



Androscoggin River
Watershed Council

Flowing Waters

Vol. 3, No. 1

Spring 2001

The Maine Department of Marine Resources is meeting success in restoring certain fisheries to the Androscoggin River.

Story, page 3.

A citizen-led survey of the Sunday River watershed has found serious erosion problems.

Story, page 5.



Taking measure

Council starts natural resources inventory

By Marcel Polak

Watershed Council chair

The Androscoggin River Watershed Council is conducting a Natural Resources Inventory (NRI) of the riparian lands along the Androscoggin River from Lake Umbagog to Merrymeeting Bay.

After many years of terrible pollution that kept people away from the Androscoggin River, it is now recognized by many as a valuable resource. The pollution also kept a lot of possible development away from the river. Nobody wanted to live too close. Because of the pollution and some of the land being in the floodplain, much of the riparian land that

wasn't farmed was left intact. The outcome is that there are still many large undeveloped properties along the river.

We are beginning to see new commercial and residential development along the Androscoggin River. It is critically important that we know, through natural resource inventories, which of these large undeveloped lands harbor the most diverse and important wildlife habitat.

In addition to the loss of wildlife habitat resulting from development, the other ecological and water quality functions of riparian buffers are often lost. (See the river buffers article on page 4.)

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Androscoggin River Watershed Council Steering Committee

The mission of the
Androscoggin
River Watershed
Council is to
improve
environmental
quality and
promote healthy
and prosperous
communities in the
Androscoggin River
Watershed.

Conference in May

The annual
Androscoggin River
Watershed Council
Conference will take
place May 8.
The theme will be
lifelong learning
opportunities in the
Androscoggin River
watershed.

Details to come.
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For a more
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of upcoming events,
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Executive Committee

Calendar

Feb. 22 – N.H. State
Conservation Committee meeting
Jody Pellerin, coordinator,
jjpsc@ttlc.net or 603-679-2790.
March 20 — “Identifying &
Managing Building Products
Containing Mercury”
8:30 a.m. to noon at Wannalicut
Mill, 600 Suffolk St., Lowell, MA
Training for tradesmen, facility

managers, property owners, reg-
ulatory officials, 781-270-1956.
March 21-23 — “Building
Sustainable Communities: A
Watershed Approach”
Massachusetts College of Liberal
Arts, North Adams, Mass.
603-756-3534 or www.berkshire-
institute.net/conference/updates
April 16 — Ninth Annual N.H.
Pollution Prevention Conference
Hosted by NHDES at the New
England Center in Durham, N.H.

www.des.state.nh.us/nhppp
April 18-20 — Third Regional
Ways of the Woods Conference
Sponsored by the Northern
Forest Center, Concord, N.H.
Workshops on community, cultur-
al, economic, education and
environmental issues in the
northern woods of Maine, New
Hampshire, Vermont and New
York. Laura Tam, 603-229-0679,
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Program restoring fishery to Androscoggin River

By Mike Brown

*Marine Resource Scientist
Maine Department of
Marine Resources*

Prior to construction of dams during the early 1800s, Atlantic salmon, American shad, river herring (alewives and blueback herring), sturgeon and American eels were very abundant in the Androscoggin River. One of the earliest river fisheries in New England occurred at Pejepscot Falls in 1628.

Construction of dams and severe water pollution virtually eliminated sea run fish populations from the Androscoggin River by the early 1930s.

In 1983, an anadromous fish restoration program was initiated in the Androscoggin River by the Maine Department of Marine Resources (DMR). Its goal is to protect, enhance and restore native fish communities and necessary habitat areas. To date, efforts have focused on restoring American shad and river herring to historic habitat areas.

Simultaneously, when Central Maine Power constructed a new hydropower dam at Brunswick, a fishway and trapping facility were constructed to allow migratory fish to move upstream past the dam.

Upriver migration

In 1987, upstream and downstream passage were provided at the second dam on the river (Pejepscot), and in 1988 passage provisions were made at the third dam on the river (Worumbo). These three facilities currently allow upriver fish migration as far as Lewiston Falls.

The Brunswick Fishway/trapping facility is operated annually by DMR personnel. The fishway is 570 feet long and consists of 42 individual pools, with a 1-foot drop between each. The trapping facility, located at the upstream end of the fishway, provides biologists the opportunity to collect data on migratory and resident fish species that use the fishway. As fish swim to the top of the fishway, fixed grating guides them past a viewing win-

dow and into a 500-gallon capacity fish hoist (trap) that is elevated to overhead sorting tanks where fish and water are discharged. Species such as Atlantic salmon are passed upstream above the 40-foot dam after biological data is collected. Exotic species, such as carp or sea lampreys, are netted from the sort-



ing tanks and returned to the river below. Each spring, adult river herring and American shad return to the river to reproduce. To assist restoration efforts, they are captured at the trap, transported by truck, and distributed throughout their historic range into optimum spawning habitat.

Connecticut River shad

The goal for river herring and American shad is restoration to a surplus of 175,000 and 59,000 pounds, respectively, for harvesting by recreational and commercial fishers. Since American shad runs remain extremely low in the Androscoggin River, DMR releases a minimum of 300 adult shad from the Connecticut River into habitat below Lewiston Falls to aid in restoration.

Additionally, in 2000, some 530,000 juvenile shad fry that were reared at the Waldoboro Shad Hatchery were released into Androscoggin nursery habitat. The fry can

Department of Marine Resources workers prepare to release a sturgeon below the Brunswick Fishway.

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Buffers provide protection

Landowners, town road agents, local governments, farmers, and conservation organizations can all help restore and protect the riparian buffers, which in turn restore and protect the quality of our streams.

How buffers work

Riparian buffers are the single most effective protection for our water resources in New England. These strips of grass, shrubs, and/or trees along the banks of rivers and streams filter polluted runoff and provide a transition zone between water and human land use. Buffers are also complex ecosystems that provide habitat and improve the stream communities they shelter.

Natural riparian buffers have been lost in many places over the years. Restoring them will be an important step forward for water quality, riverbank stability, wildlife, and aesthetics in the Androscoggin River valley.

For Water Quality

Sediment filter

Riparian buffers help catch and filter out sediment and debris from surface runoff. Depending upon the width and complexity of the buffer, 50 to 100 percent of the sediments and the nutrients attached to them can settle out and be absorbed as buffer plants slow sediment-laden runoff waters. Wider, forested buffers are even more effective than narrow, grassy buffers.

Pollution filter, transformer, sink

The riparian buffer traps pollutants that could otherwise wash into surface and groundwater. Phosphorus and nitrogen from fertilizer and animal waste can become pollu-

tants if more is applied to the land than plants can use. Because excess phosphorus bonds to soil particles, 80 to 85 percent can be captured when sediment is filtered out of surface water runoff by passing through the buffer.

Chemical and biological activity in the soil, particularly of streamside forests, can capture and transform nitrogen and other pollutants into less harmful forms. These buffers also act as a sink when nutrients and excess water are taken up by root systems and stored in the biomass of trees.

Stream flow regulator

By slowing the velocity of runoff, the riparian buffer allows water to infiltrate the soil and recharge the groundwater supply. Groundwater will reach a stream or river at a much slower rate, and over a longer period of time, than if it had entered the river as surface runoff. This helps control flooding and maintain stream flow during the driest time of the year.

For Bank Stability

Bank stabilizer

Riparian buffer vegetation helps to stabilize streambanks and reduce erosion. Roots hold bank soil together, and stems protect banks by deflecting the cutting action of waves, ice, boat wakes, and storm runoff.

Continued on page 6

Riparian Conservation
The N.H. State Conservation Committee presents "A Professional's Guide to Financial Assistance and Program Support for Riparian Conservation"
March 22
Marriot Courtyard
Concord, N.H.
For more info:
Eric Williams
603-271-2358
ewilliams@des.state.nh.us
or
Jody Pellerin
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Inventory

from page 1

As part of the NRI, we will compile and analyze existing state, federal and local agencies' data on important wildlife habitat, rare plant/natural communities, wetlands, existing conservation lands, and land ownership, etc. These sites will be identified on USGS base maps and, as much as possible, digitally on GIS.

The major goal of the NRI is to determine what other riparian lands, currently not protected, contain the most exemplary natural values. A secondary goal will be to identify existing conservation lands and public access points to determine gaps in strategic protec-

tion and public access.

This information will be made available to local land trusts, conservation commissions and planning boards that are interested in voluntary land protection of important lands. These groups usually have no effective method of determining, even on a basic level, what the priority lands are.

The NRI will also be available to area towns working on comprehensive plans that should include natural resource inventories.

Maine recently passed a \$50 million public lands acquisition bond. New Hampshire has a more modest but comparable program. The NRI will provide the necessary data for local or state groups to nominate properties for acquisition.

Erosion seen as problem in Sunday River watershed

By Jeff Stern

*District Manager
Oxford County (Maine) Soil
& Water Conservation District*

A citizen-led survey of the Sunday River watershed turned up nearly 200 sites where soil erosion threatens fisheries, land, homes and roads.

The Sunday River flows out of the majestic Mahoosuc Range, generally southeast, to its confluence with the Androscoggin River in Bethel. Long considered a top recreational draw in western Maine, the Sunday River shows signs of stress.

Watershed residents have voiced concern about unstable river banks, flooding and the formation of new channels. These events have grown in magnitude and frequency in recent years. In 1998, for example, the river ripped a new channel through a hay field in Bethel. Camps have been moved back from eroding banks.

An informal Watershed Interest Group consisting of watershed residents, the Oxford County Soil & Water Conservation District (SWCD) and the Maine Department of Inland Fisheries and Wildlife formed to investigate the situation. Local concerns were mirrored by the Maine Department of Environmental Protection (DEP), which placed the Sunday River on its list of watersheds at risk from pollution caused by sediment runoff, also known as nonpoint source pollution. Nonpoint source pollution is dispersed in the environment; it doesn't come from an easily identifiable source like a discharge pipe at a factory.

The Maine DEP is concerned that the fast pace of development in the Sunday River watershed may be increasing nonpoint source pollution. Ski area expansion, the construction of roads and houses, and logging (past and present) are activities that may contribute to sediment buildup in the river.

Sediment (sand, silt, gravel and boulders) has filled in pools favored by adult trout. This means that the river's carrying capacity for

trout is reduced. In addition, the enormous volume of sediment that has been flushed into the Sunday River appears to have destabilized the river, which has led to increased bank erosion and channel cutting. Bank erosion has chewed up property and threatens the Sunday River Road in several places.

Nonpoint source pollution in the Sunday River watershed may have impacts in the Androscoggin River, as well. There have been



A site along the Sunday River showing the effects of erosion.

reports that a huge sediment delta has formed in the Androscoggin at the outlet of the Sunday River. State officials think that phosphorus carried by sediment that erodes from the Sunday River watershed may contribute to algal blooms as far downstream in the Androscoggin River as Gulf Island Pond in Turner.

Working with the Watershed Interest Group, the Oxford County Soil & Water Conservation District received a grant from the Maine DEP in April 2000 to conduct a survey. The survey focused on that portion of the watershed from the Newry-Riley Township line downstream to the confluence with the Androscoggin River.

Volunteers received training on how to spot and document erosion problems. They were then let loose to roam the watershed in May and June. Throughout late summer and fall, district staff conducted follow-up field work. A report that summarizes survey findings has

Continued on page 6

Web sites of interest

Maine Department of Environmental Protection:
janus.state.me.us/dep/
Reports on dioxin and other toxics; links to the Bureau of Land and Water Quality (streams, education, grants/loans, monitoring/assessment, watershed planning & management, etc.)

New Hampshire Department of Environmental Services:
des.state.nh.us/
Reports on dioxin and other toxics; links to Water Resources and Quality; Watershed Management Bureau; Rivers Management and Protection Program

Connecticut River Joint Commissions:
crjc.org
Excellent series of 10 fact sheets on riparian buffers; links to watershed education and managing land for clean water

U.S. Geological Service Water Resources in Maine and NH:
me.water.usgs.gov/nh.water.usgs.gov/
Daily stream flow data from selected sites; additional hydrological data; reports and products

For more Web sites of interest, visit:
andro-watershed.com

Erosion

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been drafted. Publication of the final report is planned for February 2001.

Surveyors found 181 sites where nonpoint source pollution is a concern. Many were along the eroding banks of the Sunday River or tributaries like Barkers Brook. A number of roads — town, private and logging — contribute sediment to the river. Other significant sites included parking areas, agricultural fields, residential development and trails.

Fortunately, many erosion problems can be fixed by inexpensive methods called “best management practices.” A best management practice may be as simple as installing a silt fence where a house is being built to prevent sediment from running off the site and entering a stream. Reducing the amount of sediment that enters the Sunday River is critical to healing the river.

Repairing extensive erosion along river banks will be trickier. This is because the effects of an action that’s taken in one location can have consequences downstream. River restoration needs to take into account the state of the river, and be planned and executed

carefully. But it can be successful; many innovative techniques have been developed in recent years to restore rivers.

The final report will provide maps showing the location of the 181 sites. The report will offer suggestions on fixing erosion problems. A discussion of the concept of river stability and its relevance to the Sunday River will be included. In this way, the watershed survey can be used to guide activities to restore the health of the Sunday River for years to come.

But there has been a more immediate benefit, as well. By bringing together people who represent various interests, the watershed survey has sparked cooperation. At one of the initial meetings of the survey project steering committee (which was an outgrowth of the original Watershed Interest Group), one participant said that it was the first time he had seen such a diverse group sit down together at the same table.

Hopefully, armed with the watershed survey (and information from other sources), the community will continue to work together to restore the health of the Sunday River watershed.

That’s a goal everyone can agree with!

Buffers

from page 4

Bed stabilizer

Riparian buffers can also reduce the amount of streambed scour by absorbing surface water runoff and slowing water velocity. When plant cover is removed, more surface water reaches the stream, causing the water to crest higher during storms or snowmelt. Stronger flow can scour streambeds, and can disturb aquatic life.

For Fish and Wildlife

Wildlife habitat

The distinctive habitat offered by riparian buffers is home to a multitude of plant and animal species, including those rarely found outside this narrow band of land influenced by the river. Continuous stretches of riparian buffer also serve as wildlife travel corridors.

Aquatic habitat

Forested riparian buffers benefit aquatic

habitat by improving the quality of nearby waters through shading, filtering, and moderating stream flow. Shade in summer maintains cooler, more even temperatures, especially on small streams. Cooler water holds more oxygen and reduces stress on fish and other aquatic creatures. A few degrees difference in temperature can have a major effect on their survival.

Woody debris feeds the aquatic food web. It also can create stepped pools, providing cover for fish and their food supply while reducing erosion by slowing flow.

Recreation and aesthetics

Forested buffers are especially valuable in providing a green screen along waterways, blocking views of nearby development, and allowing privacy for riverfront landowners. Buffers can also provide such recreational opportunities as hiking trails and camping.

Reprinted from the “Living with the River” series produced by the Connecticut River Joint Commissions.

Program supports outstanding rivers

The New Hampshire Rivers Management and Protection Program was established in 1988 to recognize and designate rivers to be protected for their outstanding natural and cultural resources. The program is administered by the New Hampshire Department of Environmental Services.

To date 13 rivers have been designated; the Androscoggin River is not yet one of them.

For a river to be designated for protection, an interested individual or organization must develop a nomination outlining the river's values and characteristics. Included in the application must be proof of community support.

The application is then submitted to the state for consideration. Once approved, a management plan is developed and implemented by a volunteer local river advisory committee.

For further information, call 603-271-3503.

Restoration

from page 3

later be identified by the hatchery's tetracycline "mark" when they return to the river as adults to spawn.

In 2000, the greatest number of adult shad (88) returning to spawn in the Androscoggin River were captured at the Brunswick Fishway. Underwater video cameras installed at the fishway showed high numbers of shad moving in and out of the fishway throughout the migratory spawning season. This assessment of shad movement in and around the fishway will continue in upcoming years to assist us in determining the best method of passing adult shad upstream to their native spawning habitat.

A total of 23 different fish species have used the Brunswick Fishway since its operation began in 1983.

For further information on the Androscoggin River Project, please contact:

Maine Dept. of Marine Resources, Stock Enhancement Division, #21 State House Station, Augusta ME 04333-0021; telephone, 207-624-6340.

Fish species counted at Brunswick in 2000

Alewife:	9,553
American eel:	3
American shad:	88
Atlantic salmon:	6
Brook trout:	3
Brown trout:	31
Common shiner:	76
Rainbow smelt:	3
Smallmouth bass:	107
Spottail shiner:	166
Striped bass:	95
White catfish:	3
White perch:	405
White sucker:	121

Join now!

Make a difference!

Androscoggin River Watershed Council

Yes, I want to be a member and support the Androscoggin River Watershed Council.

The benefits of membership include:

1. Participation in a bold collaborative effort to improve environmental quality and promote healthy and prosperous communities in the Androscoggin River Watershed.
2. Voting rights for election of the Steering Committee and changes in the by-laws.
3. Periodic newsletters and other educational materials about the Watershed.

Membership categories — Please select one:

Individual_____	\$15	Not-for-Profit organizations_____	\$50
Small Business_____	\$50	Municipal Units_____	\$50
Large Business_____	\$50	State/Federal Agencies_____	\$50

Checks should be made out to the Androscoggin River Watershed Council and sent to: Androscoggin River Watershed Council, c/o AVCOG, 125 Manley Road, Auburn ME 04210

Please include your name, organization or business, address, phone/fax and email address.

At present, the Androscoggin River Watershed Council is under the fiscal non-profit umbrella of the Androscoggin Valley Council of Governments. All contributions are deductible to the fullest extent of the law.

Fifth Canoe Trek was great success

The fifth annual Androscoggin River Source to the Sea Canoe Trek was a great success. It was launched July 5 on the Magalloway River in New Hampshire and finished 19 days later at Fort Popham near Bath, Maine.

Structured as a series of day trips, the Trek was free and open to the public. Most people joined for a day or two, although a plucky few paddled the entire 167-mile course of the river.

The results of an analysis of where Trekkers came from were encouraging. Of the 600 Trek paddlers, 62 percent live within the Androscoggin watershed. Another 24 percent were New Hampshire and Maine residents outside the watershed. As one of the main goals of the Trek is to reach

watershed residents with the message of river stewardship, the study made clear that the Trek is reaching the audience that will have the greatest impact on the future of the watershed. Total participation on the Trek has doubled since 1998.

Next year's Trek will launch July 5 and finish July 25. For more information, contact Trek Coordinator Sue Lincoln at 207-824-0191; slincoln@nxi.com; or our Web site at www.andro-watershed.org

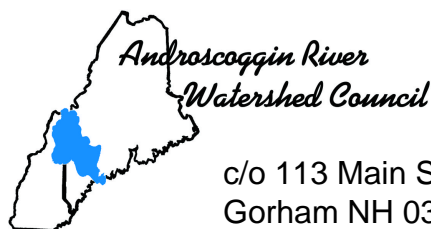
Low-pollution marine engines available

While marine engines have been getting progressively cleaner over the last 20 years, the latest generation of outboard marine engines and personal watercraft is a significant improvement. Technology in the form of four-stroke and direct injection two-stroke engines has been developed by

marine engine manufacturers to comply with the U.S. Environmental Protection Agency's (EPA) 1996 rule for outboard marine engines and personal watercraft. These engines are being phased-in by the engine manufacturers between model years 1998 and 2006. As of 2006, all outboard engines and personal watercraft sold in the U.S. will be low pollution.

Earlier this year, the N.H. Marine Trades Association and the N.H. Department of Environmental Services signed a voluntary agreement to encourage the accelerated phase-in of low pollution marine engines prior to the EPA 2006 mandate.

Further, the Department of Environmental Services spearheaded a regional coalition to work jointly to encourage the purchase and use of these low pollution marine engines by the states and the boating public in the Northeast. This regional coalition is the first of its kind in the country.



c/o 113 Main St.
Gorham NH 03581

On the Web at andro-watershed.org

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