

ADIRONDACK WATERS RESOURCE AT RISK



ADIRONDACK COUNCIL
Defending the East's Greatest Wilderness



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Threats to Adirondack waters *—and what we can do*

- 4 **Acid rain**
- 6 **Mercury contamination**
- 10 **Global climate change**
- 14 **Aquatic invasive species**
- 18 **Inadequate water treatment**
- 20 **Exurban development**
- 22 **Water diversions**
- 24 **Road salt and deicing**
- 26 **Opportunities for action**

At the summit of Ampersand Mountain; Dutton Brook, drainage from Stony Creek Mountain; Sunrise on Middle Saranac Lake, all by Burdette Parks, RoundLake Studios; Autumn palette on Ausable River; and on the cover, Rainbow Falls, both by Gary Randorf

THERE IS NO NEW WATER.

ALL THE WATER THIS PLANET HAS, AND WILL EVER HAVE, is already here and has been here since our atmosphere first developed. Rain drops falling on your window may contain water molecules that slaked the thirst of Roman soldiers, boiled rice for a family in ancient China, or dripped from the ceilings of the cave dwellings of the very first humans. Pure water remains the single most valuable commodity on Earth. Nothing we recognize as life can exist without it.

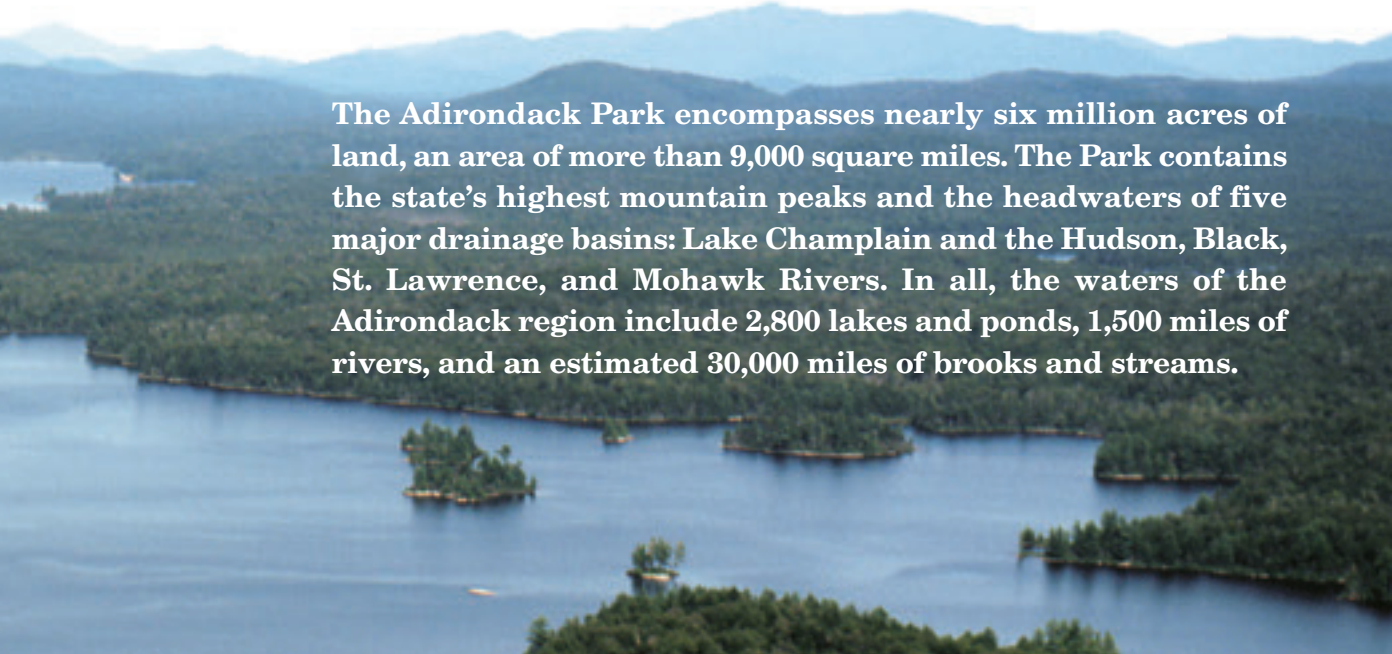
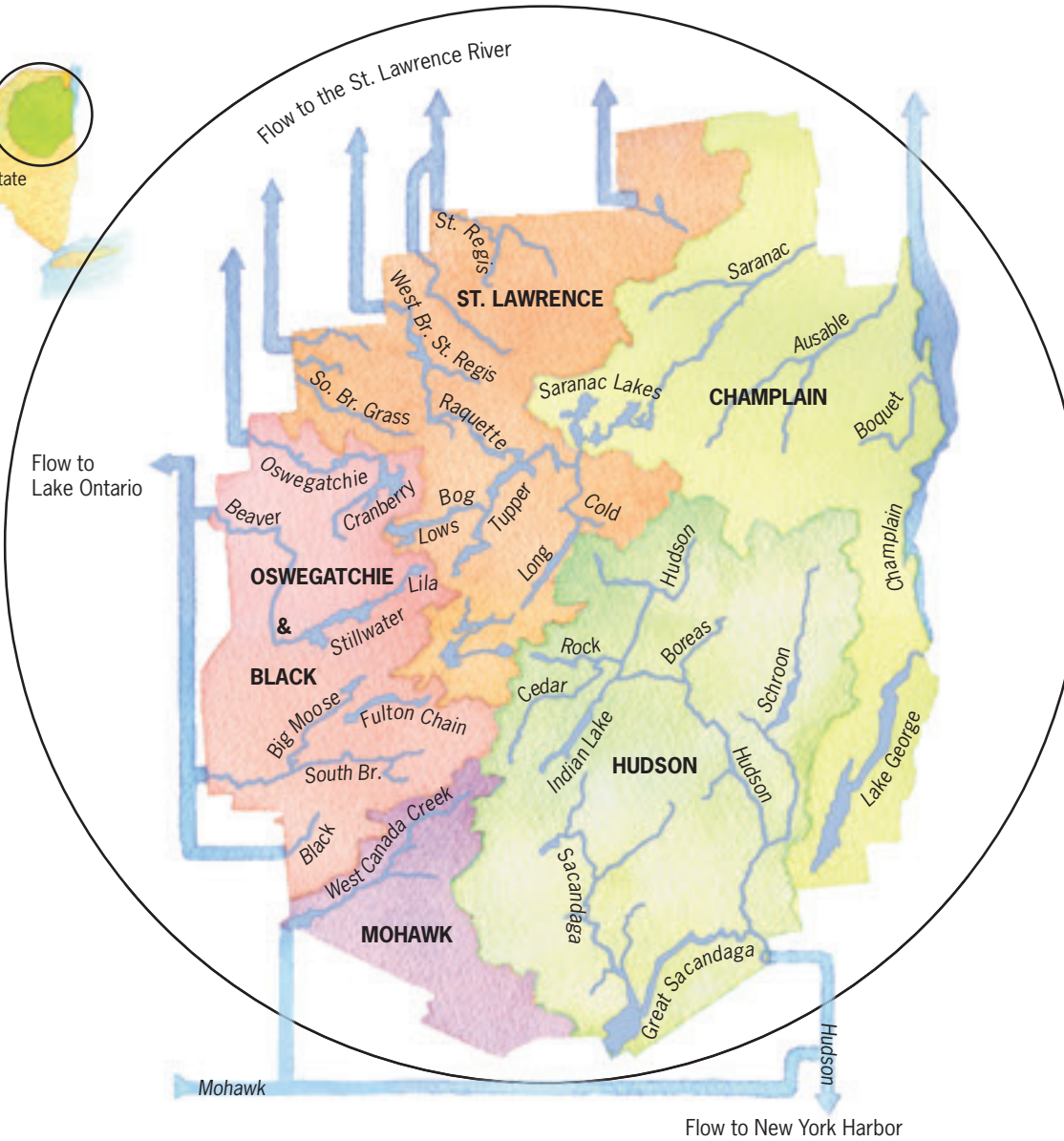
Here in the Adirondack Park, we have an abundance of fresh water, both above and below ground. We share that water with a wider region of the United States and Canada, as the Park's lakes and rivers drain into the surrounding countryside in every direction. Adirondack water is a trust we protect in a world where pure water is increasingly scarce. For drinking, recreation, and as the lifeblood of our region, water is a resource to be treasured.

The clean Adirondack landscape helps prevent contamination of water from sources common in other areas, such as factories. But air pollution and ever-increasing development take their toll, as do aging septic systems, road salt use, global climate change, water diversions, and other threats. Whether local or global, each of these pressures on water quality has a human dimension. Each can be reduced or eliminated through the actions of citizens, government, and organizations like our own.

The Adirondack Council is committed to protecting and improving the Park's waters and to educating citizens and policymakers in New York State about what we can all do, now and in the future, to preserve this precious resource. We hope you'll read this report, discuss it with others, and join us in taking action.



**WATERSHEDS
OF THE
ADIRONDACK
PARK**



The Adirondack Park encompasses nearly six million acres of land, an area of more than 9,000 square miles. The Park contains the state's highest mountain peaks and the headwaters of five major drainage basins: Lake Champlain and the Hudson, Black, St. Lawrence, and Mohawk Rivers. In all, the waters of the Adirondack region include 2,800 lakes and ponds, 1,500 miles of rivers, and an estimated 30,000 miles of brooks and streams.



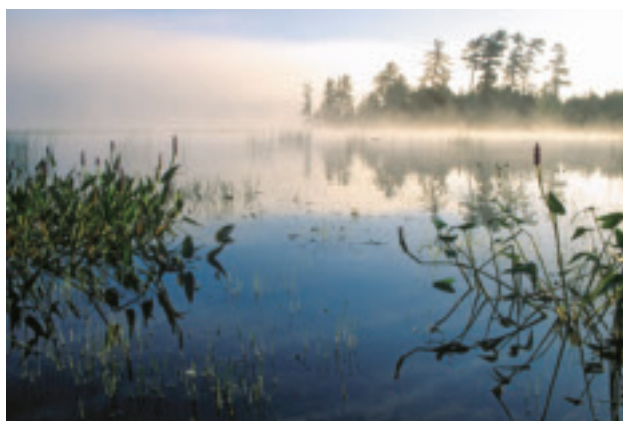
ACID RAIN

THE ADIRONDACK PARK HAS BEEN HARD HIT BY ACID RAIN. Acidic precipitation, mainly the result of pollution from coal-fired power plants in the midwestern United States, has damaged more than 700 bodies of water in the Adirondack Park and threatened their native fish, amphibians, and other aquatic life. These lakes may look clear and pristine, but their clean appearance is actually due to a lack of native life in the water.

Normally, Adirondack waterways have a pH level that allows them to sustain healthy populations of myriad aquatic species, including native trout, phytoplankton, crayfish, amphibians, and insects. By lowering the pH of the Park's lakes and streams to dangerous levels, acid rain has caused fish populations to be diminished, or even to die off completely. Piscivores (fish-eating species, including waterfowl) are in turn affected as their food supply is altered.

Levels of acidity fluctuate throughout the year, with pH levels dropping dangerously during the spring snowmelt. These seasonal spikes are referred to as "episodic acidification" or "spring shock." Acid rain also causes heavy metals such as aluminum to leach from soils, contaminate waterways, and harm many species.

The Adirondack Council has been combating acid rain pollution for the past thirty years, with good results: acidification has begun to decrease. Most recently, the Council helped to persuade the United States Environmental Protection Agency (EPA) to finalize the Clean Air Interstate Rule (CAIR), which provides for the largest reductions in nitrogen oxides and sulfur dioxide, the pollutants that cause acid rain, since the passage of the original Clean Air Act. CAIR was an important step forward for the Park's waters, promising to cut pollution deeply enough to allow ecological recovery to begin.



Mist, by Carl Heilman II

What we can do

THE ADIRONDACK COUNCIL will continue to monitor the implementation of CAIR and mandated reductions in pollutants. The Council will also call for vigilant monitoring of the Park's water bodies to ensure that the cuts required by the new regulations have their intended results.

GOVERNMENT OFFICIALS should pass federal legislation to codify the cuts provided by CAIR and require deeper and faster pollution reductions. These steps would allow ecological recovery to begin more quickly. CAIR is a potentially important and effective regulation, but the progress it promises to the Adirondacks and other sensitive regions of the nation remains tenuous because of its vulnerability to lawsuits by industry interests. A federal law would ensure that reductions in emissions of acid rain-causing pollutants are achieved. Congress should also maintain and increase funding for monitoring programs that determine the effectiveness of emission reduction programs.

CITIZENS should work to conserve energy in their homes, at work, and in their vehicles. If the public reduces the energy demand here in the United States, at-risk regions including the Adirondacks will benefit from reductions in emissions. People should also ask their members of Congress to support increased funding for monitoring the emissions that cause acid rain and to support federal legislation to reduce emissions of sulfur dioxide and nitrogen oxides.



MERCURY CONTAMINATION

MERCURY, ANOTHER POLLUTANT EMITTED BY COAL-BURNING power plants and industrial facilities, is a neurotoxin that can harm the brain and nervous system function. Once mercury is present in the environment, it can be taken up by plants, fish, and other animals. Leaves containing the toxin fall from trees and wash into waterways, causing contamination, or are ingested by insects. When an animal ingests mercury, the chemical binds to its tissue and remains there to move up the food chain when the animal is eaten by a larger animal. This process, known as bioaccumulation, means that higher levels of mercury are often found in species at the top of the food chain—predator fish, for example, such as walleye, pike, or bass. When humans eat those fish, mercury is passed on to us.

Mercury contamination has serious consequences for many species throughout the Adirondack Park. Elevated mercury levels have been found in fish-eating birds, such as loons, egrets, eagles, ducks, and kingfishers, as well as in many forest songbirds, including Bicknell's Thrush.

Widely studied with regard to mercury contamination, birds are the “test subjects” for what will happen to other species as mercury exposure increases. At low levels, reproduction is affected: the number and size of eggs diminish, eggs have weaker shells, and chicks may be less responsive to calls from the mother. As levels increase, behavioral problems occur: birds are less likely to hunt or seek shade, are more easily frightened, and may neglect their nests. Neurological effects may include brain lesions, spinal cord degeneration, tremors, reduced feeding, and progressive weakness in wings and legs. As levels increase further, mercury can cause hormone disruption and changes in feather symmetry. Mercury can also cause immunosuppression—meaning that a disease that would not normally be life threatening can be lethal to a bird that has ingested mercury.



The New York State Department of Health (DOH) recently stepped up its actions to protect the public, along with the Park's environment and its tourism-based economy. In 2005, the DOH issued its first-ever "blanket" advisory, warning women of childbearing age and children under the age of fifteen to avoid eating several varieties of larger fish from all waters in the Adirondack and Catskill regions due to elevated levels of mercury. A second advisory warned against consuming more than one meal per week of several varieties of larger fish from the same regions. The advisories expanded previous warnings for specific waterways and were continued in 2006 and 2007.

In 2005, the EPA finalized the Clean Air Mercury Rule (CAMR)—the first federal action to address mercury emissions directly. Unfortunately, the rule allowed power plants to continue to emit too much mercury, and the timeline for reductions was too long. Most disappointing, CAMR permitted trading of mercury allowances between power plants. A similar trading system has been used successfully to reduce emissions of nitrogen oxides and sulfur dioxide, yet the approach should not be applied to mercury—a neurotoxin that bioaccumulates in the environment and can produce "hot spots" near emissions sources. Several states, including New York, successfully sued the federal government for allowing mercury to be traded. The EPA has not decided whether to appeal the 2008 decision or draft a new rule.

In spring 2006, the commissioner of the New York State Department of Environmental Conservation (DEC) announced that New York will regulate emissions of mercury from in-state coal-fired power plants. The regulation will require a 50 percent cut in mercury pollution (based on 2006 levels) by 2010 and a 90 percent cut by 2015. Companies will be required to use a Maximum Achievable Control Technology (MACT) standard, meaning that power plant owners must employ all known practical methods for reducing mercury pollution, not just the cheapest or most expedient methods.

What we can do

THE ADIRONDACK COUNCIL will continue to advocate for strong federal legislation to ensure that mercury emissions are reduced by at least 90 percent within the shortest timeframe technologically and economically feasible. At the same time, the Council will work to ensure that trading under the law is not allowed. These provisions would provide the Adirondack Park with the best level of protection possible. The Council advocated for similar strong regulations in New York State, and in late 2006 they were adopted.

GOVERNMENT OFFICIALS should pass federal legislation that requires power plants to cut emissions to levels below those required under CAMR and forbids trading of mercury allowances. New York's new effort to reduce mercury emissions mirrors actions already taken on acid rain, thus setting an example for other states to follow. Since New York is asking other states to reduce emissions in order to protect the Adirondack Park, the state's own precedent should be important for showing that reductions are technologically and economically feasible. Congressional members should also support legislation introduced in 2007 that would supply \$10 million annually over the next three years for monitoring of mercury deposition.

CITIZENS should communicate with state and federal representatives about the impact of mercury on the ecological integrity, public health, and economy of the Adirondack Park. Citizens should learn more about contaminants, including mercury, in waters where they fish. Like acid rain, mercury originates primarily from coal-fired power plants in the Midwest. Conserving electricity results in cleaner air and water.

NEW YORK'S DEPARTMENT OF HEALTH RECENTLY ADVISED WOMEN OF CHILDBEARING AGE AND CHILDREN UNDER FIFTEEN AGAINST CONSUMING SEVERAL VARIETIES OF FISH FROM ADIRONDACK WATERS:

- northern pike
- pickerel
- walleye
- large mouth bass
- small mouth bass
- larger yellow perch

THE SAME GROUPS OF PEOPLE WERE WARNED AGAINST EATING MORE THAN ONE MEAL PER WEEK OF THESE ADDITIONAL VARIETIES:

- brook, brown, or rainbow trout
- bullhead
- bluegill
- rock bass
- crappie
- smaller yellow perch

For the most current information on health advisories on Adirondack fish, see www.health.state.ny.us

Mercury and the Common Loon

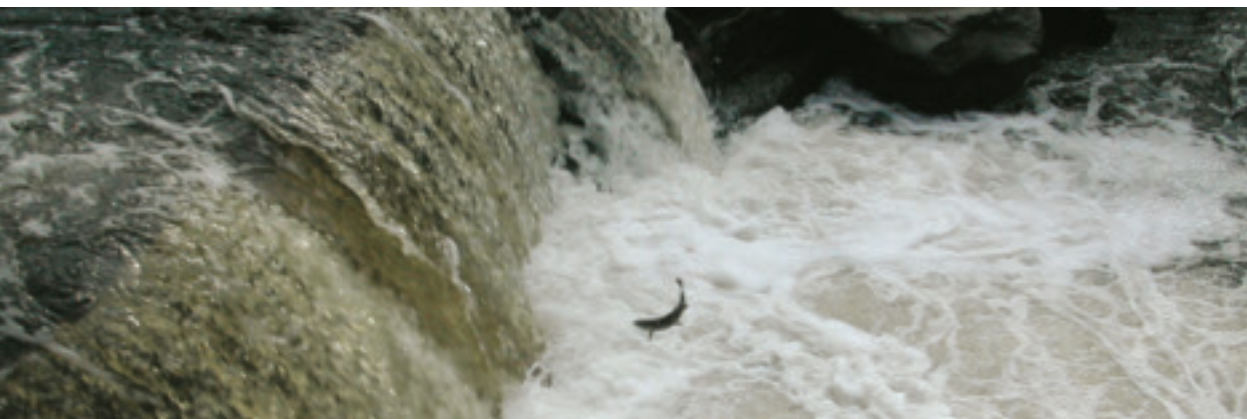
The common loon (*Gavia immer*) is to the Adirondack Park what the bald eagle is to the United States. It is the most famous symbol of the Park's wild character. At risk of becoming endangered and listed as a "species of special concern" in New York State, the loon has suffered with each threat to the Adirondack environment: acid rain, habitat destruction, motorized watercraft, and lead fishing sinkers have all taken their toll. Yet new research suggests that mercury contamination may pose the gravest danger of all to the survival of the loon in our region.

The loon spends its summers on lakes in the Adirondack Park and other northern areas, feeding almost exclusively on fish. Since many lakes in the Adirondacks are contaminated with mercury, the loon is heavily exposed to the toxin.



According to a Biodiversity Research Institute report, an estimated 17–58 percent of the breeding population of loons in New England and New York have mercury levels in high or extra-high risk categories. Loons in these risk categories may exhibit behavioral changes, including decreased foraging, incubation, and reproductive success.

This and other research reports on mercury contamination and its effects on loon populations are available from the BioDiversity Research Institute at www.briloon.org.



GLOBAL CLIMATE CHANGE

CLIMATE CHANGE, OR GLOBAL WARMING, IS AN INTERNATIONAL problem with very tangible local impacts. For the Adirondack Park and the northeastern United States, various models suggest that precipitation could increase by 10–30 percent. A change of that magnitude would have dramatic effects in the Adirondacks. New high water levels could endanger the integrity of dams throughout the region and put some of the Park’s human communities at risk. In heavily developed areas, homes near wetlands, on steep slopes, or close to waterways could be affected by rising water levels and increased erosion. Changes in precipitation levels may also alter stream flow, compromise fisheries, and increase sedimentation and runoff.

As water quantity increases, water quality may decrease. Increased precipitation, especially at the high end of projected levels, could compromise wastewater treatment systems. Newer municipal wastewater systems keep stormwater and sewage apart and allow stormwater to flow back into the environment untreated. In older systems, stormwater is combined with sewage, and the mixture is released into the environment when the system overfills. Combined systems throughout the Northeast will need to be replaced as higher precipitation causes them to exceed their capacities with greater frequency.

Warming temperatures may cause snow pack to decrease, despite higher precipitation levels. Decreased snow pack will compromise natural seasonal cycles and threaten the Park’s economic viability as activities such as snowmobiling and skiing decline. Species that depend on snowpack for shelter will struggle to survive. A warmer year-round climate also puts cold water aquatic species at risk. Many cold-blooded species are especially vulnerable during spawning and mating, so temperature fluctuations could affect population levels. Prized populations of brook, brown, and rainbow trout could drastically decline or be lost altogether if climate change is severe.

IMPORTANT SOURCES

FOR CURRENT INFORMATION ON GLOBAL CLIMATE CHANGE:

- Union of Concerned Scientists: **www.climatechoices.org**
- Intergovernmental Panel on Climate Change: **www.ipcc.ch**
- 1 Sky: **www.1sky.org**



Pine marten, courtesy of the U.S. Fish and Wildlife Service



What we can do

THE ADIRONDACK COUNCIL will advocate for federal legislation that requires cuts in greenhouse gas emissions, from power plants, motor vehicles, and other sources. In addition, the Council will continue to work on the Regional Greenhouse Gas Initiative (RGGI), to reduce carbon dioxide emissions from power plants in the Northeast United States. The Council will work to amend the Adirondack Park Agency Act to ensure that new buildings in the Park are built with energy-efficient technologies. The Council will also work to protect and restore “wildways,” broad riparian corridors along and around the Park’s water bodies and landscape linkages within and beyond the Park, to permit movement and migration of wildlife. We will also continue to support appropriate renewable technologies in the Adirondack Park, such as residential wind power, hydroelectric facilities, and sustainably harvested biomass.

GOVERNMENT OFFICIALS should pass federal legislation mandating reductions in carbon dioxide and other greenhouse gas emissions and requiring the deepest cuts technologically possible in the shortest practical time. The federal government should allow California and other states, like New York, to further reduce carbon emissions of automobiles below the recently tightened Corporate Average Fuel Economy (CAFE) standards, which govern fuel efficiency in motor vehicles. Local and state governments should require new development to meet energy efficiency guidelines. And, the federal government should establish a Renewable Energy Portfolio Standard similar to New York’s, to increase the share of energy produced nationally from renewable and non-polluting sources.

CITIZENS should work to reduce the amount of energy used in all aspects of daily life. Energy production and consumption (along with deforestation in some parts of the world) are driving catastrophic climate change. Turning off lights and other electronics when leaving a room at home; walking, biking, or carpooling when traveling; choosing energy efficient appliances and light bulbs; and insulating homes are all simple ways to reduce greenhouse gas emissions. If possible, consumers should purchase automobiles that use hybrid or biodiesel technologies. Citizens can also participate in events to show they care about the impacts of global climate change.



AQUATIC INVASIVE SPECIES

THE WATERWAYS OF THE ADIRONDACK PARK ARE THREATENED by invasive plant and animal species—Eurasian watermilfoil, water chestnut, zebra mussels, alewives, and gobis, to name a few. These non-natives displace native species and threaten biodiversity; they interfere with fishing and swimming, reduce property values, and are expensive to control.

Recreational boat use is a major point of vulnerability for the entry of invasive plant species into Adirondack waters. Thousands of boaters bring their watercraft to the Adirondacks each summer, often from areas where invasive species have already been introduced. Invasive plants may remain on or in boats during the trip to the Park and be released when the boat is placed in the water. Eurasian watermilfoil is often spread in this way. Phosphorous from sewage effluent and agricultural run-off is part of the problem, since high phosphorous levels create a nutrient-rich habitat for invasive aquatic plants.

Several Adirondack municipalities are taking action against invasive plant species and the sources of pollution that foster invasives. Residents of Upper Saranac Lake have demanded that the Department of Environmental Conservation stop releasing nutrient-rich effluent into the lake from the nearby fish hatchery and are investing considerable private funds in invasive species control. Citizens on Lake Colby have launched a similar program. In Lake George, where Eurasian watermilfoil and zebra mussels have proliferated, ecologically benign methods (including benthic mats) are being used to kill the milfoil and remove it. Many towns and villages have posted signs at boat launches to educate the public about what they can do to prevent new introductions; some are installing boat washing stations.

Invasive fish species, such as alewives and golden shiners, often enter Adirondack waterways when anglers dump leftover bait fish into lakes, ponds, and streams. This practice, while apparently harmless, is usually illegal and can lead to the proliferation of fish species that simply out-compete native species for food, leaving native fish without proper nourishment.

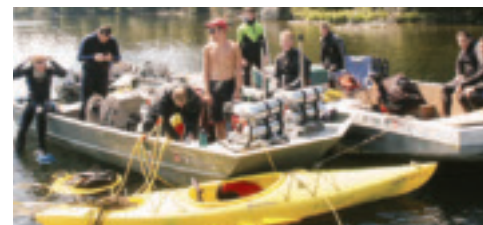


The Department of Environmental Conservation (DEC) has begun to “reclaim” waterways from invasive fish, using chemicals that kill most species, including non-target reptiles and amphibians, and restocking with species popular with anglers. Unfortunately, some fish selected for stocking by DEC are not historically native to the waterways. The Adirondack Council has urged DEC to cease the practice of stocking non-native species and has worked with the agency to educate anglers about the impact of dumping bait fish.

In 2003, the Departments of Agriculture and Environmental Conservation convened the New York State Invasive Species Task Force, which issued its final report in November 2005. The task force report includes the Adirondack Park Aquatic Nuisance Species Management Plan, a blueprint for action developed in a coalition including the Adirondack Council and endorsed by local governments, educational institutions, and the Adirondack Park Agency. The task force report has become the basis for a statewide program to prevent, mitigate, and eradicate invasive species. New York has also begun to coordinate its efforts with those of other states and the federal government. The 2006 state budget included a new category within the Environmental Protection Fund for invasive species work, with a portion specifically earmarked to combat milfoil and other invasive species in waterways in the Adirondack Park. The funding was increased to \$5 million in the 2007–08 budget.

INVASIVE PLANT AND ANIMAL SPECIES THAT ARE THREATENING ADIRONDACK WATERWAYS:

- Eurasian watermilfoil (A)
- water chestnut (B)
- zebra mussels
- curly pond weed
- fanwort (C)
- alewives
- gobis



With support from the Upper Saranac Lake Foundation, professional divers and citizen volunteers clear watermilfoil from Upper Saranac Lake. TOP: Public education about invasive species, courtesy of Hilary Oles, Adirondack Park Invasive Plant Program. OPPOSITE: A bog in the Brant Lake area, by Carl Heilman II.



APIPP

The Adirondack Park Invasive Plant Program, or APIPP, is a partnership among the Adirondack Park Agency, the New York State Departments of Environmental Conservation and Transportation, the Adirondack Nature Conservancy, the Invasive Plant Council of New York State, and other local organizations. It has been hailed as a national model for programs of its kind.

APIPP sponsors a wide range of activities for concerned members of the public. Volunteers and student interns can get involved in collecting information about invasive species throughout the park and participate in coordinated eradication activities. Special training is typically offered in late June and early July.

APIPP maintains a database and distribution maps to track invasive plant species and monitor their spread. There's also a listserv for volunteers and other citizens who want to get involved and stay up to date with new developments.

See APIPP's website at **www.adkinvasives.com** for more information and a schedule of activities.

Eurasian watermilfoil, by Gordon Keyes
BACKGROUND: Just east of Ferd's Bog
over near Inlet, by Carl Heilman II

What we can do

THE ADIRONDACK COUNCIL will continue to work toward full implementation of the final report of the Invasive Species Task Force, including the management plan and the use of non-chemical eradication methods unless no alternative is available; monitoring; and public education. The Council will urge legislation adopting the recommendations of the task force, including expansion of the Adirondack Park Invasive Plant Program into a statewide program, adequate funding for the program's activities, and funding incentives for Adirondack communities to control invasive species with non-toxic means. The Council will also work with the New York Invasive Species Council, created by statute in August 2007, and its advisory committee.

GOVERNMENT OFFICIALS should proceed with developing a comprehensive statewide invasive species program, with adequate annual funding and dedicated staff, including staff in the Adirondack Park. The Adirondacks should be given special priority for state action to protect areas not yet affected by invasive species. State legislation—for example, a transport law that specifies steep fines for introducing invasives into water bodies—may be necessary. Key components of state and local efforts should include public education, state financing for additional boat washing stations, and local plans to control invasive species. The state legislature should increase funding for invasives control and eradication in the Environmental Protection Fund.

CITIZENS should learn to recognize invasive species prevalent in the Adirondack Park and may wish to volunteer for weed-pulling events or monitoring activities through the Adirondack Park Invasive Plant Program (APIPP). Citizens should remove and properly dispose of invasive species on their property and report those species to local environmental authorities; inspect their boats for invasive species before and after each use; avoid using bait fish (or, at the least, dispose properly of leftover bait fish or earthworms); and use native plant species when landscaping. Citizens should also heed warnings about invasive species issued by DEC, such as a recent recommendation that campers not bring firewood into the Park in order to stop the spread of species such as the sirex wood wasp, the emerald ash borer, and the Asian long-horn beetle. Citizens should urge state and local officials about the importance of implementing invasive species programs.

INADEQUATE WATER TREATMENT

WASTEWATER POLLUTION THREATENS HUMAN HEALTH, DRINKING water, and recreational activities and creates an environment conducive to invasive species. Sewage treatment systems are aging or inadequate in many of the Park's small towns and villages, yet paying for needed upgrades will not be easy. The cost of improving municipal systems throughout the Adirondack Park may exceed \$100 million.

Some Adirondack municipalities have centralized sewage treatment systems, with sewers carrying effluent from homes and businesses into a plant where it is treated before being released into the environment. Many of those systems are aging, in need of repair, and operating beyond their capacity. Upgrades typically mean exorbitant costs to small towns and villages, which lack large populations to share the costs. State funding is available but usually comes in the form of low-interest loans or grants that require an unaffordable matching amount from the municipality.

Other communities have no public sewage treatment systems; instead, homeowners treat effluent with on-site wastewater treatment or "septic" systems. Septic systems can be effective in protecting water quality, yet New York State lacks adequate regulations for their inspection or upgrade.



In recent years, beach closings have called attention to the presence of untreated sewage in local waterways. In Wilmington, for example, Lake Everest was closed to swimming in 2003 because of high levels of coliform bacteria. Lake Placid's sewage treatment plant was found to be a significant contributor of the bacteria, and the village invested

\$14 million for a new wastewater treatment plant. Although water quality improved noticeably, ongoing tests by the DEC of the West Branch of the Ausable River show additional bacteria contamination from unknown sources.

In the summer of 2006, residents of Essex learned that inadequately treated wastewater had caused a dangerous cyano-bacteria outbreak in the shallow waters of Lake Champlain adjacent to the hamlet. The algal outbreak was grave enough to cause the death of any bird or mammal that drank the water. No human casualties or pet deaths were reported, yet it is unclear how extensively local wildlife may have been harmed. Soon after the outbreak, the town's most prominent part-time resident, Governor George Pataki, used a state grant program to help the town initiate planning for a new, state-of-the-art sewage treatment facility. This project has also been promised considerable federal funding.



ABOVE: Views of Lake Placid's new treatment plant, by Stuart Baird

What we can do

THE ADIRONDACK COUNCIL will continue to advocate for state regulations on septic system inspections. The Adirondack Council favors state legislation requiring the inspection of septic systems at the time of installation and at each transfer of a property, allowing the cost of inspection and repair to be rolled into the purchase price of a home. The Council is urging the state to provide homeowners with low or no-interest loans or grants to upgrade or repair their septic systems and is advocating for funding to enable Adirondack communities to upgrade wastewater treatment systems with little or no municipal matching requirement. To project future needs for wastewater and drinking water infrastructure, the Council is also urging support for comprehensive town planning.

GOVERNMENT OFFICIALS should pass legislation requiring inspections of septic systems throughout the state. Additional action should provide funding for repair or replacement of septic systems not in compliance with state regulations. The state must make funding available to communities unable to finance repairs to municipal wastewater treatment facilities. Federal funding should be provided to enable Adirondack communities to upgrade existing wastewater treatment systems. Local leaders should pass ordinances and laws requiring inspection of septic systems in their municipalities.

CITIZENS should make sure that their septic systems are properly inspected, pumped out as necessary, and in compliance with state regulations. Homeowners should properly maintain septic systems and address problems as soon as they become apparent, to ensure that their systems are not diminishing local water quality or posing a health risk to their family and others. Citizens should encourage state and local officials to require septic system inspections and provide funding for upgrades.



EXURBAN DEVELOPMENT

EXURBAN DEVELOPMENT, OR “BACK-COUNTRY SPRAWL,” is a major, emerging threat to aquatic ecosystem integrity and water quality in the Adirondack Park. New homes along wildland borders have an impact out of proportion with the generally small area of the houses themselves. New housing means new roads, driveways, power and water lines, leach fields, pets, invasive species, and other disruptions to the forest. Indeed, all the problems associated with failing septic systems are replicated and spread to new water bodies as development creeps farther into the countryside.

New development also means dramatically increased run-off and erosion, and consequent sedimentation and pollution of water bodies. Studies suggest that about 95 percent of rain water runs directly off a road or parking lot, compared with only 5 percent from a wooded area. Water quality can be harmed when as little as 2 percent of a watershed is converted from natural vegetation to artificial hard surfaces. Water withdrawals from streams, ponds, and aquifers can also have deleterious consequences, even in the relatively well-watered Adirondacks. If development includes snow-making for commercial ski slopes, water withdrawals can have a major impact.

More broadly, exurban development increases per capita fuel consumption, and thus acid rain, climate change, and the many other associated problems. As people move away from town, they drive more and spur development of lengthier roads, driveways, and utility lines. The high ecological and long-term economic costs of American suburbanization are taken to extremes when resort and luxury homes are developed in wildland and rural areas of the Adirondack Park and elsewhere.

What we can do

ACCORDING TO THE FEDERAL ENVIRONMENTAL PROTECTION AGENCY, EXURBAN SPRAWL IS ASSOCIATED WITH MANY SOURCES OF WATER POLLUTION:

- oil, grease, benzenes, and other toxic chemicals from motor vehicles and lawnmowers
- pesticides, nitrogen, and phosphorous from lawns and gardens
- sand and salt from roads and driveways
- excessive nutrients, viruses, and bacteria from pet feces and septic systems
- heavy metals from motor vehicles and roof shingles
- thermal pollution from hard, dark surfaces such as roofs and roads

THE ADIRONDACK COUNCIL reviews all major development proposals on lands designated Resource Management and Rural Use in the Park. The Council generally opposes projects that will fragment wildlands and seeks to stop or scale back harmful developments through education and advocacy with local citizens and the APA. In some cases, the Council negotiates with applicants. The Council uses legal action as a last resort to prevent undue adverse impact from back-country subdivisions.

GOVERNMENT OFFICIALS should strengthen the Adirondack Park Agency Act to prevent conversion of Resource Management and Rural Use lands into subdivisions. A clustering regulation should be promulgated, requiring that developments outside town cluster infrastructure away from interior forest and sensitive features. Government officials should rewrite property tax laws to reward land conservation and punish land degradation. New York's timber tax abatement program, sections 480 and 480-a of the Real Property Tax Law, should be broadened to give at least equal tax breaks for forest preservation as are currently given for timber management. Government should create incentives for keeping development inside existing towns and villages through downtown revitalization funds, "smart growth" policies, carbon taxes, improved public transit, and other measures.

CITIZENS should support village infrastructure and local economies and discourage exurban sprawl through their consumer and building decisions. Citizens wanting a house in the Park should buy in town. Citizens buying outside town or near water bodies should be especially careful about maintaining a clean septic system, minimizing pavement and other artificial surfaces, and landscaping with native plants and without harmful chemicals.



WATER DIVERSIONS

ONE THREAT THAT our region has only begun to face is out-of-basin water diversions, exports, or expropriations. Some of the biggest conservation

battles in the Park's history were over ill-conceived dams proposed on many rivers—the worst of which were stopped by conservationists.

Some of the biggest conservation battles of the future could be over attempts by corporations or governments outside the region to gain control over Adirondack waters, for private profit or to meet human demands in areas drier or more densely populated than the Adirondack Park. Some of the world's largest trans-national corporations are investing heavily in water bottling and export schemes, commodifying what has traditionally been recognized as a common resource. At least two bottling plants have been proposed for our area, and more are likely to follow.

Large-scale water diversions—particularly when they cross watershed lines—are ecologically harmful in several ways. They reduce water and thus habitat for the basin's fish and other aquatic organisms. They consume huge amounts of energy to pipe or truck water over long distances and produce plastic bottles for their products. They can introduce or spread invasive species, alter natural patterns of flood and fluctuation to the detriment of organisms adapted to particular hydrological cycles, and kill creatures caught by up-take pipes or tanks.

Water diversions are a growing danger in a warming world. Global climate change projections have much of the American West and parts of the Southeast suffering from erratic drought regimes, while the Northeast is expected to face increased but irregular precipitation. Massive water diversions in the West have made possible sprawling cities such as Phoenix, Las Vegas, and Los Angeles, and the pattern could be replicated in growth areas throughout the United States and Canada unless preventive measures are taken.

The Adirondack Park presently has no law or authority to prevent underground waters from being tapped and exported from private lands. Authority to prevent diversions is limited even for public lands and surface waters. Laws and plans are not currently in place to prevent a corporation from gaining access to and commercially exploiting the underground or surface waters of the Adirondacks.



Conklinville Dam, Great Sacandaga Lake
OPPOSITE: Oswegatchie, by Gary Randorf

What we can do



THE ADIRONDACK COUNCIL is exploring the new Great Lakes Compact and other model agreements, policies, and laws that could prevent the commercial exportation of the region's waters. We will continue to carefully monitor and review proposals for bottling plants that come before the Adirondack Park Agency.



GOVERNMENT OFFICIALS should enact measures to prohibit large-scale commercial diversion, export, or expropriation of regional waters. Authority to prevent out-of-basin diversions should be clearly established within the Department of Environmental Conservation and the Adirondack Park Agency.



CITIZENS should educate themselves on water conservation issues, conserve water in and around their own homes, organize themselves into watershed conservation councils, and choose to drink tap water instead of bottled water.



West Branch Ausable River, by Gary Randorf

ROAD SALT AND DEICING

ROAD SALT AND OTHER DEICING COMPOUNDS FIND THEIR WAY into our waterways and drinking water supplies, threatening ecosystems and public health. Road deicing has led to contamination of private wells and the water supplies of entire communities in New York. In 2003, for example, research by the Adirondack Council found that 52 municipalities across the state had reported high levels of sodium in their public water supplies to the Department of Health. In each case, sodium levels were above 20 milligrams per liter—a concentration at which people on sodium-restricted diets are advised not to drink the water.

A research study sponsored by the New York State Departments of Transportation and Environmental Conservation and the Adirondack Park Agency has found that deicing compounds are degrading the water quality of three lakes along Route 73. The head of the research team, Dr. Tom Langen of Clarkson University, explains that “although deicing compounds are nontoxic at lower concentrations, and deicing is necessary to maintain safe travel conditions for motorists and travelers in cold regions during the winter months, deicing compounds at higher concentrations place stress on plants and animals, ultimately eliminating salt-intolerant species and promoting the growth of salt-tolerant ones, including non-native invasive species.” The study by Langen and a multidisciplinary team evaluates the long-term environmental consequences of current deicing practices and potential alternatives that are less environmentally harmful.

The storage of deicing compounds is currently unregulated, and many municipalities have inadequate storage facilities. Road salt is left exposed to rain, snow, and wind, leading to environmental degradation when dissolved salt leaches into aquifers and ground water. Poor storage also depletes supplies of deicing compounds, resulting in unnecessary expenses. In many places, updated equipment would allow road crews to reduce the amount of salt they apply and use more modern deicing compounds.

What we can do

THE ADIRONDACK COUNCIL will promote legislative action requiring proper storage and prudent application of road salt and the use of alternative ice controls on roadways in the Park. The Council will urge the New York State Department of Transportation to investigate the feasibility of using alternative technologies, substances, and equipment to achieve safety goals while reducing environmental harm. Finally, the Council will urge the state to provide funding to municipalities for modernized tools, alternative deicing compounds, and proper storage sheds.



GOVERNMENT OFFICIALS should pass state legislation requiring proper storage of deicing compounds. In addition, the state should urge the DOT to continue researching potential alternatives to road salts and to search for less harmful compounds and equipment to minimize the ecological impacts of road maintenance. The state should also continue to fund projects to investigate the long- and short-term impacts of deicing compounds on sensitive environments, especially aquatic ecosystems within the Adirondack Park. Municipalities should apply for state funding to upgrade deicing compound storage facilities and application equipment.



CITIZENS Citizens should minimize the amount of deicing compound used on their property and investigate less harmful alternatives offered in local stores. Calcium magnesium acetate (CMA) has been found to be less harmful than traditional salt compounds. Grit sand can be used to give traction on icy private roads and driveways.





Lake Placid 2007 Step-It-Up Celebration

OPPORTUNITIES FOR ACTION

SPEAK OUT FOR ADIRONDACK WATERS. LET ELECTED OFFICIALS AND OTHER POLICYMAKERS KNOW YOU'RE CONCERNED ABOUT THE FUTURE OF ADIRONDACK WATERS.


- For tips on communicating with elected officials and other tools, see the Adirondack Council's online manual for activists at **www.adirondackcouncil.org/activists2.html**
- To find out who represents you in Congress and the New York State Legislature, check these websites:
US House of Representatives: **www.house.gov**
US Senate: **www.senate.gov**
NY State Assembly: **www.assembly.state.ny.us**
NY State Senate: **www.senate.state.ny.us**
- To contact New York State agencies whose activities have a major impact on the quality of water in the Adirondack Park, visit these websites:
Adirondack Park Agency: **www.apa.state.ny.us**
NY State Department of Environmental Conservation: **www.dec.ny.gov**
NY State Department of Transportation: **www.nysdot.gov**

- ❑ To request a copy of the Adirondack Council's *Activist Manual* or publication on acid rain, e-mail the Council at activists@adirondackcouncil.org.
- ❑ To learn more about mercury contamination and its effects on birds, especially the Common Loon, see the resources offered by the Biodiversity Research Institute at www.briloon.org.
- ❑ For more information about health advisories in sport fish and game in New York State, visit the New York State Department of Health website at www.health.state.ny.us.
- ❑ The United States Environmental Protection Agency maintains a list of all states with warnings about the consumption of fish and other wildlife due to environmental contamination. View this information on the EPA website at www.epa.gov.
- ❑ For detailed projections about the potential impact of global climate change on the Adirondack region, read the *New England Regional Assessment: A report for the U.S. Global Change Research Program*, available at www.necci.sr.unh.edu/2001NERA-Foundation-Doc.html.
- ❑ For the most current information on global climate change, consult the Union of Concerned Scientists at www.climatechoices.org and the Intergovernmental Panel on Climate Change at www.ipcc.ch.
- ❑ To get involved with efforts to raise awareness of global climate change in your community, see the websites of Step It Up at www.stepitup.org and its successor organization, 1Sky at www.1sky.org.
- ❑ To calculate the level of carbon dioxide emissions created by your personal activities, visit www.safecclimate.net/calculator.
- ❑ To contact the Adirondack Park Invasive Plant Program, visit www.adkinvasives.com.
- ❑ To learn more about septic systems, see www.inspect-ny.com/septic/septtext.htm.
- ❑ For advice on conserving energy and water and keeping your septic system up to date, visit the Adirondack Council's webpage with tips for homeowners at www.adirondackcouncil.org/energytips2.html#water.
- ❑ To view reports by the New York State Department of Transportation on deicing compounds and other topics, visit www.nysdot.gov. For more information about deicing compounds, see the spring 2007 issue of the Salt Institute's *Salt and Highway Deicing* newsletter at www.saltinstitute.org.
- ❑ To learn more about water diversions, read *Blue Gold: The Fight to Stop the Corporate Theft of the World's Water*, by Maude Barlow and Tony Clarke. New Press, 2005.
- ❑ To get Blue Planet Project materials related to water diversions, see the website of the Council of Canadians at www.canadians.org.
- ❑ For information on protecting rivers, lakes, and bays in the Adirondacks, contact the Water Keeper Alliance at www.waterkeeper.org.



Lost Lake, by Gary Randorf

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—Thank you so much.

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ADIRONDACK COUNCIL

The Adirondack Park is the largest park in the contiguous United States. Its wild, natural beauty is a sanctuary for wildlife and people in today's world. The Adirondack Council is the leading voice for Adirondack conservation. We are showing the world how people and nature can thrive together and keep the Adirondack Park Forever Wild.

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The Adirondack Council Water Initiative,
*launched in 2005, has raised awareness of the
need to protect the water resources of the
Adirondack Park. The initiative has advocated
successfully for new policies and increased
funding, thus strengthening the ability of com-
munities and citizens to safeguard the future of
Adirondack water.*

But there's more to be done.



ADIRONDACK COUNCIL
Defending the East's Greatest Wilderness