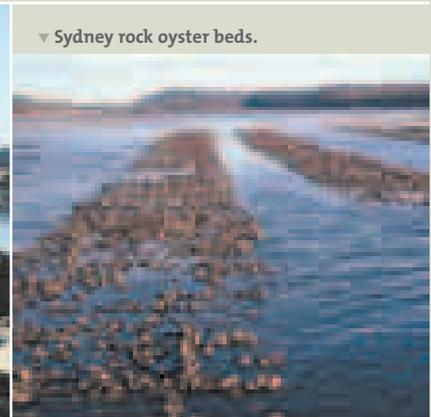
barge-load to create a new reef. Shell is often the most successful substrate, since juvenile oysters prefer to set on adult oyster shells rather than manmade materials.

Once you have a suitable reef habitat, you add oysters. During the summer, the oysters, which can be grown in floating cages called oyster gardens or in aquaculture facilities, are released onto oyster reefs.

Oyster research is an important part of restoration. Oyster diseases like MSX and Dermo kill oysters and hamper restoration efforts. Researchers are examining how the diseases are transmitted, how they can be stopped, and whether some native oysters carry a natural genetic resistance to them. In some locations, the use of MSX and Dermo resistant Asian oysters are being considered. But with so many non-native and invasive species clogging our waterbodies, the purposeful introduction of a non-native species is a highly volatile subject. **WK**



PHOTOS BY MIMOSA ROCKS COASTKEEPER



▼ Sydney rock oyster beds.

▲ One of the dozen or so commercial oyster producers on the Mimosa Coast was recently threatened by the renewed harvesting of the wild eucalyptus forests by a Japanese-owned woodchip firm, after a 35-45 year break. These small coastal watersheds regularly receive rains that can yield 3-10 inch storm surges, which can savagely cut into ancient soils of recently harvested forests and generate very serious threats to oyster beds.

▼ The unique and tasty gourmet Sydney Rock Oysters have been winning awards as the best oysters produced in Australia for some years.

MIMOSA ROCKS COASTKEEPER (Tanja Lagoon, New South Wales, Australia) protects and advocates for the Wapengo and Nelson lagoons, which are prime Sydney Rock Oyster habitats – producing 10 percent of the continent’s rock oysters. The Mimosa Rocks Coast is located approximately 500 kilometers south of Sydney. The coastal lagoons produce award-winning oysters, but are threatened by siltation from logging operations of eucalyptus forests, as well as disease. Mimosa Rocks Coastkeeper has prevailed in a case to stop a wood-chipping operation until an ecological review, including impacts on oysters, is completed.



DAVID BRIGHT, MIMOSA ROCKS COASTKEEPER, NGAIRIN@IPRIMUS.COM.AU

The trail



CALIFORNIA VILLAGE AND STREAM Restored

By Lin Myerson
Ventura Coastkeeper
Photos by Ventura Coastkeeper

After more than three years of planning, preparation and permitting, Wishtoyo's Nicholas Canyon projects – creation of a living Chumash Village and restoration of an adjacent stream, have been approved by the Malibu Planning Commission – and the real work has begun.

The village site was cleared and our persevering crew has opened up a trail leading down to the creek bed. Bird surveys are being conducted and native plants, whose seeds were collected from the area, will be brought back to the site. Old concrete pillars are being removed along with large, non-native trees and invasive plants, which are soaking up much of the creeks water.

The trail will become an educational walk-through for students and visitors to view nature at its finest, and learn the sustainable ways of the Chumash, who utilized the resources of the riparian habitat for many centuries. The projects will reveal a unique cultural and historical resource – restoring the beauty and abundance of the flowing stream, vegetation and village components as they existed for over 10,000 years, during the Chumash people's existence at this very site.

The projects are in partnership with the Los Angeles County Department of Beaches and Harbors, owner of the property. **WVK**

The creek



Identifying plants





LOOKING PAST, TO THE FUTURE

Wolfe Island Ontario

MABLE MCRAE

A fisherman fixes and stores nets at the end of the 2002 fishing season.



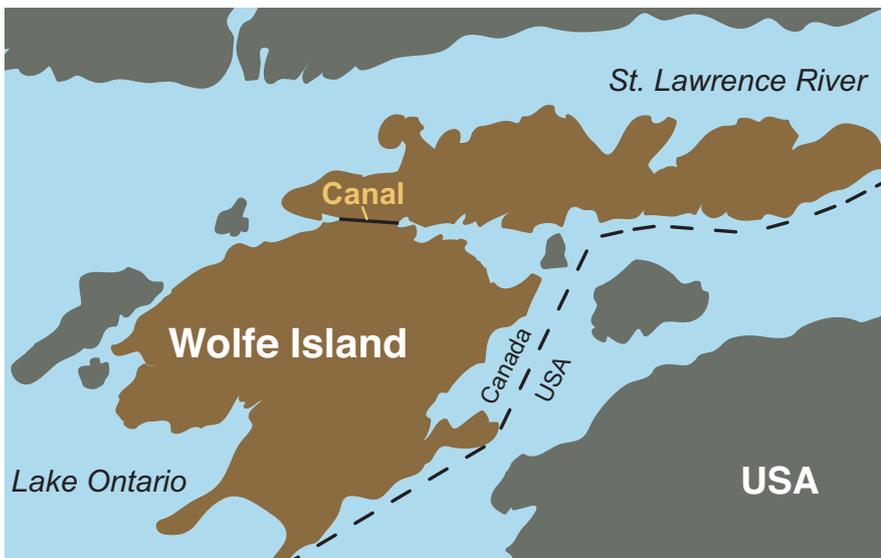
By Kate Harris

A cattail-clogged two-kilometer canal is the key to the future of Wolfe Island. Residents, eager to bring new economic opportunities to the island, are struggling with how to develop this long-abandoned waterway. One proposal is to create a powerboat thoroughfare. Another is to transform this historic route into a wilderness corridor, an approach that invests in those aspects of the waterway that are unique and irreplaceable. This is a development model that's championed by an unlikely coalition of farmers, fishermen, hunters and environmentalists who believe that the community should exploit its strengths as a maritime community, its wilderness, its wildlife and its clean water.

THE PRESSURE

Wolfe Island, 20 miles long and seven miles wide, is home to 1,100 people, many descended from Scot and Irish settlers, Empire Loyalists, who first cleared the land more than two centuries ago. The aftermath of World War II brought a wave of Dutch farmers who were followed more recently by retirees and a burgeoning community of artists who treasure the sense of a time gone. There are no strip developments here, no fast food joints, no sprawl. This is a place where people live in and off the land; their freezers are full of the fish they catch and the game they shoot. The culture is one of sturdy self-reliance.

But jobs on the island are scarce. Commercial fishing is no longer a viable employment option for most island residents. The Kraft-owned cheese factory on the island, which once processed the milk from the dairy farms, closed a few years ago and these days Wolfe Island farmers struggle with rising costs and static food prices. But as waterfront property becomes increasingly prized, the community has become aware of the potential of the unused waterway in their midst. Developing the canal presents great opportunities, but how to do it is the question.



Wolfe Island is the largest in the 1,000 islands region at the juncture of the St. Lawrence River and Lake Ontario, Canada.

But five years ago, concern about the declining use of the area by waterfowl prompted the federal government to impose a unique ban on hunting from boats around Wolfe Island to minimize the disruption to resting birds.

THE FISHERMEN

Barry Woodman is a third-generation commercial fisherman, one of only half a dozen islanders with a commercial fishing license. Along with a handful of operators based in the nearby Bay of Quinte, they form the last remnant of the Lake Ontario fishery. But there's no longer a living in fish. While most islanders work on the mainland, making the 20-minute ferryboat trip morning and night, Woodman chooses to stay on the island. He pieces together an income from a variety of activities: he drives a school bus, helps a friend with a dump truck, guides sport fishermen, and turns his hand to whatever comes along.

Like many residents of the island, Woodman relies directly on the island's bounty for his dinner. There are no supermarkets or fast food chains on the island. The Ontario environment ministry publishes a guide with advice on consumption limits on sports fish based on concerns about mercury, PCBs and other chemicals. There's no comparable information for

THE PROPOSAL

It started in 2001 when the Wolfe Island Wildlife Association, a local hunters' group, suggested to the municipal council that the canal be dredged and new culverts put in to restore water flow and renew fish and wildlife habitat. Lake Ontario Waterkeeper Mark Mattson, lawyer and Wolfe Island native, also joined to support the project.

Freshwater marshes are critical seasonal habitat for birds migrating up and down the eastern side of the Americas. Such habitat is precious: southern Ontario has lost more than two thirds of its once abundant wetlands to agriculture, urban development and shoreline uses, with much of the rest under threat. The Canadian Wildlife Service ranks Wolfe Island among the top three Great Lakes staging areas for migratory waterfowl.

waterfowl. But Woodman, like others, shrugs off concerns about contaminants. “I eat the fish, I eat the duck,” he says with a smile. “No, I’m not worried.”

This blithe disregard of the effects of pollution can play right into the hands of officials responsible for inadequate standards and lax enforcement. But Waterkeeper Mark Mattson understands and supports his insistence on the right to consume wild fish and birds, even in the face of government caveats. “Those whose lives and livelihoods are closest to the island,” he says, “best understand which values we should protect and how to protect them. When people lose their connection to the water, stop eating the fish and ducks out of Lake Ontario, then we’ve lost our best reason to protect the environment, and an important part of ourselves.”

THE COUNCIL

In 2001, the hunters’ canal proposal was well received by the municipal council. In 2002, Waterkeeper weighed in with a preliminary report recommending replacement of the causeway with a bridge, dredging the canal and re-introducing native wetland plants. Council endorsed the report, retained a consultant and in 2003 appointed a canal committee. The canal project took on a life of its own as a promising engine of economic growth. The siren song of tourism played well with the island’s small business sector – two hotels, three restaurants, four bed-and-breakfasts, and a couple of golf courses. But many businesspeople feel there is a need to create more things for visitors to do.

To many of its initial supporters, the canal project seemed to have grown into a monster. Pleasure craft would bring noise, pollution, wash and a further deterioration of the spawning grounds. “Council took off on something different,” says Dan Mosier, owner of the island’s only gas station and a leading member of the wildlife association. “They’re trying to open it up to eco-tourism. You don’t push something aside that’s already there for something that might work, might not work. It’s God’s stuff, leave it alone.”

God’s stuff it may be, but some islanders felt that hunting and fishing shouldn’t be the only activities in the former canal.

“The committee felt there had to be some benefit to the community or why bother,” recalls Linda Van Hal, owner of a bed-and-breakfast. “There’s no sense having a great environment if people can’t enjoy it. There has to be a balance between access and protection.”

For Waterkeeper Mark Mattson, however, and to a growing number of Wolfe Island residents, the key to finding this balance lies in the historic uses that have been the basis of the island’s prosperity for hundreds of years – fishing, hunting and farming. And the key to preserving these uses is protecting our natural resources – the clean water and habitat that provide the natural abundance of the island.

THE HOT POTATO

In 2004 the canal committee determined that a bridge would be too expensive, but a 10 or 12-foot culvert could permit the passage of



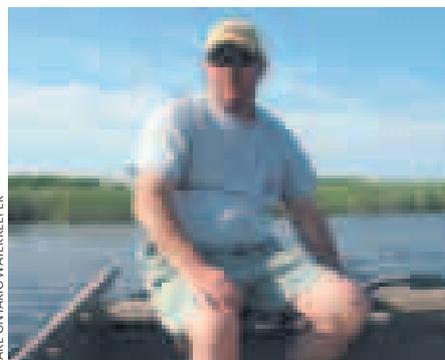
Lake Ontario Waterkeeper
Mark Mattson

LAKE ONTARIO WATERKEEPER

“Too many people are saying that hunting and fishing are dead on the island and in the Great Lakes – that it’s the old economy. They say that we’ve got to build a new economy by attracting seasonal boat owners and summer vacationers to the island. But that’s simply not the case. Island residents have grown more confident. They recognize that gentrification is not the inevitable way of the future for the island – that the future is tied to the island’s past.”

– Mark Mattson, Lake Ontario Waterkeeper

Below left: Island resident
Barry Woodman
Below right: Wolfe Island’s
locally famous Ernie’s Café.



LAKE ONTARIO WATERKEEPER



MABLE MCRAE



Hunters in duck blind.

small watercraft. But the committee failed to reach consensus on whether boat traffic should be allowed and left the decision to the municipal council, which was similarly unwilling to commit on a political hot potato.

A month later, Waterkeeper picked up the ball, teaming up with the wildlife association to retain biologist Doug Howell to study the feasibility of just the fish habitat rehabilitation portion of the canal project. Howell's report was released to the public in January. It recommended dredging the southeastern portion of the canal at a cost of \$180,000. Replacing the culvert under the highway would be another \$150,000 to \$200,000. Mattson and the wildlife association initiated a process to solicit public input from island residents. "We designed a process that we thought we'd like if we were the ones opposing the project," Mattson explains. Some 50 islanders attended a public meeting on the report in February and overwhelmingly supported the plan.

Meanwhile the canal committee's efforts had succumb to a political death. The final nail in the coffin was an unexpected ownership situation. Through some oversight in the 1850s, or perhaps thanks to a quirk of the early settlers, ownership of the canal land was never given up as a right-of-way when the canal was built. Any restoration project of the canal would require the approval of the adjoining property owners. Turns out the canal isn't God's stuff, it belongs to half a dozen landowners.

THE FARMER

The grandiose plans for re-opening the canal to boat traffic made some of the landowners skittish. One of them is R.F. Fawcett, a retired farmer, commercial fisherman and former skipper of the Wolfe Islander ferryboat whose grandfather helped dig the original canal. In a free-wheeling conversation, the 83-year old touches on a variety of government follies – from the provincial environment officials who insist that he fence his cattle out of the marsh, to those from another ministry that have imposed a moratorium on eel fishing, to the municipal officials in Kingston who are behind the sewage leak that sent untreated waste washing up on the island's shores earlier this year. "Every year it's just something else," he says. Still, he wouldn't object to the canal being opened up. "What I'd like to see is the bulrushes taken out and the water running, but not boat traffic. That would wash the banks out."

THE MAYOR

Mayor Vanden Hoek, a retired dairy farmer who now builds houses on the waterfront portion of his property favours a solution that would implement the habitat improvement outlined in the Waterkeeper report, as well as some opening up of the area to non-hunting users like hikers, canoers and kayakers. That could be a problem for the landowners and hunting groups. He is wary of hunt clubs with American members who have invested millions of dollars on the island. He sees his job as making sure that the interests of local people are represented. Vanden Hoek warns that the municipality won't support a private wetlands restoration project that doesn't have a public access component to it. And council support is needed because it has to approve any change to the road and culverts.

For now, the council has put this project on the back burner. The process has in effect defaulted to Lake Ontario Waterkeeper and the wildlife association, for whom Howell is negotiating with landown-

Keeping a wetland healthy

The canal was dug through the centre of Wolfe Island in the 1850s as a shortcut for barges and passenger steamers moving between the railway termini at Kingston, Ontario and Cape Vincent, New York.

By the end of the 19th century it was obsolete as a commercial transportation route, but pleasure craft continued to use it for a few decades. In 1932, the needs of the automobile prevailed, and the swing bridge was replaced with a causeway carrying Highway 96, one of the island's two main roads.

It took about 30 years for the causeway's three small culverts to clog up completely with cattails and sediment. Restoring the flow of water through the canal should go a long way to rehabilitate the island's wildlife habitat.

ers and exploring what regulations need to be met. If successful, the project will be a remarkable example of collaboration between volunteers outside the formal political process to restore wetland on private land.

“Initially I think some people could suggest that they were on our turf,” Vanden Hoek says of the way the two groups pushed ahead with their study and the public input process. But at the end of the day, he says he’ll back whatever best serves the public good.

Mattson believes that however the project is finally implemented, the process has already truly served the public good. “Many residents,” he says, “have renewed awareness of the uniqueness of this community’s gifts – the history of fishing and farming, the wildlife and the clean water.”

THE FUTURE

Lake Ontario Waterkeeper and the wildlife association are continuing to push the project forward, negotiating solutions to remaining questions with the six property owners. They are finding innovative ways to keep cows and runoff from fields out of the water while still providing farms with access to the water. They are identifying funding sources for the project through public agencies and private organizations. There is great interest because this is a rare collaboration, bringing together fishing and hunting, environmental and farming communities. They hope to have permits, funding and approval by the landowners by December.

It will then be up to the council to give the green light. But Mattson is optimistic, “I believe the council will approve the project because we will not use local taxpayer money and it enhances one of the islands greatest strengths – wildlife habitat. In the end, fish and wildlife, clean water and a great community are what make Wolfe Island a unique and magical place.” **WK**



LAKE ONTARIO WATERKEEPER

Another successful Wolfe Island fishing trip.



MABLE MCRAE

Hurricane Katrina

devastated Dean Wilson and the other Gulf of Mexico Waterkeepers. See page 77 to help, and stay tuned to Waterkeeper magazine for more information on the Gulf of Mexico Waterkeeper programs.

A Million Acres of Wilderness

The Atchafalaya Basinkeeper

By Ava Hernandez

Photos by Atchafalaya Basinkeeper

In the spring of 1984 Dean Wilson was a restless young man of 23, with a dream of moving to the Amazon rainforest to help protect one of the most bountiful and wild places on earth. He was looking for a place where he could acclimate to the heat and mosquitoes of his final destination. He found what he was looking for in Louisiana's Atchafalaya Basin.

"I figured that there were no roads in there, so it must be wilderness... and wilderness it was! What I found forever captivated my soul."

Dean never made it to the Amazon, but stayed in the Atchafalaya making his living as a hunter and fisherman for the next 18 years. In 2000 Dean started a swamp tour company to raise awareness about the Atchafalaya Basin. Recognizing that public education alone would not be enough to protect his adopted home, he founded the Atchafalaya Basinkeeper program in 2004.

The Atchafalaya Basin is a largely unknown wonderland that echoes the richness of the Amazon. The Basin is formed around an unusual river system known as a *distributary* – the Atchafalaya River is a 135-mile channel that breaks off from the main stem of the Mississippi River and runs to the Gulf of Mexico. The impressive Basin contains 885,000 acres of contiguous bottomland hardwood forest, and more than a half-million acres of marshland. These coastal forests of the Atchafalaya Basin are critical in maintaining Louisiana's coastline, preventing coastal erosion and providing storm surge protection against hurricanes.



Logging of Cypress trees is very destructive, much of it is illegal, but offenders are rarely punished.



River of trees

A paradise for birds — and bird watchers — the Basin supports more than 300 bird species, including half of America's migratory waterfowl. No other coast in the entire world is as busy with migrating birds as the coast of Louisiana. Nearly the entire eastern North American population (and several species of the western population) of migratory neotropical songbirds migrates through Louisiana's coast.

The swamps and forests of the Atchafalaya are among the last wild places that the Florida panther and Louisiana black bear call home. White tail deer, bobcat and coyote share this watery wilderness with alligators, beavers, mink, otters and armadillo.

For generations, the Cajun and Native American peoples of the Atchafalaya have depended on the bounty of the region, collecting fish, crawfish, shrimp and crabs. Recreational and commercial fishermen remain the backbone of local culture in this part of Louisiana. But logging has long had an important and devastating role in the history and economy of the area. After the Civil War commercial loggers hacked down the ancient cypress forests of the Basin to provide lumber for use throughout the region. By 1930 the entire basin had been clear-cut — stumps of these ancient trees are still visible today.

Today, the Basin's second-growth forests face the same threat. In an echo of earlier days, logging operations are again eradicating stands of cypress — mainly to make garden mulch, sold to an unsuspecting public at Wal-Marts, Home Depots and garden stores across the nation.

Much of Dean's time as the Basinkeeper is spent patrolling the swamp, introducing people firsthand to the swamp and fighting to



Atchafalaya Basinkeeper Dean Wilson was raised in Spain. In 1984 he spent three months in the Atchafalaya living off the land with only a bow, a few arrows, a spear-harpoon, knife and a few hooks.

stop this logging — much of which is done illegally. An unlikely ally in the fight to end cypress logging is the U.S. Army Corps of Engineers, New Orleans District, who would not issue permits for logging, using the jurisdiction granted to them under Section 10 of the Rivers and Harbors Act of 1899. But the Army Corps of Engineers has only eight people to enforce the conservation laws in all of southern Louisiana. Loggers know this and take full advantage of the situation. Dean's knowledge of the Basin allows him to find illegal logging sites and report them to the Army Corps and U.S. EPA's Criminal Investigation Division. As a result of his vigi-

lance, one company is now under criminal investigation. However, Louisiana politicians are working to strip away the Army Corps' jurisdiction over wetlands. This would give private landowners and timber companies unlimited access to logging cypress trees, disregarding the critical habitat that Louisiana's coastal forests provide for wildlife.

Dean is working to develop a broad plan with other environmental groups to cripple, once and for all, the cypress mulch industry, "It's critical for the public to recognize that whatever happens to the coastal forests of Louisiana directly impacts the entire western hemisphere." It's likely that few garden center customers realize that the bags of cypress mulch that they are spreading on their home gardens are the product of denuded Louisiana Cypress swamp. Making the link for gardeners between their home gardens, the songbirds that visit in the summer, and the Atchafalaya Basin is the key to preserving the largest contiguous bottomland hardwood forest and the largest river swamp in North America. **WK**

HACKENSACK RIVERKEEPER WINS

Largest Chromium Cleanup in Nation

Decision Strengthens Citizen Enforcement

By Steven J. German

When Hackensack Riverkeeper Captain Bill Sheehan joined the Interfaith Community Organization as a co-plaintiff in its 1995 Resource Conservation and Recovery Act (RCRA) citizen suit against Honeywell, he was hopeful that the court would force the corporate giant to clean up its massive riverfront chromium waste site which was impudently poisoning his river. He never imagined that his case would someday change the landscape of citizen environmental enforcement. After a decade of courtroom sparring, that is exactly what happened.

On May 23, 2003, three months after a 15-day bench trial, Federal Judge Dennis M. Cavanaugh issued his ruling in *Interfaith Community Organization v. Honeywell*, which found that Honeywell's site presented an "imminent and substantial endangerment to health or the environment" under RCRA, and which required Honeywell to excavate nearly 1,500,000 tons of the waste, remedy river sediments and address contaminated groundwater. The injunction was the largest cleanup ever ordered by a court under RCRA's citizen suit provision, and is expected to cost well over \$400 million.

Last month, the Federal Third Circuit Court of Appeals in Philadelphia rejected Honeywell's appeal, and affirmed Judge Cavanaugh's ruling. In doing so, the Court adopted an environmentally protective standard for establishing liability under RCRA.

From 1895 to 1954 Honeywell's predecessor — Mutual Chemical Company — operated a chromate chemical plant along the Hackensack River in Jersey City, New Jersey. Mutual generated large volumes of Chromium Ore Processing Residue (COPR) — a byproduct of its operations — and piled nearly 2,000,000 tons of the waste in tidal wetlands along the river, behind the plant. That disposal created the 34 acre site.

In 1982, the City of Jersey City notified Honeywell that the site endangered public health and safety, and demanded that Honeywell investigate the site and clean it up. In 1983, the New Jersey Department of Environmental Protection (NJDEP) echoed the city's demand. By then, approximately 12,600 gallons of contaminated water were discharging daily to the river. In June 1983,



HACKENSACK RIVERKEEPER

This floating platform, contracted by Honeywell, collected 20-foot long core samples from the bed of Hackensack River over several weeks this summer to measure the extent of chromium contamination in sediments. The work is being conducted as part of the remedial work plan ordered by the federal court.

Honeywell said it would act. However, for the next 12 years it refused to clean up the site. With each trip past the site, Captain Bill increasingly realized that a citizen suit was the only way to prevail over this obstreperous polluter.

To prevail on the merits at trial, New Jersey law required plaintiffs to prove (1) there was a potential population at risk; (2) the contaminant at issue was a RCRA "solid" or "hazardous" waste; (3) the contaminant was present at levels above what is considered acceptable by the state; and (4) there was a pathway for current and/or future exposure.

Plaintiffs easily complied. For example, plaintiffs' experts showed that soil and groundwater were contaminated hundreds of times above state standards. Groundwater and surface water discharges to the river also exceeded state standards, adversely affecting the benthic population — the base prey of the ecosystem. New Jersey's sediment standards for chromium were also exceeded at multiple locations near the site.

Captain Bill brought the expert testimony alive. He testified that after years of industrial abuse, his once-afflicted river had become a resource in recovery. Fish and avian species have rebounded.

Endangered species feed and nest along the river. Responsible and sustainable human activity including boating, paddling, birding and hiking increased in tandem. Captain Bill's testimony undermined Honeywell's argument that the ecosystem was beyond repair, and that the site's chromium loading was relatively incapable of causing harm.

However, in its landmark ruling, the appeals court found New Jersey's four-prong test to be too stringent.

First, said the court, RCRA liability is not contingent upon a quantitative showing of harm, such as the exceedence of regulatory standards. Instead, the liability analysis must be made in view of the "cumulative facts establishing the substantialness of the endangerment." Thus, a finding of liability can be based on expert testimony that an imminent and substantial endangerment exists, even without a difficult to prove regulatory exceedence.

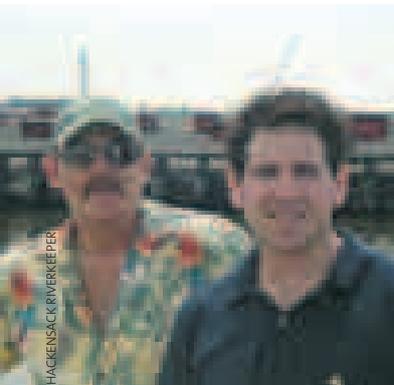
Second, liability is not contingent upon showing that there is a "potential population" at risk. An endangerment to groundwater, soil or air alone could form the basis for liability, even though it is not an actual "population."

Interfaith's progressive RCRA analysis, coupled with *Friends of the Earth v. Laidlaw's* liberal standing requirements, trumpets a new era in citizen enforcement at hazardous waste sites. Under *Laidlaw*, a citizen with virtually any "reasonable concern" that hazardous waste threatens her health or enjoyment of the environment has standing to sue. Under *Interfaith*, her RCRA proof requirement has been cut back substantially. Moreover, *Interfaith* signals a willingness by the court to seize control of environmental cleanups where necessary, and to order *any* relief necessary to abate *any* endangerment — irrespective of burden and cost.

By throwing into serious doubt the cherished conventional wisdom of the regulated community that delay in implementing a remedy, is, in itself, a victory, *Interfaith* also may help expedite voluntary responsible party cleanups. Historically, delay provided an opportunity for responsible parties to lobby for weakened standards, while avoiding the expenditure of present-day cleanup dollars. However, *Interfaith* creates a disincentive for delay. Few would doubt that pursuing a more active and cooperative approach to remediating its site would have been a better long-term financial strategy for Honeywell. Polluters are

well advised to work with administrative agencies and the public to quickly resolve their hazardous waste problems. After *Interfaith*, the stakes may be too high for delay. **WK**

— Author Steven German represented the *Interfaith* Community Organization and the *Hackensack Riverkeeper* during their trial against Honeywell. He is currently an associate at Weitz & Luxenberg, P.C. in New York.



Hackensack Riverkeeper, Captain Bill Sheehan, and the author in front of the Honeywell site.



Aerial photo of the Honeywell site taken by Hudson County officials in 2002. The site has changed dramatically since these were taken...

...There are now dozens of containment units on the property to hold the clean replacement fill while the contaminated soil is being treated and properly disposed.





2005

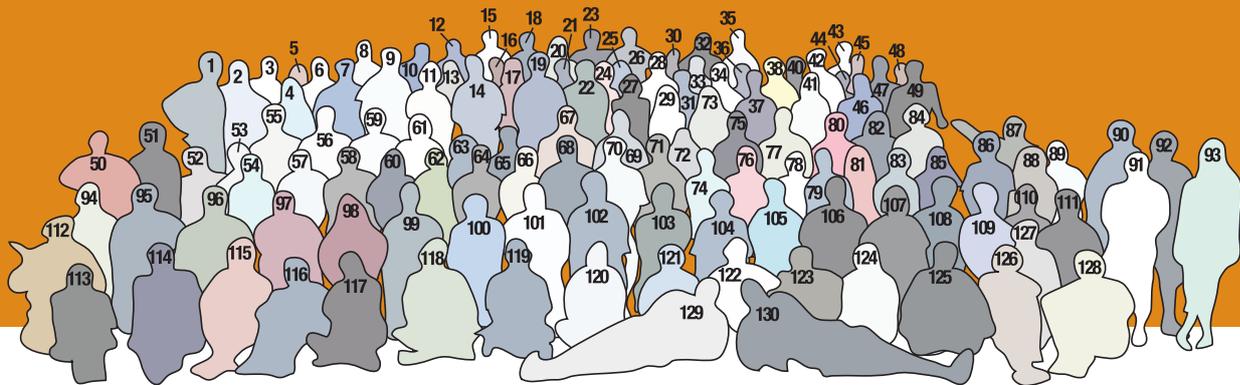
Waterkeeper Annual Conference

East Stroudsburg Pennsylvania





Once a year, Waterkeeper programs gather from around the world for a strategic planning and training conference. In June, Delaware Riverkeeper hosted 137 Waterkeepers in the upper Delaware River in Pennsylvania, near the Delaware Water Gap. On the first night each Waterkeeper program described their biggest challenges and successes of the past year. Here are the Waterkeepers and photos from throughout the four-day event.



1. **Brian Van Wye, Anacostia Riverkeeper**
Washington, DC
2. **Fred Tutman, Patuxent Riverkeeper**
Upper Marlboro, Maryland
3. **Jimmy Orth, St. Johns Riverkeeper**
Jacksonville, Florida
4. **Linda Schweitzer, Oakland University**
5. **Ted Wilgis, Cape Fear Coastkeeper**
Wilmington, North Carolina
6. **Derrick Evans,**
Turkey Creek, Mississippi
7. **Jay Charland, Assateague Coastkeeper**
Berlin, Maryland
8. **Thomas Byrne, Waterkeeper Alliance**
9. **Larry Baldwin, Lower Neuse Riverkeeper**
New Bern, North Carolina
10. **Erick Bozzi, Cartagena Baykeeper**
Cartagena de Indias, COLOMBIA
11. **Anne Brasie, Grand Traverse Baykeeper**
Traverse City, Michigan
12. **Javier Villavicencio, Punta Abreojos Coastkeeper**
Punta Abreojos, Mexico
13. **Chris Navitsky, Lake George Waterkeeper**
Bolton Landing, New York
14. **Tim Maloney, Wabash Riverkeeper**
Indianapolis, Indiana
15. **Pete Nichols, Humboldt Baykeeper**
Eureka, California
16. **Doug Martz, St. Clair Channelkeeper**
Harrison TWP, Michigan

"We just found out that 37 chemical companies on the river, including Shell, Dow and Union Carbide, have had 700 spills over the last 14 years into the water that 6 million people drink. We have been able to get \$2.5 million to monitor quality at all our water plants up and down the river so we can track down polluters and ensure that no one can get away with this anymore."

17. **Joe Payne, Casco Baykeeper**
South Portland, Maine
18. **Fred Evanson, Humboldt Baykeeper**
Eureka, California
19. **John Nelson, Grand Traverse Baykeeper**
Traverse City, Michigan
20. **Peter Patterson, Ciudadanos Preocupados**
La Paz, MEXICO
21. **Paul Sinclair, Waterkeepers Australia**
Carlton, Victoria, AUSTRALIA
22. **Fred Kelly, Severn Riverkeeper**
Annapolis, Maryland
23. **Charles Scribner, Black Warrior Riverkeeper**
Birmingham, Alabama
24. **Chandra Brown, Canoochee Riverkeeper**
Swainsboro, Georgia
25. **James Holland, Altamaha Riverkeeper**
Darien, Georgia
26. **Leo O'Brien, Baykeeper**
San Francisco, California
27. **Layne Friedrich, Lawyers for Clean Water**
28. **Greg deBruler, Columbia Riverkeeper**
Bingen, Washington
29. **Sejal Choksi, San Francisco Baykeeper**
San Francisco, California
30. **Mary Beth Postman, Waterkeeper Alliance**
31. **Bill Schultz, Raritan Riverkeeper**
Keasbey, New Jersey
32. **Mark Mattson, Lake Ontario Waterkeeper**
Toronto, Ontario, CANADA
33. **Brent Walls, Chester Riverkeeper**
Chestertown, Maryland
34. **Neil Armingeon, St. John's Riverkeeper**
Jacksonville, Florida
35. **Alex Matthiessen, Hudson Riverkeeper**
Tarrytown, New York

"Globally, one of the biggest threats that I see is the WTO, globalization and the commodification of water. Twenty percent of the surface fresh water on the planet lies in the Great Lakes Basin, and a thirsty world craves it - so we're working hard to protect it."

"We've had a victory for water quality in our forested wetlands. A Georgia logging company has agreed to restore contours, fill ruts and install best management practices on a 500-acre site of damaged forested wetlands in the Oconee River flood plain."

"We're battling Exxon, which is responsible for the largest underground, urban oil spill in the country. Methane gas is coming up, affecting workers and homes. Fish life is almost nonexistent in New Town Creek, principally because of the oil spill. Exxon has gotten away with this for 50 years and our state environmental agency has turned a blind eye, but Hudson Riverkeeper is staring right at them."

"A regional public service authority planned to build a \$10 million combined sewage system for a rural area, but based on our challenges, the public service authority instead disbanded and reformed under a new charter which now allows citizen participation."

36. **Bouty Baldrige, Cape Fear Riverkeeper**
Wilmington, North Carolina
37. **Cathy Ramsdell, Casco Baykeeper**
South Portland, Maine
38. **Richard Ayers, Virginia Eastern Shorekeeper**
Eastville, Virginia
39. **Sue Sanderson, Waterkeeper Alliance**
40. **Bruce Reznik, San Diego Baykeeper**
San Diego, California
41. **Kira Schmidt, Santa Barbara Channelkeeper**
Santa Barbara, California
42. **Ed Merrifield, Potomac Riverkeeper**
Rockville, Maryland
43. **Ricardo de Soto, Puerto Rico Coastkeeper**
San Juan, Puerto Rico

After a five-year battle, local regulators have issued a tentative cleanup order for sediments contaminated with arsenic, cadmium, chromium, copper, lead, mercury, tributyltin and PCBs in San Diego Bay. The draft order would require a \$96 million cleanup of 885,000 cubic yards of contaminated sediment.



- 44. **Jill Gravender, Environment Now**
Santa Monica, California
- 45. **Karl Coplan, Pace Environmental Litigation Clinic**
White Plains, New York
- 46. **Kathy Ogle, Translator**
- 47. **Clarke Kahlo, Wabash Riverkeeper**
Indianapolis, Indiana
- 48. **Gretta Siebentritt Tovar, Translator**
- 49. **Doug Chapman, Fraser Riverkeeper**
Vancouver, British Columbia, CANADA

"The 900 mile Fraser River has the largest salmon runs of anywhere in North America, but before they get to the Fraser, they have to pass by Victoria which has no sewage treatment."

- 50. **Cate White, Waterkeeper Alliance**
- 51. **Paul Orr, Lower Mississippi Riverkeeper**
Baton Rouge, Louisiana

"Initially we sent notices of intent to sue under the Clean Water Act to 12 facilities and industrial municipalities. All the suits were settled and resulted in millions of dollars of improvements to their industrial operations. Fines were collected, totaling over \$300,000 – those funds were distributed to local non-profit environmental organizations in the state."

- 52. **Carl Larson, Upper St. Lawrence Riverkeeper**
Clayton, New York
- 53. **Terry Backer, Long Island Soundkeeper**
East Norwalk, Connecticut



- 54. **Maya van Rossum, Delaware Baykeeper**
Washington Crossing, Pennsylvania

"This year a catastrophic spill from a tanker dumped 265,000 gallons of heavy Venezuelan crude oil into the Delaware Estuary. We mobilized more than 100 citizens to monitor the devastation and cleanup – their information helped inform response efforts and will ensure that those responsible are held fully accountable."

- 55. **Richard Smith, Puget Soundkeeper**
Seattle, Washington
- 56. **Hamp Shuping, Waccaman Riverkeeper**
Conway, South Carolina
- 57. **Mike Mullen, Choctawhatchee Riverkeeper**
Troy, Alabama
- 58. **Grayal Farr, Apalachicola Riverkeeper**
Eastpoint, Florida
- 59. **Greg Hunt, Waterkeepers Australia**
Carlton, Victoria, AUSTRALIA

"In the last year, we've had our first law suit, and we won. It's amazing what Waterkeepers Australia is doing with other community groups because we're no longer an abstract concept, we're real."

- 60. **Linda Sheehan, California Coastkeeper Alliance**
Fremont, California

"We are truly a state-long alliance and we're bringing the Waterkeeper name to Sacramento by sponsoring four bills to overhaul the state's water quality laws."



- 61. **Charlotte Cherry, Galveston Baykeeper**
Galveston, Texas
- 62. **Meredith Brown, Ottawa Riverkeeper**
Ottawa, Ontario, CANADA

"Every single politician in Ottawa drinks the water out of the Ottawa River. It flows through the capital of Canada, but they don't seem to care about the sewage being dumped in the river, the 44 dams preventing fish to pass, the radioactive plume in our river from an old nuclear site, nor the degradation that comes with large-scale development."

- 63. **Charlotte Wells, Galveston Baykeeper**
Galveston, Texas
- 64. **Daniel LeBlanc, Petitcodiac Riverkeeper**
Moncton, New Brunswick, CANADA

"We had a grand vision of restoring fisheries in our river. No one believed it. But if you ask anyone around our town now, or our watershed, everyone knows it's happening."

- 65. **Cindy Medina, Alamosa Riverkeeper**
Capulin, Colorado
- 66. **Casi Callaway, Mobile Baykeeper**
Mobile, Alabama
- 67. **Tom Ford, Santa Monica Baykeeper**
Marina del Rey, California
- 68. **Dean Naujoks, Upper Neuse Riverkeeper**
Raleigh, North Carolina
- 69. **Drew Koslow, South Riverkeeper**
Annapolis, Maryland
- 70. **Steve Fleischli, Waterkeeper Alliance**





- 71. **Robert F. Kennedy, Jr. Waterkeeper Alliance**
- 72. **Kathy Urffer, Hackensack Riverkeeper**
Hackensack, New Jersey
- 73. **Michelle Smith, Humboldt Baykeeper**
Eureka, California
- 74. **Sally Bethea, Upper Chattahoochee Riverkeeper**
Atlanta, Georgia

“Last November, Upper Chattahoochee River won a major national precedent setting victory on anti-degradation. The Georgia Supreme Court rejected a permit that our state had issued to discharge 40 million gallons of treated sewage into our drinking water reservoir. Now we’re working on a permit with the strictest phosphorus limit in this country.”

- 75. **Janice Harvey, Fundy Baykeeper**
St. Andrews, New Brunswick
- “We’ve launched an environmental justice campaign to implement anti-slapp suit legislation. We call it eco-justice and hopefully in two years we’ll have an Environmental Bill of Rights in New Brunswick.”*

- 76. **Bob Gallagher, West/Rhode Riverkeeper**
Shady Side, Maryland
- 77. **Donna Lisenby, Catawba Riverkeeper**
Charlotte, North Carolina

“We’ve taken on oil companies, we’ve taken on the corporate hog industry. This year I thought it was about time we took on the world’s largest retailer, Wal-Mart. It resulted in all the Wal-Marts in our area cleaning up illegal and birth-defect causing pesticides and herbicides, which had been placed outdoors to leak into drinking water supplies.”

- 78. **Lee Oxenham, Patapsco Riverkeeper**
Ellicott City, Maryland
- 79. **Laura Calwell, Kansas Riverkeeper**
Lawrence, Kansas

“Our biggest enemies are the commercial sand and gravel dredgers in the Kansas River. Last week one of the dredgers said, ‘I feel like I have a big bull’s eye painted on my back.’ I’m here to say that he does.”

- 80. **Cindy Wallace, South Riverkeeper**
Annapolis, Maryland

- 81. **Janelle Robbins, Waterkeeper Alliance**

- 82. **Helena Kralova, Morava Riverkeeper**
Brno, CZECH REPUBLIC

“We focus on river restoration – if we were as good in river restoration as we were at playing hockey, there would be no problem.”

- 83. **Liz Reznik, San Diego Coastkeeper**
San Diego, California

- 84. **Rae Schnapp, Wabash Riverkeeper**
Indianapolis, Indiana

- 85. **Heather Jacobs, Pamlico-Tar Riverkeeper**
Washington, North Carolina

- 86. **Duffy Kopriva, St. Johns Riverkeeper**
Jacksonville, Florida

- 87. **Ken Cloutier, Canadian Detroit Riverkeeper**
Windsor, Ontario, CANADA

“As Canadian Autoworkers interested in the environment, we didn’t know anything about the Waterkeeper Alliance until R.F.K., Jr. came to speak to us at a conference in Toronto. Out of the Canadian Autoworkers, we decided to start Canadian Detroit Riverkeeper. Right now we are setting up an international monitoring program to get the Federal Governments on both sides to sponsor 24/7 monitoring.”

- 88. **Lorraine McCartney, Raritan Riverkeeper**
Keasbey, New Jersey

- 89. **Karen Lehner, Waterkeeper Alliance**

- 90. **Earl Hatley, Grand Riverkeeper**
Vinita, Oklahoma

“We’ve been fighting a poultry company called Moark who supplies eggs to Wal-Mart. They came into my county, and we chased them out. They went to Kansas, but they were still on our watershed. So we chased them out of Kansas and they went to the Spring River, but that’s still on our watershed. So then we chased them out of Spring River and they went to the middle of Kansas, but that’s still on our watershed. So we chased them out of there and they decided to go back home to Missouri to build their facility, but it’s still on our watershed and they are in real trouble because they have a whole slew of violations.”



-
91. **Robert Burns, Detroit Riverkeeper**
Melvindale, Michigan

"This has been a tremendous year for the Detroit Riverkeeper and the Friends of the Detroit River, culminating in the official transfer of ownership to the Fish and Wildlife Service of 450 acres of coastal wetland in the lower river. This was a ten year battle that saved this important wetland from development and added it to our Detroit River International Refuge."

92. **Scott Edwards, Waterkeeper Alliance**

93. **Lauren Brown, Waterkeeper Alliance**

94. **Nelson Brooke, Black Warrior Riverkeeper**
Birmingham, Alabama

"We've basically forced our state to reevaluate their entire penalty methodology, so we're hoping to see stronger penalties and bigger sentences for our polluters."

95. **Kevin Stinnette, Indian Riverkeeper**
Ft. Pierce, Florida

"It's been a grueling year for us, three hurricanes in three weeks. We've been keeping the program going even though we had to cancel many fundraisers. Our board and our membership is in disarray with tarps on their roofs. We're heading into a hurricane season right now, but we're going to come back strong."

96. **Andrew Willner, New York/ New Jersey Baykeeper**
Keyport, New Jersey

"Last year, like the 15 years before, we've been fighting against the commodification of water by polluters and developers. We've been arguing that water is our public legacy and our public trust and have been speaking to power on behalf of the bay."

97. **Bob Shavelson, Cook Inletkeeper**
Homer, Alaska

98. **Beverly Braverman, Youghiogheny Riverkeeper**
Melcroft, Pennsylvania

99. **David Whiteside, Black Warrior Riverkeeper**
Birmingham, Alabama

100. **Frank Tursi, Cape Lookout Coastkeeper**
Newport, North Carolina

101. **Mati Waiya, Ventura Coastkeeper**
Oxnard, California

"In the past year, we're happy to announce that we were successful in a lawsuit against a major development. Not only did we protect endangered species, but we were also able to protect our sacred sites that are important to our Chumash culture."

102. **Jeff Salt, Great Salt Lakekeeper**
Salt Lake City, Utah

"We have the highest mercury concentrations ever found in a North American waterway. We suspect that our mercury is not coming just from coal-fired power plants, or chlorine producers – but from gold mines in Nevada."

103. **Bill Sheehan, Hackensack Riverkeeper**
Hackensack, New Jersey

104. **Wendy Steffensen, North Sound Baykeeper**
Bellingham, Washington

105. **Sue Joerger, Puget Soundkeeper**
Seattle, Washington

106. **Amy Bates, Commencement Baykeeper**
Tacoma, Washington

107. **Cheryl Nenn, Milwaukee Riverkeeper**
Milwaukee, Wisconsin

108. **Theo Thomas, London Canalkeeper**
London, England

"Our biggest enemy is the pessimism of the few that say that things can't change and the media that perpetuate that myth."

109. **Kincey Potter, South Riverkeeper**
Annapolis, Maryland

110. **Victor Otruba, Upper Susquehanna Riverkeeper**
Mansfield, Pennsylvania

111. **Clarice Rudkowski, Grand Riverkeeper**
Happy Valley-Goose Bay, Labrador, CANADA

112. **Paul Otruba, Upper Susquehanna Riverkeeper**
Mansfield, Pennsylvania

113. **Lisa Ryan, Hackensack Riverkeeper**
Hackensack, New Jersey

114. **Doug Michael, Waterkeeper Magazine**

115. **Gordon Rogers, Satilla Riverkeeper**
Waynesville, Georgia

"Our biggest enemies at the moment are a poisonous combination of greed and ignorance, which is everybody's problem. In our watershed it expresses itself as corporate timber and corporate farms."

116. **Fernando Ochoa, DAN**
Encinada, MEXICO

117. **Pablo Uribe, Mexican Environmental Law Center (CEMDA)**
Mexico City, MEXICO

118. **Mark Martin, Black Warrior Riverkeeper**
Birmingham, Alabama

119. **Francisco Ollervides, Magdalena Baykeeper**
Punto San Carlos, MEXICO

120. **Frank Carl, Savannah Riverkeeper**
Augusta, Georgia

"The Savannah Riverkeeper, with the aid of the Southern Environmental Law Center, has at least temporarily thwarted a potentially precedent-setting decision in the courts which would allow companies to dam our local streams and fill our ponds with mining waste."

121. **Erin Fitzsimmons, Waterkeeper Alliance**



MARCO A. GONZALEZ

Bruce Reznik & Elizabeth Studebaker, San Diego Baykeeper, arrived at the conference directly from their honeymoon – they were married on May 22, 2005, in La Jolla, CA.

122. **Kevin McAllister, Peconic Baykeeper**
Riverhead, New York

"We became owners of 300 acres of bay bottom in Peconic Bay. This dates back to a century ago when oyster lands were sold off for oyster cultivation, and now they are back in good hands. We will use these lands for the repopulation of shellfish throughout the Bay."

123. **Jeffrey Odefey, Waterkeeper Alliance**

124. **Eileen McLellan, Chester Riverkeeper**
Chestertown, Maryland

125. **Murray Fisher, Harbor School**
New York, New York

126. **Dean Wilson, Atchafalaya Basinkeeper**
Plaquemine, Louisiana

127. **Robert Benefial, Grand Riverkeeper**
Happy Valley-Goose Bay, Labrador, CANADA

128. **Dave Yearsley, Petaluma Riverkeeper**
Petaluma, California

129. **Rick Dove, Waterkeeper Alliance**
New Bern, North Carolina

130. **Eddie Scher, Waterkeeper Alliance**

Man Against the Elements

Next to family, friends and clean water, movies are my focus and passion. In my articles and speaking engagements, I serve as a sort of quality filter for movie lovers, sifting intelligent, rewarding titles from the enormous volume of DVDs now in the marketplace.

For my friends at Waterkeeper, I'm doing a series on films that celebrate the beauty of our natural world, and, directly or indirectly, reinforce the pressing need to protect it.

This first installment identifies some landmark documentaries that any lover of the outdoors should own on DVD.

We begin with the pioneering work of documentarian Robert Flaherty. In 1922, he released the silent "Nanook Of The North," chronicling how one Eskimo family cheerfully subsists in the most frozen, remote part of Alaska. Close to a century later, this remains an astonishing achievement, revealing man's ingenious, unwavering capacity to adapt and survive, even under nature's most inhospitable conditions.

Extending this primal theme of man against the elements, Flaherty's "Man Of Aran" (1934) evokes the raw power and majesty of the sea. Set on the harsh, inclement Aran islands off the coast of Ireland, this film builds on the impact of "Nanook," portraying the struggle of native people who subsist on the wild, unpredictable Atlantic waters around them. In this struggle, the sea is not enemy but provider, yet temperamental enough to warrant skill, hardiness and a certain reverence in any approach. At film's end, it feels like both man and nature have emerged triumphant.

In the talking picture realm, but with precious little talking required, is Flaherty's "Louisiana Story" (1948), perhaps the director's crowning achievement. A boy living with his family in the Louisiana bayous communes with his wild and mysterious surroundings while looking on with fascination at the work of oil drillers nearby. Flaherty's brilliant camera work lends a subtle artfulness to the theme of civilization encroaching on nature. (Ironically, this film was underwritten by Standard Oil!)

Another landmark documentary pays tribute to an explorer who opened up new vistas for us. In 1925, Rear Admiral Richard Byrd made history by being first to fly a plane over the North Pole, then in 1929 trumped himself by performing the same feat over the South Pole. This latter event might just be the stuff of history books had Byrd not brought two Paramount newsreel photographers on this heroic journey. "With Byrd At The South Pole" records this incredible expedition for posterity, and even 75 years later, it's an astounding



visual testament to human persistence, courage, and the awesome variety of our world.

I close with two more recent entries which show how the more physically fit and agile among us both challenge and commune with elemental forces. Bruce Brown's "The Endless Summer" (1964) captures the sheer adrenalized joy of the surfing experience just as this pursuit was becoming a national craze. Surfing is depicted as sport and state of mind, and the footage of thrill-seeking athletes riding immense, aquamarine walls of water provides potent vicarious thrills.

Finally, there's "The Man Who Skied Down Everest" (1975), a stunningly photographed, surprisingly cerebral film about one athlete moved to attempt the impossible. We join champion skier Yuichiro Miura and his team as they first ascend the world's highest peak, in itself a life-threatening challenge. We then watch as Miura attempts to descend on skis (with a parachute behind him), a virtual suicide mission. Your heart will leap into your throat as you watch the climax of this film, realizing it's no stunt. **WK**

For more film recommendations, feel free to visit www.farronfilm.com.

Join the Alliance — get WATERKEEPER

Join Waterkeeper Alliance and get *WATERKEEPER* for one year. Waterkeeper Alliance believes that everyone has the right to clean water. It is the action of supporting members like you that ensures our future. Join Waterkeeper Alliance to receive *WATERKEEPER* and join the fight to protect the world's most precious resource — water.

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Phone _____ Fax _____ Signature _____

Yes, I support Clean Water & Strong Communities. I would like to join **Waterkeeper Alliance** as a supporting member and receive *WATERKEEPER* Magazine. (check appropriate boxes)

Membership with subscriptions (Check Appropriate Boxes)

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Check or Money order enclosed

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Card # _____ Expiration date _____ Signature _____

Waterkeeper Alliance is a 501(c)(3) non-profit organization. Your \$50 contribution 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.

Make checks payable to Waterkeeper Alliance and mail to: **Waterkeeper Alliance Membership, 828 South Broadway, Suite 100, Tarrytown, NY 10591** or go to www.waterkeeper.org and click on DONATE NOW. You may also fax this completed form to 914-674-4560.

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Want to be heard?

If you feel strongly about the issues raised in *WATERKEEPER* Magazine, make your voice heard. Visit

www.waterkeeper.org

to take action or to get involved with your local Waterkeeper program.



HURRICANE RECOVERY

At the time this issue of *WATERKEEPER* goes to print flooding along the Gulf Coast from Hurricane Katrina has reached catastrophic proportions. Three, and possibly more, Waterkeeper Alliance programs have sustained great damage and will need assistance restoring their offices and operations: **Atchafalaya Basinkeeper, Louisiana Bayoukeeper, and Lower Mississippi Riverkeeper.**

Waterkeeper Alliance is asking for your donation to build our Hurricane Relief Fund. We will restrict these contributions to assisting programs that have been devastated by the storm and aftermath.

The work of these Waterkeeper programs protecting clean water will be even more important in the months of recovery ahead. Please visit www.waterkeeper.org to donate online (click donate now and check off the Hurricane Recovery Fund box) or send checks to:

**Waterkeeper Alliance
Hurricane Relief Fund
828 South Broadway, Suite 100
Tarrytown, NY 10591**

"YOU WATERKEEPER PEOPLE TODAY DON'T REALIZE HOW MUCH HAS CHANGED FROM MY DAY!"



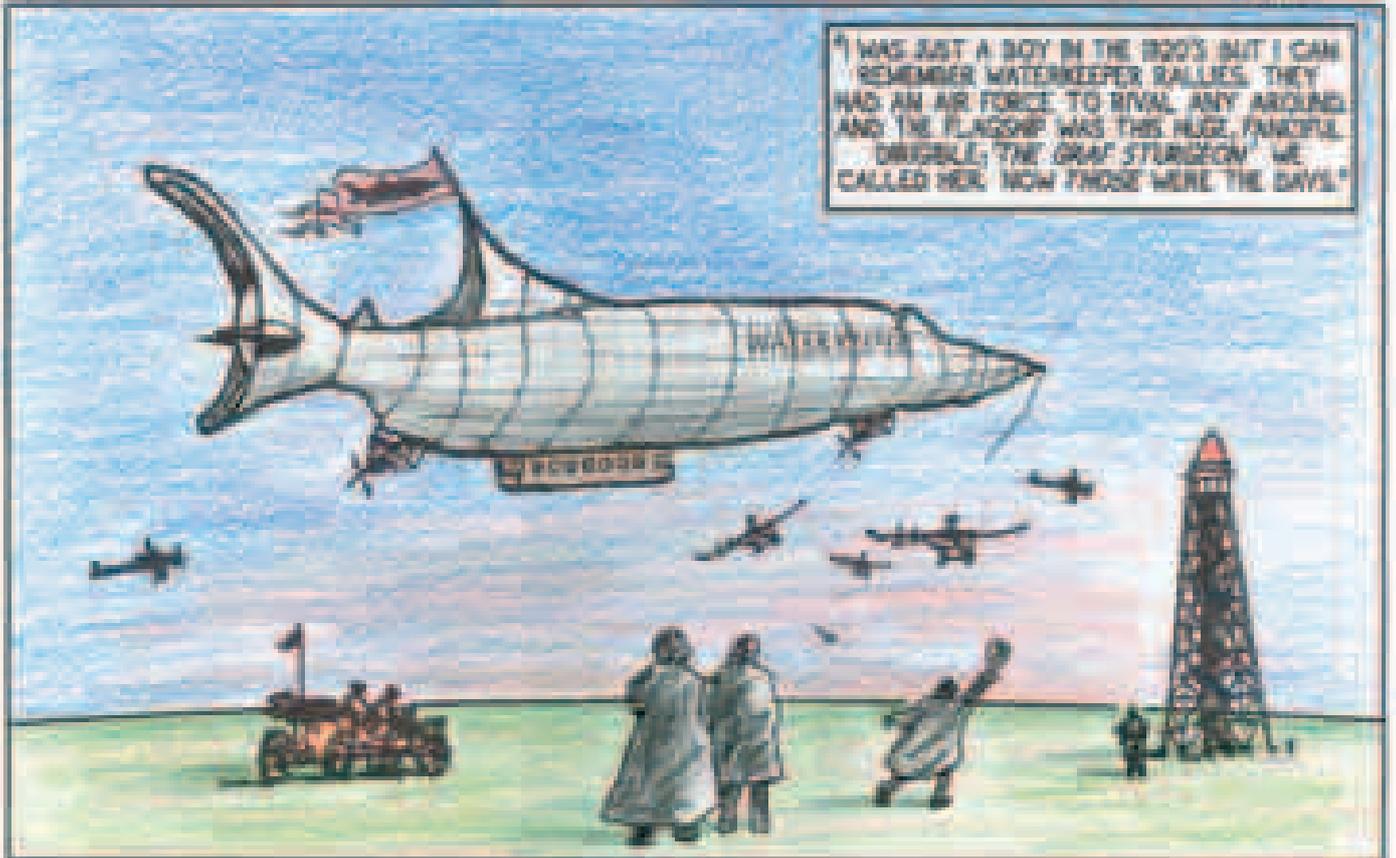
THE WATERKEEPER ARCHIVIST

AS RECOLLECTED BY RACE CANYON
AIDED & ABETTED BY DOUGLAS MICHAEL © 2005

"BACK THEN WE HAD US A REAL AIR FORCE, NONE OF THE SINGLE ENGINE CESSNA CRAP."



"I WAS JUST A BOY IN THE 1800'S BUT I CAN REMEMBER WATERKEEPER RALLIES. THEY HAD AN AIR FORCE TO RIVAL ANY AROUND AND THE FLAGSHIP WAS THIS HUGE, FINOFTUL DRIBBLE, THE GRAP STURGEON WE CALLED HER. NOW THOSE WERE THE DAYS!"

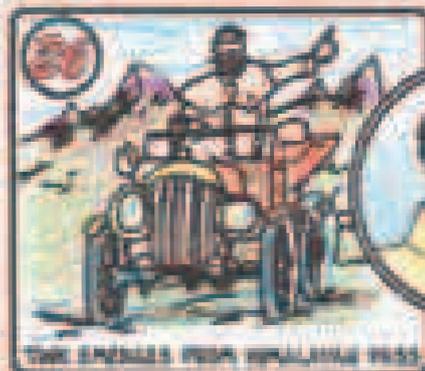


RACE RECALLS THE STURGEON'S LAVISH INTERIOR AS ALL GLIDED AND BLAND. "BACK THEN WATERKEEPERS EXPECTED FIRST CLASS EVERYTHING, NONE OF THE DORM-FOOD-IN-A-BOX SLOP LIKE TODAY."

RACE EXPLAINS THAT, BACK THEN, WATERKEEPERS CAME WITH THEIR OWN PERSONAL FORTUNES. "WE HAD INDUSTRIALISTS, BAIJAS, HERESSES AND THE LIKE. SEE, IN THOSE DAYS, STEWARDSHIP OF THE PLANET AND WEALTH AND INFLUENCE ALL WENT HAND IN HAND."



"IN MY DAY WATERKEEPERS WERE CELEBRITIES. WE EVEN HAD OUR OWN TRADING CARDS FOR THE KIDS. I HAD EVERY ONE INCLUDING TINY MATHEWS. VERY RARE. WORTH A SMALL FORTUNE TODAY."



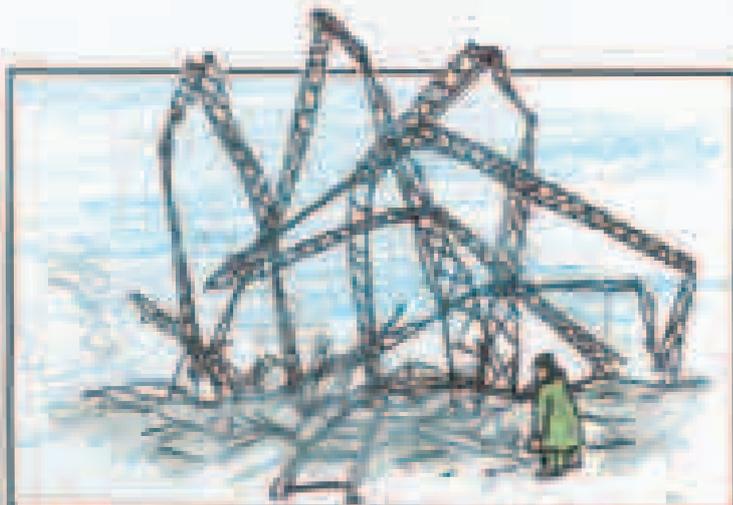
TINY MATHEWS



GEORGE KEIPER
TRAMP'S TEST

TWO BRIDGES FROM HOLLAND'S PASS

collect 'em all!



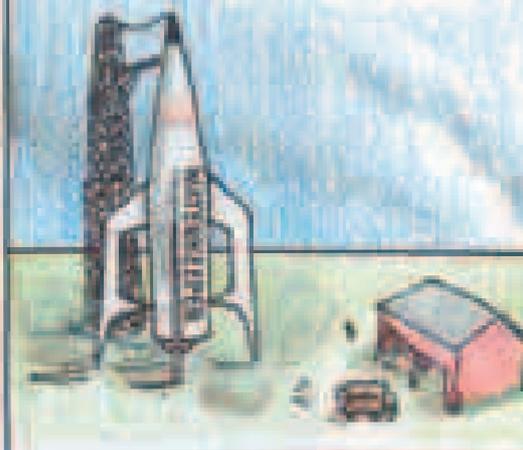
RACE RECALLS THE STURGEON'S TRAGIC DORM. "IN 1907 I WAS A JUNIOR OFFICER. WE WERE MOORED NEAR VENICE. I HEARD A POP AND THEN THE WHOLE THING LIT UP. SOME SAID IT WAS MUSSOLINI'S GANG BUT NOTHING WAS EVER PROVEN"

AS THE POLITICAL CLIMATE WORSENEED, ENVIRONMENTAL ACTIVISM BECAME TOO DANGEROUS.

UNDAUNTED, WATERKEEPERS SET THEIR SIGHTS ON AN AMBITIOUS NEW GOAL—MARS. RACE CANYON VOLUNTEERED TO LEAD THE MISSION.



THE IDEA WAS TO RESTORE MARS FROM A RED PLANET BACK TO A HEALTHY AND WATERY BLUE PLANET.

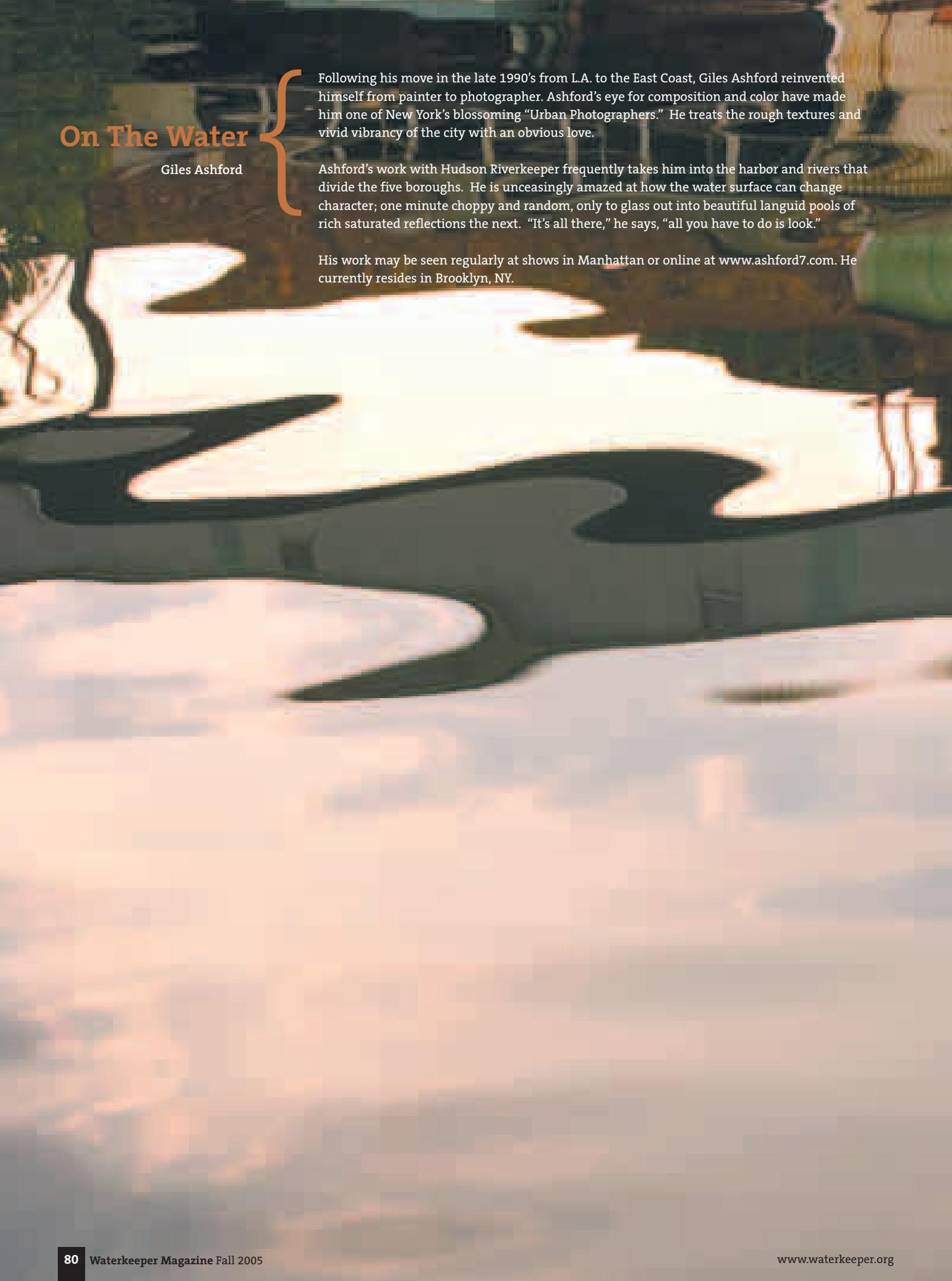


"PEOPLE SAY, DID YOU REALLY GO TO MARS, RACE? AND I SAY, HECK YEAH AND I CAN PROVE IT!"



SEE, I LEFT A LITTLE SOMETHING UP THERE... FOR SAFE KEEPING...





On The Water

Giles Ashford

Following his move in the late 1990's from L.A. to the East Coast, Giles Ashford reinvented himself from painter to photographer. Ashford's eye for composition and color have made him one of New York's blossoming "Urban Photographers." He treats the rough textures and vivid vibrancy of the city with an obvious love.

Ashford's work with Hudson Riverkeeper frequently takes him into the harbor and rivers that divide the five boroughs. He is unceasingly amazed at how the water surface can change character; one minute choppy and random, only to glass out into beautiful languid pools of rich saturated reflections the next. "It's all there," he says, "all you have to do is look."

His work may be seen regularly at shows in Manhattan or online at www.ashford7.com. He currently resides in Brooklyn, NY.



((((((Beating Around the Bush)))))))

Two steps forward, one step back:

Public pressure has put the breaks on two of the Bush administration's heinous attacks on clean water...

1

Victory! Raw Sewage Policy Dumped by EPA

In a victory for public health, the U.S. Environmental Protection Agency has abandoned a rule that would have allowed raw sewage into our waterways. In November 2003, EPA proposed its controversial “blending” policy, which would have allowed sewage treatment plants to dump inadequately treated raw sewage into our lakes, rivers, streams and coastal waters during and after any storm event. Sewage makes people sick, contaminates shellfish, kills fish and causes beach closures. Fortunately, on May 20, Congress stood up for public health and safety and passed the “Save Our Waters From Sewage Act of 2005.” The bill eliminates funding for EPA’s misguided sewage blending plan. EPA saw the writing on the wall and backed down. Just hours before the House vote, and in the face of almost 10,000 public comments – and strong objections from state agencies, public health officials, shellfish growers and Congress – the Bush administration announced it was abandoning the policy.

2

Proposed “Buffer Zone” Rule Rollback Delayed

In January 2004, the Bush administration proposed a rewrite of a long-standing environmental safeguard known as the “Buffer Zone” rule. Why the change? The administration wanted to allow coal-mining companies to bury streams with mountaintop removal mining wastes. In mountaintop removal, coal operators blast off entire hilltops to uncover coal seams. Leftover rock and dirt, the stuff that used to be the mountain, is dumped into nearby valleys, filling and destroying them.

The protective 20-year old “Buffer Zone” rule prohibits surface mining activities from disturbing land within 100 feet of a stream unless the disturbance will have “no adverse effect” on water quality or quantity – a standard that this mining practice cannot meet. The Bush administration’s proposal would have eliminated this 100-foot stream “buffer” from the rule, creating an exception that would allow the coal companies to dump rubble directly into streams.

Fortunately, at the relentless urging of environmental and citizen groups, the Bush administration recently announced a major reversal in policy: instead of simply scrapping the “Buffer Zone” rule they will now conduct a detailed environmental study. This study could delay the rule change for two years or more and, if properly conducted, will document the enormous damage that mountaintop removal mining causes to waterways and downstream communities.



3

EPA Allows Dumping of Mine Waste to Lake

The Bush administration is permitting the Coeur Alaska, Inc. mining company to discharge treated wastewater from a gold mine into creeks and canals that flow into Alaska’s Berners Bay. Based on a policy paper issued by EPA headquarters last year that redefined hard rock mining wastes as “fill” material under the Clean Water Act, EPA Region 10 issued a permit to the company to dump its waste in the lake.

The bay is home to wildlife, including bears, humpback whale, moose, salmon and wolves – all of which would be threatened by higher levels of heavy metals from the mining wastewater. The company claims the gold mine will be environmentally friendly, despite the fact that most of the discharged chemicals are highly toxic. Runoff from the mine will contain arsenic, cadmium, copper, chromium, lead, mercury, nickel, selenium and zinc. The Bush administration’s irresponsible decision represents the first time in the history of the Clean Water Act that the federal government will allow mine waste to be dumped directly into a freshwater lake. The administration is sacrificing Alaska’s clean water for the short-term profits of a private corporation. **WK**

CLEANER COMMUNITIES

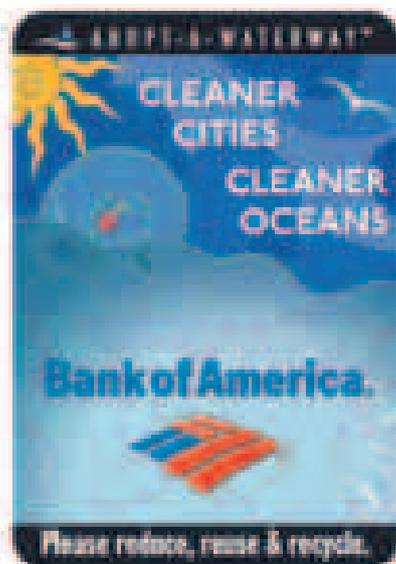


CLEANER WATERWAYS



Environmental Communication offers businesses a unique partnership solution to meet their marketing and communication goals in an environmentally aware and active way. Our innovative flagship program,

Adopt-A-Waterway®, consists of a fully integrated media plan encompassing television, radio, print, online, and out-of-home — all featuring branded environmental education and high visibility promotional opportunities that promote cleaner waterways, with governmental and corporate involvement.



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education



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the secret to one of life's untold health
benefits is revealed: walking.



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STAY FIT & GET FITTER WITH

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