

AMERICAN
FISHERIES
SOCIETY
NEWSLETTER

NORTHWESTERN
ONTARIO
CHAPTER



Vol. 2(2)

AMERICAN FISHERIES SOCIETY

*** NORTHWESTERN ONTARIO CHAPTER ***

President:	Chris Brousseau, Box 5000, MNR, Thunder Bay
President-Elect:	Bob Walroth, Box 970, MNR, Nipigon
Past-President:	Terry Marshall, Box 2089, MNR, Thunder Bay
Secretary/Treasurer:	Ken Cullis, Box 2089, MNR, Thunder Bay

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ANNOUNCEMENTS

1. *President's Report*

During December, 1981, I was very fortunate to attend the North Central Division executive and annual meetings held in conjunction with the 43rd Midwest Fish and Wildlife Conference, Wichita, Kansas. The minutes of these meetings have not been received yet but I thought I should pass on some of the highlights to you.

- Six resolutions were endorsed by the NCD. They involved the protection of paddlefish from overexploitation, budget support for research and management of the upper Mississippi ecosystem, budget support for the cooperative wildlife and fisheries research unit program, budget support for the land and water conservation fund and for the anadromous fish act and the commercial fish act and appreciation to the hosts of the Midwest Fish and Wildlife Conference. A report by the resolutions committee indicated that these resolutions were drummed up by last minute desperation attempts to get resolutions for the meeting. The report also stated that resolution activity at the Chapter level appears to be limited. As a result, in light of the lack of "Canadian" content of the resolutions, our Chapter should submit some resolutions for endorsement by the NCD. There are several issues of concern (i.e. acid rain, Jackfish River project) that probably warrant AFS support, I would be happy to receive any suggestions.
- I presented a report to the NCD on the activities of our Chapter which included reference to our regular meetings, newsletter, and Quetico Conference. Executive Director of the AFS, Carl Sullivan commented on the success of our young Chapter and the fine job we did in organizing the conference. The only sad note that I had was that the efforts we have made in encouraging our Chapter members to join the AFS have not been all that successful. We are still below 50% and considering the increased benefits that the AFS has to offer (i.e. new management journal, sections) this number should be easily achieved. Remember that AFS dues are tax deductible and even at the present exchange rate can be paid in Canadian funds.
- The membership committee reported that as of October, 1981, the total number of active members in the NCD has increased slightly from 1191 to 1203 but the number of student members has declined considerably. To find out new ways of encouraging membership they did a survey of the 13 NCD Chapters to come up with suggested recruiting methods. Six of the most popular were:
 1. Hold good annual meetings that follow themes at convenient times and locations, involve workshops and offer joint sessions with other Chapters and organizations.
 2. Stimulate direct person-to-person recruiting by Chapter members.
 3. Establish a membership committee with aggressive and dedicated members and chairmen.

President's Report (cont'd)

4. Communicate benefits, activities and literature information of the Chapter and Society to members (and non-members when desired) by using a high quality newsletter and other news media.
5. Stimulate student recruitment through university and college professors.
6. Be an active chapter that provides statements on key state or regional issues.

Several other techniques were mentioned and the committee recommended rewarding the person or Chapter who signed up the most new members annually.

The election of officers for 1982 for the NCD resulted as follows: James Triplett, President; Jim Mayhew, President-Elect; and Harold Klaassen, Secretary-Treasurer. Unfortunately, we lost all our Canadian voice on the executive committee except for our Chapter President.

I have detailed information on the above topics as well as a copy of the abstracts from the conference available upon request.

"RECRUIT A NEW MEMBER TO-DAY"

Chris Brousseau

2. Secretary/Treasurer's Report

Several changes in our Chapter's bylaws were discussed and approved at our annual meeting on October 8, 1981 and subsequently forwarded to the parent society for approval. Any questions or suggestions concerning the revised bylaws listed below, should be directed to any Executive Committee member.

BYLAWS

Section 1: Name and Objectives

The name of this organization shall be the Northwestern Ontario Chapter of the American Fisheries Society, hereinafter referred to as the Chapter.

The objectives of the Chapter shall be those of the American Fisheries Society as set forth in Article 1 of the Constitution, and to encourage the exchange of information of members of the Society.

Section 2: Membership

The membership of the Chapter shall be composed of those American Fisheries Society members in good standing residing in northern Ontario.

Secretary/Treasurer's Report (cont'd)

Section 3: Meetings

The Chapter shall hold at least one meeting annually at a time and place designated by the Executive Committee. The program and presentation of papers shall be the responsibility of the Program Committee.

Section 4: Officers

The officers of the Chapter shall consist of a President, President-Elect, and Secretary-Treasurer.

Officers shall be elected at the annual meeting. The Secretary-Treasurer may hold office for a period longer than one year, but the term of the other officers shall be one year. In case of a vacated position, the Executive Committee shall appoint a qualified replacement to fill an unexpired term.

In the event of a cancellation of an annual meeting, the officers and the members of any committees shall continue to serve until the next scheduled meeting.

Section 5: Duties of Officers

The President of the Chapter shall preside at all meetings, serve as Chairman of Executive Committee, represent the Chapter on the Executive Committee of the North Central Division and at the American Fisheries Society meetings, and make appointments and perform other duties and functions as are authorized.

The President-Elect shall be Chairman of the Program Committee and shall assume the duties of the President if the latter is unable to act.

The Secretary-Treasurer shall keep the official records of the Chapter, collect and be custodian of any funds collected or allotted to the Chapter. The Secretary-Treasurer shall disburse funds as authorized by the Executive Committee or the membership, and submit a record of receipts and disbursements at the Annual Chapter Meeting. Other duties may be requested by the Executive Director of the American Fisheries Society and officers of the North Central Division.

Section 6: Executive Committee

The Executive Committee of the Chapter shall consist of the elected officers and the immediate Past President. The committee is authorized to act for the Chapter between meetings and to perform appropriate duties and functions.

Section 7: Chapter Committees

Committees and the Chairman of Committees, except as listed in Section 5 of these Bylaws, shall be appointed by the President.

The terms of office for members of Chapter Committees shall end upon the discharge of the duties for which they were appointed, or at the next annual meeting of the Chapter, whichever comes first.

Secretary/Treasurer's Report (cont'd)

Section 8: Voting and Quorum

Decisions at meetings of the Chapter shall be in accordance with the Constitution of the American Fisheries Society.

A quorum at any meeting for the transaction of official business shall be one-third of the Chapter membership.

Section 9: Registration and Membership Dues

The Executive Committee may assess each registrant attending an annual meeting of the Chapter a registration fee necessary to cover the costs of the meeting and Chapter activities. Annual Chapter dues are set at \$5.00 payable September 1 of each year.

Section 10: Amendment of the Bylaws

The Bylaws of the Chapter may be amended by a two-thirds majority approval of those members voting, provided that prior notice of at least 30 days be given to the membership of the proposed change(s). Said change(s) must be approved by the Executive Committee of the Society before taking effect.

*2nd meeting of the season
1st of the 1982*

Ken Cullis

3. Chapter Meetings

1. Northwestern Ontario Chapter Meeting

Wednesday, February 24, 1982 7:00 PM

Lakehead University

RAINBOW TROUT AND SALMON STUDIES IN THE GREAT LAKES BASIN

A. McVicar Creek Rehabilitation Project, Thunder Bay

R. Trout by Chris Brousseau
District Fisheries Biologist
MNR - Thunder Bay

B. Pre-diversion Assessment of the Rainbow Trout Young-of-the-Year Population in the Neebing and McIntyre Rivers - An Update

by Len Godwin
Contract Fisheries Biologist
MNR - Thunder Bay

C. The Colonization of Coho Salmon in the Great Lakes with Emphasis on Komoka Creek, Aylmer District

by Jon George
Senior Technician
Quetico-Mille Lacs Fisheries
Assessment Unit
MNR - Thunder Bay

Chapter Meetings (cont'd)

D. Pink Salmon Dip-Netting Program in Wawa District

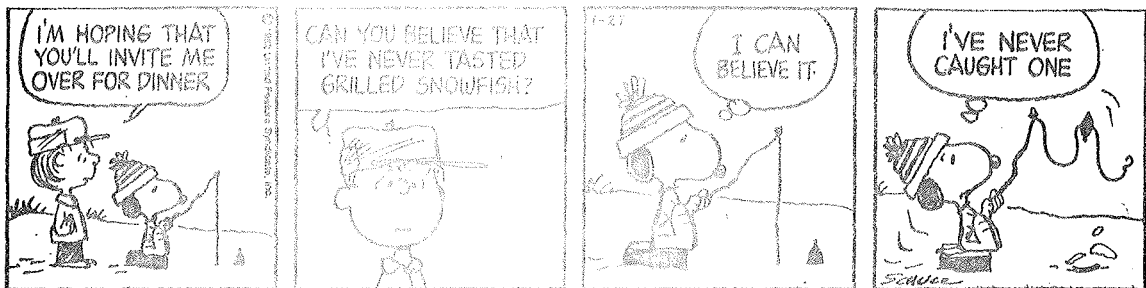
by Steve Kerr
Fisheries Management Officer
MNR - Wawa

2. Northwestern Ontario Chapter meeting in conjunction with Lakehead University Science Department

The Bait Leech *Nepheleopsis obscura* Ecology and Culture

by Hollie Collins
University of Minnesota
Duluth, Minnesota, U.S.A.

- to be held in early March, final date to be announced.



PROGRAM UPDATES

1. Ministry of Natural Resources - North Central Region

District Lake Trout Open Houses

During the months of November and December of 1981, three districts within the North Central Region of the Ministry of Natural Resources held Open Houses to obtain public input into Lake Trout Initiative Plans. Many individuals and organizations, representing a variety of interests, attended the display and expressed their concern regarding the decline of lake trout populations. Questionnaires were also distributed requesting opinions as to the cause of this decline and what steps may be taken to reverse it.

Although the results have not been fully analysed, distinct responses and preferences appear to be emerging. From a total of 94 individuals, who returned questionnaires at the Thunder Bay Open House, over 60% felt designating certain lakes as sanctuaries, limiting access to lake trout lakes and establishing split or shorter seasons were the best ways to manage lake trout lakes. In Nipigon, 49 questionnaires were collected and 51% indicated sanctuaries, stocking and reducing daily limit as their preference.

District Lake Trout Open Houses (cont'd)

As in the case of the Thunder Bay and Nipigon Districts, the option which was most favoured in Atikokan was designating certain lakes as sanctuaries. In addition to the above, stocking and limiting the daily catch accounted for 68.5% of the first choice responses. The majority of all respondents agreed that over-fishing was the cause for decline in the number of lake trout.

The fisheries managers who will be further utilizing these questionnaires believe productive information has been obtained from these Open Houses and would look forward to hearing any additional comments you may have.

Dave Payne

2. *Ministry of Natural Resources - North Central Region*

Winter Lake Trout Creel Census

Four districts of the North Central Region of Natural Resources have recently initiated winter lake trout creel census programs. Some populations of this fragile char have been over-stressed for a number of years. The census which involves over fifty lakes will provide much needed data. The resulting information will be used to evaluate the present state of this important fish and fishery as well as providing base line data for comparative studies in future years. The program is the largest ever targeted at this species in this portion of Ontario.

Access, fishing pressure and location to population centres were criteria used for selecting census lakes. The census was designed with 4 basic data gathering systems. The information is recorded by using aerial pressure counts, ground pressure counts, angler interviews and fish sampling. The above information will be gathered 21 times over the winter. To be statistically valid it was found that 14 weekend and 7 week census days was a minimum requirement.

Information gathered from the study should be useful for:

1. Long range lake trout management plans.
2. Directing studies to problem area.
3. Base data for future comparisons either on a broad or individual lake basis.

Bob Hamilton

3. *Ministry of Natural Resources - Northwestern Region*

Lake of the Woods - Fisheries Assessment Unit

The Lake of the Woods unit is into its winter program which this year includes a creel census for the lake trout waters of the lake.

Lake of the Woods - Fisheries Assessment Unit (cont'd)

Random weekend and weekday censuses and weekly pressure counts from a snowmachine and aircraft should provide us with a good estimate of C.U.E. and lake trout harvest from the two major lake trout habitats in Whitefish and Clearwater Bays.

Fin rays and scales are collected from lake trout encountered and should give us a reasonable sample of the age classes harvested during the winter of 1982.

During the winter months we also review information collected during the previous summer, prepare reports covering information collected and plan work for the upcoming summer.

Val Macins

4. Lakehead University - Computer Seminar

Computers in Biological Research:
Applications to Limnology

Clement Kent
Department of Zoology
University of Toronto

ABSTRACT

Several attributes of lake ecosystems can be empirically quantified with the aid of a computer. They are related to the physical, chemical, and biological structure of lakes.

Physical measurements of lakes often involves quantification of the extent of littoral zones. These zones may be related to terrain morphology in glaciated regions (Canadian Precambrian Shield). We have shown that measurements of lake shoreline zones show patterns common to many lakes in a region (Kent, C.F. and Wong, J. Can. Jour. Fish Aqu. Sci., in press). These patterns agree with some predictions of "Fractal" theory. We use fractal theory to make predictions concerning statistical properties of groups of lakes, which are consistent with our data.

Chemical states of lakes can be predicted from knowledge of spring turnover chemical abundances, if one is later given values of "master variables" (pH, pE, concCO₃). Predictions of ligand concentrations via computer equilibrium-state calculations are useful in predicting available nutrients (A.P. Zimmerman, pers. comm.).

Biological structure of lake zoo- and phyto- plankton communities is quantifiable via automatic, computer-based measurements of particle-size-abundance "spectra". These spectra provide functional indices of producer and consumer relative abundances which are easy to calculate and reveal interesting patterns (Sprules, Gates, Zimmerman, pers. comm.).

The work described was done as part of the Lake Ecosystem Working Group Study of the University of Toronto.

Clement Kent

FEATURE ARTICLES

1. *The Little Jackfish River Proposed Hydroelectric Development Project*

At the last Northwestern Ontario AFS meeting in December, background information was presented by Bob Ruggles and Chris Taylor of Ontario Hydro on the proposed hydroelectric project on the Little Jackfish River, flowing into Lake Nipigon.

A few interesting points of the meeting were how the environmental assessment studies were carried out, how additional studies will be done and the engineering planning studies that are to be implemented. Intermixed with these studies is the push for a public involvement program where concerned citizens can be informed about both the progress in the new facility and planning for the possible changes related to it.

Environmental assessment studies basically are "to determine the present conditions, to assess the potential impacts of the project and to recommend corrective measures if necessary". An environmental assessment document is to be submitted to the Ministry of the Environment after review by the provincial government ministries and the public.

Many of the bodies of water are being studied to determine fish populations as well as the land areas that might be affected by this development.

Engineering planning studies include technical, geotechnical, survey and economic and cost studies. At first, the technical study is, most importantly, "to determine the technical requirements of the project and whether it is possible to economically construct the required facilities".

However, at its present course, the equipment will not be installed until early 1990.

Activity in the summer of 1981 included aquatic field studies which were conducted to determine the fish in the surrounding lakes and streams, the species present, their abundance, conditions, movement problems and spawning areas.

It seems walleye and sauger are the most predominant fish in the Little Jackfish River and a walleye spawning run was observed at the mouth of the river during the spring sampling period.

Bank erosion along the lower part of the river is being studied and water samples collected to determine the chemicals present and the abundance of small plant and animal life.

Transmission routes will also be identified and recommended as environmentally acceptable between the proposed station and the Nipigon-Cameron Falls area; a distance of about 145 kilometers (90 miles).

Aside from this presentation, many other aspects of the project were discussed socially at the Valhalla Inn and a day later at the Red Oak Inn in Thunder Bay.

Firstly, hydroelectric thermal plants, similar to the proposed installation on the Little Jackfish River, are far more efficient than coal or nuclear plants in producing instantaneous power. The shut down and build up time in the hydroelectric plants is simply and quickly controlled by directing the flow rate over the turbines.

Electricity may go to Armstrong (and other communities in the area) now operating on diesel generators. The town will accommodate about 500 workers at maximum. Therefore, it is a must to conduct a feasibility study to determine the impact on the town once the project has started.

The Little Jackfish River . . . (cont'd)

Before flooding, all timber would be taken out for economic as well as environmental reasons and the resulting cutting roads would be covered after the flooding.

There is already an existing road that comes within 12 miles of the proposed daming site. Unrestricted public access to the area will most probably be a direct result of this project and will result in social and environmental implications that will have to be studied.

As far as erosion is concerned, the greatest problem will occur below the new dam site and will hinder spawning whitefish and herring; silt will be deposited onto substrate where walleye spawn and there is a possibility of wiping out these species in this part of Lake Nipigon. Only further environmental assessment will indicate anything further to this.

Some banks and the delta are grown over with trees, shrubs and other vegetation; a sign of stabilization. The Ogoki River, which was flooded 40 years ago, caused the delta and it is unknown how it affected the fish population when this occurred.

Once the banks fall to the river, plants will grow on them and stabilize the area. However, in some parts of the stream, erosion has gone beyond the natural river bottom to the glacial substrate which will wear away quite readily.

Another problem is spillage but this will be regulated by dam sites. Existing dams will remain in place for emergency purposes such as spillage and regulation of flow.

Crescent Lake and Chappais Lake, the first of which has sufficient oxygen below the thermocline, will be part of a large reservoir when flooded. The existing reservoir containing Zigzag Lake, apparently has no oxygen below the thermocline and siltation is occurring. I seem to recall that walleye and northern pike exist here, but red-horse suckers do not go beyond the first set of intense rapids, below this area.

Apparently, the fish populations have done well in existing reservoirs since there is favorable substrate for spawning; water fluctuations do not seem to affect them. During the slide show, I question their findings of walleye spawning at 16 feet.

Hydro expects to maintain the existing flow at the CNR bridge and down to the mouth of the Little Jackfish River. However, if it is found that the flow rate is affecting this area, Hydro will begin to reduce the water flow at that time.

Originally, Hydro expected to have a 7% power station installation rate every year over the province but it has only been 3% with a mere 1.5% in northern Ontario. Therefore, projects have to be undertaken now; this one will take almost 10 years before it is fully operational.

Existing hydro lines extend from the Abitibi River, past Cochrane to Toronto. Another line was proposed to go through Sudbury onwards to Thunder Bay, but Atikokan got a station instead (politics). There is only one line to Thunder Bay at present which supplies local needs. However, the station utilizes coal which results in the emission of significantly high quantities of SO₂ into the environment.

Concerning the age old problem of who has adversely affected the fish populations in Ombabika Bay, commercial fishermen or Hydro, a possible answer comes to mind involving the Nipigon Assessment Unit in conjunction with Hydro and Beak Consultants. The Nipigon Assessment

The Little Jackfish River . . . (cont'd)

Unit could help to determine the spawning populations and the degree and extent these populations contribute to Ombabika Bay and Lake Nipigon proper (i.e. tagging of fish and population estimates). If it proves to have a small contribution, then monitoring these populations is not a major concern in this area of the lake.

In conclusion, the main thrust of the project is to involve the ministries and the public as much as possible during and to the completion of this study.

All in all it was a very informative presentation.

Paul Harvey

2. *The Application of the Adaptive Environmental Assessment and Management Methodology to Fisheries Management in the Algonquin Region (Nov. 30 - Dec. 4, 1981).*

Purpose: To develop a dynamic model of aquatic ecosystems in the Algonquin Region in order to:

1. evaluate usefulness of modelling technique
2. integrate and synthesize existing information of the Algonquin Fisheries Assessment Unit
3. identify direct and indirect impacts of sport exploitation and acidification
4. identify information gaps, strategies available to managers, promote communication

- the workshop was led by Environmental and Social Systems Analysis Limited (ESSA) from Vancouver.

- The modelling process was split into five areas of responsibility:

1. sport fishing model
2. lake trout, brook trout
3. smallmouth bass, suckers, lake whitefish
4. lake herring, yellow perch
5. invertebrates (phytoplankton, zooplankton, benthos) and the physical and chemical environment (transparency, oxygen regimes [H+], [Al+++] concentrations)

- Working groups were assembled to define each submodel

A Typical Fish Model Incorporated:

1. Fecundity: female weight relationship
2. Relationships expressing environmental toxicity
 - (a) egg retention : [H+]
 - (b) egg mortality : [H+]
 - (c) fry mortality : [H+]
 - (d) YOY and older age classes mortality : [H+]
 - (e) Aluminum toxicity relationship

The Application of the Adaptive Environmental . . . (cont'd)

3. Definition of diets and habitat occupied for specific age classes of each species.
4. Disc feeding equation or equivalent expressions to estimate annual prey consumption.
5. Expression of growth rate as function of ration, body size.
6. Maturity schedule.

The models of fish and other biota were linked together by their ecological relationships in an environment defined by Submodel 5.

OVERVIEW:

On the last day of the workshop the models were tested.

- The model of abiotic environment and lower biota was "functional" insofar as it generated reasonable scenarios.
- The fish population models generated anomalous scenarios.
- These results were not unexpected because the initial model contained information from other lakes and many "best guesses" which would be replaced or refined in subsequent exercises.
- Followup is presently occurring and a final report is to be made by ESSA in February.
- The success of the workshop cannot be judged completely until the final model is produced.
- In the interim, some of the stated goals have already been met and I personally profited from the opportunity to attend.

Phil Ryan

3. *Joint Annual Meetings: CCFR, CSL, CSEB*

Canadian Conference for Fisheries Research
Canadian Society of Environmental Biologist
Canadian Society of Limnologists

Ottawa, Ontario - Jan. 4-6, 1982

The annual meeting of the Canadian Conference of Fisheries Research (CCFR) was held January 4th and 5th at the National Museum of Canada in Ottawa. The meeting was organized into two morning symposia, one entitled "Early Life History Processes in Fish Population Dynamics" and the other "Stock Assessment and Management of Canada's Marine Fisheries". The afternoon session consisted of a series of contributed papers, with one of the best being a presentation by Geoff Black, formerly of Lakehead University, on the zoogeography of *Cystidicola cristivomeri* in char. An excellent J. C. Stevenson Memorial Lecture was given by Don Ware on the topic "Power and Evolutionary Fitness".

The Canadian Society of Environmental Biologists organized an all-day session on Jan. 5th dealing with natural resources and native rights in Canada. A hodgepodge of contributed papers was presented

Joint Annual Meetings (cont'd)

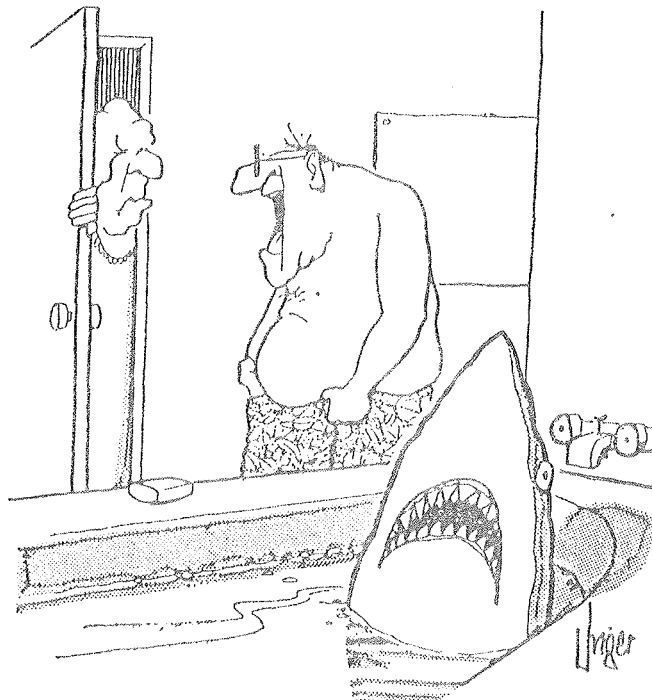
the following day, with topics ranging from management of caribou to the utilization of solar energy for pond production of rainbow trout. Unfortunately, due to the overlap with other sessions, I was unable to attend the SCEB meetings.

The Society of Canadian Limnologists (SCL) held its first annual conference, as a formal organization, on Jan. 6th. This recently formed group has supplanted the 'Canadian Chapter' of the International Society for Theoretical and Applied Limnology. The morning session proved to be the highlight of the entire conference, consisting of the first Rawson Academy Award Lecture by Frank Rigler on the topic "A Unifying Concept for Limnologists". Dr. Rigler felt that the rift between the reductionistic and the empiric ecologist stemmed from the fact that the empiricists are not succeeding in what he considered to be their ultimate goal, that of predicting the future abundance and distribution of species. This is understandable, he explained, as these properties are unpredictable according to present day theory. The possibility exists that in time, as ecological theory is modified, these predictions may be achieved.

In the afternoon SCL offered two concurrent sessions of contributed papers, the first dealing with the topics "Hypolimnetic Aeration and Meromixis" and "Acid Rain and Zooplankton Patchiness" while the second session considered "Nutrient Kinetics in Lakes and Some Implications for Planktonic Populations". In general, I felt SCL provided the best sessions overall in terms of both content and quality.

In most respects, the joint meetings of these three groups appeared to be well received. A fairly large turnout was evident, likely attributable to the diversity of the sessions which provided something for almost every interest.

Terry Marshall



"I don't care if it is plastic. I could have had a heart attack."

ANSWER TO FISH OF NORTHWESTERN ONTARIO

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START	DIR	WORDS	START	DIR	WORDS
S-10	R	BLUEGILL	I-15	D-L	MUDMINNOW
K- 6	R	BULLHEAD	Q-15	D	PUNPKINSEED
K- 6	U-L	BURBOT	Q-13	R	REDHORSE
R-23	R	DARTER	L- 9	R	SALMON
L-23	D	FATHEAD	I-13	U-L	SCULPIN
H-25	L	GOLDEYE	M-15	R	SMALLMOUTH
P-20	R	HERRING	U-18	U-R	SMELT
17	U-L	LAMPREY	F-19	D-R	STEELHEAD
S-11	U-R	LARGEMOUTH	M-15	U-R	STICKLEBACK
I-21	D-R	MADTOM	N-15	D-R	STURGEON
I-15	L	MASKINONGE	S-26	L	WALLEYE
I-21	U	MENOMINEE	K-21	U-L	WHITEFISH
S-19	U-L	MOONEYE			

PARENT SOCIETY NEWS

Notes from the AFS Diary

Final Membership figures for 1981 show a net gain of 99 members. In achieving that figure we compensated for 896 lost members by enlisting 995 new ones. The lost member figure is large, but nonetheless, it represents an improvement over 1980.

Final 1981 Division Membership Figures (active and Student Only) show the following numbers compared to the previous two years:

	<u>December 31</u>			
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Western Division	1,827	1,946	2,058	2,202
Southern Division	1,488	1,600	1,653	1,667
North Central Division	1,372	1,464	1,501	1,463
Northeastern Division	1,045	1,040	1,005	974
TOTALS	5,732	6,050	6,217	6,306

SECTION MEMBERSHIP

	<u>December 31</u>		
	<u>1979</u>	<u>1980</u>	<u>1981</u>
Fish Culture Section	727	1,369	1,153
Water Quality Section	406	673	678
Fish Health Section	259	461	484
Fishery Educators Section	145	254	267
Fisheries Admn. Section	123	204	188
Marine Fisheries Section	-	139	540
Early Life History Section	-	114	347
Fish Management Section	-	-	1,013
Exotic Fish Section	-	-	182
Bio-Engineering Section	-	-	152
TOTALS	1,660	3,214	5,004

IN RESPONSE TO THE 1981 AFS ACID RAIN RESOLUTION THE EPA HAS written the following:

"We appreciate and share your concern about the acid deposition issue. Although we do not believe that we have a scientific understanding of the phenomenon adequate to propose mitigating legislative measures, we are committed to obtaining this understanding as expeditiously as possible. To do that we have sharply increased our acid rain research budget at a time when our total research budget is declining. It is our position that although research is important, and must be continued, it is time for some positive actions to reduce SO₂ and NO₂ loading."

Carl Sullivan again commented on our "beautifully organized and comprehensive program for its October 7-9, 1981 Conference on Fisheries and Aquatic Ecology".

UPCOMING MEETINGS

1. Annual Meeting of the Ontario Chapter of the Canadian Society of Environmental Biologists

Thursday, February 18, 1982 - Westbury Hotel, Toronto

I Morning Session: Ontario's Rivers - A Forgotten Resource

II Afternoon Session: Series of open papers on a variety of topics

Fees: \$25.00 for members of Canadian Society of Environmental Biologists

\$30.00 for non-members

\$20.00 for students

For further information contact:

Bob Hester
Ontario Hydro
Toronto
(416) 592-4588

Al Wainio
Ministry of Natural Resources
Fisheries Branch
Queen's Park
(416) 965-7887

2. The 25th Conference on Great Lakes Research and the Annual Meeting of the International Association for Great Lakes Research

May 3 - 6, 1982 - Holiday Inn, Sault Ste. Marie

The main theme of the conference will be "Acid Rain" as it affects the Great Lakes Basin and a special session on sea lamprey is being arranged.

For further information contact:

Dr. J.J. Tibbles, Conference Chairman OR

Anna Little, Conference Coordinator
Department of Fisheries and Oceans
Sea Lamprey Control Centre
Huron Street, Ship Canal P.O.
Sault Ste. Marie, Ontario
P6A 1P0

(705) 949-1102

3. Annual Aquatic Habitat Inventory Course

North Central and Northwestern Regions
Ontario Ministry of Natural Resources

May 16-22, 1982 - Quetico Centre on Eva Lake

JOB OPENINGS/VACANCIES

Fish & Wildlife Supervisor
Ministry of Natural Resources
Cambridge District

Application due: Feb. 19, 1982
"OPEN" Competition

Fisheries Management Officer
Ministry of Natural Resources
Bancroft District
Algonquin Region

Application due: Feb. 19, 1982
"RESTRICTED" Competition

Conservation Officer
Ministry of Natural Resources
Minden District
Algonquin Region

Application due: Feb. 19, 1982
"RESTRICTED" Competition

CONTRIBUTORS

Chris Brousseau - Ministry of Natural Resources
Ken Cullis - Ministry of Natural Resources
Len Godwin - Ministry of Natural Resources
Dave Payne - Ministry of Natural Resources
Bob Hamilton - Ministry of Natural Resources
Val Macins - Ministry of Natural Resources
Clement Kent - University of Toronto
Paul Harvey - Ministry of Natural Resources
Phil Ryan - Ministry of Natural Resources
Terry Marshall - Ministry of Natural Resources
Nadine Triemstra - Ministry of Natural Resources
Barb Pike - Ministry of Natural Resources

MEMBERSHIP LIST

J. Atkinson
Ministry of Natural Resources
North Central Region
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

J. Chappel
Ministry of Natural Resources
Terrace Bay District Office
P.O. Box 280
Terrace Bay, Ontario
POT 5G6

*D. Baccante
Ministry of Natural Resources
Fisheries Research Section
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

*P. Colby
Ministry of Natural Resources
Fisheries Research Section
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

*R. Borecky
Ministry of Natural Resources
Lake Nipigon Assessment Unit
P.O. Box 120
Beardmore, Ontario
POT 1G0

*K. Cullis
Ministry of Natural Resources
Fisheries Research Section
P.O. Box 2089
Thunder Bay, Ontario
P7B 5E7

J. Brisbane
Ministry of Natural Resources
Kenora District Office
P.O. Box 5080
Kenora, Ontario
P9N 3X9

*H. Cumming
R.R. #13
Thunder Bay, Ontario

*C. Brousseau
Ministry of Natural Resources
Thunder Bay District Office
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

*W. Dentry
Ministry of Natural Resources
Cochrane District Office
P.O. Box 730
Cochrane, Ontario
POL 1C0

D. Busch
Ministry of Natural Resources
Red Lake District Office
P.O. Box 323
Red Lake, Ontario
POV 2M0

J. Entwistle
Ministry of Natural Resources
Terrace Bay District Office
P.O. Box 280
Terrace Bay, Ontario
POT 2W0

*E. Chambers
Ministry of Natural Resources
Dorion Fish Hatchery
Dorion, Ontario
POT 1K0

J. George
Ministry of Natural Resources
Q.L.M.L. Assessment Unit
Thunder Bay District Office
Thunder Bay, Ontario
P7C 5G6

L. Godwin
Ministry of Natural Resources
Thunder Bay District Office
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

R. Ferguson
Ministry of Natural Resources
Thunder Bay District Office
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

R. Hamilton
Ministry of Natural Resources
Thunder Bay District Office
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

P. Harvey
523 Churchill Drive
Thunder Bay, Ontario

D. Hollinger
Ministry of the Environment
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

*D. Howell
Ministry of Natural Resources
Thunder Bay District Office
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

N. Triemstra
Ministry of Natural Resources
North Central Region
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

*S. Kerr
Ministry of Natural Resources
Wawa District Office
P.O. Box 1160
Wawa, Ontario
POS 1K0

J. Landry
303-433 West Arthur Street
Thunder Bay, Ontario

M. Lankester
247 Dublin Avenue
Thunder Bay, Ontario

*G. Leering
Ministry of Natural Resources
Lake Superior Assessment Unit
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

W. Lysak
Manitoba Dept. of Natural Resources
Research Branch
P.O. Box 14
Winnipeg, Manitoba
R3H 0W9

*W. MacCallum
Ministry of Natural Resources
Lake Superior Assessment Unit
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

*V. Macins
Ministry of Natural Resources
Kenora District Office
P.O. Box 5080
Kenora, Ontario
P9N 3X7

L. Maki
Ministry of the Environment
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

*T. Marshall
Ministry of Natural Resources
Fisheries Research Section
P.O. Box 2089
Thunder Bay, Ontario
P7B 5E7

L. Melnyk
Ministry of Natural Resources
North Central Region
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

G. Ozburn
Lakehead University
Biology Department
Oliver Road
Thunder Bay, Ontario
P7B 5E1

J. McDonald
Ministry of Natural Resources
Sioux Lookout District Office
P.O. Box 309
Sioux Lookout, Ontario
POV 2T0

J. Parks
Ministry of the Environment
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

*W. Momot
R.R. #6
Thunder Bay, Ontario

D. Payne
Ministry of Natural Resources
North Central Region
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

*T. Mosindy
41 Leys Street
Thunder Bay, Ontario

M. Pellegrini
Ministry of Natural Resources
Q.L.M.L. Assessment Unit
Thunder Bay District Office
Thunder Bay, Ontario
P7C 5G6

J. Murphy
117 College Street
Thunder Bay, Ontario

C. Niles
Lakehead University
Biology Department
Oliver Road
Thunder Bay, Ontario
P7B 5E1

G. Perrson
110 N. Selkirk Avenue
Thunder Bay, Ontario

C. Nunan
Lakehead University
Biology Department
Oliver Road
Thunder Bay, Ontario
P7B 5E1

D. Pugh
Ministry of the Environment
Regional Laboratory
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

P. Nunan
Ministry of Natural Resources
North Central Region
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

L. Riklik
112 David Street
Thunder Bay, Ontario
P7A 6M4

D. Orr
110 N. Selkirk Avenue
Thunder Bay, Ontario

*D. Romani
129 Hinton Avenue
Thunder Bay, Ontario

J. Roos
Ministry of Natural Resources
Kenora District Office
P.O. Box 5080
Kenora, Ontario
P9N 3X9

*P. Ryan
Ministry of Natural Resources
Q.L.M.L. Assessment Unit
Thunder Bay District Office
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

*R. Ryder
Ministry of Natural Resources
Fisheries Research Section
P.O. Box 2089
Thunder Bay, Ontario
P7B 5E7

H. Schraeder
65 Perivale Crescent
Scarborough, Ontario
M1J 2C4

S. Smids
R.R. #4
Thunder Bay, Ontario

J. Sutton
Ministry of the Environment
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

B. Swift
Apartment 3
127 Glasgow Street, N.
Guelph, Ontario
N1H 4W5

T. Swift
Ministry of Natural Resources
Fort Frances District Office
922 Scott Street
Fort Frances, Ontario
P9A 1J4

R. Thomson
Ministry of Natural Resources
North Central Region
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

J. Vander Wal
Ministry of the Environment
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

M. Walker
Ministry of Natural Resources
Kenora District Office
P.O. Box 5080
Kenora, Ontario
P9N 3X7

*R. Walroth
Ministry of Natural Resources
Nipigon District Office
P.O. Box 970
Nipigon, Ontario
POT 1T0

*N. Ward
Ministry of Natural Resources
Kenora District Office
P.O. Box 5080
Kenora, Ontario
P9N 3X9

*P. Waring
Ministry of Natural Resources
Lake Simcoe Assessment Unit
Sibbald Point Park
Sutton West, Ontario
LOE 1R0

*S. Watson
Ministry of Natural Resources
Dorion Fish Hatchery
Dorion, Ontario
POT 1K0

R. Winkworth
Ministry of the Environment
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

* Parent Society Member