

The River Meets the Public

An important part of our efforts to help species at risk is to educate and involve the community. From clean-up days in Strathroy to tree planting along the banks of the Bear Creek in Petrolia, the community has been actively involved in improving river health.

A Connected River

The Sydenham River website www.sydenhamriver.on.ca includes a lot of information about the recovery planning process and a download section where all the reports prepared are available. Information on Species at Risk programs on the Sydenham can also be found on the Conservation Authority website www.scrca.on.ca and on a website which features a virtual tour of the Sydenham www.sydenhamdiscovery.ca.



Students help to clean up the banks of Alexandra Creek, a tributary of the Sydenham in Strathroy. The students also planted trees and shrubs to help stabilize the stream banks.



Scouts got first hand experience collecting aquatic organisms as part of their World Conservation Badge.



3,500 students participated in a newly designed program on endangered species. The program was created to educate young people about local endangered species and how they can help make a difference.



A species at risk display was created and was taken to fifteen events over the last two years including Rural Expo 2002. It is estimated the display reached over 33,000 people.



A public service announcement (PSA) was produced and has been airing on the NewPL since November. The PSA was created to increase awareness of the "biological treasures" of the Sydenham, Thames and Ausable Rivers.

Partners in Conservation

Environment Canada
 Department of Fisheries and Oceans
 Government of Canada's Species at Risk Program
 Middlesex Stewardship Committee
 Natural Heritage Information Centre
 Ontario Great Lakes Renewal Foundation
 Ontario Ministry of Natural Resources
 Royal Ontario Museum
 Rural Lambton Stewardship Network
 St. Clair Region Conservation Authority
 Stewardship Kent
 University of Guelph
 World Wildlife Fund

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Aquatic Species at Risk in the Sydenham River Watershed

March, 2004

The Sydenham River in southwestern Ontario is the only major watershed which lies completely in the Carolinian Life Zone and is relatively undisturbed by industrial development. This has made the river a biological treasure. The Sydenham River supports an incredible variety of aquatic life, or what we call biodiversity. At least 82 species of fish and 34 species of freshwater mussels have been found here, making it one of the most species-rich watersheds in all of Canada. Several species in the Sydenham River are found nowhere else in Canada, and some remain at only a few locations globally. Many of these species at risk have been nationally listed as endangered, threatened, or of special concern by the Committee on the Status of Endangered Wildlife in Canada. The Recovery Strategy for Aquatic Species at Risk in the Sydenham River was approved in November, 2003.



This is the second annual newsletter highlighting the news and activities surrounding species at risk in the Sydenham River. Our first newsletter, which is available on the website, dealt with the recovery planning process, a description of the species at risk and our initial efforts to help move the yard stick forward. This newsletter reports on our progress on three fronts - Best Management Practices, Research and Monitoring and Communications.



Two New Mussels Added to the List of Species at Risk

The round hickorynut, *Obovaria subrotunda*, and the kidneyshell, *Ptychobranthus fasciolaris*, have been added to the list of species at risk in Canada and both are found in the Sydenham River. This brings the total number of mussel species at risk in the Sydenham to seven.

The round hickorynut has been lost from 90% of its former range. Populations in Lake Erie, the Detroit River, offshore Lake St. Clair, the Thames River and the Grand River appear to have been lost. The population in the Sydenham River is declining. The only significant population in Canada of the round hickorynut is found in the shallow waters of the St. Clair River delta.

The kidneyshell was always rare in Lake Erie and Lake St. Clair, but appears to be gone from these waters as a result of the zebra mussel. The kidneyshell is now restricted in Canada to two reproducing populations in a 100 km stretch of the East Sydenham River and a 25 km stretch of the Ausable River.



round hickorynut,
Endangered



kidneyshell,
Endangered

Farmers Working for Healthier Streams

Farmers in the Sydenham watershed have been implementing a wide variety of Best Management Practices (BMPs). Through a number of grant programs including Healthy Futures, St. Clair Stewardship Initiative, Ontario Great Lakes Renewal Foundation and the federal government's Habitat Stewardship Program for Species at Risk, grants have been made available to help the farmers make positive changes to their operations which help protect water quality. Over the last three years, the Conservation Authority has distributed more than \$900,000 in grants to landowners which has resulted in 386 projects worth more than \$2.8 million. The projects include such BMPs as streambank stabilization, tree planting, wetland creation, livestock fencing from watercourses and well decommissioning. For more information, contact Darren Bertrand, St. Clair Region Conservation Authority at 245-3710 or Lindsay Anderson, Rural Lambton Stewardship Network at 354-6713.



Covered manure storage eliminates runoff from the manure stack, protecting nearby watercourses.



Buffer strips along a watercourse, such as this native tall grass prairie planting, help to reduce sedimentation, protecting aquatic habitat and decreasing the frequency of drain clean-outs.



The landowner planted this 10 acre floodplain with 6,000 trees. The trees will transform this marginal farmland into a healthy river buffer area.



Fencing cattle from a stream reduces erosion by protecting the stream banks. Restricting cattle from the stream also reduces pollution and lowers the incidence of disease in the herd.

Best Management Practices	Total Project Costs	Grant	Landowner Contributions	Number of Projects *
Streambank Stabilization/Naturalization	\$81,966	\$40,006	\$41,960	15
Fragile Land Retirement	\$308,568	\$111,146	\$197,421	40
Conservation Tillage Equipment	\$530,399	\$48,433	\$481,966	31
Milkhouse Washwater Treatment	\$21,713	\$10,856	\$10,857	2
Manure Spreading Equipment Modification	\$181,216	\$59,265	\$121,950	16
Clean Water Diversion	\$47,832	\$16,008	\$31,824	13
Livestock Restriction	\$153,012	\$61,739	\$91,272	19
Nutrient Management Plans	\$43,457	\$18,207	\$25,250	22
Septic Systems	\$599,922	\$228,734	\$371,188	84
Well Decommissioning	\$107,445	\$41,034	\$66,411	75
Riparian Buffers	\$296,967	\$114,415	\$182,551	24
Sediment Traps/Irrigation Ponds	\$17,000	\$3,000	\$14,000	1
Wetland Creation/Enhancement	\$88,345	\$28,081	\$60,264	10
Manure Storage Improvements	\$379,931	\$134,166	\$245,765	17
Well Head Protection	\$28,090	\$10,945	\$17,145	16
Fuel Storage	\$2,250	\$1,000	\$1,250	1
Total	\$2,888,113	\$927,035	\$1,961,078	386

* includes projects funded through Healthy Futures, Habitat Stewardship Program for Species at Risk and Healthy Watersheds (Ontario Great Lakes Renewal Foundation), 2000 - 2003

Research and Monitoring

What a Way to Raise Young

Freshwater mussels have an unusual way to raise their young. Sperm is released into the water from male mussels. The female mussel then siphons in sperm from the water to fertilize her eggs. Her eggs are fertilized and they develop in the marsupial gill. When a fish swims by the mussel she releases the developed eggs (glochidia) into the water and they are eaten by the fish. If the right fish species eats the eggs they will attach to the fish gills or fins and form small cysts the size of pinheads. After a period of time (the length of time depends on the species of mussel), the larvae develop and drop off the host fish and are free-living juvenile mussels with tiny shells.

Different mussel species require different host fish. University of Guelph researchers, Dr. Gerald Mackie and Kelly McNichols, are studying which host fish are used by the endangered Canadian mussels. Glochidia are removed from a pregnant female mussel and spread into an aquarium with different species of fish. If the glochidia develop into juveniles on a certain fish species, the fish is a viable host. If not, the fish is an unsuitable host.

So far, the wavy-rayed lampmussel has developed successfully with sculpin hosts, and the rayed bean mussel with greenside darters (also a species of concern). However, the wavy-rayed lampmussel has been shown to develop on the smallmouth bass in the United States, and so far the young mussels have not developed fully during experiments at the University of Guelph. Is this the wrong host for this rare mussel? Or are the bass themselves not healthy? Research continues. No one ever said that raising kids was easy.



Host Fish

Scientists from the University of Guelph are undertaking research to learn which fish are used as hosts by certain species of mussels. One of the endangered species of mussel, the wavy-rayed lampmussel, which has disappeared from the Sydenham is apparently dependent on the smallmouth bass as a host. Surveys by the Royal Ontario Museum in the 1990s did not find smallmouth bass in the Sydenham. In a separate study this past summer, staff from the Department of Fisheries and Oceans found smallmouth bass in the East Sydenham River. Anglers who have caught smallmouth bass in the Sydenham River watershed can help by calling the St. Clair Region Conservation Authority. Other possible host relationships may include the rayed bean and the greenside darter; the northern riffleshell and the fantail darter; and the kidneyshell and the blackside darter.

Something Fishy

Where are the fish in the Sydenham? That's a question for every avid fisherman, and a research team from Fisheries and Oceans and the University of Guelph has been surveying the Sydenham for the past two summers. Mark Poos and Dr. Nick Mandrak have used eight types of survey equipment to examine 100 sites along the Sydenham River. They used seine nets, and various designs of "minnow" traps and electro-fishing equipment, and identified over 50,000 individual fish from 68 different species. The good news is that the Sydenham does have many species of fish, and that six of the eight rare fish species were found. The bad news is that many of the fish people like to catch - the northern pike and the smallmouth bass - were very few and far between.

Benthic Sampling

The St. Clair Region Conservation Authority, with support from TD Canada Trust Friends of the Environment and the Rural Lambton Stewardship Network, continued monitoring aquatic health this year at 38 sites. At these sites, aquatic organisms such as crayfish, mayfly larvae and dragonfly nymphs are collected from the river bottom sediment. These organisms help us to understand the health of our streams. Generally the greater variety of species that are present, the healthier the stream.

Water Quality Monitoring

The Conservation Authority continued its water quality sampling program. Results over the last 3 years indicate that phosphate levels are high throughout the watershed and heavy metals are a concern in some locations.