

# NEWSLETTER

of the

## SOUTHERN ONTARIO CHAPTER AMERICAN FISHERIES SOCIETY

President - Les Stanfield, MNR-Maple

President-elect - Ken Harris, MNR-White Lake FCS

Secretary - Henk Rietveld, MNR-Huntsville

Treasurer - Geza Gaspardy, Credit Valley Cons. Auth.

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### -- PRESIDENT'S CORNER --

by Les Stanfield

Welcome to the Green Decade! I've heard and read many comments that this is the decade that we either make it or break it on planet Earth. Lately, (maybe because of the recent addition to my family) I've been thinking about this more seriously. As a result I have become even more committed than ever to "making a difference". I truly believe that by working within AFS my goal can be achieved. I am convinced that the world is ready to accept environmental conservation as a way of life and, that we as a society can help make this happen.

Why all this optimism?

Here are a few of the achievements our Chapter can be proud of to date. Our Fisheries Habitat and Fish Stocking workshops were both highly successful in focusing attention on very important issues in Southern Ontario. We are committed to ensuring that recommendations from these activities are pursued. We will soon be holding the first in a series of fish habitat seminars which are directed at the various members of the fisheries community. We have made good progress at establishing our credibility as facilitators with several organizations within Ontario's fisheries community. We are working towards establishing an Ontario chapter of Fishermen Involved in Saving Habitat (FISH). We have a highly motivated and active membership that are involved in a variety of projects. The conclusion: in Southern Ontario we have already made a difference.

AFS has made great strides at promoting the conservation of the world's fisheries resources. Progress here will hopefully be even greater with the upcoming World Fisheries Conference. All the literature I have seen recently from members of the

Society indicate a desire for an even greater role in lobbying actively for programs and policies that will fulfil our goal. The Society realizes that for this role to be successful in countries outside the U.S. there has to be a greater local presence. As a first step towards being more effective internationally, a Canadian office of AFS has been proposed. This office could also help coordinate partnerships within the fisheries community to enhance communication between Canadian fisheries biologists. As a chapter we are working towards this goal.

In order to define our goals as a chapter and help focus our efforts we are preparing a Long Range Plan (LRP) and a procedural manual. Both will better define the strategies we will use to meet our goals. Over the last month, I have been providing interim guidelines to each of our chapter committees, to provide them some direction until these documents can be prepared. If anyone is interested in assisting with the preparation of either of these documents please give me a call.

There are of course many other activities which we will be involved with such as; preparing and acting on a plan to address the loss of fish habitat by unrestricted development, implementing a Continuing Education program, developing an awards program and co-sponsoring the 7th North American Trout Stream Improvement Workshop. It will obviously take a lot of time to achieve all these goals. Therefore we have decided to apply for an Environmental Youth Corp (EYC) position to assist us with some of these tasks. If the position is approved the following could be added to the target list: development and distribution of a brochure on habitat protection and development of a fish habitat protection bibliography. With your continued support we really can make a difference this year and for the decade.

**EDITORIAL**  
by Hal Schraeder

Our 2nd annual workshop, "Changing Perspectives: Stocking as a Management Tool in Ontario", and business meeting was a tremendous success. Ken Harris' following article acknowledges the many people involved and announces our next annual forum.

Looking back on the workshop, I can't help but feel that there is a significant dichotomy to how fisheries managers view stocking. On the one hand, we have the preservationists, who see stocking as a dangerous means of displacing or diluting aboriginal gene pools. On the other, we have the culturists who recognize and promote the value of principles applied to other forms of animal husbandry and who seek to improve or enhance natural attributes of fish for the benefit of user groups. Can there be a compromise between such apparently polarized points of view?

I was concerned about the emphasis on Great Lakes stocking experiences - undoubtedly, this area has been the best studied and with considerable assessment. Will the large lakes work give us a handle on more localized stocking practices, e.g. 'put-and-take', 'put-grow-and-take', adult transfers (rehabilitative stocking?), especially in terms of benefits provided to society. Localized stocking is both very vulnerable to being 'demand driven' by local client groups and to not being assessed in terms of fishing opportunities provided. George Whitney provided a valuable insight into client group misconceptions when he reported that Algonquin Park anglers wrongly believed that fish stocking was largely responsible for the quality of angling opportunities in the park.

On a final note about the workshop, I wonder whether or not we fully appreciate the merit of 'put-and-take' stocking as a means to stimulate at least some angling activity in specific areas. This somewhat 'loss leader' approach ensures that the public's interest in fishing is maintained ('demand maintenance') until significant habitat rehabilitation can be done (if it can). Let us not forget, however, that timely phrase: 'Oh, what a tangled web we weave when first we practice to deceive' - We must communicate clearly our management intentions when we undertake stocking programs so that our clients do not embrace unreasonable fishing quality standards that can only be maintained through artificial means. I'd be interested in your thoughts on this topic.

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**PLEASE TAKE NOTE**

At the business meeting I presented a plan to make this Newsletter a QUARTERLY publication, to be issued: MARCH, JUNE, SEPTEMBER, and DECEMBER. Chapter Members, especially Committee chairs, are asked to please submit contributions to the Newsletter ONE MONTH prior to the dates for mail-out of finalized issues.

**THE NEXT ISSUE OF THE NEWSLETTER WILL BE MAILED OUT IN JUNE - ALL CONTRIBUTIONS SHOULD BE SENT IN BY MAY 1st TO:**

Hal Schraeder, c/o MNR, 353 Talbot Street West, Aylmer, Ontario, N5H 2S8.  
Tel: (519) 773-9241; FAX (519) 773-9041.

## 2ND ANNUAL MEETING AND WORKSHOP

*SOMETHING TO BE PROUD OF!*

by Ken Harris, President-Elect

I would like to take this opportunity to thank each and every attendee of our January 11-12 Annual Chapter Workshop and Business Meeting for your participation and help in making this event our most successful ever (well, O.K., we've only had two, but damn, they are getting better!). As has been noted many times by executive committees of many organizations such as our Chapter, it is participation and a willingness to give input that makes for long-term success. Without the active, in-person participation of our members, the AFS Southern Ontario Chapter would be a short-lived pipe dream. Judging from the interest and enthusiasm demonstrated this year in Dorset, however, our Chapter has a solid future.

I would certainly be remiss if I did not single out for special thanks the excellent group of speakers who contributed to our workshop -- Carlos Fetterolf and Bob Lange, who both travelled up from the States to attend: Kim Armstrong, who had a long journey

himself from Cochrane; George Whitney, Brian Potter, Mike Jones and David Evans from Fisheries Branch (MNR); Cam Willox of the Lake Simcoe FAU; Daryl Seip, Eastern Region (MNR), who filled in admirably for the snow-bound Steve Kerr; Ian Fleming of the University of Toronto; and Chris Horwath from the Ontario Federation of Anglers and Hunters. I believe that everyone who had the pleasure of attending the presentations given by these gentlemen would have to agree that they made for a most enjoyable and informative session.

A further note of thanks must go to Fisheries Branch (MNR) for their generous financial support of the Workshop. We applaud the Ministry of Natural Resources for this open-minded gesture in aid of the development of fisheries science in Ontario.

We hope to have the Proceedings of the 1990 Workshop completed and distributed by June. All attendees will receive copies by mail.

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Yes, it's true! Planning for the 1991 Annual Meeting and Workshop has already begun! Your EXCOM has been the grateful recipient of quite a range of potential topic ideas for our next "flagship" meeting. After considerable debate (mild bruises and concussions only), and keeping in mind the prime criteria of 1) a topic with broad-spectrum appeal; and 2) a "compact" enough topic to be dealt with effectively in a short symposia, we have established our first "dual-theme" workshop (a committee decision if there ever was one!)

DAY 1: "ALTERNATIVE FUNDING SOURCES FOR FISHERIES: GETTING THE JOB DONE"

DAY 2: "EXOTIC SPECIES INTRODUCTIONS IN ONTARIO WATERS: STATUS AND STRATEGIES"

Locations for the 1991 meeting are still under consideration, although it is safe to say that it will likely be in a more southerly location than our last two. We are presently considering sights in the Guelph/Cambridge, Mississauga, or Newmarket areas.

The tentative date for the 1991 Meeting is January 18-19 (Friday and Saturday) 1991.

Once again, many thanks to all those involved in the Dorset meeting. As one of the organizers of the Workshop, I can honestly say that your participation and enthusiastic comments made all the work very worthwhile.

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# FIRST CALL FOR PAPERS

3RD ANNUAL SOUTHERN ONTARIO CHAPTER WORKSHOP JANUARY 1991

## Session I: *ALTERNATIVE FUNDING SOURCES IN FISHERIES: GETTING THE JOB DONE.*

This session is intended to highlight existing alternate sources of funding for fisheries programs (such as federal/provincial employment programs, youth programs, technology research and development grants, etc.) and potential initiatives in providing additional funding sources. We intend for this to be a fully-interactive session -- those with the detailed knowledge of how to access these types of programs delivering the "nuts and bolts" information to those who are less familiar.

## Session II: *EXOTIC SPECIES INTRODUCTIONS IN ONTARIO WATERS: STATUS AND STRATEGIES.*

A very timely, immediately pertinent topic for Ontario fisheries professionals. Zebra mussels, foreign zooplankton, alien fishes and vegetation, etc. -- What's going on?, What're the impacts?, and How're we dealing with these problems? Submissions based upon any aspect of an "exotic" introduction are welcome. Talk to your fellow professionals, let them share in your experiences in dealing with this issue.

One-page abstracts should be submitted to:

J. Bisset, c/o Ontario Ministry of Natural Resources, Box 7400, 10401 Dufferin Street, Maple, Ontario, L6A 1S9.

All presentations will be allotted a total of 30 minutes, including question time. All standard AV aids will be available.

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A workshop entitled ~~ECOLOGICAL AND GENETIC IMPLICATIONS OF FISH INTRODUCTIONS~~ will be held at the University of Windsor from 17th-19th May 1990, sponsored by the Zoological Education Trust and the Great Lakes Institute of the University of Windsor. Twenty plenary presentations will be followed by a synthesis and recommendations session. Sessions will include: Global Perspectives, North American Perspectives, Molecular Genetics: Stock Identification and Manipulation, Governmental Views and Regulations, Aquaculture and Hatchery Implications, Ecological Implications. Speaker presentation are by invitation, but poster papers are solicited from interest scientists and fisheries managers.

For further information:

Dr. Neil Billington, Biology Department, Great Lakes Institute, University of Windsor, Windsor, Ontario, N9B 3P4. Telephone: (519) 253-4232 Ext. 2700. FAX (519) 973-7050. BitNet AG8@Windsor1.

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## **- LONG RANGE PLAN COMMITTEE REPORT -**

by Alex Palilionis, Chairperson

Recently the Parent Society completed it's first Long Range (5 year) Plan (FRP), to provide direction to all levels of the Society. A new Chapter committee has taken upon itself the development of our own 5 year plan to meet the overall objectives of the Parent Society's LRP as well as meet our Chapter's objectives of; strengthening the fisheries profession, advancing fisheries science and conserving the fisheries resources of Southern Ontario.

In addition to myself, the LRP Committee presently consists of Lois Deacon (Lindsay, MNR), Warren Yerex (GRCA) and Ian Fleming (U. of T. Zoology) who are charged with the task of having a draft available for the EXComm by August 1, 1990. Should you have any interest in communicating your views or becoming involved with the committee then please discuss this with any one of us. Details of our progress will be provided in the Chapter's next Newsletter.

## **- AWARDS COMMITTEE -**

by Cheryl Lewis, Chairperson

A new committee has been formed to recommend a set of awards to be offered by the Southern Ontario Chapter. The committee will consist of Cam Porrt (C. Porrt and Associates), Lois Deacon (MNR, Lindsay), Paul McMann (MNR Brockville), and myself (MNR Fisheries Branch).

We have received information on the kinds of awards offered by other chapters and divisions of the AFS, and by the parent society. Using this information as a guide, we will recommend a set of awards for the Southern Ontario Chapter, including frequency of award, criteria for eligibility and evaluation, etc. Depending on the nature of the award, recipients may be AFS members and/or members of the public.

We expect to meet over the next two months to prepare a set of recommendations. These will appear in a future newsletter. We see the work of this committee as an important opportunity to provide recognition to individuals for outstanding contributions to the chapter, to the profession and to fisheries conservation and management.

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## **- FIRST NOTIFICATION -**

### **7th NORTH AMERICAN TROUT STREAM IMPROVEMENT WORKSHOP**

The Southern Ontario Chapter of AFS is co-sponsoring the 7th NORTH AMERICAN TROUT STREAM IMPROVEMENT WORKSHOP with the MNR, City of Waterloo, Trout Unlimited, GRCA, and the CVCA. It is being held from September 12-14 at the Waterloo Motor Hotel. The theme is Progress, Prospects and Perspectives. There will be a plenary session with invited speakers, a one day tour of sites and a synthesis session. The intention is to maintain an informal atmosphere to encourage dialogue between participants. Therefore participation will be limited to 120. There will be a poster session for specific techniques and local projects. More information will be available in the next newsletter about registration and poster eligibility.

For more details call: Jack Imhof, MNR-Maple (416) 832-7172.

## **- FISH CULTURE FORUM -**

by Al Chamberlain

To aid the Fish Culture Committee seek some direction for fish culture in our Chapter, Les Sztramko [Lake Erie Fisheries Assessment Unit] has suggested we review the American Fisheries Society Position Paper on Commercial Aquaculture in the United States.

Gary Chapman [committee co-chair] and I intend to review the major issues discussed in this document and compare them with the present policy and status for aquaculture in Southern Ontario. We shall do this by communicating with the various agencies presently involved in Ontario's aquaculture (ie. OMAF, Ont. Trout Farmers Assoc., OMNR and OMOE). By the fall we hope to identify how we can support these agencies and also represent our member's views on fish culture in Southern Ontario.

The following is a very condensed version of the AFS position paper. If you have any comments or you would like to contribute in the development of our own policies towards fish culture please contact Gary or myself.

### AFS Position Paper: COMMERCIAL AQUACULTURE IN THE UNITED STATES

"It is the policy of the American Fisheries Society to support aquaculture as a viable agribusiness and as an important part of fisheries management in the United States by:

- (1) Reaffirming the Society's support for continued development of the U.S. aquaculture industry.
- (2) Recognizing aquaculture as a form of agriculture and supporting the designation of the U.S. Department of Agriculture as the lead Federal agency for aquaculture development in the U.S.
- (3) Supporting re-authorization of the National Aquaculture Act and appropriation of funds to implement the Act and the National Aquaculture Development Plan (NADP).
- (4) Supporting interagency cooperation and coordination of Federal programs through the Joint Subcommittee on Aquaculture.
- (5) Supporting continued development of the regional aquaculture research and extension centers within the U.S. Department of Agriculture as a mechanism to implement the NADP.
- (6) Supporting continued development of the National Aquaculture Information Center and encouraging Federal agencies to improve information exchanges relative to aquaculture and its allied discipline.
- (7) Encouraging increased linkages among federal, state, and private sectors to promote fisheries management through appropriate aquaculture opportunities, e.g. cooperative research programs, the results of which will benefit both natural fisheries resources and aquaculture.
- (8) Supporting educational programs in colleges and universities for the purpose of training students for future employment in all aspects of aquaculture.

- (9) Soliciting appropriate membership in the Society from individuals and businesses throughout the aquaculture industry.

All policy statements are in the context that the overriding consideration of the AFS is that conservation and enhancement of natural aquatic resources must not be detrimentally affected by the aquaculture industry."

Persons interested in the complete text may contact:

Gary Chapman  
c/o Coldwater Fisheries Inc.,  
Box 249,  
Coldwater, Ontario.  
LOK 1EO

Al Chamberlain  
c/o Sir Sandford Fleming College,  
Box 8000,  
Lindsay, Ontario.  
K9V 4E6

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MORE THAN A MOUTHFUL: When fish fight fowl, bet on the bird!

by George S. Bachay

[appeared in Wisconsin Natural Resources Vol. 13 No. 5 Oct '89]

How much weight can an osprey lift? As a rule of thumb, the "experts" say ospreys and eagles can only lift and carry their own weight, but don't bet on it.

During a heavy rainstorm we were looking out across the Sugar River through our window with DNR Southern District Director James Huntoon. At times the rain poured down so densely we could hardly see across the channel.

Suddenly an osprey plunged feet first into the water in front of the pier, 75 feet from our window. The fish hawk sank its talons into a big fish and was struggling to lift it. Then it began sinking until only its head and wing tips were visible. We thought the big bird was a goner.

It seemed like a long time before the osprey pulled the fish to the surface, flapping soggy, but powerful wings on the water. But it couldn't lift the fish. Finally, the fish helped by swimming to the surface in a struggle to escape. The osprey pulled it across the narrow channel to a mud flat. Then we could see it was big carp.

The osprey lay on its side, exhausted, while the carp flopped in the marl. The powerful bird couldn't let go. Its talons were locked in the carp's back. Another osprey appeared, apparently its mate. Both birds feasted on the fish for hours before the trapped bird could release its grip. If the channel had been deeper the osprey would have drowned.

Not a word was spoken as Huntoon, my wife Theresa and I watched the drama unfold.

"If I hadn't seen it, I wouldn't have believed it," Huntoon admitted. "What a sight."

After the ospreys left the scene, I went out in the boat to examine the carp. The birds had eaten a big chunk of meat from the back below the dorsal fin. The fish was 26 1/2-inches long and must have weighed nine pounds live. The feisty osprey could only have weighed about 4 1/2 pounds.

## **- REHAB CORNER -**

by Jon Bisset and Al Murray

Cattle access to streams can lead to several well documented problems. Nutrient loading and high fecal coliform levels can result in point pollution sources highly toxic to resident fish populations (in addition to closure of swimming areas!). In addition, cattle trampling stream banks and walking through streams cause serious erosion, bank stability and sedimentation siltation. In addition to causing problems for the stream the disturbed, mucky areas cause problems for the farmer through injuries to the cattle and the spread of disease.

Many sensitive headwater areas of streams in southern Ontario drain extensive agricultural areas. A large part of the Lake Simcoe watershed also drains agricultural/livestock areas. Through the Lake Simcoe Environmental Management Strategy (LSEMS) (which is aimed at reducing phosphorous and nutrient loading to Lake Simcoe) the MNR, SRCA, MOE, and OMAF have been involved in many projects involving cattle fencing, access points/watering stations, and remote watering stations using water pumps (gravity feed, solar powered).

One project initiated in 1989 was located on a cold water spring tributary, with a resident brook trout population downstream. The tributary flows through a deep, well forested valley, except for an area approximately 50 m in length. At this point, cattle move between pastures on both sides of the creek, and water here year round. The remainder of the creek has been fenced to prevent cattle access. The location and topography of the area, in addition to the large number of cattle ( $\approx$  140-160 head) resulted in extensive nutrient/sediment loading.

The cattle are separated into 3 separate pastures in the spring during breeding season, facilitating the need for 3 separate watering stations. Each watering station will consist of a 30m<sup>2</sup> gravel pad and concrete tank. All stations will be supplied from one pump. Because of the location of the site, the cost of constructing a primary power line was prohibitively expensive, resulting in the requirement for a solar powered unit. The number of watering stations required (3) and the differences in elevation (maximum head  $\approx$  18 feet) meant that a high capacity pump, and therefore larger solar panels will be required.

Each of the watering stations will be located in table land away from the watercourse at a minimum distance of 20-30m. A vegetative buffer strip will be planted between the watering stations and the stream, to provide an additional buffer to the stream and provide bank stabilization/limit disturbance. This project is a cooperative venture between OMNR, LSRCA and OMAF. The equipment/materials were purchased in fall '89 and will be installed in May/June 1990 by the landowner. OMAF is presently preparing a FACTSHEET, to be entitled "Alternative Watering Systems". Further information regarding watering systems/cattle access/fencing can be obtained through your local OMAF Soil Conservation Advisor.

### *Finally, a Gently Reminder.*

If you have a project or topic you would like to see or haven't seen or if you have any questions about previous articles, let us know. If you agree/disagree with a project, approach or implementation please send to:

Al Murray, R.R. #1, Elora, Ontario, NOB 1S0.

## **- CHAPTER LOGO -**

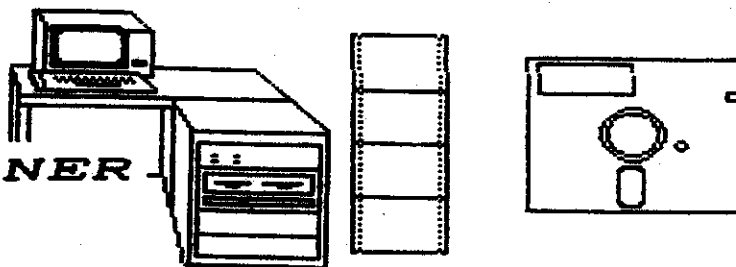
Shown below is the proposed Southern Ontario Chapter AFS logo. This beautiful rendition of an Atlantic Salmon was prepared by Ted Elliot, a graduate zoology student at the University of Toronto. As many of you know, Ted has worked on a couple of earlier designs which were circulated among the members attending our annual business meetings at Dorset. We are indeed fortunate to have someone like Ted who has demonstrated his willingness to pursue the development of the Chapter logo with such skill and patience.

If you have any comments about the logo please contact any member of the EXCOM. We will be proceeding to finalize the design and to initiate its widespread use. The visual imagery generated by the logo will be very effective in achieving a profile for AFS among other professional organizations throughout Southern Ontario.

We sincerely appreciate Ted's efforts in helping us develop our Chapter's identity.



## COMPUTER CORNER



by JIM RECKAHN

P.O. BOX 5000

MAPLE, ONT. L6A 1S9

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FAX : (416)-832-7149

If you're into stream shocking or intensively removing fish from small ponds or coves of larger lakes then the AFS COMPUTER USERS SECTION has a useful program available for US\$6 if you send a disk, US\$10 if you don't (C\$11.86 on Groundhog Day, 2 February). The program, MicroFish 3.0, by John S. Van Deventer and Williams S. Platts, is available on 5.25 inch, double sided, double density diskettes from:

Anthony Frank, Librarian  
USFWS Great Lakes Fishery Lab  
1451 Green Road  
Ann Arbor, MI 48105 USA  
(313) 994-3331

Questions about application of the program can be sent to the senior author at:

Forestry Sciences Laboratory  
Intermountain Research Station  
USDA Forest Service  
316 E. Myrtle Street  
Boise, ID 83702 USA  
(208) 334-1457

But the manual that accompanies the program is quite explanatory.

A few photocopies of some illustrative sections from the 29 page manual are included on the following pages. The Salmonid Ecology Unit (OMNR FISHERIES RESEARCH at Maple) have been using this program for stream surveys and are pleased with the application.

Van Deventer and Platts are from the Intermountain Research Station at Boise, Idaho. The Intermountain group have laboratories and studies in Montana, Idaho, Utah, Nevada, and western Wyoming and there are cooperative arrangements with several universities throughout the region.

# Microcomputer Software System for Generating Population Statistics From Electrofishing Data— User's Guide for MicroFish 3.0

John S. Van Deventer  
William S. Platts

## INTRODUCTION

**MicroFish** is a computer software system that processes electrofishing data obtained by the removal method. **MicroFish** consists of programs written in the BASIC language (compiled using MicroSoft QuickBASIC 3.0) and is functional on all IBM personal computers and compatibles using DOS 2.0 or higher. **MicroFish** was introduced as the Fisheries Population and Statistical Package (FPSP) (Van Deventer and Platts 1985).

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Van Deventer, John A.; Platts, William S. 1989. Microcomputer software system for generating population statistics from electrofishing data—user's guide for **MicroFish 3.0**. Gen. Tech. Rep. INT-254. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 29 p.

**MicroFish** (version 3.0) is a microcomputer software system designed for calculating fisheries population statistics from electrofishing data. System output includes maximum-likelihood population estimates, total catches, capture probabilities, removal patterns, lengths, weights, condition factors, and biomass. Relative percentages, standard errors, and confidence intervals are generated for each sampling site and species in the data set. Output options enable the user to create tables or database files which can be used as input for statistical, spreadsheet, or graphics packages. Sample size programs display two- and three-dimensional color graphs for predicting the number of electrofishing passes needed to achieve a desired precision level in the population estimate.

**KEYWORDS:** computer, information systems, fisheries management, population estimate, biomass

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## REFERENCES

- Van Deventer, J. S.; Platts, W. S. 1983. Sampling and estimating fish populations from streams. Transactions of the North American Wildlife and Natural Resources Conference. 48: 349-354.
- Van Deventer, J. S.; Platts, W. S. 1985. A computer software system for entering, managing, and analyzing fish capture data from streams. Res. Note INT-352. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station. 12 p.

## Commonly Asked Questions

**Q:** *Does data in the fish capture data file need to be in any order?*

**A:** No, as long as the header record is the first line in the data.

**Q:** *Can species be subdivided by age-groups?*

**A:** Yes, the species file MF-FISH.DAT can be set up any way the user desires. Simply change the fish file species codes and descriptions to accommodate your needs. Don't forget to change the species codes in the fish capture data file to their new values. It may be preferable to copy the old fish capture data file to a new file. Then, change the species codes in the new file.

**Example:** Suppose you ran the **MicroFish Statistical Package** on a data file that only contained rainbow trout (species code 2 according to the original values). After scanning the data, you realize that clear age-class breaks can be made at 100 and 200 mm. The following three species codes might be added to the MF-FISH.DAT data file:

20, "RBT < 100 mm"

21, "RBT 100-200 mm"

22, "RBT > 200 mm"

Once these new species codes are established in MF-FISH.DAT, the fish capture data should be modified to reflect these changes. Rerun the **MicroFish Statistical Package** to produce population statistics by age class.

**Q:** *How do I compare the same study area over a period of 4 years?*

**A:** Define each year's data as a particular site. For example, this year's data would be considered site 4, last year's data would be site 3, etc.

**Q:** *I didn't collect lengths or weights. How do I process my data?*

**A:** Lengths and weights are not required. In such cases, use the format of example Line 3 where individual length and weight and group weight have missing values. A group total of 1 is permissible.

**Q:** *How can I summarize my fisheries data by date, location, or species?*

**A:** Combine all the necessary database files (output from MFISH-DB.EXE) into one large file. If data file names (which are included on each line of output) have been consistently set up to include year and study area, then one can sort on the appropriate fields to organize data by year, location, and species. An example data file naming convention is F88-AREA.DAT where F refers to fisheries data (as opposed to H for habitat, S for sediment, etc.), 88 refers to the year, and AREA is a four character designation for the sampling location.

## MICROFISH SAMPLE SIZE PROGRAMS

The sample size software (programs MF-SS2D.EXE and MF-SS3D.EXE) answers the question of how many electrofishing passes are required to yield desired levels of precision in the maximum-likelihood population estimate. It is assumed that electrofishing is performed using removal-depletion sampling.

A more complete paper, which discusses the interrelationships among population size ( $N$ ), catchability ( $P$ ), population estimate precision, and the number of electrofishing passes ( $T$ ), is currently in preparation.

## ERROR HANDLING

Maximum-likelihood estimation is not possible in four situations:

1. if a total of 1 fish is caught on all passes,
2. if all fish are caught on the first pass,
3. if there is a severely nondescending removal pattern, or
4. if no fish were caught in the sampling site.

## Population Estimate Errors

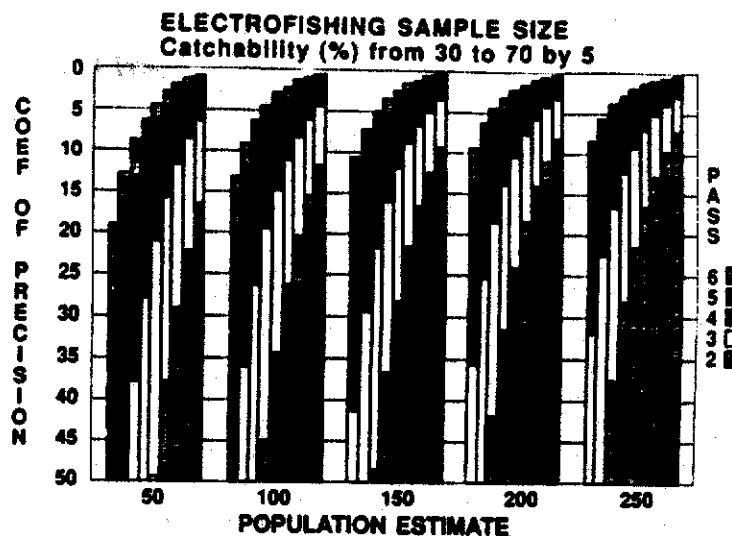
**APPENDIX 1: OUTPUT EXAMPLE  
FROM THE MICROFISH INTER-  
ACTIVE PROGRAM (MF. EXE)**

APPENDIX 2: OUTPUT EXAMPLE FROM THE MICROFISH SAMPLE SIZE  
PROGRAM (3-D), (MF-SS2D.EXE)

Stream: South Fork Salmon River  
Species: Rainbow Trout

Removal Pattern: 124 61 35 14  
Total Catch = 234  
Population Estimate = 249

Chi Square = 0.675  
Pop Est Standard Err = 6.164  
Lower Conf Interval = 236.858  
Upper Conf Interval = 261.142  
  
Capture Probability = 0.501  
Capt Prob Standard Err = 0.035  
Lower Conf Interval = 0.432  
Upper Conf Interval = 0.570



**FISH CAPTURE TOTALS (% by Species)**

| SPECIES        | SITE = 1 |       | SITE = 2 |       | SITE = 3 |       | TOTAL |        |
|----------------|----------|-------|----------|-------|----------|-------|-------|--------|
|                | #FISH    | %     | #FISH    | %     | #FISH    | %     | #FISH | %      |
| Trout: Rainbow | 21       | 33.9% | 14       | 22.6% | 27       | 43.5% | 62    | 100.0% |
| Trout: Brook   | 38       | 32.8% | 38       | 32.8% | 40       | 34.5% | 116   | 100.0% |
| Sucker         | 38       | 65.5% | 7        | 12.1% | 13       | 22.4% | 58    | 100.0% |
| Sculpin        | 22       | 53.7% | 4        | 9.8%  | 15       | 36.6% | 41    | 100.0% |
| TOTAL          | 119      | 43.0% | 63       | 22.7% | 95       | 34.3% | 277   | 100.0% |

**POPULATION ESTIMATES (% by Species)**

| SPECIES        | SITE = 1 |       | SITE = 2 |       | SITE = 3 |       | TOTAL |     |
|----------------|----------|-------|----------|-------|----------|-------|-------|-----|
|                | EST      | %     | EST      | %     | EST      | %     | TOTAL | EST |
| Trout: Rainbow | 22       | 33.8% | 14       | 21.5% | 29       | 44.6% | 65    | 67  |
| Trout: Brook   | 39       | 32.0% | 41       | 33.6% | 42       | 34.4% | 122   | 125 |
| Sucker         | 40       | 65.6% | 7        | 11.5% | 14       | 23.0% | 61    | 62  |
| Sculpin        | 22       | 44.9% | 4        | 8.2%  | 23       | 46.9% | 49    | 47  |
| SITE ESTIMATES | 126      | 41.2% | 67       | 21.9% | 113      | 36.9% | 306   | 305 |

**ESTIMATED BIOMASS (% by Spec)**

| SPECIES        | SITE = 1 |       | SITE = 2 |       | SITE = 3 |       | TOTAL   |        |
|----------------|----------|-------|----------|-------|----------|-------|---------|--------|
|                | BIOMASS  | %     | BIOMASS  | %     | BIOMASS  | %     | BIOMASS | %      |
| Trout: Rainbow | 197      | 33.5% | 183      | 31.2% | 208      | 35.3% | 588     | 100.0% |
| Trout: Brook   | 487      | 34.8% | 568      | 40.7% | 342      | 24.5% | 1397    | 100.0% |
| Sucker         | 243      | 66.5% | 35       | 9.6%  | 87       | 23.8% | 365     | 100.0% |
| TOTAL          | 926      | 39.4% | 787      | 33.5% | 637      | 27.1% | 2350    | 100.0% |

## **- PARENT SOCIETY NEWS -**

The North Central Division of the American Fisheries Society, representing fisheries professionals in 12 states and 5 Canadian provinces, is concerned about several environmental issues currently relating to fish.

The following resolutions were adopted by the North Central Division of the American Fisheries Society at its annual meeting in Springfield, Illinois on December 4, 1989. We are urged by Lee Redmond, President - North Central Division, to thoughtfully review the following material and to take every opportunity to support the American Fisheries Society members.

### **PROPOSED LARGE RIVERS RESEARCH INITIATIVE**

WHEREAS, the management of fisheries in the large rivers of the United States is severely hampered by a lack of knowledge of fish populations and river dynamics; and

WHEREAS, many large rivers with important resident fisheries have experienced substantial decreases in those fisheries; and

WHEREAS, in many rivers some of the formerly abundant native fish now exist only as threatened or endangered species; and

WHEREAS, individual state resource management agencies have difficulty effectively managing these fisheries because of the interjurisdictional nature of river systems; and

WHEREAS, the federal government has contributed substantially to these problems through dams constructed for navigation, flood control, hydropower generation and water supply;

THEREFORE, BE IT RESOLVED that the North Central Division of the American Fisheries Society supports the U.S. Fish and Wildlife Service in the development of a research program to address the fisheries management needs of the nation's large river systems.

### **GREAT LAKES COASTAL BARRIERS**

WHEREAS, the federal Coastal Barrier Resource System has discouraged the unsafe, unwise, and costly development of erosion and flood-threatened areas by denying developers federal subsidies for new development and flood insurance along 666 miles of the Atlantic and Gulf coasts where coastal barriers such as wetlands, beaches, dunes, and bluffs are protected from federally subsidized development through the System; and

WHEREAS, the shorelines of the Great Lakes are also threatened by intense development and escalating pollution, and coastal development poses a threat to the Great Lakes' environment and economy; and

WHEREAS, the U.S. Department of Interior recently completed an inventory of the Great Lakes which found that 63,000 acres, totalling 1,664 miles, are eligible for inclusion in the Coastal Barrier Resource System;

THEREFORE, BE IT RESOLVED that the North Central Division of the American Fisheries Society urges Congress to include these undeveloped shoreline areas along the Great Lakes in the Coastal Barrier Resource System.

## PROPOSED UPPER OHIO RIVER ISLAND REFUGE SYSTEM

WHEREAS, there are approximately 2,000 acres of riverine wetland habitats associated with 38 islands of the upper Ohio River between Shippingport, Pennsylvania (r.m. 35) and Manchester, Ohio (r.m. 397) and 1,500 acres of relatively undisturbed side-channels and backwaters associated with these islands; and

WHEREAS, the complex interspersed bottomland and riparian habitats and deep and shallow aquatic habitats make these areas extremely valuable to numerous birds, mammals, fishes, freshwater mussels and other terrestrial and aquatic animal species for feeding, reproduction, and other necessary life functions; and

WHEREAS, these habitats contain rich assemblages of plants and animals endemic to the river, including seventeen plant, seven fish, five mollusk, and ten bird species listed as rare, threatened, or endangered, by either Ohio, Kentucky, or West Virginia; and

WHEREAS, the aquatic habitats associated with the islands are major fish and mussel production areas for the Ohio River; and

WHEREAS, the undisturbed island shorelines, especially the heads and side-channels, are favored sport fishing areas offering unique angling opportunities; and

WHEREAS, the islands are in imminent danger of significant change or destruction by commercial sand and gravel dredging, industrial development, barge mooring and other navigation related activities, dredge spoil disposal, logging, and to a lesser extent, recreational and residential development;

THEREFORE, BE IT RESOLVED that the North Central Division of the American Fisheries Society recognizes the biological and recreational importance of the 38 upper Ohio River islands and recommends that these islands with their valuable habitats be protected in their natural state.

BE IT FURTHER RESOLVED that the North Central Division of the American Fisheries Society supports the U.S. Fish and Wildlife Service proposal to create an Ohio River Island Refuge System and encourages the initiation of future endeavors to protect or enhance island and side channel riverine habitats on our country's other large, navigable rivers.

Proceedings of the International Large Rivers Symposium are now available as Special Publication of the Canadian Journal of Fisheries and Aquatic Sciences 106, from Supply and Services Canada, Ottawa, Ontario, K1A 0S9. The symposium was organized by MNR and co-sponsored by AFS.

Fish America Foundation, founded in 1983 by the Zebco Corporation, has provided more than \$1 Million in grants to 186 public and private fisheries programs. For additional information plus grant conditions and application requirements contact: Steven Phillips, Fish America Foundation, 1010 Massachusetts Avenue NW, Washington DC 20001. Telephone: (202) 898-0869.

Carp skin makes beautiful and durable leather according to Bruce J. Bott of Vancouver. Anyone interested in providing carp skins should contact Bruce at: Suite 908, 510 West Hastings Street, Vancouver, BC, V6B 1L8. Tel: (604) 683-6880, FAX: (604) 683-6885.

A joint Northwestern Ontario and Minnesota Chapter meeting will be held March 14-15, 1990 at the Holiday Inn International Falls. Canadians can stay in Fort Francis and commute. For more information: Gord Johns, Lake Superior FAU, Box 5000, 435 James Street South, Thunder Bay, Ontario, P7C 5G6.

## **- AND ON THE LOCAL SCENE -**

### **ONTARIO ABANDONS STOCKING PROGRAM WITH HYBRID TROUT**

Canadian Press, OWEN SOUND, Ontario (Globe and Mail, January 12, 1990)

Ontario wants to stop fooling with Mother Nature and go back to planting lake trout in Georgian Bay and Lake Huron because the province's hybrid splake program is a failure, says an official.

"It's the end of an era. We found it's hard to improve on Mother Nature," George Whitney, Director of Fisheries for the Ministry of Natural Resources, said Wednesday.

The splake, known to fish scientists as a backcross lake trout, is a hybrid combining characteristics of the speckled trout and the lake trout.

After 30 years of genetically engineering the fish in hatcheries, the ministry has concluded that although the hybrid grows to maturity faster it has a tendency to die early. The lake trout also outgrows and outlasts the hybrid in all departments, including the ability to reproduce naturally.

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### **PRIVATE SECTOR PROMOTING MICRO-HYDROELECTRIC POWER PROJECTS ON ONTARIO STREAMS**

by John D. Westwood

The push is on for private concerns to get into the lucrative power business. In Southwestern Ontario numerous projects have been completed and many more are planned. From a water resources view dams and reservoirs only provide negative benefits, resulting in degraded aquatic ecosystems.

In recent years, water resource and fishery managers have been discouraging the construction of on-stream ponds and dams and many old dams have been retired. The scientific literature is clear on the adverse ecological impacts of these structures on streams and rivers (e.g. Ward and Standford 1979)<sup>1</sup>. To be blunt they are bad news because they degrade water resources!

The anti-Nuclear lobby is pushing for alternatives which means more hydro plants. The Independent Power Producers Society of Ontario wants private developers to supply the future power needs for Ontario. The benefits are now being realized, e.g. major siltation of the Rocky Saugeen River, lack of flow in the Beatty Saugeen River, discharge of oxygen-depleted, hydrogen sulphide laden water from Fanshawe Lake power generator on the North Thames River. Thermal impacts can generally be associated with all of these projects.

I would like to compile more information about what is going on elsewhere in Ontario regarding these projects. What improvements in fishery habitat (water resources) can be expected (SPOF II) in the future considering this new trend to more engineered stream systems? Has there been any thought given to developing a fish that is tolerant of passing through a power generator turbine?

In the rush to be more environmentally sound we are not looking at the whole picture. The accumulated impacts of all these small so called non-impactive projects on our water resources will be greater than the environmental impacts on one large power development with higher generating capacity.

In May of 1989, Dr. A.C. Benke, professor at the University of Alabama, gave the President's Address at the Annual Meeting of the North American Benthological Society held at the University of Guelph entitled "America's Vanishing Streams". He documented the recent trends in micro-hydro projects in the United States and the negative environmental economics now being realized. The following segment is quoted from his paper (Benke 1989)<sup>2</sup>:

"The distribution of the number of hydroelectric plants and generating capacity of plants according to their size shows that those >100 megawatts in capacity compose only 7% of all plants, yet provide 75% of the total generating capacity (FERC 1988). Plants that are <5 megawatts in capacity compose 63% of all plants, yet provide only 2% of total capacity. While this observation clearly illustrates that small plants contribute relatively little to total generating capacity, future emphasis in hydropower is in fact directed toward small projects. Over 1100 hydropower projects <5 megawatts are currently planned or projected (FERC 1988). This would represent an increase of 55% in the number of sites, yet add only 2% to total hydropower generating capacity, and 0.3% to electric generating capacity in the U.S. With so little to gain in the way of energy, any project affecting streams of high natural value, should be viewed with extreme skepticism. Unfortunately, the lack of appreciation for natural ecosystems and biological diversity by decision makers, along with pork barrel politics, allows such illogical degradation of stream ecosystems to continue."

From my experience, I certainly agree with Dr. Benke. Micro-hydro developments will provide only small amounts of power for the public and profits for the owners at the direct expense of a healthy aquatic ecosystem. As I indicated at the beginning of this article, the boom is on and will soon be coming to a stream near you.

The above opinions are mine! I would like to have your opinions, thoughts, concerns, facts on this matter! You can reach me at: Ministry of the Environment, 985 Adelaide Street South, London, Ontario, N6E 1V3.

<sup>1</sup> Ward, J.V. and J.A. Stanford. 1979. Ecology of Regulated Streams. Plenum Press.

<sup>2</sup> Benke, A.C. 1989. America's Vanishing Streams. Bulletin of the North American Benthological Society 6:190.

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and from: Dr. Ed Crossman, Curator - Department of Ichthyology and Herpetology  
Royal Ontario Museum.

I'd like to commend you, Les, and the others involved for the effort you have made to establish something that will encourage AFS to be more outward-looking. I feel the excuse given by AFS concerning change of name is inadequate in light of the number of Canadians relative to potential members in AFS that have been president or prominent committee chairpersons over the years.

Even when AFS meetings are held in Canada, U.S. members invariably talk about problems in "these United States".

In the past I was against formal organizations in Canada under AFS. Fred Fry suggested it years ago. My major concern then was need for support for CCFFR in the face of periodic threats by DFO to withdraw its support. I still feel we need a strong trans Canada fisheries activity and CCFFR has so far survived. I now recognize the needs expressed in the newsletter may be best met by forcing AFS to better represent North America, and the moves underway in the chapter might accomplish that.

## Membership Report - David McLeish

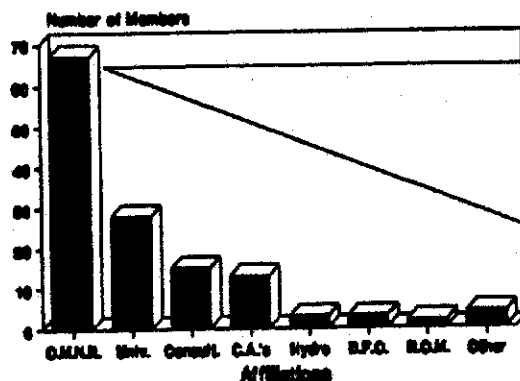
A recent review of our membership files revealed a few interesting facts regarding the affiliations of our members. Of the present 156 members, 135 belong to over 7 different government and private sector organizations. The remaining 21 either do not belong to any agency or organization or did not report an affiliation.

Approximately 50% of the membership works for the Ontario Ministry of Natural Resources. Of this figure most work for district offices or Fisheries Assessment Units (F.A.U.'s). A significant number of our members work for/as private consultants (11%) and with Conservation Authorities C.A.'s (10%). The following figure illustrates the overall contribution to our membership by the different organizations. Other agencies

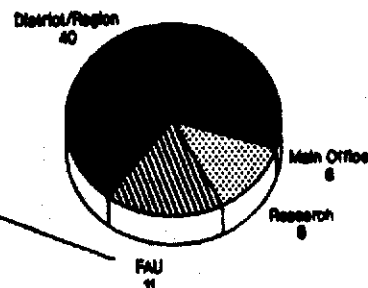
represented include Universities, the Federal Department of Fisheries and Oceans (D.F.O.), Ontario Hydro, the Royal Ontario Museum, the Canadian Sport Fisheries Institute, the Ontario Federation of Anglers and Hunters (O.F.A.H.), and the Ministry of the Environment.

An upcoming membership drive will solicit members from some conspicuously under represented groups such as Universities, the private sector, and Ontario Hydro.

**Who Are We?**  
Member's Affiliations



**OMNR**  
Location Breakdown



\* \*\*\*\*\*  
 \*  
 \* N O T I C E \*  
 \*  
 \* This will be the last newsletter sent to \*  
 \* those members who have not yet renewed \*  
 \* their membership for 1990. \*  
 \*  
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 \* \*\*\*\*\*

On a lighter note, here is Instalment II of the much needed and much discussed BUZZ PHRASE GENERATOR.

As you may recall from the last issue of the newsletter simply add these Buzz Phrases to your Generator and you will have instant access to new and improved terminology. For those new members who do not understand how the Generator works all you need to do is select one word from each column and presto, an important and impressive sounding but meaningless Buzz Phrase.

Contributions to the Generator are welcome (with recognition or in confidence, at the authors discretion) and can be addressed to:

David McLeish  
 c/o Minden District  
 Ministry of Natural Resources  
 Minden, Ontario  
 KOM 2K0

Instalment II - Southern Ontario Chapter A.F.S. Buzz Phrase Generator

| I           | II            | III      |
|-------------|---------------|----------|
| Thorough    | environmental | concept  |
| Sustainable | systems       | analysis |
| Strategic   | time          | path     |