

Newsletter of the AFS Southern Ontario Chapter



Volume 1, Issue 1

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Points of Interest

Annual General Meeting to be held March 24 –25

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Your Chapter Executive

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Registration form for Annual General Meeting inside

A note from the Editor

The Southern Ontario Chapter of the American Fisheries Society has been in existence for over 20 years. Over the years there have been numerous attempts to publish a newsletter with varying degrees of success. This represents the inaugural edition of yet another such attempt.

Let's take a moment to discuss the type of information which you can expect to see in this newsletter.

Each edition will feature

a biologist active in the discipline of fisheries science. We welcome nominations for this feature.

We also intend to provide a forum for articles of scientific interest. We are looking for articles which allow the author to share valuable scientific insight outside the confines of a refereed journal.

With this perspective in mind we invite all members to submit articles of between 300 and 500 words for consideration.

Pleased or displeased with something published in this newsletter? We welcome letters to the editor.

A newsletter is only as good as the material contained within. Your contributions are essential. Please pass along your ideas to me at Natural Resource Solutions.

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AFS-SOC Annual General Meeting Water Quality and Quantity

AFS-SOC Annual General Meeting

It's that time of year again to pull out the winter woollies and head up to the L.M. Frost Centre near Dorset for a weekend packed full of informative presentations, a few social mixers and our chapter's annual general meeting. This year's meeting, Water Quality and Quantity - Ontario's Evaporating Resource, will be held on the weekend of March 24th and 25th. We have lined up an impressive array of

speakers this year who will be presenting on a wide variety of topics related to Ontario's fragile resource, *our* water. As in past years, the event is open to family members and we have included time for you to explore your own recreational activities (cross country skiing, snow shoeing, etc.). Other planned activities include poster presentations and a remote tracking presentation and scavenger hunt. The annual general meeting will be held on Saturday eve-

ning, followed by a social mixer and networking opportunity. As we have enjoyed great success in attendance over the past years, *be sure to REGISTER EARLY - space is limited.* To register see the enclosed tentative agenda and registration form.

General questions and requests for further information can be directed to Michael Roy c/o:

EcoLogical Solutions at

416-467-8573 or by e-mail at ecosol@on.aibn.com.

An experimental removal of habitat vs. nature: How transient is habitat?

Kelso, J.R.M., and K.E. Smokorowski

Great Lakes Laboratory for Fisheries and Aquatic Science—Sault Ste. Marie, Ontario

Events affecting natural habitats are usually managed (licensed and permitted) on a daily and site-specific basis. However, the yardstick by which the events/requests are gauged for approval or action is the response of the fish community or other whole system aspects of the resource. For example, permission for removal of nearshore rocks and trees to enhance water access by a single new cottage lot owner is gauged against the probable effect upon the fish community from nearshore changes by past and future cottage development for that lake. Fisheries, habitat and other resource managers, predicate their actions upon the intention of maintaining or increasing the productivity of habitats in their purview.

For fisheries, resource managers assume that, to maintain the productive capacity of aquatic habitat for fish, no net loss of habitat should occur. Sustaining the no net loss principle is supported by site-specific evaluations or assessment and compensation (usually in kind) for a site-specific loss of habitat.

The destruction of habitat in aquatic systems is assumed to cause a compensatory decrease in productive capacity (DFO 1986 provides an explanation of the term) and that enhancement or creation of habitat elsewhere will increase productive capacity. Implicit, but usually never stated, in the management of habitat for fish production is that habitat is a static or conservative property of lakes and rivers. To test if, in fact, removal of fallen trees nearshore (i.e. as a cottage lot owner might do) affects the fish community, we removed nearshore trees (in water) and woody structure in experimental lakes.

Removing the coarse woody debris (CWD) from 50% of the shoreline of three experimental lakes (2 in September 1999 and 1 in September 2000) required an inordinate amount of time, energy and money. All CWD

creating vertical structure was removed from the nearshore to a depth of 2 m or 10 m from shore, whichever came first. Wood was cleared to just above current water level in 2 lakes, and to the high water mark in the 3rd lake. We left 50% of the shoreline untouched, meaning we left (a reservoir of) wood for habitat in the system. What has happened since?

Water levels fluctuated frequently and with great magnitude – up to 30 cm repeatedly in 2000. Shortly after the wood removal treatment in 1999, the shoreline was inundated beyond our treatment level! The ends of onshore CWD that were high and dry at treatment were re-submerged. Thus, many new shallow habitats were ‘created’, diverse in structure and cover, even after our removal treatment. Furthermore, CWD immigrated into our treatment zone! Wood re-appeared in cleared areas within days of treatment. As a quantified example, in Quinn Lake, 11% of the remaining wood (by volume) migrated into cleared areas by 7 months, and 13% migrated by 11 months post-treatment.

The implication is that the effort invested to clear an area of woody diversity is certainly not a “permanent” manipulation, even at a time scale of days. If we model the impact of the manipulation based on the distribution, volume and position of the wood prior to and post manipulation we would be making the erroneous assumption that the wood as mapped and habitat as perturbed will remain static. This is clearly not the case. It seems, from the early stages of our study, that ‘habitat’ is a feature of the lake and not the site.

In addition to the wood removal treatment, in one lake we mimicked beach creation by changing the nearshore substrate. The quest to render the nearshore substrate uniform was difficult. Finding a material or method to change the substrate was

challenging considering the many criteria – permeable, negatively buoyant, durable, inert, removable at the end of the experiment – the agent had to fulfil. Then, once we believed we had found a geotextile material that met the study needs, we encountered difficulty – difficult to anchor, would not conform to the shoreline, would not conform to bottom – in the installation.

Once we overcame the obstacles and installed the geotextile, it was quickly covered with organic material and resembled adjacent muck substrate! Within 1 month the changed/new substrate was covered by approximately 1 mm of organic matter. After 11 months, the average depth of organic material on the substrate was 1 cm, and in places was as deep as 10 cm. What was the cause? Sediment disturbed while installing the material may have simply re-settled on top. However, the amount of, and timing for, substrate deposited indicates that the majority of the organic matter was a result of wind driven re-suspension and deposition.

Some intriguing questions arise from these observations about physical fish habitat. Is the placement of habitat transient in terms of structure, wood, substrate etc. but static by virtue of continual replacement? Is the most important experiment related to determining static or dynamic nature of habitat in nearshore areas?

It may be that in-water habitat is not the issue. Conditions nearshore – shoreline vegetation, substrate type, exposure, fetch – which determine the generation and behaviour of what we think of as nearshore habitat, may be more important. Perhaps, instead of assessing habitat – in terms of shade, shelter, macrophytes, substrate – we should be assessing dynamicity of areas. Traditional site evaluation of habitat change, without the benefit of context (supply and dynamics) could lead to ineffectual management of our aquatic resources.

Our Featured Biologist

Erling Holm - Royal Ontario Museum

Assistant Curator
Centre for Biodiversity and
Conservation Biology
Royal Ontario Museum

Erling was born in Denmark in 1950 and immigrated with his parents to Toronto in 1957. He began his aquatic biology career as a student working during the summers for the Ministry of Natural Resources. During the four years in which he was earning his Bachelor of Science at the University of Toronto, he worked as a creel census clerk in Chapeau, and as a lake and stream surveyor in North Bay, Parry Sound and Bracebridge. In 1974, he continued working with the MNR's Lake and Stream Inventory Program at the head office in Toronto under Gareth Goodchild and Doug Dodge. His major activity was identifying small fishes that resulted from inventory surveys, an activity that he enjoyed very much. During the peak year in 1976, over 90,000 fish specimens passed through the central MNR lab. In 1977, he began as Curatorial Assistant at the ROM in the Department of Ichthyology and Her-



Erling with a Greater Redhorse - Grand River
Photo by Daryl Coulson - MNR Pembroke

petology under Curators Dr. E. J. Crossman and Dr. A. R. Emery. His major responsibility was to manage the growing collection that consisted of approximately 35,000 lots of marine and freshwater fishes primarily from Canada and the Caribbean. Erling continued with his interest in local fishes conducting field trips in various parts of Ontario and Quebec with his colleagues George Coker and Marty Rouse. In 1978, he offered the first ROM Ontario Fish Identification Course to a group of twelve participants. Starting in 1980, the ROM's collection of Indo-Pacific marine fishes began to grow quickly with the hiring of a third curator of fishes, Dr. Rick Winterbottom, and Erling began to work on a variety of coral

reef fish groups. In 1986, Erling turned his attention to South American fishes when given an opportunity to go to Peru. Additional field trips to Peru and Guyana followed every other year until 1994. After 1994, Erling again began to focus his attention on local fishes, particularly redhorse suckers and fishes "at-risk" such as the redbreasted dace and the eastern sand darter. In 1999, he began to work on a big multi-disciplinary project in the marshes of Walpole Island. After a 17-year hiatus, Erling, Marty, and Mary Burridge offered the second ROM Ontario Fish Identification workshop with the assistance of Gartner Lee Ltd. Erling usually finds identifying fishes a snap, but teaching this skill is a bigger challenge. This March, Erling and his colleagues will be teaching fish identification to 56 people during four separate workshops. Erling lives in Mississauga with his wife Deborah and his three children Emma (20), Peter (17) and Lili (13).

Some Current Research

Distribution and abundance of whitefish near Douglas Point, Lake Huron

John Holmes, Axelrod Institute of Ichthyology, University of Guelph

Hydroacoustic surveys (710 kHz single-beam and 120 kHz split-beam) were conducted near Douglas Point, Lake Huron, in the spring and fall to determine the response of lake whitefish and round whitefish to the Bruce Nuclear Power Development. Fish observed in water depths of 9-15 m tend to be uniformly distributed throughout the water column; small targets (-60 to -80 dB) were pelagic (gizzard shad) whereas larger targets (-30 to -50 dB) were benthic (round whitefish, longnose sucker). At depths >15 m, fish were within 10 m of the bottom and most were large targets (-30 to -50 dB). Lake whitefish and burbot comprised 35%

and 44% of the individuals captured at depths of 20-30 m. Round whitefish were common near the Bruce B NGS discharge, accounting for 76% of the fish captured in the spring. In contrast, white sucker (50%), gizzard shad (18%) and longnose sucker (13%) were the dominant species in the Bruce A NGS discharge. Fish biomass increases in a south-north direction in the study area and was greater at depths <20 m in the spring. These trends are consistent with the predominant current and wind patterns at the site. In the fall, fish biomass approximately doubled between daytime and nighttime runs and

generally increased in a north-south gradient. During the daytime few individual targets were observed in the water column; fish tended to be tightly aggregated and located near prominent bottom features, e.g., outcrops, drop-offs. These aggregations broke up within an hour of nightfall. A dense layer consisting of large zooplanktors formed after sunset at depths of 20 to 25 m and both large and small fish targets were observed feeding on this layer. Lake whitefish relative abundance (CUE data) was greater than round whitefish in the fall sampling. Highest densities appear to occur just south of Douglas Point.

AMERICAN FISHERIES SOCIETY SOUTHERN ONTARIO CHAPTER

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Ben Clemens

Karen Murchie

Heather Lynn

The AFS – SOC would like to thank the following organizations for their generous sponsorship of the 2001 Annual General Meeting.

Beak International Incorporated

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A Letter from our AFS Student Reps

By Kim Connors and Karen Murchie

Both Karen and I have enjoyed our experiences in fisheries that have allowed us to travel across Canada encountering many new and exciting adventures. Looking back I wish there would have been someone to inform me of the American Fisheries Society in the earlier stages of my education. As graduate students, Karen has traveled to northern Alberta to study the ecology of perch and I to Newfoundland to study the behaviour and physiology of Atlantic salmon smolts. The American Fisheries Society opens the door for many students offering new opportunities both for your education and career.

Students are an integral part of AFS, as they will become the Society's leaders of tomorrow. Therefore the AFS is dedicated to assist students through education and stewardship programs, scholarships, job

and graduate opportunities. For more information check out the main website <http://www.fisheries.org/> or the student section to the website <http://www.fisheries.org/student.shtml>.

Over the past year and a half I have been part of the Southern Ontario Chapter of the American Fisheries Society as a student representative. During that time I have been promoting more student involvement with AFS. One example is a student poster session at the Annual General Meeting (AGM). During last year's poster session, three other students volunteered their time to help: Karen Murchie (UofW), Heather Lynn (UofG) and Ben Clemens (UofG). Our goal is to get as many student representatives from different universities across Ontario. We are also interested in hearing about what other students are working on for upcoming newsletter articles.

Another upcoming event is the Annual General Meeting in Phoenix Arizona! There will be lots of interesting sessions with special events such as a student job fair. Money a problem? There are student travel scholarships to help students attend and get involved. So join in!

Questions or comments? Contact:

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