American Fisheries Society
Southern Ontario Chapter

Newsletter of the AFS Southern Ontario Chapter

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Annual General Meeting to be held March 22 – 24

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AFS-SOC Annual General Meeting Announcement (and a message from your President)

A new year has begun. On behalf of your Excomm I would like to extend our wishes for a happy and prosperous New Year to each of you.

Your Southern Ontario Chapter (SOC) realized many accomplishments in 2001. These included the successful hosting of our chapter's Annual General Meeting (AGM). With a total of 76 participants, the weekend was well attended by AFS members and interested non-members alike, including a significant number of students.

Following the success of the AGM, the Excomm moved forward with a new agenda which included fulfilling three primary goals for the year: 1) Renewing involvement of members and recruiting new members, 2) Raising the profile of AFS in Southern Ontario by aligning ourselves with other complimentary professional organizations, and 3) ensuring that the AGM is not the only event our chapter provides for all members to come together.

To date we have formed two committees - an Education Committee (Chair – Cindy Mitton-Wilkie) and a Professional Liaison Committee (Co-Chairs Michael Roy and Dave Green),. We have also organized "An Evening with Dr. Crossman" (see below) and feverishly created a new and informative theme and agenda for this year's AGM in Dorset.

This year's AGM will be held over the weekend of March 22 – 24. Plans are already well established for this event which will proceed under the theme "*From Concept to Application - Advances in Fisheries Science*". Once again we have lined up an impressive array of speakers in addition to our usual weekend items including the annual general meeting on Saturday evening, followed by a social mixer and networking opportunity. For those of you who are regulars, I encourage you to register soon. For those of you whom we haven't seen in a few years (or more!) I urge you to consider joining us this year and reacquaint yourself with AFS. We have enjoyed great success in attendance and positive feedback over the past few years and this year promises to deliver the same. To register see the enclosed tentative agenda and registration form.

General questions and requests for further information can be directed to this years coordinator Rob Steele at Natural Resource Solutions Inc. (519-570-4019, steele@nrsi.on.ca) or myself c/o EcoLogical Solutions at 416-467-8573 or via e-mail at ecosol@on.aibn.com.

An Evening with Dr. E.J. Crossman
"Canada's Freshwater Fishes, All Foreign?"

The AFS, Southern Ontario Chapter is pleased to present "An Evening with Dr. E.J. Crossman". Dr. Crossman is a renowned expert on Canadian freshwater fish and has agreed to spend an evening enlightening us. Dr. Crossman has chosen, as his topic for the evening, "Canada's Freshwater Fishes, All Foreign?" This promises to be an informative session and any of us who have had the privilege of attending previous talks by Dr. Crossman can certainly attest to that. With such a popular speaker spaces are limited. We therefore encourage you to preregister for the event by contacting the evening coordinator, Cindy Mitton-Wilke. Contact information for Cindy as well as details on the venue are provided on the enclosed flyer. This is the first of many high caliber speakers that your executive committee hopes to attract for the members in the next little while. Please plan to attend and spread the word to non members who will not have the benefit of having received this newsletter.

Our Featured Biologist
Deborah Martin-Downs, Gartner Lee Limited

Deborah Martin-Downs is our featured biologist/SOC member in this issue.

It wasn't until she had her first undergraduate summer job as a limnological research assistant to a Ph.D. student at the Matamek Research Station near Sept Iles Quebec, that she became interested in aquatic ecology. Seeing the writing on the wall for her initial passion of wolf ecology, she began focusing her studies at the University of Waterloo on aquatic systems. Here she learned from the likes of Noel Hynes, Jack Imhof (then a lowly Master's student and TA) and Geoff Power. It paid off and her first job upon completion of her Bachelors was as an assistant aquatic biologist with Ecoplans in Waterloo, then run by Bob Dorney. Two years there and another year with the Ministry of Environment on the initial studies for the Toronto Area Watershed Management Strategy (TAWMS) set the stage for a Masters Topic and ultimately her consulting career. She met Henry Regier, who supported her interest in the effects of urbanization on fish communities, and initiated a Master of Science degree under him at the University of Toronto in 1982. He insisted his students join AFS and she became a member in 1983. Here she shared offices with colleagues Rob Steedman, Tom Whillans, Gavin Christie, Don Wismer, Gail Krantzberg and Bob France. Her thesis work was carried out on the Credit River where she conducted fish community inventories throughout the watershed and assessed that community against the one found in 1952 using archival Ontario Department of Planning and Development data along with changes in land use and water quality over that time period. A similar project with much more dramatic results was also undertaken on the Don River as a contract with MOE after her Master's was complete. On these rivers she honed her fish identification skills under the tutorage of Erling Holm at the ROM.

For four years between 1985 and 1989 she developed and ran an urban fisheries program co-operatively with the Toronto Region Conservation Authority and Ministry of Natural Resources. Here she identified and developed recreational fishing resources in urban ponds and organized activities and educational activities with the hope that use of urban fish resources would garner support for environmental rehabilitation.

Faced with budget threats, she answered a job ad for Gartner Lee and started work there in 1989. In her time there she has worked on numerous projects throughout Ontario as well as some in Newfoundland, B.C. and Yukon. Projects range from landfill assessments, subwatershed studies, land development, highways and roads, water takings, infrastructure development and restoration design. Her most favourite projects to date are the Subwatershed Regeneration Plans for the Don River which formed a large part of Forty Steps to a New Don, the Lake Wilcox Remediation Strategy and the rehabilitation plan for Grenadier Pond in High Park. She currently manages the Environmental Planning Team at Gartner Lee and was made principal in 1994.

In addition to her day job, Deborah volunteers with the Don Watershed Regeneration Council, is a mom to Greg (12) and Colin (10) and is married to Jim Downs, P.I.. She was AFS-SOC President in 1996-97 And participated in the AFS Strategic Plan Development in 1999. As her mother would say, she has come a long way from the time she came face to face with a bass at her dock in Muskoka and swore she would never set foot in the water again because there were fish in it!

ATLANTIC SALMON IN LAKE ONTARIO

Ken Cornelisse, Ministry of Natural Resources

Imagine fishing for Atlantic salmon right here in Ontario! Atlantic salmon were historically in Lake Ontario and its tributaries since the last ice age, approximately 10,000 years ago. Unfortunately, as a result of the dams, over-fishing and the clearing of the forests, the once-thriving Lake Ontario Atlantic salmon were declared extinct by 1900.

When the first settlers arrived in southern Ontario in the late 1700s, they netted and speared barrels of Atlantic salmon in Lake Ontario and in its tributaries. Many dams were built for water-powered saw and grist mills, blocking the annual upstream spawning migration of these great salmon. Additionally, logging and land clearing degraded water quality in the rivers of Lake Ontario.

Atlantic salmon lay their eggs in gravel sections of clear, cool streams, where the young fish hatch. After 1 to 3 years in the stream, they migrate to Lake Ontario. They become sexually mature at age 4 or 5 and the adult salmon return to streams to spawn each year. Unlike Pacific salmon, Atlantic salmon can spawn more than once. Atlantic salmon typically live to 9 years of age, but they can live to 11 years old and in the ocean have been known to reach more than 37.6 kg (80 lbs.). An Atlantic salmon weighing approximately 18 kg (40 lbs.) was reportedly caught in Duffins Creek in 1874.

In the lake, drastic changes occurred which had a devastating impact on the Atlantic salmon fishery. These changes included the invasion of sea lamprey, alewife, smelt, zebra mussels, the introduction of Pacific salmon (chinook and coho) and rainbow trout, commercial over-exploitation of herrings, lake whitefish and lake trout.

Urbanization results in changes in the character and function of watersheds. Of particular importance, the groundwater resources of the Oak Ridges Moraine and Niagara Escarpment help to maintain high-quality cold-water streams. Today, there are far fewer dams creating obstacles for migrating fish as a result of work by the Ministry of Natural Resources and our partners.

CURRENT RESTORATION PLAN

When the Atlantic salmon restoration program began in 1987, the long-term goal was to develop a sport fishery, based on naturally produced fish from one or more tributaries. In 1993, after careful review of the program by scientists and stakeholders, it was decided that efforts should focus on the most critical factors that may be limiting the restoration of Atlantic salmon. In 1997, continued support for restoration of Atlantic salmon research was affirmed through public consultation.

In the short-term, while we are stocking relatively small numbers of fish for research studies, anglers should not expect Atlantic salmon to contribute significantly to the salmon and trout fishery.

Our provincial Fish Culture System has successfully overcome many of the challenges associated with raising Atlantic salmon. Research studies have shown that even in the presence of competitors, Atlantic salmon survived at densities exceeding our targets; stocked older fry survived better than younger fry; the Black Creek tributary of the Credit River had the highest growth and survival rates for juveniles; and over-winter survival in the tributaries may not be a problem.

WHO'S INVOLVED?

There are many partners working towards the restoration of Atlantic salmon. These groups include scientists and fish culture specialists from resource management agencies and academic institutions in Ontario and New York, as well as community interest groups.

THE FUTURE

There will be ongoing review of the results of the research studies. Progress will be measured using benchmarks set out in the plan. We will decide, in consultation with stakeholders, whether the program should continue, and if so, what steps will be taken next. The impact of decisions on existing lake and stream management plans will be evaluated. Although preliminary results are encouraging, there are still some important questions to answer before we know if it will be possible to restore Atlantic salmon to Lake Ontario and it's tributaries.

Some Current Research

East meets west: The cold water stream war over spawning rights in Wilmot Creek

Robert J. Scott, University of Guelph

Interactions between Atlantic salmon (*Salmo salar*) and Chinook salmon (*Onchorynchus tshawytscha*) during spawning could be an impediment to the successful restoration of Atlantic salmon to the Lake Ontario ecosystem. We took two approaches, one experimental and one survey based, to examine the frequency and outcome of behavioural interactions between these two species during the fall 2000 spawning season. In our experimental approach, we isolated 10 similar sections of the Orono Creek (a tributary to Wilmot Creek, which flows into Lake Ontario east of Toronto) using chain-link fence. We placed 4 pairs of spawning Atlantic salmon into each section on 21 October, 2000 and 2 pairs of spawning Chinook salmon into half of the sections (determined randomly). We compared levels of activity, timing and placement of redd digging, and degree of fungal infection (index of condition) between the treatments. In our survey approach, we released 65 adult Atlantic salmon tagged with large, fluorescent Floy tags into Wilmot Creek, 6.5 km upstream from the mouth. We conducted walking surveys every three days until the first evidence of spawning was observed when we switched to daily surveys. Locations of fish and digging activity were recorded on a map. Following each survey, we returned to locations of digging activity and made behaviour observations on the spawning fish. Interactions between spawning Atlantic salmon and other exotic salmonids in Wilmot Creek will be analysed.

A Letter from our Student Representative

By Karen Murchie

STUDENTS IN FISHERIES SCIENCE!

The purpose of this portion of the newsletter is intended to give the SOC-AFS membership an idea of current research being conducted by graduate students in this area, as well as to invoke the involvement of more students in the society.

Fisheries research continues to be strong and diverse in many of the universities across Ontario. A broad range of studies are taking place this instant and include a variety of topics - from ecology to molecular biology. New techniques such as stable isotope analysis are becoming increasingly popular in the field of fisheries science. Stable isotope analyses are being used for trophic studies, understanding fish movements between freshwater and the sea, and also for tracing anthropogenic impacts on aquatic environments.

Molecular work is being conducted to identify locations on genes which are responsible for certain phenotypes, body size, tolerance to increased water temperatures, etc. in attempts to aid in the aquaculture industry. Genetics work is also being completed to examine the interactions between finescale dace and the northern redbelly dace and the hybrid complex they are involved in.

Physiological research topics include nitrogen excretion in fish, the effects of changing hydrostatic pressure on cardiac function, buoyancy, and temperature effects on the physiology of early development. Also angling stress is being studied on our favourite sport fish.

Radiotelemetry is being paired with GIS applications to examine habitat selection, and hydroacoustics are being used to assess fish abundance. Models continue to be developed and validated in order to predict stream fish communities, as well as fish growth.

Such a plethora of projects can be listed, but the above are only a few. Any student interested in sharing their research is invited to submit a poster for the Annual General Meeting (AGM) in Dorset, ON. The student poster session is an opportunity to meet with other students, as well as professionals in the fisheries field. If you would like more information, please email one of the student representatives.

For anyone who has not visited the AFS website, check out www.fisheries.org. This is a great location for information on upcoming conferences, career opportunities, grad school positions, publications and more. The book store at this site has many great deals on useful reference materials, and is worth bookmarking in order to keep on top of the sales! Visit this site as well for membership information.

On behalf of the student representatives, we are looking forward to seeing a great turnout at this year's AGM. Come and share your enthusiasm for fisheries science! See you there.

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IT TAKES VOLUNTEERS !!!

The American Fisheries Society, Southern Ontario Chapter is administered by a group of volunteers including both fisheries professionals and student representatives. We encourage each of you, as members, to consider contributing to the ongoing efforts to maintain an active, viable voice for professional fisheries science in Ontario. There are many options available. We need people to sit on various committees. Presently, we are also seeking a company or organization that would consider taking over the publication of this newsletter. Remember, this newsletter is the only way of keeping in touch with you, our members. Do you manage a group of professionals who could collectively conspire to publish the newsletter? There are only two to three issues a year and those of us who have published the newsletter over the last two years have found it to be a challenging and highly interesting undertaking! Finally, as always, we actively seek to involve students in our programs. Would you have a few minutes a month out of your heavy academic schedule to put towards helping the AFS SOC to run more efficiently? If so, have we got a deal for you! Please feel free to call us and inquire as to how you, or your organization, may be able to help (see contact info below).

Remember, **IT TAKES VOLUNTEERS!**

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