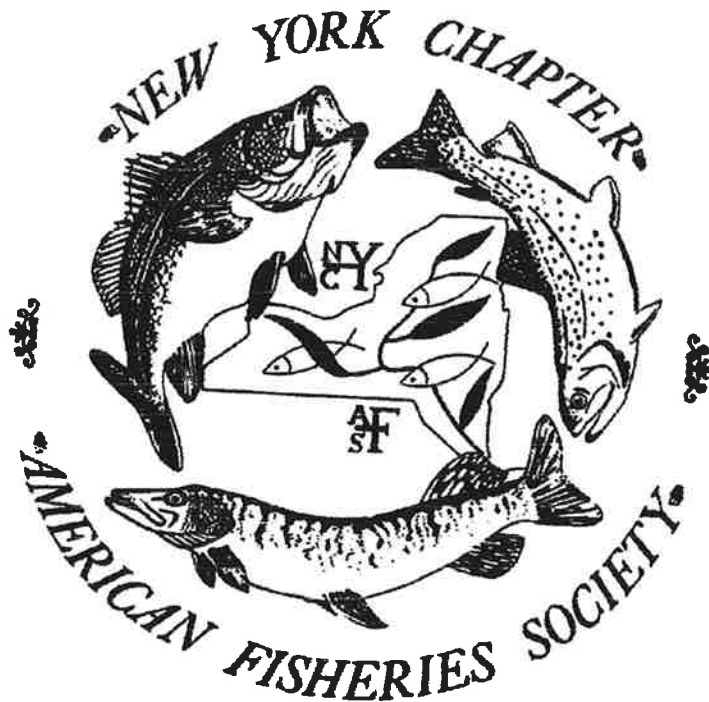




New York Chapter - American Fisheries  
Society Newsletter Winter 1996



**1996 New York Chapter Officers:**

President: Doug Stang                      President-Elect: Lars Rudstam  
Past President: Don Einhouse              Secretary-Treasurer: Tim Sinnott

**Committees:**

Environmental Concerns:	Howard Simonin
Audit/Finance	Tom Field
Program	Kyle Hartman
Resolutions	Bob Werner, Dave Bryson, Don Stewart
Nominating	Don Einhouse
Membership	Lars Rudstam
Newsletter	Tony VanDeValk
Professional Incentives	Paul McKeown
Workshop	Chris Lowie
Professional Diversity	Betty Lou Brett
Student Affairs	Margaret Murphy
Youth education	Chris Lowie, Doug Carlson

**Publication Statement**

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Newsletter: Address:	Mr. Anthony VanDeValk Cornell Biological Field Station 900 Shackelton Pt. Rd. Bridgeport, NY 13030
Issue Number:	Winter, 1996

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of the premier subunits within the American Fisheries Society.

As my term as your President draws to a close, I want to thank you all for providing me the opportunity to represent you. I hope I have fulfilled the responsibilities and lived up to your expectations. I want to especially thank the many dedicated committee members who have helped me through this past year. You have my deepest gratitude and appreciation. I hope you all support Lars and those succeeding him as well as you have me. Thanks again.

I am always open to suggestions from you, the members. If you have something to say please don't keep it a secret. I may be reached via telephone: (518) 457-9436, fax: (518) 485-5827 or via the Internet: doug.stang@dec.mailnet.state.ny.us.

**Doug Stang**, Bureau of Fisheries, Albany

## Nominations

**Parent Society Awards-** Nominations are being accepted for three Parent Society Awards. The Parent Society is accepting nominations for the AFS Distinguished Service Award, AFS Carl Sullivan Fishery Conservation Award, and the Meritorious Service Award. The **Distinguished Service Award** is intended for AFS members and recognizes outstanding contributions of time and energy for special projects or activities. The **Carl R. Sullivan Award** is given to an individual or organization, professional or non-professional, for outstanding contributions to the conservation of fishery resources. Accomplishments may be political, legal, educational, scientific or managerial in scope. Please contact Paul McKeown at (716) 372-0645 for additional information and nomination forms for these two awards.

The **Meritorious Service Award** is given to an individual AFS member for unswerving loyalty, dedication, and meritorious service to the Society over a long period of time; and for exceptional commitment to the programs, ideals, objectives, and long-term goals of AFS. Nomination forms are available from Carolyn A. Griswold at: telephone-(401)782-3273, fax-(401)782-3201, and E-mail- carolyn.griswold@noaa.gov. The closing date to submit nominations is June 15, 1997.

**New York Chapter Officers-** below are the biographical sketches of the nominees for two offices, president and secretary/treasurer, for the New York Chapter.

## President-elect

### Margaret H. Murphy

Margaret H. Murphy is a fisheries biologist with O'Brien & Gere Engineers, Inc. in Syracuse, NY. In this position, she is involved in conducting ecological risk assessments, aquatic habitat surveys, and fisheries studies. She has worked for O'Brien & Gere since 1994. Margaret is a 1988 graduate of Siena College in Albany, NY with a BS in Biology. She graduated in 1991 from SUNY-Environmental Science and Forestry (ESF) with a MS in Fisheries Biology. While at SUNY-ESF, Margaret served as President of the SUNY-ESF Chapter of AFS and helped establish the student sub-unit. She has been a member of the NY Chapter and parent society since 1990. Currently, Margaret is the advisor for the student sub-unit. She was a judge for student presentations at the 1996 Northeast Fish and Wildlife Conference. Recently, Margaret became a SAREP instructor and started a fishing club at her daughters' elementary school. As president of the chapter, Margaret would stress student involvement and youth education, as well as continuing education for members. Margaret loves to be outdoors fishing, hiking, or just spending time with her husband Patrick and daughters Katherine and Maureen.

### Mark Malchoff

Mark is employed as an Extension Specialist with NY Sea Grant in Riverhead, NY. Since 1988 he has conducted education and applied research programs for Long Island coastal audiences. He is currently a co-Project Investigator in a study of continental shelf groundfish nursery habitats.

His interests include larval ecology/fisheries oceanography, and the reduction of hooking mortality in marine recreational fisheries. During the past year he developed programs to increase youth participation rates in marine recreational fishing. Mark's freshwater background stems from a previous Sea Grant position in Fredonia, NY. He earned a B.S. degree from Cornell University in 1976, and received his Master's in Environmental Studies from Bard College in 1993 where he investigated age and growth of larval tautog and cunner.

Mark held the title of NYC-AFS Program Chair in 1995, and helped plan a three-way meeting of wildlife, forestry, and fisheries professionals. His goals in seeking the Chapter Presidency include increasing the interaction between New York's freshwater and marine fisheries

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professionals, and fostering the implementation of the chapter's Strategic Plan, currently being developed for adoption by the Chapter at this year's annual meeting.

His leisure interests include surf kayaking, whitewater kayaking and camping with his wife and two daughters.

## Secretary/Treasurer

### John Homa, Jr.

John received his BS from Cornell University in 1975. He began his career in fisheries science in 1971, working as a field technician for Ichthyological Associates, Inc (IA) on the Susquehanna River at Muddy Run, PA. He continued to work at IA after graduation, becoming a protégé of Dr. Edward C. Raney. After Ed's death, he became company president in 1987, an office that he still holds.

During his career he has conducted studies at over 100 hydroelectric developments in eleven states as well as numerous studies for the federal, state, local governments, not-for-profit organizations; industry and utilities; and private developers. During these years, he has had the opportunity to develop innovative sampling techniques and solutions to ecological problems. He has hired and trained many young biologists, giving them the kind of opportunity that Ed Raney gave him at the start of his career.

John is a lifetime member of AFS, for the New York Chapter, he has served on the Ecological Concerns Committee. He resides in Lansing with his wife Debby, where he has served as the chair of the Town Planning Board. He has also served on the boards of directors of the Cayuga Nature Center and the Lakeview Church.

## Around New York State

### SUNY Cobleskill's Bachelor of Technology Degree in Fisheries and Aquaculture Program Stresses Project-Oriented Curriculum

by Alan Ginsburg

With its project-oriented curriculum, SUNY Cobleskill's bachelor of technology degree in fisheries and aquaculture offers students both the knowledge and hands-on experience essential for careers in the aquatic sciences, fisheries and aquaculture industry.

"Our fisheries and aquaculture major is supported by the largest and most diverse academic aquaculture facilities in the Northeast, with an on-campus 40,000 gallon cold water fish hatchery, quarantine hatchery, tropical fish hatchery, tank farm and earthen ponds," says Dr. John Foster, professor of fisheries and aquaculture technology and program coordinator.

Yet, what also makes the program unique, he says, are the projects the students participate in by working closely with the New York State Department of Environmental Conservation, conservation associations and community organizations. "The students perform environmental impact analysis, participate in fisheries research projects, aquaculture research and development studies," he says. "We encourage the students to have a combination of backgrounds, so they can do well on state and federal exams in their field of study, and qualify for positions in several areas of fisheries, aquatic science, and aquaculture."

In some cases, a fish culturist may only work in the hatchery, whereas in others they may work as a fisheries technician as well as in the hatchery, taking water samples for water quality testing, or be required to conduct pollution analysis as part of their job.

Foster says students who enroll in the program often have fairly specific job aspirations, such as fisheries biologist, fisheries manager, hatchery manager, or to become involved in environmental education. Some may want to start their own businesses in the tropical fish field. "There is some overlap in different areas, so our diverse curriculum offers them both the knowledge and hands-on experiences they might need for a variety of opportunities in the field," he explains. "The students are kind of niche marketing," he says, "by finding a variety of different job opportunities in relatively small fields." Some graduates he says are employed by aquariums, some by zoos. "After all," he notes, "the principles for looking after animals in a hatchery are similar to those needed for caring for aquatic animals in aquariums and zoos."

Aquatic science and aquaculture research is stressed in the program, Foster says. In the last five years, students and faculty have participated in dozens of research projects, resulting in about 30 journal articles.

Recently, Foster and his classes have completed a survey of the fish in Otsego Lake and its watershed in Otsego County -- a joint project with the U.S. Environmental Protection Agency, state Department of Environmental Conservation, and SUNY Oneonta -- examining the spawning success of sunfish in Otsego

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Lake. In addition, they completed a stream channelization study of Leatherstocking Creek in Otsego County, evaluating the impact of the channel that was constructed 65 years ago.

"We enjoy doing cooperative programs," says Foster, who noted he and his classes have worked with the Otsego County Conservation Association on several projects and are currently engaged in a project with the federal Soil Conservation Service restoring riparian vegetation in another creek in that county. It's a cooperative venture with the farmers there as well, to reduce erosion and silt formation in Otsego Lake. In addition, it's a means of restoring vegetation and provide shade for food sources for trout. "When they took the trees away, the trout got confined to a small segment of the stream," Foster explains. "We'll do follow up studies to monitor the populations of fish in the stream for four or five years to see how effective the plantings were.

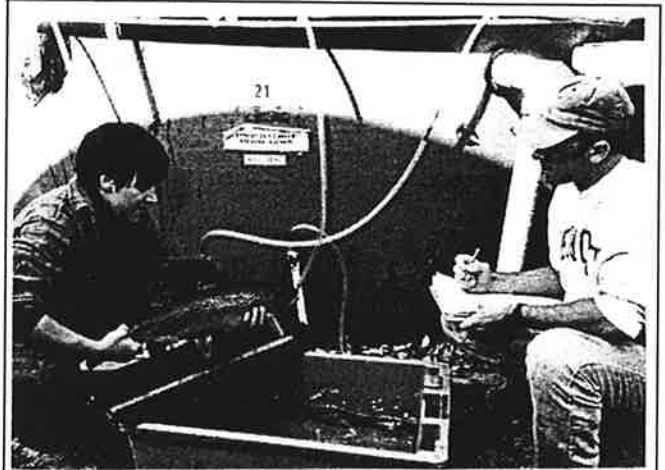
Last year, two bachelor of technology students conducted a radio-tracking study of brown trout in the Delaware River, a project in cooperation with the New York State Department of Environmental Conservation that started with four tags and has since been increased to 50 tags.

"Even in our aquaculture program in November we go up to the Adirondack hatchery and spend the weekend spawning fish, one day out in the field pulling nets in the snow and spawning the fish in the field and another day in the hatchery doing domestic brood stock," says Foster. "And, we also take two weekend trips to the coast to look at coastal ecosystems and do some marine biology.

Meanwhile, students are also responsible for activities in the campus fish hatchery as part of course requirements and independent study projects, working closely with hatchery manager Laurie Trotta, who holds a bachelor of technology degree in fisheries and aquaculture from SUNY Cobleskill. Housed on the campus's agricultural complex, the hatchery features ten 2,000 gallon tanks, four 3,000 gallon tanks, eight 500 gallon systems, four heathstacks incubators, MacDonald jars and California troughs. Atlantic salmon, Kokanee salmon, arctic char, brown trout, brook trout, and rainbow trout are cultivated in the hatchery.

Two drilled wells produce 20 gallons of water per minute for the recirculation system, with turnover time in each of the 2,000 gallon tanks estimated at around 33 hours per tank and about 12 hours turnover with the smaller tanks. The water that leaves the hatchery flows

into settling tanks, then into a stream consisting of pools and rifles, which has proven to be a very effective means of cleansing the hatchery water before it flows into a nearby creek. Water quality testing in the creek is done frequently by the students and staff to monitor the tanks and outflow to comply with the New York State Pollution Elimination Discharge Systems Permit.



Laurie Trotta, SUNY Cobleskill fish hatchery manager, measures the length of an Atlantic salmon while aquaculture work-study student Colin Gillette records the measurement.

"We also have an ozone system, with the ozone generator connected to the water in our header tank," Trotta explains. "It will disinfect the water coming in, especially since one well is close to a stream, so we're concerned about infiltration from the stream. Ozone systems help with clarity and disinfecting and adds essential oxygen to the tanks."

She says production in the hatchery has been increasing. Currently, the students are spawning brown trout. Some of the fingerlings are being sold to colleges out of state where aquaculture research is underway. Fish produced in the hatchery are primarily used in campus culinary arts program facilities, in catering courses and the college's American Heritage Restaurant, or processed and packaged for a local food distributor. Money generated by the sale of the fish is used in the operations of the hatchery.

Students are involved in all phases of the operation of the hatchery -- maintaining the tanks, feeding the fish, checking their health, and spawning. "In one of the aquaculture courses, students spawn brood stock and bring the eggs up to eyed-egg stage. On a daily basis, they have to come in, clean the filter pad, brush their tank, feed

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their fish and keep records of what they did that day or noting any unusual activity among the fish," Trotta explains. "Students in the fundamentals of aquaculture course also care for the tanks, but they take fish from the eyed-egg stage on up to grow out to adult size. They also do brood-stock selection. So between those two courses, the students are involved in the total life cycle of the fish."

Students in aquaculture engineering courses also engage in special projects in the hatchery, such as designing and constructing filtration systems to improve or replace the existing systems. "The students in aquaculture have to look after the fish and they learn quickly whether this is something they want to do for the rest of their life," says Foster. And if they plan a career in aquaculture the students are encouraged to take business courses and aquaculture engineering courses.

"So we try to adjust the program to what the student wants to do," he explains. "The core curriculum centers around recommended courses not required courses. So they're picking and choosing depending on their direction. If they want to go to graduate school, then we strongly emphasize the liberal arts, with courses in organic chemistry, physics, calculus, and other electives graduate programs expect them to have taken as an undergraduate."

About 25 percent of the bachelor of technology students continue their studies in graduate school, seeking advanced degrees in fisheries, aquatic science, and aquaculture. SUNY Cobleskill's fisheries and aquaculture graduates are currently working at research facilities throughout the United States, serving as hatchery managers or technicians in major fish hatcheries, as technicians in various state and federal agencies or for environmental consulting firms, and as environmental educators. Says Foster, "the program's emphasis on research and hands-on projects along with a wide selection of courses has certainly given the students the knowledge and skills needed to meet the demand for qualified technicians, biologists, and managers in the growing fisheries and aquaculture field."

## Anglers Corner

New York State Freshwater Fish angling records - January 1996

Species	Weight	Water	Date
Bass, Largemouth	11lb 4 oz	Buckhorn Lake	9/11/87
Bass, Rock	1lb 5oz	Ramapo River	5/26/84
Bass, Smallmouth	8lb 4oz	Lake Erie	6/4/95
Bass, Hybrid striped	8lb 9oz	Tioughnioga R.	8/2/90
Bass, Striped	46lb 11oz	Hudson River	5/21/95
Bass, White	3lb 6oz	Furnace Brook	5/2/92
Bluegill	2lb 8oz	Kohlbach Pond	8/3/92
Bowfin	11lb 5oz	Cowell Pond	5/31/91
Bullhead, Black	7lb 7oz	Mill Pond	8/25/93
Bullhead, Brown	3lb 15oz	Private Pond	6/19/95
Burbot	16lb 2oz	Black River Bay	2/14/91
Carp, Common	50lb 4oz	Tomhannock Res.	5/12/95
Catfish, Channel	28lb 0oz	Allegheny River	10/21/84
Catfish, White	9lb 12oz	Mohawk River	9/27/92
Cisco (Lake Herring)	5lb 7oz	Lake Lauderdale	1/25/90
Crappie, Black	3lb 9oz	Saratoga Lake	1/26/91
Crappie, White	3lb 9oz	Kinderhook Lake	12/18/88
Drum, Freshwater	24lb 7oz	Ganargua Creek	5/26/95
Eel, American	7lb 14oz	Cayuga Lake	7/25/84
Fallfish	2lb 5oz	Schoharie Creek	10/7/95
Gar, Longnose	12lb 8oz	Black Lake	5/22/95
Muskellunge	69lb 15oz	St. Lawrence R.	1957
Muskellunge, Tiger	35lb 8oz	Tioughnioga R.	5/25/90
Perch, White	3lb 1oz	Lake Ossaletta	9/21/91
Perch, Yellow	3lb 8oz	Lake Erie	4/-/82
Pickereel, Chain	8lb 1oz	Toronto Res.	1965
Pickereel, Redfin	2lb 1oz	Lake Champlain	3/5/89
Pike, Northern	46lb 2oz	Gr. Sacandaga L.	9/15/40
Salmon, Atlantic	24lb 9oz	Lake Ontario	5/17/87
Salmon, Chinook	47lb 13oz	Salmon River	9/7/91
Salmon, Coho	33lb 4oz	Salmon River	9/27/89
Salmon, Kokanee	2lb 10oz	Twin Lakes	9/24/95
Salmon, Pink	4lb 15oz	Lake Erie	9/16/85
Sauger	4lb 8oz	Lower Niagara R.	9/30/90
Shad, American	8lb 14oz	Hudson River	4/30/89
Sucker, Redhorse	9lb 4oz	Salmon River	5/11/85
Sucker, White	5lb 3oz	Hudson River	5/13/94
Sunfish, Pumpkinseed	1lb 9oz	Indian Lake	7/19/94
Sunfish, Redbreast	Vacant	-	-
Trout, Brook	4lb 13oz	Deer Pond	5/16/92
Trout, Brown	30lb 9oz	Lake Ontario	5/9/93
Trout, Lake	39lb 8oz	Lake Ontario	5/5/94
Trout, Rainbow	26lb 15oz	Lake Ontario	5/22/85
Trout, Splake	12lb 15oz	Little Green Pond	6/29/83
Walleye	16lb 7oz	Kinzua Res.	5/22/94
Whitefish, Lake	10lb 8oz	Lake Pleasant	8/29/95

## Students Corner

The student subunit is still striving to involve more students in the NY Chapter. In April, I sent a letter to all students who are NY Chapter members. As members in the NY Chapter, they are automatically members in the student subunit. As advisor, I need student input and involvement to be effective.

I am thinking of setting up a home page for the student subunit, but need some student input on this. What are students looking for in the student subunit? Also, if anyone is experienced in home pages and would like to get involved - I could use the help.

One thing I want to clear up. The student subunit and the SUNY-ESF Chapter are not the same thing. From talking to some of you, students outside of SUNY-ESF seem to be intimidated by the involvement of SUNY-ESF students. The student subunit is for all students who are members of the NY Chapter.

There will be a student subunit meeting at the NY Chapter meeting Jan 30 - Feb 1, 1997. We will probably meet sometime on Friday (Jan 31), so look for information at the meeting. I look forward to meeting more of you at the meeting. Please feel free to email me anytime with questions or ideas. My email address is now [PKMurphy@localnet.com](mailto:PKMurphy@localnet.com)

Margaret H. Murphy

## Opportunities

**National Fish and Wildlife Foundation Grants under the provision of the Consent Decree in United States V. Iroquois Gas Operating Pipeline Co. Civil Action No. 96-CV-836**

from the National Fish and Wildlife Foundation

To whom it may concern,

The U.S. District Courts in Syracuse, NY, New York City, NY, and New Haven, CT, recently entered Consent Decrees in the above-cited matter that contain a provision whereby the Iroquois Gas Operating Pipeline Con. Will provide the National Fish and Wildlife Foundation \$2,225,000 for Supplemental Environmental Projects to mitigate environmental damage caused to wetlands and streams by construction of a company pipeline. Therefore,

by this letter, we are soliciting projects from interested organizations for matching grants for these monies. The goal of these grants will be to provide environmental benefits to the affected region through the acquisition, enhancement, restoration, and creation of wetlands and other water resources.

The four principle criteria of a successful grant application will be: 1) the location of the proposed projects within the counties through which the pipeline was constructed; 2) projects that provide net gain in wetlands or water resource values, or insure protection of significant water resources so as to offset adverse impacts associated with the construction of the pipeline; 3) projects which are perpetual in character; and 4) matching funds with a minimum ratio of one to one.

The matching funds requirement will be viewed with some flexibility, depending on the quality of the project; however, the Consent Decree requires all projects to be within the vicinity of the pipeline. Hence the limitation of affected counties.

If your organization is interested in proposing a project, please forward a letter by December 1, 1996 to the undersigned and an application form will be sent to you. I will return the application with a due date.

Sincerely,

William C. Ashe  
Director, Special Projects

### World Wide Web Job Sites:

AFS Jobs Bulletin:  
<http://www.esd.ornl.gov/afs/jobs.htm1/>

Internet Job Sites:  
<http://www.ag.auburn.edu.dept/faa/jobs.htm1/>

## Strategic Plan

The following draft Strategic Plan was formulated in an attempt to provide future direction and guidance for the New York Chapter. We encourage any and all chapter members to carefully review the document and return the comments to: Paul McKeown, NYS-DEC, 128 South Street, Olean, NY 14760. Comments by membership will be reviewed by the ad hoc Planning Committee (Einhouse, Stang, Wilkins, McKeown) and incorporated into a revised format that will be presented at the annual business meeting in Owego, January, 1997. At the business

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meeting the Strategic plan will be voted on by membership. As you review the document, keep in mind that the plan is not intended to be an operational document. An Officers and Committee Chairperson's Handbook already exists that provides operational direction. *Please take the opportunity to review this draft and send comments to Paul.*

Thanks, The Planning Committee.

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## DRAFT OUTLINE

Strategic Plan for the  
New York Chapter of the  
American Fisheries Society

### I. *Mission Statement*

The New York Chapter of the American Fisheries Society (NYC-AFS) will endeavor to provide services and guidance to achieve high standards of professionalism necessary for the conservation of New York's fisheries resources and aquatic ecosystems.

### II. *Chapter Goals*

#### 1. Information and Education

The NYC-AFS membership will provide a network of information and assistance, available to members and nonmembers, to protect, enhance and restore New York's fisheries resources and foster professional development.

##### Strategies

- A. Develop and disseminate a listing of potential contacts for information and assistance in fisheries and aquatic resource issues through publication and distribution of a *Membership Directory*. This directory will be distributed to all members at a frequency and schedule determined by the standing NYC-AFS Executive Committee.
- B. Foster opportunities for the exchange of information and ideas, camaraderie, and formal presentation of fisheries studies at an *Annual Meeting*. This meeting will be held at an appropriate, central location, focus on topics of particular interest and importance to members, and will be open to members and non-members. Incentives will be provided to encourage student participation and costs

will be reduced for student participants.

- C. Promote continuing education and further development of individuals' skills by hosting *Workshops*. These workshops will be held mid-year at an appropriate location, focus on a topic of particular interest and importance to membership, and will be open to members and non-members. Incentives will be provided to encourage student participation and costs will be reduced for student participants. Workshop participants will qualify for appropriate Continuing Education Credits.
- D. Disseminate timely information concerning NYC-AFS activities, AFS Parent Society activities, New York and northeast regional fisheries issues and offer a forum for members to express their views through publication and distribution of a *Newsletter*. This newsletter will be distributed at a frequency and schedule determined by the standing Executive Committee NYC-AFS and will be distributed to all members, all Chapters in the Northeastern Division (NED) AFS, AFS parent society, and key government and agency representatives.

#### 2. Professional Enhancement and Recognition

The NYC-AFS will recognize deserving individuals for appropriate NYC-AFS level awards, will identify and nominate worthy individuals for NED and AFS level awards, and will foster professional certification of NYC-AFS members.

##### Strategies

- A. Candidates will be nominated according to appropriate NYC-AFS, NED and AFS bylaws.
- B. When appropriate, employers will be notified of the outstanding contributions of their members.
- C. The selected candidates will be recognized in the newsletter.
- D. The standing Executive Committee will enter the NYC-AFS in the Outstanding Chapter Competition.

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- E. Encourage NYC-AFS members to seek professional certification by AFS.
- F. Pursue recognition of the certification process by the employers of fisheries professionals.

### **3. Professional Services**

The NYC-AFS will provide professional services within the constraints of the operating budget and protocol of the Chapter and as deemed appropriate by the Executive Committee. Opinions and or official positions that could be perceived to represent the NYC-AFS will first be presented to the Executive Committee for review.

#### **Strategies**

- A. Provide information, sources of information, and technical advice to agencies, interested groups, and individuals seeking assistance and information on fisheries items and issues concerning New York fisheries and aquatic systems.
- B. Provide field assistance, data collection, and data analysis to agencies, interested groups, and individuals seeking assistance with New York fisheries issues and investigations.

### **4. Advocacy**

The NYC-AFS may provide input in the development of public policy to insure that fisheries concerns are appropriately addressed and sound fisheries practices are exercised.

#### **Strategies**

- A. Issues may be brought before the Chapter by any member and must be presented with an associated action plan to the Executive Committee for review. The issue and action plan must receive a unanimous vote by the Executive Committee before an advocacy position is finalized. When time permits, issues requiring advocacy should be presented to membership for review and comment.

### **5. NYC-AFS Representation to the Division and Parent Society**

The NYC-AFS will participate at both the NED and Parent Society levels.

#### **Strategies**

- A. Participate in annual meetings of NED and AFS, attend and contribute to NED Executive meetings.
- B. Provide administrative advice to NED and AFS.
- C. Encourage membership of NYC-AFS to join AFS.

### **6. Financial Stability**

The NYC-AFS will endeavor to maintain financial stability while pursuing the Chapter mission.

#### **Strategies**

- A. Prepare an annual, membership-approved budget that balances income and expenditures.
- B. Establish financial goals for the Chapter as per recommendations by ad-hoc financial review/planning committees.
- C. Review financial objectives every five years relative to operating expenses.
- D. Independently review, assess and verify financial accounts annually as an ongoing audit responsibility.

### **7. Effective Operational Protocol**

The NYC-AFS will operate in accordance with the guidelines outlined in the bylaws of the NYC-AFS Officers and Committee Chairperson's Handbook and those of the Constitution of the American Fisheries Society.

### **8. Student Subunit**

The NYC-AFS will recognize the Student Subunit as a distinct unit within the NYC-AFS with unique requirements and contributions.

#### **Strategies**

- A. The NYC-AFS Executive Committee will select a member (hereafter referred to as the NYC-AFS-SS Coordinator) from the NYC-AFS that will provide continuity, leadership and guidance to the Student Subunit.
- B. The Student Subunit will elect officers that will provide leadership within the subunit as well as representation to the



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- NYC-AFS.
- C. The Student Subunit will be represented at NYC-AFS Executive Committee meetings by subunit officers and the NYC-AFS-SS Coordinator.
  - D. NYC-AFS will provide operating and project funds to the Student Subunit pending Executive Committee approval of requests and proposals for funding by the Student Subunit.

## Fisheries News

**AFS E-mail List-** AFS-L is a new listserver of the AFS Computer Users Section (AFSCUS). It is intended to complement the AFS WWW page and to communicate items of interest to members, i.e., job listings, calls for papers, and news items. Subscriptions are limited to AFS members. To subscribe to the AFS-L, e-mail [majordomo@wyoming.com](mailto:majordomo@wyoming.com) with the following text in the body of the message: subscribe AFS-L <your e-mail.address>.

**New York Coop Research Unit-** The New York Cooperative Fish and Wildlife Research Unit at Cornell University recently completed a study of ice fishing effects on a previously unexploited, 221 hectare New York lake. The two primary aquatic research efforts of the Unit remain active: watershed conservation biology, and sturgeon of the Hudson River. Rueben Goforth (Ph. D. student) oversees a watershed study aimed at mapping measured and predicted distribution of aquatic biodiversity in an agricultural region, and predicting benefits of forested riparian buffers. The aquatic Gap Analysis Pilot study has completed mapping of measured and predicted fish and invertebrate faunal status for the Allegheny River basin in western New York. A full report of methods and results to date are available at our web site ([MBB1@Cornell.edu](mailto:MBB1@Cornell.edu)). Marci Meixler, GIS and computing expert, handles the computer aspects of this work and maintains the web site. Studies on sturgeon of the Hudson River are being redirected to focus on the ecology of juveniles of both the Federally endangered shortnose sturgeon and Atlantic sturgeon. Nancy Haley is pioneering a variety of new sampling techniques directed at assessing food and space resource use by both sturgeons. A summary of sturgeon research is available in the latest issue of "Sturgeon Notes" (request a copy from Mark Bain or see it in the web site). The Unit's survey and analysis of aquatic habitat analysis methods being

used by State, Federal, Provincial, and private organizations is well underway. This work is part of an American Fisheries Society effort and should be completed by the end of the summer. The Unit's Hydroecology and Fish Biology World Wide Web site will be updated by mid-August with recent publications, project reports, abstracts and summaries of completed and current studies, research and student opportunities, and recent issues of Sturgeon Notes. The URL is: <http://www.dnr.cornell.edu/hydro2/hydro2.htm>. For further information on the Unit's fish and aquatic research contact: Mark Bain, 607-255-2840, [MBB1@Cornell.edu](mailto:MBB1@Cornell.edu).

**More sturgeon news-** In early April, 1996, two Maryland fishermen caught three endangered shortnose sturgeon in Chesapeake Bay – the first confirmed sightings of this fish in the Bay since 1986. - Assoc. Press

**NY West Side Highway-** On April 1, 1996, ground was broken in New York City for the West Side Highway project. This project had been delayed almost 20 years over concerns for striped bass spawning areas in the adjacent Hudson River and other issues. - Assoc. Press

**Fishing Access Decision-** On March 8, 1996, the Appellate Division of the New York State Supreme Court ruled unanimously that anchoring, wading, and fishing in a navigable river does not constitute trespass on private property, as long as anglers do not fish or anchor on shore or beach their boats. Ten fishing guides had been charged with trespass and sued for \$1.1 million in damages in 1994 after they dropped anchor in a stretch of the Salmon River flowing through private property belonging to a former State Senator. - Assoc. Press

**Clinton FY1997 Budget-** On March 19, 1996, the Administration's FY1997 budget was released, proposing a 9% (\$24 million) increase for fisheries and protected species programs in the Dept. of Commerce (NMFS) to \$306 million. Included is \$10 million in anticipated revenue from proposed fees on fishing quota holders and \$107 million for the Corps of Engineers to construct and improve juvenile fish bypass facilities at eight Corps dams on the Columbia and Snake Rivers. This is a \$28 million increase over FY1996 expenditures, and includes \$4.7 million to build 3 new fish transportation barges and \$13.2 million for installing spillway deflection devices to dissipate dissolved gases at the base of dam spillways. No funds are proposed for continuing to study reservoir drawdown. A three-year Corps initiative proposes \$111 million to remove two dams and restore Washington's Elwha River. Proposed Bonneville Power Administration funding for fish and wildlife programs during FY1997 totals about \$419 million. - FY1997 Budget, NPPC press

# AFS - New York Chapter Newsletter -- December 1996

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release

## ***WHIRLING DISEASE: A perspective***

There are many potential diseases that can affect fish in a hatchery, but in recent years fish biologist have become ever aware of a crippling disease caused by the microscopic parasite, Myxobolus cerebralis – whirling disease (WD).

First reported in Europe in 1893, WD is believed to have entered the United States in 1956 via a fish shipment from Denmark. Pennsylvania fish culturists discovered the disease first, and it was later reported in California in 1965 and New York in 1988, where 170,000 infected hatchery fish were intentionally destroyed. Today, WD has been reported in the wild in 11 states – California, Colorado, Idaho, Michigan, Montana, Nevada, New York, Oregon, Pennsylvania, Utah, and Wyoming, and in hatcheries in 9 other states – Alabama, Connecticut, Massachusetts, New Hampshire, New Jersey, New Mexico, Ohio, Virginia, and West Virginia.

The life cycle of WD begins when spores of M. cerebralis are released from deteriorating skeletal tissues of the host fish. These spores remain dormant until they are ingested by Tubifex worms. While in the gut of these worms, the spores change into a new form which is infectious to salmonids. This transformation takes about 3.5 months. The parasite may infect the fish through the digestive system, when fish ingest the worms, or directly through the skin. Once in the trout, the infectious spores attack the cartilage and in 3 to 4 months the parasite produces more spores that perpetuate the cycle. Young salmonids are the most vulnerable because they have soft cartilage that is easily affected by the spores.

Some of the symptoms of whirling disease include frantic circular movements and a blackening of the caudal peduncle and tail. These early signs eventually disappear, but as the disease progresses fish often succumb to misshapen bodies, sunken areas above the eyes, bent or open mouths, misshapen caudal peduncles, curvatures of the spine, and small sized skulls. Precisely why trout die from WD has not yet been determined, one hypothesis suggests that the whirling behavior makes the small fish more vulnerable to predation.

Very little research has been done on the effect of WD on wild trout populations. More research must be done before there is any consensus of opinion of WD's effects. Some states do not consider WD to be a major problem, so other than keeping hatcheries disease free, there is little done to combat it in the wild. Other states

(mostly western states) are developing resistant strains of rainbow trout, shifting management policies to other trout species in WD-positive waters, developing a WD vaccine, containing the disease by strict regulations of fish transport, and eradication of infected fish. Obviously, there is no simple answer to the WD problem, but it is something that we need to more fully understand before an appropriate strategy is launched to combat this crippling disease.

For more information consult the June 1996 Fisheries issue.- Northeastern Division Newsletter Vol. 14, No. 2

**New York and Pennsylvania Chapters  
American Fisheries Society**

Joint Annual Meeting  
January 30 - February 1, 1997  
Treadway Inn, Owego, NY

**MEETING ANNOUNCEMENT and  
FINAL CALL  
for PAPERS**



Meeting Theme:

***PANFISH BIOLOGY AND MANAGEMENT***

You are invited to submit abstracts for review and inclusion in the meeting program. Abstracts that are accepted for the meeting program will be presented during the Contributed Papers Sessions on Saturday Morning, February 1, 1997.

Abstracts should be submitted in WordPerfect or ASCII format on an IBM formatted 3.5" diskette. Abstracts may also be submitted typewritten on the attached form. The length of the abstract must not exceed 250 words regardless of format.

**All abstracts must be received no later than  
January 7, 1997**

Please Submit Abstracts to:

Kyle Hartman  
West Virginia University  
Division of Forestry  
P. O. Box 6125  
Morgantown, WV 26506-6125  
(304) 293-2941 ext. 2494



## New York Chapter, American Fisheries Society 1997 Annual Meeting Registration and Membership Renewal

**SPEEDY REGISTRATION INSTRUCTIONS:** **New members** - Complete lines 1 - 5. **Current members** - Enter your name and only any information items that have changed. Check the directory if you are unsure. **All** - Bring the completed form and your check for the correct amount made out to **NY Chapter AFS**.

1. NAME \_\_\_\_\_
2. Employer or School \_\_\_\_\_
3. Address (Street, PO Box, Apt #) \_\_\_\_\_
4. Address (City, State, Zip) \_\_\_\_\_
5. Telephone number, Home: \_\_\_\_\_ Work: \_\_\_\_\_
6. E-mail: \_\_\_\_\_
7. New member:                       Renewal:

**Circle all applicable fees:**

	STUDENT MEMBER	REGULAR MEMBER
Meeting Registration	\$40.00	\$55.00
Chapter Membership for 1997	\$5.00	\$10.00

Enter Total: \$ \_\_\_\_\_ **Make checks payable to NY Chapter AFS**

**Student Stipend Applicants:** Student stipends are available for all students presenting papers. To apply, complete the following blanks and submit the completed registration form along with your abstract. The stipend covers the cost of the registration and up to \$25.00, depending on the number of students applying.

1. University/College you are attending: \_\_\_\_\_
2. Major Professor: \_\_\_\_\_
3. Professor's telephone number: \_\_\_\_\_

### NEW YORK CHAPTER - AMERICAN FISHERIES SOCIETY RECEIPT

January \_\_\_\_\_, 1997

Received from \_\_\_\_\_, \$ \_\_\_\_\_  
for 1997 Annual Meeting Registration \$ \_\_\_\_\_ 1997 NY Chapter Membership \$ \_\_\_\_\_

\_\_\_\_\_  
Timothy J. Sinnott, Secretary/Treasurer

**AFS - New York Chapter Newsletter -- December 1996**

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Joint New York - Pennsylvania Chapters  
American Fisheries Society  
**Final** Call For Papers  
Annual Meeting - January 30 - February 1, 1997

Author(s):

Title:

Abstract:

Student

Professional

Poster

Senior Author's Address:  
Daytime telephone

Submit Abstracts to:

**Kyle Hartman  
West Virginia University  
Division of Forestry  
P.O. Box 6125  
Morgantown, WV 26506-6125**

**NOTE THE NUMBER 95, 96, OR 97 ON YOUR MAILING LABEL.  
THIS DENOTES YOUR MEMBERSHIP STATUS  
TO BE A CURRENT PAID-UP MEMBER YOU SHOULD HAVE A 97 ON THE LABEL.**

**IF YOUR LABEL IS MARKED 95, YOUR NAME WILL BE DELETED FROM THE  
MEMBERSHIP ROLE AS OF 1 AUGUST 1997.**

**ATTACHED IS A MEMBERSHIP BLANK FOR NEW OR RENEWAL MEMBERSHIPS**

**SEND YOUR 1997 DUES TO THE SECRETARY/TREASURER**

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**Application for Membership  
New York Chapter American Fisheries Society  
(Information provided will be used in the membership directory)**

Name \_\_\_\_\_ Regular (\$10.00)\_\_\_ Student (\$5.00)\_\_\_

Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_ **Student applications must be endorsed  
by a faculty member signing above**

Employer/Affiliation/School \_\_\_\_\_

Telephone: Work \_\_\_\_\_ Home \_\_\_\_\_

Are you a member of the American Fisheries Society (Parent Society)? Yes\_\_\_ No\_\_\_

New Membership\_\_\_ Renewal\_\_\_ What was the last year you were a paid-up member? \_\_\_\_\_

Would you be interested in serving on any of the Chapter Committees? If so, please check which committees would interest you.

Environmental Concerns	_____	Membership committee	_____
Program Committee	_____	Resolutions Committee	_____
Finance Committee	_____	Professional Incentives	_____
Newsletter Staff	_____	Professional Diversity	_____
Workshop Committee	_____	Student Sub-unit	_____

Make checks payable to NY Chapter AFS. Send This form and your check to:

**Timothy Sinnott  
Secretary/Treasurer  
c/o NYSDEC  
Room 576, 50 Wolf Road  
Albany, NY 12233-4756**

Interest and Specialty codes have been deleted because of the increased cost of printing and mailing the membership directory.



NEW YORK CHAPTER - AMERICAN FISHERIES SOCIETY  
C/O NYS DEPT. OF ENVIRONMENTAL CONSERVATION  
ROOM 576, 50 WOLF ROAD  
ALBANY, NEW YORK 12233-4756

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New York Chapter - American Fisheries  
Society Newsletter Summer 1996



**1996 New York Chapter Officers:**

President: Doug Stang                      President-Elect: Lars Rudstam  
Past President: Don Einhouse              Secretary-Treasurer: Tim Sinnott

**Committees:**

Environmental Concerns:	Howard Simonin
Audit/Finance	Tom Field
Program	Mark Malchoff, Don Stewart
Resolutions	Bob Werner, Dave Bryson, Don Stewart
Nominating	Paul McKeown
Membership	Lars Rudstam
Newsletter	Tony VanDeValk
Professional Incentives	Doug Stang
Workshop	Betsy Kozuchowski, Chris Lowie
Professional Diversity	Betty Lou Brett
Student Subunit	Joseph Dembeck
Youth education	Chris Lowie, Doug Carlson

**Publication Statement**

Title:	New York Chapter American Fisheries Society Newsletter
Issue Date:	July 10, 1996
Frequency:	The NYC AFS Newsletter is published three times annually: March-April (Spring edition), July-August (Summer edition), and November-December (Winter edition).
Newsletter: Address:	Mr. Anthony VanDeValk Cornell Biological Field Station 900 Shackleton Pt. Rd. Bridgeport, NY 13030
Issue Number:	Summer, 1996



## Editor's Note

I'd like to thank NYC-AFS for giving me the opportunity to act as newsletter editor. I am excited with the challenge of producing a quality newsletter like those you've become accustomed to over the past three years with Lars and Myriam as editors. But in order to accomplish this I need your help. I am very interested in any notes or contributions you may think are of interest to those reading this newsletter. I would also like to continue to have a feature article in each newsletter so I am always searching for appropriate material. If you have anything for me, please contact me by letter, fax, or email. A diskette for Macintosh or IBM with files in Word, Word Perfect 5, or ASCII formats is appreciated. I may also be able to handle various types of picture files. The next deadline for the fall newsletter is Oct. 31. You can reach me at:

Tony VanDeValk, Cornell Biological Field Station,  
Bridgeport, New York 13030, Phone: (315)633-9243,  
Fax: (315)633-2358, Email: ajv6@cornell.edu

## President's Corner

Greetings, I hope that you are all now into your summer routines and you, family and friends are enjoying at least a few of the many excellent recreational opportunities New York has to offer.

At the end of July, I will be representing you at the 1996 Northeastern Division - American Fisheries Society Executive Committee Retreat. The mission of this retreat is to increase membership interest and strengthen the professional development and transfer of scientific information within the Northeastern Division. Currently, information is transferred via the NED Annual Meeting and via the NED-AFS newsletter. Unfortunately, attendance and participation in the Annual Meeting has been waning for several years which indicates that the membership's needs are not being met. The 1996 NED Annual Meeting had several outstanding technical sessions to try to spur interest/participation, with little success. Some of the ideas to be discussed will be: whether or not to continue the annual meeting, what type of format the meeting should have, whether or not a mid-term technical meeting should be initiated in addition to or in place of the current annual meeting format. Bottom line is: *What can we do to better serve your interests and needs as a fisheries professional?* Please let me know.

A second goal of this retreat is to conceive and develop a mechanism to advise and counsel the Northeast Directors of the Fish and Wildlife Association on issues related to protecting, promoting, and enhancing aquatic resources. The Wildlife Society has a forum to discuss with and advise agencies directors in the northeast on wildlife related issues and the NED-AFS is looking to establish a similar, effective advisory role.

Within this issue of the NYC-AFS newsletter is a copy of the draft outline for a strategic plan for the New York Chapter. Please take the time to read the draft and provide Paul with comments and suggestions for improvement. This strategic plan will describe "what we are all about" and will serve as a guide against which we can measure whether or not the Chapter is fulfilling its mission. It is especially important for all of us to provide input to ensure that the Chapter represents those ideals that you, as a member, hold and that the Chapter's direction is consistent with the direction that you think the Chapter should be taking. Your comments and suggestions for changes/ additions/ deletions are not only welcome, but are necessary for the strategic plan to fully portray the values of its members. If you support the ideas presented in the draft outline, we want to hear about that as well. This outline is the first step in a process to the development of a strategic plan for the Chapter which should be ready for review and endorsement at the next annual meeting in January, 1997.

I hope you can participate in the upcoming workshop in October. Chris Lowie has been working diligently with members of the Pennsylvania Chapter-AFS to develop an interesting and informative workshop on stream habitat measurement and assessment. The dates are October 8 and 9, 1996 and will be held at the Owego Treadway Inn - more specific information is found elsewhere in this newsletter.

We are still looking for a Secretary-Treasurer to follow Tim Sinnott. If you are uncertain what is entailed, please give Tim a call (518) 457-0758 to get the details on time/ effort commitment for the position. The first year is as an apprentice so Tim can "teach you the ropes." Our Chapter is over 380 members strong as of June, 1996 - I hope someone will step forward and show enough interest in the Chapter to volunteer to take over the job in 1998. The Chapter is only as strong as those willing to put forth the little extra it takes to get the job done well.

The 1996 Annual Meeting of the American Fisheries Society will be held August 25-29 in Dearborn, Michigan. It will be an honor to represent you all at this

# AFS - New York Chapter Newsletter -- July 1996

meeting as president of the Chapter. If you have a particular message you want me to convey to the Parent Society, please let me know. I will report on the 1996 annual meeting in the next newsletter.

I am always open to suggestions from you, the members. If you have something to say please don't keep it a secret. I may be reached via telephone: (518) 457-9436, fax: (518) 485-5827 or via the Internet: [doug.stang@dec.mailnet.state.ny.us](mailto:doug.stang@dec.mailnet.state.ny.us).

Thank you - enjoy your summer.

Doug Stang, Bureau of Fisheries, Albany

## NYC Strategic Plan

The following draft Strategic Plan was formulated in an attempt to provide future direction and guidance for the New York Chapter. We encourage any and all chapter members to carefully review the document and return the comments to Paul McKeown at NYS-DEC, 128 South Street, Olean, NY 14760. Comments by membership will be reviewed by the ad hoc Planning Committee (Einhouse, Stang, Wilkins, McKeown) and incorporated into a revised format that will be included into the next newsletter. Following this second review, the revised draft will be presented to membership at the Annual Meeting in Owego, January, 1997. At the Annual Business Meeting, the Strategic plan will be voted on by membership. When accepted, the NYC Strategic Plan will be included with the chapter bylaws and distributed to membership in the chapter membership directory. *Please take the opportunity to review this draft and send appropriate comments to Paul.*

Thanks, The Planning Committee.

### DRAFT OUTLINE

Strategic Plan for the  
New York Chapter of the  
American Fisheries Society  
June 27, 1996

#### 1. Mission Statement

The New York Chapter (NYC) will endeavor to provide services and guidance to achieve high standards of professionalism necessary for the conservation of New York's fisheries resources and aquatic ecosystems.

## II. Chapter Goals

### 1. Information and Education

The NYC membership will provide a network of information and assistance, available to members and nonmembers alike, to protect, enhance and restore New York's fisheries resources and foster professional development.

#### Strategies

##### A. Membership Directory

Distributed to all members at a frequency and schedule determined by the Executive Committee.

##### B. Annual Meeting

Hold meetings at an appropriate, central location.  
Focus on topics of particular interest and importance to members.  
Open to members and non-members.  
Provide incentives for student participation.  
Reduce expenses for students.

##### C. Workshops

Held mid-year at an appropriate location.  
Focus on a topic of particular interest and importance to membership.  
Open to members and non-members.  
Provide incentives for student participation.  
Reduce expenses for students.

##### D. Newsletter

Distributed at a frequency and schedule determined by the Executive Committee.  
Distributed to key government and agency representatives.

##### E. Representation at the regional (NED) and Parent Society annual meetings

### 2. Professional Enhancement and Recognition

The NYC will solicit nominations for appropriate NYC, NED and AFS level awards.

#### Strategies

A. Candidates will be nominated according to appropriate NYC, NED or AFS bylaws.

B. When appropriate, employers will be notified of the outstanding contributions of their members.

C. The selection and nomination of candidates will be included in the newsletter.

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D. The Executive Committee will enter the NYC in the Outstanding Chapter Competition.

E. Encourage NYC members to seek professional certification by AFS.

F. Pursue recognition of the certification process by the employers of fisheries professionals.

### **3. Professional Services**

The NYC will provide professional services within the constraints of the operating budget and protocol of the Chapter and as deemed appropriate by the Executive Committee. Opinions and or official positions that could be perceived to represent the NYC will first be presented to the Executive Committee for review.

#### **Strategies**

##### **A. Information**

Provide direction (e.g., contacts, references, etc.,)  
Provide advice

##### **B. Services**

Field assistance  
Data collection  
Technical advice

### **4. Advocacy**

The NYC may provide input in the development of public policy to insure that fisheries concerns are appropriately addressed.

#### **Strategies**

A. Present the topic with an associated action plan to the Executive Committee for review.

B. The topic and action plan must receive a unanimous vote by the Executive Committee before an advocacy position is developed.

C. When time permits, issues requiring advocacy should be presented to membership for review and comment.

### **5. NYC Representation to the Division and Parent Society**

The NYC will participate at both the NED and Parent Society levels.

#### **Strategies**

A. Participate in annual meetings of NED and AFS, attend and contribute to NED Executive meetings.

B. Provide administrative advice to NED and AFS.

C. Encourage membership of NYC to join AFS.

D. Identify deserving members for appropriate NED and AFS recognition.

### **6. Financial Stability**

The NYC will endeavor to maintain financial stability while pursuing the chapter mission.

#### **Strategies**

A. Prepare an annual, membership approved budget that balances income and expenditures.

B. Review financial objectives every five years relative to operating expenses.

C. Independently review, assess and verify financial accounts annually as an ongoing audit responsibility

### **7. Effective Operational Protocol**

The NYC will operate in accordance with the guidelines outlined in the bylaws of the NYC Officers and Committee Chairperson's Handbook and those of the Constitution of the American Fisheries Society.

### **8. Student Subunit**

The NYC will recognize the Student Subunit as an distinct unit within the NYC with unique requirements and contributions.

#### **Strategies**

A. The NYC Executive Committee will select a member (hereafter referred to as the NYC-SS Coordinator) from the NYC that will provide continuity, leadership and guidance to the Student Subunit

B. The Student Subunit will elect officers that will provide leadership within the subunit as well as representation to the NYC

C. The Student Subunit will be represented at NYC Executive Committee meetings by subunit officers and the NYC-SS Coordinator

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## Wanted

**Secretary-Treasurer:** The New York Chapter - American Fisheries Society is seeking a motivated individual to serve the Chapter and its members as Secretary-Treasurer. Qualifications: enthusiasm, willingness to work with others, desire to keep track of "stuff". Salary: none - but the great appreciation and undying gratitude of more than 380 Chapter members. If interested, please contact Doug Stang (518-457-9436) or Lars Rudstam (315-633-9243).

## Around New York State

### Fisheries Management at Finger Lakes Community College

by Frank Smith

Since the early 1970's the Environmental Conservation Department of the Finger Lakes Community College (FLCC) has offered its students a wide range of environmental courses. The basic program is a two year course of study leading to an associate in applied science degree, but a one year certificate is also available, and those interested can work for an associate in environmental science degree. Students registered in any of the programs have the opportunity to take several fisheries management courses.

All freshman in the program are required to take Introduction to Wildlife and fish (CON 102) which focuses on the classification, identification and natural history of the fish and mammals of New York. Hands-on fisheries experience begins at Conservation Field Camp (CON 190) in late May when the freshmen class spends a week in the Bristol Hills. Students get the opportunity to participate in electrofishing and gill, trap, and seine netting. Data is collected and analyzed on the ponds and streams of the area as well as Canandaigua and Honeoye Lakes.

During their sophomore year the students have a choice of several fisheries electives. Fish Management (CON 214) provides intensive classroom and field experience in fish capture, tagging, and data analysis. Students learn various methods of population estimation, food habitat analysis, and habitat management. Fish Culture Techniques (CON 218) introduces students to the principles and techniques of fish culture and aquaculture.

Emphasis is placed on hatchery design and operation of both the intensive and extensive facilities on campus. During the summer Advanced Fisheries Management (CON 206) allows students to gain hands-on training in boat operation and additional sampling techniques using midwater and otter trawls.

Supplemental to the fisheries courses, Limnology (CON 246) students become familiar with the physical and chemical processes in water, especially those that have direct effects on biological organisms. The highlight of the course is a four day field trip to the Cornell University Field Station at Shackelton Point. This trip affords students the opportunity to visit a variety of aquatic ecosystems, such as Green Lakes, Lost Bog and Oneida Lake.

Through a practicum program (CON 200 & CON 201) students learn to work with outside agencies, such as the DEC, by participating in creel surveys, stocking, derby check stations, and hatchery operations.

The FLCC campus itself is an excellent facility for fisheries study. There are seven ponds on campus, many of which have been stocked with marked fish to allow students to calculate population estimations from data they gather themselves. In addition, growth rates and condition factors can be determined for fish from known cohorts. Fall Brook runs through campus into Canandaigua Lake, providing the opportunity to work in a lotic system. The fish culture center consists of one circular and two large rectangular raceways as well as several research and development tanks.

The Environmental Conservation Department has five teaching and research vessels ranging in size from a 23 foot pontoon boat to a 13 foot Boston Whaler. These boats allow students to go out on Canandaigua Lake (a five minute drive from campus) and other nearby lakes to participate in sampling operations.

Electrofishing equipment includes a 16 foot Smith-Root electrofishing boat, two portable backpack and large stream generator units. This diversity of equipment gives the student an opportunity to electrofish in most aquatic habitats. Students are also trained in the use of several types of water sampling equipment, including the YSI-55 and Hydrolab Surveyor 3 multiparameter water quality monitoring units.

Graduates of FLCC Environmental Conservation Department, with their combination field and academic training, have been very successful in job placement or transfer to four year universities. Graduates are currently

# AFS - New York Chapter Newsletter -- July 1996

employed by over 60 agencies and organizations, including the DEC and US Fish and Wildlife Service. While the majority of transfer students prefer to stay in state attending ESF, Cornell, or Brockport, students have transferred to over 30 universities from Florida to Alaska.

For further information about the Conservation Education Program, please write to Dr. Frank Smith, Chairman, Environmental Conservation-Outdoor Recreation Program, Finger Lakes Community College, Canandaigua, New York 14424.

## Upcoming events

**Stream Habitat Assessment: Methods and Analysis.** AFS New York Chapter in conjunction with Pennsylvania Chapter. 8-9 October, 1996. Treadway Inn, Owego, NY. Registration deadline: 8 September, 1996. For more information, see newsletter insert or contact Chris Lowic at (716)691-5456 or Tom Martin at (814)865-9602.

**Culture and Management of Esocids.** AFS Northeast Division Workshop. 23-24 September, 1996. Location: Bellinger Hall at the Chautauqua Institute. Meals and lodging available at Bellinger Hall. For more information contact Dick Soderberg, Fisheries Program, Mansfield University, Mansfield, PA 16933 phone: (717)662-4539 email: rsoderbe@mnsfld.edu.

### Mark Your Calendars

**126th Annual Meeting of the American Fisheries Society** 25-29 August, 1996 Hyatt Regency Hotel, Dearborn, Michigan, USA "SUSTAINABLE FISHERIES: ECONOMICS, ECOLOGY, AND ETHICS" Inquiries: Paul Brouha, AFS, 5410 Grosvenor Lane, Ste. 110; Bethesda, MD 20814-2199, USA Ph: 301 897 8616, Fax: 301 897 8096. More information in Fisheries.

**2nd World Fisheries Congress** "Developing and Sustaining World Fisheries Resources: The State of Science and Management" 28 July-2 August, 1996 Brisbane Convention and Exhibition Centre, Brisbane, Queensland, Australia Hosted by the Australian Society for Fish Biology Inquiries: Congress Secretariat, PO Box 1280, Milton, Queensland 4064, Australia Ph: (07) 369 0477 / Int Ph: 617 3369 0477, Fax: (07) 369 1512 / Int Fax: 617 3369 1512 E-mail: im@cc.uq.oz.au or fish96@sunray.im.com.au

## Recent Theses

**Martin J. Horgan** (advisor Ed Mills), received a M. Sc. from the Department of Natural Resources, Cornell University in 1996 for a thesis on **Filter-feeding biology of the zebra mussel (*Dreissena polymorpha*) and effects of reduced phytoplankton on *Daphnia* reproduction in Oneida Lake, New York.**

The exotic zebra mussel (*Dreissena polymorpha*) has the potential to cause drastic changes in North American lake ecosystems by grazing phytoplankton and taking energy out of the pelagic zone. Zebra mussels may reduce the food available to zooplankton grazers such as *Daphnia* spp. By lowering the standing stocks of phytoplankton. Therefore, *Daphnia* production could decline after a zebra mussel invasion if *Daphnia* are food limited. A recent zebra mussel invasion of Oneida Lake, New York provides an opportunity to examine factors involved in this process. Two of the most important components of the zebra mussel population filter feeding impact on the phytoplankton are the rate at which the population clears water and which species of phytoplankton are cleared from the water. Provided that zebra mussels reduce the abundance of the phytoplankton species that *Daphnia* use for food, *Daphnia* production will suffer if they are food limited. *Daphnia* could be food limited to a degree that varies with season. Examining the response of *Daphnia* to reductions in phytoplankton during different seasons can show whether a zebra mussel effect on *Daphnia* populations is likely.

Suspension depletion experiments revealed that zebra mussels have a broad diet of natural particles. Zebra mussels readily ingest particles up to and larger than 150  $\mu\text{m}$ , including cyanobacteria filaments, and visual observations revealed that large mussels can consume particles as large as 1.2 mm. Clearance rates did not differ among six differently shaped phytoplankton taxa. Zebra mussels can ingest most particles that they encounter in freshwater lakes.

Filtering effort was also examined using suspension depletion experiments. The magnitude of zebra mussel population filtering impact depends on both individual clearance rate and the percentage of mussels filtering (filtering activity). Filtering activity was 6-9% higher at night than during the day, but there were no diel changes in clearance rate. Conversely, clearance rate was dependent on mussel size, but filtering activity did not differ among shell length classes. Filtering activity declined as zebra mussels depleted food concentration.

My results suggest that filtering activity should be considered in population filtering impact assessments as a separate term from clearance rate because the two can vary independently.

Exotic zebra mussels can alter lower trophic level dynamics in lakes that they colonize by consuming large quantities of phytoplankton. I examined the response of *Daphnia* reproduction to reduced phytoplankton concentrations using *in situ* experiments and field observations in Oneida Lake, NY. My experiments revealed that fecundity of individuals from two species of *Daphnia* was positively related to phytoplankton concentration during the spring clearwater phase, although there was no discernible effect of food concentration on fecundity in summer cyanobacteria-dominated assemblages. The years since zebra mussels became abundant in Oneida Lake have been characterized by high water clarity, low chlorophyll concentrations, long clearwater phases, and low *Daphnia* biomass compared with the previous 17 years. The experimental and observational results support the hypothesis that zebra mussels do have an effect on food-limited *Daphnia*, and that this effect occurs during the clearwater phase, but not during the cyanobacteria phase. The food web effects of zebra mussel grazing are complex and it will take more years for impacts at higher trophic levels to be resolved and identified.

## Feature Article

### Reproductive success of sympatric northern pike and muskellunge in a shared spawning and nursery area of the Upper St. Lawrence River, New York.

by John M. Farrell  
State University of New York  
College of Environmental Science and Forestry  
Syracuse, New York 13210

#### Abstract

Survival from the egg stage to early fall juvenile of sympatric northern pike *Esox lucius* and muskellunge *Esox masquinongy* was compared at a shared spawning and nursery area in the Upper St. Lawrence River. Egg deposition estimates were made from field egg collections and compared to fall juvenile population estimates. In addition, the natural egg distribution, habitat, viability,

fertility, and hatching success were evaluated. Northern pike spawned earlier than muskellunge at 20 times the magnitude in 1994 and 84 times in 1995. Both species demonstrated a selection for vegetated habitats and specific water temperature regimes. Northern pike selected deeper offshore spawning areas (up to 4-meters depth). An estimated 1,067,000 pike eggs were spawned in 1994 and 3,714,000 in 1995, compared to 53,000 and 43,000 muskellunge eggs. Despite the greater reproductive effort by northern pike, muskellunge survival from the egg stage to fall juvenile was over 700 times greater for the two years combined. The difference is attributed to a large scale die off of deep water spawned northern pike at the time of exogenous feeding following yolk sac adsorption. Deep water spawning may be related to changes in the water level regime and habitats in the St. Lawrence River.

#### Introduction

Many native muskellunge populations have experienced declines, others are supported wholly or in part by expensive stocking programs, and some have been extirpated (Dombeck 1984). Several investigators have proposed an inability of muskellunge to coexist with northern pike especially following their introduction to native muskellunge waters (Threinen and Oehmcke 1950, Inskip and Magnuson 1983, Inskip 1986, Inskip and Magnuson 1986, Dombeck et al. 1986). Northern pike superiority is hypothesized to occur during early life history and is attributed to earlier spawning leading to indirect competitive advantages and possibly the direct effects of predation on the smaller muskellunge (Inskip 1986). Developmental advantages of northern pike during demersal stages are also proposed as an advantage to survival on spawning grounds (Dombeck 1984). Circumstantial evidence and speculation abound concerning the effects of northern pike on muskellunge, however studies have not examined their relative survival during early life history.

In addition, a problem with the northern pike superiority explanation lies in the successful co-occurrence of native northern pike and muskellunge populations. Earlier investigators hypothesized sympatry occurred because of an apparent segregation of esocids during their critical spawning and nursery periods (Harrison and Hadley 1978, Osterburg 1985). However, an overlap of muskellunge spawning with northern pike was demonstrated in a shared St. Lawrence River embayment in a comprehensive spawning distribution study (Farrell et al. 1996). The study did not, however, examine the subsequent survival of young. Detailed information on the relative abundance and survival of

sympatric esocids during early life history is needed in order to investigate their ability to coexist.

Spring trapnetting data for esocids from 1994-96 indicate a over 30-fold greater abundance of spawning northern pike over muskellunge in the Upper St. Lawrence River (J. M. Farrell, unpublished data). This observation coupled with the circumstantial evidence of the superiority of northern pike would suggest its greater reproductive success. This study was designed to test the hypothesis that northern pike survival from the egg stage to fall juvenile is greater than muskellunge at a shared spawning and nursery site and that the fall juvenile abundance would in turn be greater. Distribution and habitat of spawned eggs and survival of young were also compared.

### Methods

Egg abundance estimates and fall age-0 survival estimates were conducted at 6-ha Rose Bay near Cape Vincent, NY in the Upper St. Lawrence River, 15 km downstream of Lake Ontario (Figure 1). Trapnet catches indicate Rose Bay has a consistent pattern of use by spawning adult muskellunge and northern pike from 1987-1996 (J. M. Farrell, unpublished data).

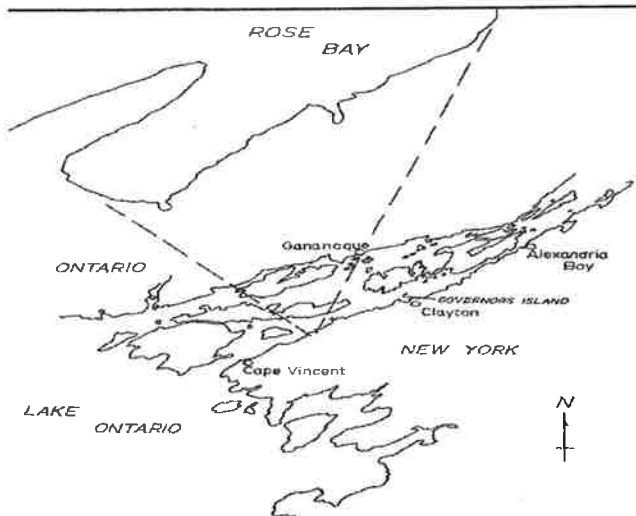


Figure 1. The study sight at Rose Bay, in the upper St. Lawrence River, 15 km from Lake Ontario, New York.

Estimates of natural egg abundance were made using egg traps tended weekly during the northern pike and muskellunge spawning periods of 1994 and 1995. Egg traps were constructed of 16x16x3" pine boxes with 1/16" mesh nylon stapled to the base, and 1/4" plastic aquanet™ mesh stapled to the top. Two bricks were

secured to each end of a trap with 14" cable ties to sink it to the bottom. Egg traps were emptied weekly from 7 May to 20 June 1994 for a total of 162 traps checked and from 8 April to 7 July 1995, an effort of 272 trap checks.

Individual egg traps were set within all habitat types present. Habitat maps were generated from aerial photographs taken of Rose Bay and scaled to 1:2400 (Figure 2). Areas (m<sup>2</sup>) of major habitat types were then determined by planimetry and verified using a GIS database (Table 1). Habitat delineation made from aerial photographs were ground-verified for vegetation type, coverage, and water depth at each egg trap site.

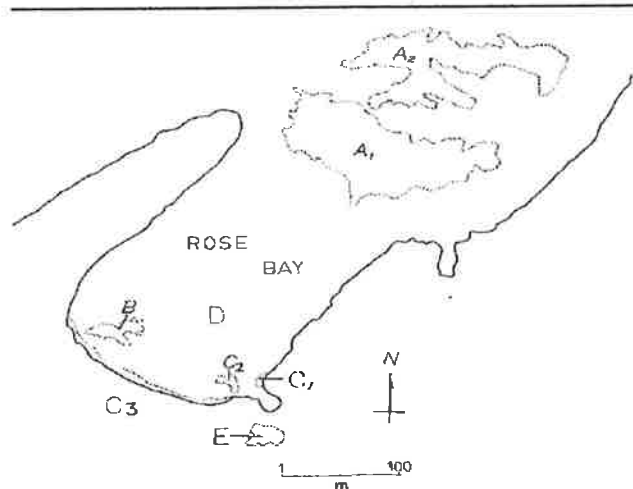


Figure 2. Habitat areas present as delineated from aerial photographs of Rose Bay during the northern pike and muskellunge spawning periods.

Egg retention efficiencies of traps were estimated in order to adjust egg abundance estimates for loss. Retention efficiencies were estimated in situ by seeding each of five traps with 20 artificially fertilized esocid eggs. Prior to seeding traps, all eggs were soaked in red food coloring for a 24 hour period to distinguish them from naturally spawned eggs. After seeding, traps were lowered to the bay bottom. Several traps were pulled to the surface immediately to determine egg loss associated with lowering the traps. The egg traps were retrieved after 7 days and the mean number of seeded eggs remaining was used to adjust egg deposition estimates.

Total northern pike and muskellunge egg abundance was determined as  $\sum_i ((\text{eggs collected}/ER) * (K))$ , where ER= trap egg retention efficiency, and  $K = \text{habitat area } (A_i) * \text{total trap area } (A_t)^{-1}$ , for each habitat polygon (i), and sampling period (t). Confidence intervals (95%) were constructed on egg abundance estimates for each sampling period and

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habitat and for the season's spawning total using  $t * \sqrt{S^2}$ , where  $S^2 = (K^2 * s^2) * m^{-1}$ ,  $s^2$  = sample variance, and  $m$  = number of traps.

### 1994

Polygon	Vegetation Type	Species Present	Area (m <sup>2</sup> )
A1	Deep submergent	1,2,3,7,11,12	15,384
A2	Deep submergent	1,2,3,7,11,12	6,354
B	Shallow submergent	1,7,11,12,13	557
C1	Emergent	5,7,13	112
C2	Emergent	5,6,7,13	260
C3	Emergent	3,5,11,7,13	965
D	Open substratum	1,2,3,5,7,11,12,13	55,500
E	Backwater emergent	1,2,4,5,7	669

### 1995

Polygon	Vegetation Type	Species Present	Area (m <sup>2</sup> )
A1	Deep submergent	1,2,3,9,10,11,12	5,780
A2	Deep submergent	1,2,3,9,10,11,12	12,300
B1,B2	Shallow submergent	1,3,5,8,9,10,11,13, 14,15	1033
D	Open substratum	n/a	61,387

1- *Myriophyllum* sp. 2- *Ceratophyllum demersum* 3- *Lemna* 4- *Carex*  
 5- *Typha latifolia* 6- *Scirpus* 7- *Potamogeton* 8- *Potamogeton pectinatus*  
 9- *Potamogeton confervoides* 10- *Potamogeton richardsonii* 11- *Elodea canadensis*  
 12- *Chara* 13- *Alisma* 14- *Ranunculus* 15- *Vallisneria spiralis*

Table 1. Delineation of available northern pike and muskellunge spawning habitat including aquatic vegetation type, species, and polygon area (m<sup>2</sup>) from an aerial photograph of Rose Bay, NY in 1994 and 1995. Emergent and backwater habitats were not sampled in 1995 because of low water levels.

A shallow backwater area was sampled in 1994 with standard handnet sweeps inside a 0.61 m<sup>2</sup> screen enclosure, a method described by Forney (1968). Three handnet sweeps at ten locations were made on four occasions between 6 May and 9 June. Efficiency of the sweep-in-enclosure method was determined by seeding a known number of marked eggs into the enclosure and determining the number recovered in each sweep. Each enclosure site was seeded with 20 northern pike eggs previously soaked in red food coloring for 24 hours. The

number of red-stained and other eggs recovered in each sweep, information on vegetation type, and water depth were recorded. The backwater area was not sampled in 1995 because low water levels prevented fish access.

Spawning habitat use in the backwater habitat was examined statistically using a one-factor ANOVA procedure. Habitat use in remaining areas was examined using a chi-square test of the hypothesis that egg distribution among habitats occurs in proportion to their availability. Between habitat comparisons were then examined using a confidence interval approach (Neu et al. 1974). Confidence intervals constructed on the proportion of the total eggs observed at each habitat type were compared to the proportion of total eggs expected, given spawning proportional to habitat area. Because simultaneous estimates were made, a 90% family confidence limit was used, as  $Z(1-\alpha/2k)$ , where  $k$  is the number of habitat types.

### *Egg viability, fertilization success, survival to hatch, and species identification*

All eggs collected were transported to the Ellis Laboratory, measured, and characterized as viable or non-viable. Viable eggs were translucent (Galat 1982) and were individually incubated to aid in species identification and determine hatching success. The presence of white indicated eggs were non-viable. Non-viable eggs were soaked in acetic acid for approximately five minutes. This procedure cleared the egg and allowed the further characterization as fertilized or unfertilized. Unfertilized eggs were clear with no development visible. Species identities were initially determined from egg sizes (Farrell et al. 1996) and verified from post-hatched larvae based on yolk-sac pigmentation (Auer 1982).

### *Fall juvenile evaluation*

Age-0 esocids were captured between 18 August to 16 September 1994 and 24 August to 15 September 1995 in a 60' x 1/4" mesh bag seine. A Schnabel type multiple mark-recapture experiment was used to estimate fall age-0 esocid abundance in both years. Northern pike and muskellunge captured were fin-clipped and released. Recaptures by seining were recorded for each sampling period. Population estimates were calculated for 10 September in 1994 and 6 September 1995.



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## Results

### Estimates of total egg deposition

Total northern pike egg deposition was an estimated 20-fold greater than muskellunge in 1994 and an 86 times greater in 1995. The egg trap methodology resulted in an estimate of 1,011,000 ± 180,000 (95% CI) northern pike eggs spawned in 1994, and 3,714,000 ± 235,000 (95% CI) in 1995. Eggs collected in the backwater habitat by enclosure sampling resulted in an additional estimate of 56,000 northern pike eggs spawned for a total of 1,067,000 in 1994. In comparison, an estimated 53,000 muskellunge eggs were spawned in 1994, and 43,000 ± 26,000 (95% CI) in 1995.

Individual estimates of egg abundance and associated confidence limits for each habitat sampled (Table 2) show the relative importance of each habitat. Deep submergent habitats accounted for nearly 87% of the northern pike egg deposition estimate in 1994 and over 99% in 1995. Estimated 1994 northern pike egg densities, however, were greatest for shallow submergent habitats at 110/m<sup>2</sup> followed by backwater emergent habitats at nearly 84/m<sup>2</sup> determined by sweep-enclosure methodology, and deep submergent habitats at 60/m<sup>2</sup>. In 1995, estimated egg densities were much greater in deep submergent areas at nearly 204/m<sup>2</sup>, versus shallow submergent habitats at about 50/m<sup>2</sup>.

### Egg fertilization success, viability, and survival to hatch

Northern pike egg fertilization success was estimated at nearly 94% in 1994; 75% of these eggs were viable at the time of collection, and 84.4% of viable eggs were hatched. Fertilization success was lower in 1995 at 77.9%, yet viability at collection was similar at 72.7%, with 89.2% hatching. For muskellunge, the fertilization rate was 75% in 1994; viability was 68% and 94.1 % of these successfully hatched. In 1995 muskellunge fertilization was greater at 97.4%; viability was 94.7%, with 94.4% hatching.

### Distribution of eggs and habitat use

Available Rose Bay spawning habitats consisted of the previous growing season's deep submergent, shallow submergent, and emergent vegetation types, and bare substratum. Aerial photographs showed bare substratum as the prevalent habitat in 1994-95 followed by deep submergent, emergent, and shallow submergent types (Table 1). The vegetation succession pattern in Rose Bay began with increasing submersed and emergent vegetation densities from late spring through summer in

both years. During early fall, submersed vegetation beds began to die off and mats of uprooted plant matter were transported down river. In late fall, inshore submersed habitats continued to thin and bare substratum dominated throughout winter and the spring spawning period. Submersed vegetated habitats remained offshore in deeper areas, probably due to reduced wind and ice scouring. The distribution of habitats in Rose Bay were similar in both 1994 and 1995 with the exceptions of the locations of the shallow submergent vegetation patches and the inability of fish to gain access in 1995 to emergent and backwater areas due to lower water levels (Figure 2).

#### 1994 Northern Pike

Date	Habitat type	Area Habitat m <sup>2</sup> (Ah)	Area traps m <sup>2</sup> (At)	K=Ah* At <sup>-1</sup>	No. eggs Captured (Y)	Total eggs = Y*K	95% CI
5/7-16	A1	15,384	0.96	14,769	30	443,070	±189,856
5/16-23	A1	15,384	0.96	14,769	23	339,687	±115,765
5/23-6/4	A1	15,384	0.64	24,038	6	144,225	± 90,984
5/7-16	B	557	0.48	1,160	50	58,000	± 41,994
5/23-6/4	B	557	0.48	1,160	3	3,480	± 4,992
5/7-19	C3	965	1.44	670.1	13	8,712	± 2,048
5/16-25	C3	965	1.28	754	1	754	± 223
5/7-16	D	55,000	4.16	13,341	1	13,341	± 1051

#### 1994 Muskellunge

6/13-20	B	557	0.64	870	2	1,741	± 1,385
5/23-6/4	C1	112	0.48	233	18	4,200	± 6,024
6/4-15	C3	965	0.64	1,508	1	1,508	± 2,399
5/23-6/4	D	13,118	1.12	11,713	3	35,138	± 8,523
6/4-15	D	13,118	1.28	10,248	1	10,248	± 3,090

#### 1995 Northern Pike

4/22-30	A1	12,300	1.12	10,982	4	43,928	± 7,991
4/30-5/9	A1	12,300	1.12	10,982	126	1,383,732	± 187,836
5/9-16	A1	12,300	1.12	10,982	41	450,262	± 89,980
5/16-23	A1	12,300	1.12	10,982	140	1,537,480	± 428,978
4/22-30	A2	5780	0.80	7,225	5	36,125	± 20,057
4/30-5/9	A2	5780	0.96	6,021	17	102,357	± 28,099
5/9-16	A2	5780	0.80	7,225	11	79,475	± 39,303
5/16-23	A2	5780	0.80	7,225	7	50,575	± 19,651
4/8-22	B1	600	1.28	469	27	12,656	± 2,478
4/22-30	B1	600	1.44	417	8	3,333	± 542
4/30-5/9	B1	600	1.44	417	11	4,583	± 474
5/9-16	B1	600	1.44	417	20	8,333	± 844
5/16-23	B1	600	1.44	417	2	833	± 213

#### 1995 Muskellunge

6/15-22	A1	12,300	0.96	12,813	2	25,626	± 10,975
5/23-6/1	B1	600	1.44	417	20	8,333	± 2,184
6/1-7	B1	600	1.28	469	12	5,625	± 1,663
6/15-22	B1	600	1.44	417	1	417	± 107
6/1-7	B2	433	0.48	903	3	2,706	± 3,882

Table 2. Summary of sampling effort, egg catch, deposition estimates and 95% confidence limits for each habitat type sampled during the northern pike and muskellunge spawning period in 1994 and 1995.

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Habitat polygons delineated from aerial photos were sampled with egg traps from 18 April to 23 June in 1994 and 8 April to 7 July 1995. In 1994, northern pike eggs were first collected on 4 May using the egg enclosure in the backwater habitat. Eggs were first captured in egg traps between 7 and 16 May 1994, and spawning continued to between 23 May and 4 June. In 1995, spawning by northern pike began in mid-April and continued to between 16 and 23 May. During the 1994 northern pike spawning period, 127 eggs were collected in 15 egg traps, a mean of 8.5 eggs per trap (SD= 11.2). In addition, 127 northern pike eggs were collected in the backwater habitat in enclosure samples. In 1995, 417 northern pike eggs were collected in 42 egg traps, for a mean capture of 9.9 eggs per trap (SD=17.1).

Muskellunge spawning, as determined from egg collections, commenced between 23 May and 4 June in 1994 and 23 May and 1 June in 1995 and was completed between 13 and 20 June 1994 and 15 and 22 June 1995. In 1994, 25 muskellunge eggs were collected in six egg traps (mean=4.2 eggs\*trap<sup>-1</sup>, SD=6.8). During 1995, 38 muskellunge eggs were collected in seven traps (mean=5.4 \*trap<sup>-1</sup> SD=3.9 eggs).

The chi-square test of the hypothesis that northern pike spawning habitat preference was in proportion to its availability was rejected for both 1994 ( $\chi^2=3320.1$ ,  $p=.0001$ ) and 1995 ( $\chi^2=1752.8$ ,  $p=.0001$ ). The preference-availability statistic was also rejected for muskellunge ( $\chi^2=857.7$ ,  $p=.0001$ ) in both years ( $\chi^2=2607.4$ ,  $p=.0001$ ). Confidence intervals constructed on the proportion of the total eggs collected at each habitat type, used in comparison to the proportion expected, show avoidance of the open substratum habitat in 1994 and 1995 by both northern pike and muskellunge (Table 3). Northern pike used both shallow and deep submergent habitats in greater proportion than their expected availability in both 1994 and 1995. In comparison, muskellunge avoided deep submersed habitats in both 1994 and 1995, and used emergent habitat more than expected in 1994. Shallow submergent habitat use by muskellunge was not significantly different from expected in 1994, but was greater in 1995, when low water levels prevented access to emergent habitats.

In addition, a spatial transition of northern pike spawning from shallow to deeper habitats occurred from the early to late portions of the run. In 1994, northern pike spawning commenced in the shallow backwater area, progressed to shallow submergent areas, and was completed in deep water habitats (Figure 3). In 1995, fish

were unable to gain access through a culvert pipe that connects the bay with the backwater area. However, a stepped progression of spawning from shallow to deep submergent habitats was observed in the remaining habitats, and this progression appeared related to water temperatures (Figure 4). All muskellunge spawning in 1994 and 1995 was limited to the inshore habitats except for 2 viable eggs collected in deep water on 22 June, at the end of the 1995 run.

1994 Northern Pike

Habitat Type	Eggs observed	Eggs expected	Proportion of Total Eggs expected	Proportion of Total Eggs observed (p)	90% Family Confidence Interval on Proportion observed (p)	Observed (p) higher or lower than expected
Deep Submergent	59	34.9	0.275	0.465	0.366 < p < 0.564	H
Shallow Submergent	53	0.9	0.007	0.417	0.319 < p < 0.515	H
Emergent	14	2.2	0.017	0.110	0.048 < p < 0.25	H
Open Substrate	1	89.1	0.702	0.008	0 < p < 0.026	L

1995 Northern Pike

Deep Submergent	351	94.1	0.226	0.838	0.800 < p < 0.876	H
Shallow Submergent	68	5.4	0.013	0.162	0.124 < p < 0.200	H
Open Substrate	0	319.5	0.766	0	n/a	L

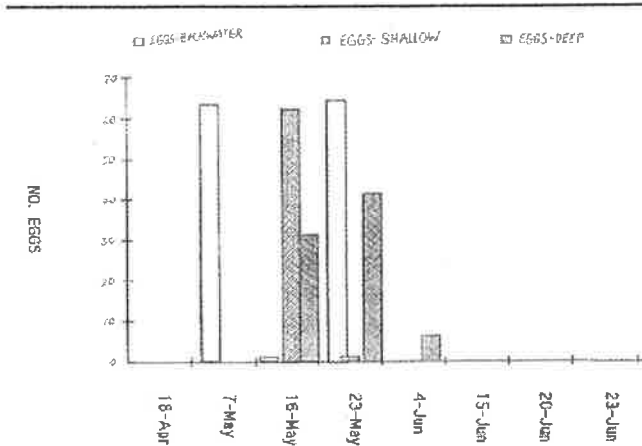
1994 Muskellunge

Deep Submergent	0	6.9	0.276	0	n/a	L
Shallow Submergent	2	0.2	0.008	0.08	0 < p < 0.202	*ns
Emergent	19	0.4	0.016	0.76	0.569 < p < 0.951	H
Open Substrate	4	17.5	0.7	0.16	0 < p < 0.324	L

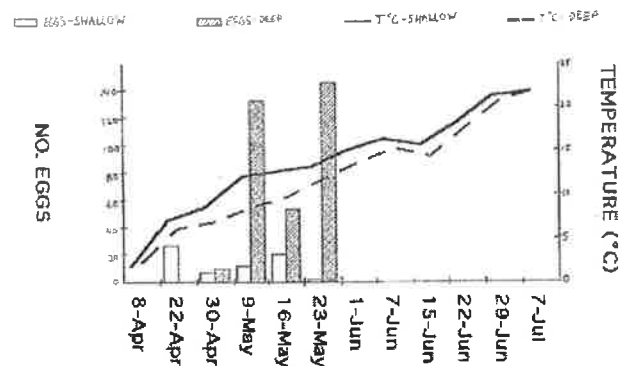
1995 Muskellunge

Deep Submergent	2	8.5	0.224	0.053	0 < p < 0.130	L
Shallow Submergent	36	0.5	0.013	0.947	0.870 < p < 1.02	H
Open Substrate	0	30	0.79	0	n/a	L

Table 3. Spawning habitat preference and avoidance as determined by expected use. Confidence limits are constructed for observed proportions of eggs collected for each spawning habitat for northern pike and muskellunge in 1994 and 1995, Rose Bay, NY.



**Figure 3.** Temporal distribution of northern pike spawning on major habitats present in Rose Bay, NY, 1994.



**Figure 4.** Temporal distribution of northern pike spawning on major habitats and water temperatures in shallow and deep areas in Rose Bay, NY, 1995.

Two habitat types were dominant in the backwater area including mixed emergent, *Carex* and *Typha*, and open areas of organic substrate in 1994. Collections of northern pike eggs with the sweep enclosure method showed selection by spawning northern pike for emergent (mean=8.4 eggs/site, SD=9.4) over open substratum (mean=0.14 eggs/site, SD=0.14) in the backwater area (ANOVA, one factor, df=21, p=0.0326). New growth of *Carex* species were a preferred spawning habitat in the backwater area, whereas other spawning habitats consisted mainly of the previous seasons growth. Muskellunge eggs were not collected in the backwater habitat although local residents have observed grouped adult muskellunge there in previous years.

### Fall juvenile sampling and population estimates

Despite the seining effort of 54 hauls in 1994 and 48 hauls in 1995, northern pike population estimates could not be generated for Rose Bay in either year. Only two northern pike were captured in 1994 and six in 1995. Capture rates for age-0 muskellunge were much greater enabling mark-recapture estimates in both 1994 and 1995. Muskellunge abundance was estimated at 46 (95% CI, 28-83) fish on 10 September 1994 and 67 (95% CI, 40-120) on 6 September 1995. If the actual catch of northern pike young is considered as a minimum known estimate, survival from the egg stage was approximately 0.00019% in 1994 and 0.00016% in 1995. Muskellunge survival from the egg to fall juvenile was over 450 times greater than northern pike at 0.087% in 1994, and 970 times greater at 0.156% in 1995.

### Discussion

Egg deposition estimates appear to reflect the differential in reproductive effort put forth by northern pike and muskellunge. With both years estimates combined, northern pike spawned nearly 50 times more eggs than muskellunge. Given the mean fecundity for northern pike and muskellunge, the egg estimates convert to a reasonable approximation of the difference in catch of adult spawners indicated by independent trapnetting studies. The reproductive effort by muskellunge at Rose Bay however, represents only a fraction of the eggs carried by a single mature female. With evidence of homing by muskellunge in the St. Lawrence River (S.R. LaPan, unpublished data), a higher egg estimate might be expected. The low observed number of eggs may be due to an underestimation of the number of eggs spawned. It is possible egg traps are avoided by spawning muskellunge or that the contagious nature of the egg distribution led to gaps in sampling. It is also likely that the estimates are unbiased and muskellunge spawn over groups of adjacent embayments. Five other muskellunge spawning areas have been identified near the Rose Bay site, including two adjacent sites (Werner et al. 1990).

It appears that overlap in use of spawning sites between the two esocids is normal for the Upper St. Lawrence River. Egg collections at Flynn Bay, Clayton NY, Point Marguerite Marsh, Alexandria Bay, NY (Farrell 1991), and Rose Bay in Cape Vincent have confirmed these sites as spawning areas for both northern pike and muskellunge. In addition, spawning adults or young of both species have been captured in 29 of 36 embayments sampled in the St. Lawrence River (Werner et al. 1990).

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The distribution of northern pike and muskellunge eggs within Rose Bay was in general agreement with findings from Point Marguerite Marsh (Farrell et al. 1996). Muskellunge spawning was limited to inshore areas in both locations, with the exception of 2 eggs captured in deeper areas of Rose Bay on 22 June 1995. Northern pike spawning occurred over a wider range of water depths at both locations, overlapping muskellunge and including deeper habitats.

Within Rose Bay, northern pike were found to overlap muskellunge spawning areas in the shallow submergent areas. A greater amount of northern pike spawning activity, however, was observed in the deep submersed habitats of at least 4 meters. Both species, especially northern pike, showed a strong tendency to select habitats with high densities of vegetation present. The effects of temperature and vegetation presence were the two determinants of spawning preference. These two variables interact to temporally and spatially determine when and where eggs were spawned.

Temporally, the majority of northern pike and muskellunge spawning was distinct. Some degree of spawning overlap likely occurred during late May and early June. This differs considerably from findings in Point Marguerite Marsh in the Upper St. Lawrence (Farrell et al. 1996) where temporal overlap occurred for more than 2 weeks. Overlap in spawning of the two esocids is also supported by the presence of hybrids in the St. Lawrence River, likely of natural origin. Water temperature regimes probably dictate the amount of spawning overlap between the species in any given year or location.

Contrary to the initial hypothesis, muskellunge survival from egg to early fall was more successful than northern pike. The egg fertility, viability, and hatching success data were similar for both species, indicating that the apparent failure of northern pike probably occurred following yolk sac adsorption and fry swim-up. One explanation for the differential in survival between the species is that the conditions during the time that exogenous feeding begins were not suitable for the earlier spawning northern pike.

Earlier spawning of the northern pike is currently thought of as an advantage by allowing for reduced competition for food and a longer growing season (Scott and Crossman 1973). In many cases northern pike are known to spawn in recently flooded areas and the degree and duration of flooding may have an important effect on year class strength (Johnson 1956). Shallow flooded areas experience a boom in production of invertebrates that

serve as an important food source during northern pike early life history (Franklin and Smith 1963). In the St. Lawrence River, however, water levels have been controlled since the opening of the St. Lawrence Seaway and hydropower project in 1958. Annual water level fluctuations are compressed and use of backwater habitats by northern pike is limited by water level control policies. Deep water spawning over macrophyte beds by northern pike may be a response to the lack of suitable backwater spawning habitats. However, the deeper offshore habitats at Rose Bay are adjacent to the main river channel and are very slow to warm. It is probable that the persistent cold temperatures and transparent waters lack the production necessary to support the young northern pike. Muskellunge in contrast focused their spawning later in spring in the inshore areas, with warmer water temperatures providing more suitable conditions.

These suitable conditions have resulted in the stable production of young muskellunge in Rose Bay between 1989-95 (J. M. Farrell, unpublished data). Northern pike, in comparison, produced a large number of young only in 1991. The findings suggest that currently northern pike may function under a pulse recruitment strategy, and deep water spawning may in effect be a egg dumping phenomena producing little or no production of young. Future studies will concentrate on evaluating the relative production of young from the various habitats shown to be used by spawners.

### Literature Cited

- Auer, N. A., editor. 1982. Identification of larval fishes of the Great Lakes Basin with emphasis on the Lake Michigan drainage. Special Publication 83-2, Great Lakes Fishery Commission. Ann Arbor, Michigan.
- Crossman, E. J. 1990. Reproductive homing in muskellunge, *Esox masquinongy*. Can. Journal of Fisheries and Aquatic Science 47:1803-1812.
- Dombeck, M. P., B. W. Menzel, and P. N. Hinz. 1986. Natural reproduction in midwestern lakes. American Fisheries Society Special Publication 15:122-134.
- Farrell, J. M., R. G. Werner, S. R. LaPan, and K. A. Claypoole. 1996. Egg distribution and spawning habitat of northern pike and muskellunge in a St. Lawrence River Marsh, New York. Transactions of the American Fisheries Society 125:127-131.

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- Forney, J. L. 1968. Production of northern pike in a regulated marsh. *New York Fish and Game Journal* 15:143-154.
- Franklin, D. R., and L. L. Smith Jr. 1963. Early life history of the northern pike, *Esox lucius* L., with special reference to the factors influencing the numerical strength of year classes. *Transactions of the American Fisheries Society* 92:91-110.
- Galat, D. L. 1973. Normal embryonic development of the muskellunge (*Esox masquinongy*). *Transactions of the American Fisheries Society* 102:384-391.
- Harrison, E. J., and W. F. Hadley. 1978. Ecologic separation of sympatric muskellunge and northern pike. *American Fisheries Society Special Publication* 11:129-134.
- Inskip, P. D. 1986. Negative associations between abundances of muskellunge and northern pike: evidence and possible explanations. *American Fisheries Society Special Publication* 15:135-150.
- Inskip, P. D. and J. J. Magnuson. 1983. Changes in fish populations over an 80-year period: Big Pine Lake, Wisconsin. *Transactions of the American Fisheries Society* 112:378-389.
- Inskip, P. D. and J. J. Magnuson. 1986. Fluctuations in growth rate and condition of muskellunge and northern pike in Escanaba Lake, Wisconsin. *American Fisheries Society Special Publication* 15:176-188.
- Johnson, F. H. 1956. Northern pike year-class strength and spring water levels. *Transactions of the American Fisheries Society* 86:285-293.
- Neu, C.W., C.R. Byers, and J.M. Peck. 1974. A technique for analysis of utilization-availability data. *Journal of Wildlife Management* 38:541-545.
- Osterburg, D. M. 1985. Habitat partitioning by muskellunge and northern pike in the International portion of the St. Lawrence River. *New York Fish and Game Journal* 32:158-166.
- Scott, W. B., and E. J. Crossman. 1973. *Freshwater fishes of Canada*. Bulletin 184. Fisheries Research Board of Canada, Ottawa.
- Threinen, C. W., and A. A. Oehmcke. 1950. The northern invades the musky's domain. *Wisconsin Conservation Bulletin* 15:10-12.
- Werner, R. G., S. R. LaPan, R. Klindt, and J. M. Farrell. 1990. St. Lawrence River muskellunge Investigations: phase I-final report: Identification of muskellunge spawning and nursery habitat. NYSDEC Publication, Division of Fish and Wildlife 47 pgs.

# WORKSHOP ANNOUNCEMENT

Sponsored by: American Fisheries Society  
New York Chapter and Pennsylvania Chapter

## **STREAM HABITAT ASSESSMENT: METHODS AND ANALYSIS**

**Description:** The purpose of the workshop is to expose scientists to the array of stream habitat assessment methodologies, implement a select few, and discuss analysis options. Mark Bain, Associate Professor and Research Scientist, NY Cooperative F&W Research Unit, Cornell University, will lead participants through description and field application of three stream habitat methodologies, followed up by analysis and evaluations. Waders or boots are highly suggested.

**Participants:** State, Federal, and private parties interested in exposure to stream habitat assessment techniques are invited to participate.  
(Limit 100 persons)

**Where:** Treadway Inn, Owego, N.Y. 1 (607) 687-4500

**Dates:** October 8 and 9, 1996. (Full day on 8th; half day on 9th.)

**Costs:** Chapter Members: \$70.00  
Non-Members: \$80.00

- Registration includes two continental breakfasts at meeting, Tuesday's lunch and dinner/social, and materials.
- Plus accommodations. Lodging is available on location at \$49.00 per night. A block of rooms have been reserved under American Fisheries Society. Reservations must be confirmed by September 8, 1996. Participants are responsible for making their own arrangements.

*For more information contact:*

Chris Lowie - NYC-AFS  
405 North French Road  
Amherst, NY 14228  
(716) 691-5456

Tom Martin - PAC-AFS  
212 Ferguson Bldg.  
School of Forest Resources - PSU  
University Park, PA 16802  
(804) 865-9602

# STREAM HABITAT ASSESSMENT: METHODS AND ANALYSIS WORKSHOP

Treadway Inn; Owego, NY; October 8 and 9

## REGISTRATION (LIMIT 100)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Phone: \_\_\_\_\_

FAX: \_\_\_\_\_

### MEMBERSHIP:

NY Chapter \_\_\_\_\_ PA Chapter \_\_\_\_\_ Unaffiliated \_\_\_\_\_

Registration Fee must be received by September 13, 1996.

Make check or money order payable to: New York Chapter - AFS

\$70.00 for Chapter members

\$80.00 for Non-Members

Accommodations are the responsibility of the participant, as indicated on the announcement. Please make reservation by September 8, 1996.

Send this form with payment to:

Chris Lowie - NYCAFS  
405 North French Road, Suite 120A  
Amherst, New York 14228





## Editor's Note

This is Lars and Myriam's last newsletter. After three years as editors, it is time to pass on the torch. Therefore, we leave the next issue in the capable hands of our new newsletter editor Tony VanDeValk. We thank all the folks that have contributed to this newsletter over the last few years. Tony likes to see these contributions continuing (can we be so bold and ask for an increase?). Please write him by letter, fax or email. A diskette for Macintosh or IBM with files in Word, Word Perfect 5 or ASCII formats is appreciated. Picture files are OK. New with Tony is the capability to scan in pictures and photographs. The next deadline for the summer newsletter is June 30.

Tony VanDeValk, Cornell Biological Field Station, Bridgeport, New York 13030, Phone: 315 633 9243, Fax: 315 633 2358, Email: LGR1@cornell.edu

## President's Corner

It is truly an honor to represent the members of NYC-AFS as your President for the next year. I hope to live up to your expectations and perform my duties with the skill and dedication of previous Chapter presidents.

Our current membership stands at approximately 360 professionals interested in the biology, ecology, research, protection, and management of aquatic systems. With such a large and diverse group, it is a challenge to meet the needs, desires, and expectations of all members. If you feel that something should be done differently, a particular topic or idea should be discussed, or a particular need remains unmet, please speak up. Together, we can ensure that all members can get the most out of our professional society.

The 1996 Annual Meeting that was held in conjunction with the New York Chapters of Society of American Foresters and The Wildlife Society titled "*Ecosystem Approaches to Management: Interdisciplinary Applications*" was a huge success. More than 400 people braved a typical Syracuse winter and attended the meeting - including 100+ Chapter members. Participation exceeded all expectations. Our thanks to Mark Malchoff and Don Stewart for serving as program committee co-chair and committee member for this outstanding meeting. It truly was a worthwhile event - so much so that we are looking forward to another three-way meeting in 1999 or 2000. Any takers?

Our thanks are also extended to Lars Rudstam and Myriam Ibarra for the outstanding Chapter newsletters

that have been produced under their editing and direction. The newsletters have been timely, very informative, and the feature articles have provided us with in-depth looks into work conducted by Chapter members. Lars and Myriam will be stepping down as newsletter editors after several years of dedicated service, and Tony VanDeValk has agreed to take over the reins. Please help Tony with submissions of news, feature articles, and items of interest to Chapter members. I am confident Tony will continue the high standards set by Lars and Myriam.

Tim Sinnott will be stepping down as Secretary-Treasurer of the Chapter so we are currently looking for a replacement. The first year as Secretary-Treasurer will be as an apprentice under Tim's tutelage. If anyone is interested, please let me know as soon as possible. Tim has promised to show the prospective volunteer all the "ins" and "outs" of efficient and effective management of the Chapters books.

This upcoming year is shaping up as another active and interesting one as we plan for a workshop and the annual meeting. Chris Lowie is chairing the workshop committee. The workshop this year will be joint effort this year with the Pennsylvania Chapter AFS and will focus on stream habitat assessment and evaluation procedures. It is tentatively scheduled to be held in the Owego, NY area during the week of October 6th. You will be receiving more information about this workshop once the specifics are pinned down. Chris certainly could use some help with the planning and organizing aspects of the workshop. If interested, please give Chris a call (716) 691-5456 to volunteer your ideas and services.

The NED-AFS will be holding a warmwater workshop this fall on esocid culture and management. The esocid workshop is scheduled for September 23-24, 1996 and will be held at the Chautauqua Institute on the shores of beautiful Chautauqua Lake.

Mark your calendars January 30 - February 1, 1997 for the next annual meeting of the Chapter to be held in Owego at the Treadway Inn (home of the NYC-AFS?). This may be another joint affair with the Pennsylvania Chapter- stay tuned.

As I mentioned earlier, I am honored and excited to serve as President of NYC-AFS. I hope to help make this another successful year for the Chapter. We need help from you to continue the tradition of excellence which has been the trademark of the New York Chapter - American Fisheries Society. If you have any ideas or suggestions for improvements or new directions, please let me know. I can be reached by telephone (518) 457-9435 or fax (518) 485-5827. (E-Mail will come some day).

**Doug Stang**, Bureau of Fisheries, Albany.

## Chapter News

### 1996 New York Chapter AFS Annual Business Meeting Minutes

The meeting was called to order by President Don Einhouse at 4:40 PM. Tim Sinnott requested comments on the minutes of the last business meeting that were published in the March 1995 Newsletter. No comments were received. The 1995 treasurer's report was distributed and reviewed. No questions or comments were received. Don Einhouse called upon Tom Field of the Audit and Finance Committee to report on the audit of the Chapter finance records. Tom reported that he had audited all four accounts (checking, savings, certificate of deposit, student subunit) and that all was in order. Paul McKeown asked if everyone present had voted for president-elect. Everyone had, so he proceeded to close balloting and count the votes received. The first speaker of the meeting was Bob Carline, 2nd Vice President of the Parent Society. He conveyed apologies from Henry Booke, NE Division AFS president, who was unable to attend. Henry had asked Bob to conduct a survey of the members of the New York Chapter. The Northeast Division is trying to improve services to NE Division members and chapters, and increase attendance at the annual meeting. The division also has a large treasury that could be used to provide services to the members and chapters. The survey consisted of ten questions aimed at discerning member interest in certain initiatives. Following is a list of the questions. After each question is Bob Carline's estimate of the percentage NY Chapter members responding favorably to each question.

Would you like to have the Northeast Division:

1. Sponsor continuing education events? 65% yes
2. Sponsor speakers who would travel to the chapter meetings? 5% yes
3. Sponsor correspondence courses? 0% yes
4. Sponsor symposia? 90% yes
5. Sponsor workshops? 95% yes
6. Should the Division consider not meeting on a yearly basis, but rather every two years? 10% yes
7. When the Division was not meeting, should it sponsor a traveling forum that would visit the subunits? 10% yes
8. Sponsor workshops when the Division was not meeting? 30% yes
9. Sponsor teachers (technical specialists) to go out to the subunits at their request? 30% yes
10. Sponsor a Point/Counterpoint panel for Divisional/regional topics? 20% yes

Bob concluded with the request that anyone with ideas or comments to convey back to the Division officers should meet with him sometime during the remainder of the meeting.

The next topic was the Youth Education Committee. Doug Carlson announced the formation of the new committee. Chris Lowie and four other members were active on the committee. They obtained a copy of the goals of the Youth Education Committee of the parent society, and have developed goals and objectives for the chapter committee that are consistent with those of the parent society. Doug does not expect to generate a large number of activities that they will be soliciting volunteers for, however, if anyone is interested in taking an aquatic education activity into a school classroom, the committee would be glad to provide support and materials. One of the goals of the committee is to develop standard criteria for evaluating different educational material nationwide. If someone is looking for material on a particular topic, for example, the committee will be in a position to make recommendations based on the standard criteria. The committee will be as successful as the members are willing to work to make it. If anyone has ideas or suggestions, talk to him (Doug Carlson) or Bruce Matthews.

Joe Dembeck was invited to speak on the student subunit. Joe expressed some disappointment. He sent out a letter inviting students to attend the annual meeting and to participate in the student subunit. Only one response was received. He had wanted to set aside time for a student meeting during the annual meeting, but it did not take place, because no student contact had gone out. He reiterated the comments from the November EXCOM meeting, when the EXCOM decided that the student subunit needed a leader on the EXCOM. Don Einhouse announced that Margaret Murphy and David Nettles had responded to his request for a student subunit leader. Together, they will hopefully be able to put together a program to meet the needs of the fisheries students dispersed throughout the state.

Doug Stang reported for the Professional Incentives Committee. Ed Mills would receive the Professional Achievement Award at the banquet that evening. Furthermore, the EXCOM had nominated Ed Mills to the Northeast Division for the Dwight Webster Award. At the EXCOM Meeting on 1 Feb 96, Neil Ringler was nominated for the Professional Achievement Award. The EXCOM had approved, and the nomination was brought to a vote of the general membership. The award was approved, and Neil will be presented with the award at the annual meeting in 1997. The text of the nomination follows. Doug reminded everyone that the Chapter gave out two awards, Professional Achievement and Honorary Membership. Anyone can nominate someone. If anyone

has nominations, they should contact Paul McKeown, who takes over the Professional Incentives Committee.

Don Einhouse then gave a summary of the year. He began by thanking the membership for the support given throughout the year. Being president was a very rewarding experience, and the chapter should be proud because they are one of the largest and most active chapters in the parent society. He also recognized the EXCOM, the Workshop Committee, and the Program Committee for their excellent work done during the year. Work had been done on strategic planning during the year. A report would be published in the spring newsletter. Progress made during the year included changes to the student subunit, assigning the task of developing the advocacy role to Howard Simonin, creation of the Youth Education Committee. He also commended Lars Rudstam and Myriam Ibarra on the outstanding newsletter production that had been accomplished during the year.

Don reviewed his projected budget, and the outcome of the year's finances (copy included as attachment 2). He was pleased to report that the chapter finished the year in the black and was inching closer to the \$25,000 goal of the Cash Reserves Committee. During the coming year, the Cash Reserves Committee would be re-activated. This and other initiatives would be covered by Doug Stang and in the Spring Newsletter. Paul McKeown announced the results of the election. After reviewing the biographies of the two candidates, he announced that Lars Rudstam had been elected as the new president-elect.

Doug Stang was then escorted to the podium by Ed Mills and Bob Lange, and installed as the new president. He gave his opening address. He thanked the membership and stated that it was a great honor to be elected president of one of the premier chapters of the AFS. He will continue on in his presidency in the same manner as have been usual. He had been in some discussions with the Pennsylvania Chapter. They were interested in a joint meeting, and were willing to meet with us in Owego. Some of the potential topics for next year's meeting include Integrated Biotic Index (IBI), Stream Habitat Assessment Methodologies, Large River Management, or Panfish Management. He will be looking for some new recruits, because Tim Sinnott will be resigning as secretary, and Lars Rudstam and Myriam Ibarra will be resigning as newsletter editors. A workshop is being planned for this summer on Stream Habitat Assessment. Chris Lowie is the chairman, and is looking for volunteers and ideas. Doug is looking to strongly support the student subunit and help them become an active integral part of the chapter. He also wants to hold a different type of raffle next year. Perhaps raffle off a large item such as a canoe with a limited number of tickets \$10.00 tickets. Such a raffle might speed the chapter towards the \$25,000 cash reserves goal. Although Doug did not have an opportu-

nity to present his 1996 budget, it is included in this newsletter.

### **Professional Achievement Award to Ed Mills**

Dr. Edward L. Mills, Senior Research Associate in the Department of Natural Resources and Director of Cornell Biological Field Station at Oneida Lake, was awarded the Professional Achievement Award by the New York chapter of the American Fisheries in recognition of his contributions, leadership, dedication, and service to the New York Chapter and to his profession. He was also nominated by the New York Chapter for the Dwight A. Webster Memorial Award for his service and contributions to the American Fisheries Society.

### **Professional Achievement Award Nomination**

Dr. Neil Ringler is nominated for the New York Chapter, American Fisheries Society Professional Achievement award. Neil Ringler is a professor of Fisheries Science at the SUNY College of Environmental Science and Forestry. He has contributed to the New York Chapter, AFS, as a leader and advocate for fisheries and environmental issues; as an academician, training many students in fisheries science that are now fisheries professionals; and as a scientist, performing original research in diverse topics ranging from trout feeding behavior to muskellunge reproduction in the St. Lawrence River.

As a leader, Neil has served as a president of the New York Chapter, and has been active on the executive committee in a variety of roles. More importantly, he has spent almost his entire career as the advisor to the SUNY-ESF Student Chapter of the American Fisheries Society. In that capacity, he has probably done more than any other single individual in promoting student involvement and participation in Chapter activities, and in bringing new members into the Chapter both as students and professionals. As an academician, Neil is one of the few professors whose commitment to teaching equals his commitment to accomplishing research. He not only provides and imparts knowledge and technical expertise, but he also inspires students with his enthusiasm and love of the fisheries profession. As a scientist, he has contributed significantly to the fisheries scientific literature. He sets the highest standards for data quality and integrity. He imparts those same high standards to the students that he trains.

Neil Ringler's professional qualities are amplified by the number and quality of the individuals that he has brought into the fisheries profession. In doing so, his contribution to fisheries will continue on long after he himself is no longer active. He is truly deserving of this recognition.

# AFS - New York Chapter Newsletter -- Spring, 1996

## Best paper awards.

The best student paper award went to Adam Zerrenner who is a Senior in the Department of Natural Resources at Cornell University. He presented work conducted as part of an undergraduate independent study project supported by the Adirondack Fishery Research Program, "Growth, survival, and mark retention in brook trout with visible implant tags," by Adam Zerrenner, Daniel Josephson, and Charles C. Krueger.

The best professional paper award went to Dan Josephson, who is a research associate stationed at the Little Moose Field Station near Old Forge (Department of Natural Resources, Cornell University) for his presentation of research results of an on-going project conducted through the Adirondack Fishery Research Program. "Use of outlet blocks to prevent brook trout emigration from Adirondack lakes: effects of population and angling catch," by Daniel Josephson and Charles Krueger.

The best poster award went to Allen Peterson for work on methods for stream protection "The SEDIMAT: A New Tool for Stream Protection".

## Summary of 1995 Expenditures versus the Projected

### NYC AFS 1995 ANNUAL BUDGET

REVENUES	PROJECTED	ACTUAL
1996 ANNUAL MEETING	\$ 4,000.00	\$ 5,166.67
1995 WORKSHOP	\$ 4,000.00	\$ 2,310.00
DUES REBATE	\$ 500.00	\$ 524.00
INTEREST	\$ 800.00	\$ 826.75
DUES	\$ 2,500.00	\$ 2,499.00
MISC.	\$ 100.00	\$ 0.00
RAFFLE	\$ 1,000.00	\$ 1,215.00
<b>TOTAL</b>	<b>\$12,900.00</b>	<b>\$12,541.00</b>

### EXPENDITURES

1996 ANNUAL MEETING	\$ 4,000.00	\$ 4,583.33
OFFICE SUPPLIES	\$ 50.00	\$ 0.00
POSTAGE	\$ 350.00	\$ 323.31
TRAVEL (NED & AFS)	\$ 1,300.00	\$ 989.61
NEWSLETTER	\$ 600.00	\$ 525.05
1995 WORKSHOP	\$ 4,000.00	\$ 1,787.63
1995 RAFFLE	\$ 250.00	\$ 509.76
DONATIONS	\$ 300.00	\$ 100.00
MISC.	\$ 50.00	\$ 145.00
<b>TOTAL</b>	<b>\$10,900.00</b>	<b>\$ 8,963.69</b>

NET END-OF-YEAR (+/-) \$ 2,000.00 \$ 3,577.73

## Projected Budget for 1996 from Doug Stang

### NEW YORK CHAPTER - AMERICAN FISHERIES SOCIETY

#### Balances (as of 1/29/96):

Checking	\$ 4,236.57
Certificate of Deposit	\$ 10,076.47
Savings	\$ 6,248.84
Student	\$ 1,261.87
<b>Total</b>	<b>\$ 21,823.75</b>

#### Projected Revenues:

1997 Annual Meeting	\$ 5,500
1996 Membership Dues	\$ 2,500
1996 Rebate	\$ 500
Interest	\$ 700
Raffle	\$ 1,200
1996 Workshop	\$ 4,000
<b>Total</b>	<b>\$14,400</b>

#### Projected Expenditures:

1997 Annual Meeting	\$ 5,500
Office Supplies	\$ 100
Postage	\$ 400
Newsletter/Directory	\$ 700
Workshop	\$ 4,000
Raffle	\$ 300
Donations	\$ 300
Stipends for best papers to Northeast Fish & Wildlife	\$ 300
Stipends for students at annual meeting	\$ 400
Travel (NED-AFS meetings)	\$ 300
Travel (AFS parent society)	\$ 750
Miscellaneous	\$ 50
<b>Total</b>	<b>\$13,100</b>

## Membership - from Tim Sinnott

Every year, I usually receive a number of questions about membership. I thought it might be worthwhile to take a few moments and write down the answers to some of the most frequently asked questions about membership in the New York Chapter of the American Fisheries Society.

Technically only members of the AFS parent society can join the New York Chapter. However, as with most other chapters, this is not rigidly enforced, but highly encouraged. The dues are established in the by-laws, and are \$10.00 per year for regular membership and \$5.00 for students. The membership year begins at the annual meeting, which is usually held in the last week of January. Anyone can join at any time during the year. Their membership is dated from the calendar year during which their

application is received. A member's name remains on the rolls for one calendar year, even if a renewal is not received. For example, if a new member joins at the annual meeting in 1993, that person's name is not removed from the rolls until 1995. The membership rolls are purged on August 1 of each year. The most current year that an individual is paid up for is printed on the mailing label of each newsletter.

There are two ways to join the New York Chapter. One can send \$10.00 (\$5.00 for students) to the secretary/treasurer, using the membership application usually found on the last page of the newsletter. Alternatively, one can pay New York Chapter dues to the parent society when paying parent society dues. The parent society sends the secretary/treasurer a listing four times each year of the names and addresses of individuals paying New York dues, along with a check for the sum of the dues paid. Since this list is received only four times a year, I never have an up-to-date listing of who is current with their dues. For example, you might have paid your New York Chapter dues to the parent society in February. The "Paid up" date on your mailing label might not change until April or May. I received the list of members who paid dues between October through December 31 on about January 24. The Chapter receives a rebate check from the parent society. The parent society pays the chapter approximately \$3.00 for every member that pays dues with the parent society. So for \$10.00 paid, the chapter actually receives \$13.00. The rebate check for 1995 was \$524.00! The majority of members either pay through the parent society, or renew their membership at the annual meeting.

The list of members is published annually in a membership directory. A new directory for 1996 will be mailed out in March - April time frame. The directory has not been published in several years, because of the costs of printing and mailing it.

I hope this answers most of your questions about membership. If you do have any other questions, please call me at (518) 457-0758. Thanks - Tim Sinnott.

### **HELP BUILD THE FUTURE THROUGH AFS 2000 from Barbara Knuth**

One year ago, the AFS Executive Committee approved a new initiative, AFS 2000, a 5-year capital campaign to raise \$1.25 million. The theme of the campaign is "Securing the Future of Fisheries Science Communications." Three major funding needs have been identified: (1) the AFS Publication Endowment Fund; (2) electronic communication needs; and (3) central office space. The AFS 2000 Campaign officially began in June, 1995, and has made exciting progress toward the goal. Read about

the highlights of what we have achieved so far, and consider joining your fellow chapter members who have already made their pledge to AFS 2000!

- The campaign reached \$100,000 in pledges during its first six months.

- The David and Lucile Packard Foundation gave AFS a \$100,000 grant for the Publication Endowment Fund

- a portion of the funds received have already been put to work upgrading the electronic communications capabilities of the central office, enabling the AFS staff to more effectively serve members as well as all who have a need to be informed about fisheries science and management

- Seventeen subunits, including many chapters, have made pledges to AFS 2000

- The pledge goal for the New York Chapter is 47 members. Sixteen New York Chapter members have already pledged their support -- join your colleagues today!

- Thanks to the following NYC members for their contributions to AFS 2000: Harlan Brumsted, Joseph Buttner, Doug Carlson, Paul Cheung, John Cooper, Michael Flaherty, David Green, Roy Haje, Steward Kelly, Barbara Knuth, Mason Lawrence, Kevin Moody, Paul Neth, Carl Parker, Michael Stoll Sr., Quasar Sultana

To join the New York contingent in pledging to AFS 2000, mail this pledge sheet to AFS 2000, 5410 Grosvenor Lane, Suite 110, Bethesda, MD 20814

Barbara A. Knuth, 122A Fernow Hall, Human Dimensions Research Unit, Department of Natural Resources, Cornell University, Ithaca, NY 14853 phone: (607) 255-2822; fax: (607) 255-0349; internet: bak3@cornell.edu  
WORLD WIDE WEB: <http://www.dnr.cornell.edu/hdru/hdruhome.htm> \*

### **News from New York State**

#### **Irondequoit Bay Angler Diary Program.**

Cornell University (Ed Mills and Lars Rudstam) and the Monroe County Health Department (Dick Burton) are initiating a project in Irondequoit Bay to understand the effect on fisheries from improving the oxygen content in the metalimnion of the Bay. This oxygenation project is hoped to improve the cold and cool water fishery in the Bay. If you are interested in this body of water and fish it regularly and wish to help us understand the effects of this manipulation on the fishery - please send a note with your name and address to Lars Rudstam or Kietha Beelick, Cornell Biological Field Station, 900 Shackelton Point Road, Bridgeport, NY 13030.

YES! I have designated my pledge to AFS 2000 below.

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_  
Address: \_\_\_\_\_ AFS Chapter: \_\_\_\_\_  
City: \_\_\_\_\_ Signature: \_\_\_\_\_  
State and Zip Code: \_\_\_\_\_

I would like to pledge:

Contributor (\$125)  Sponsor (\$250)  Sustainer (\$500)

Patron (\$1,250)  Benefactor (\$5,000)  Other (\$ \_\_\_\_\_)

I would like to fulfill my pledge in equal amounts over:

1 year  2 y  3 y  4 y  5 y

I would like to fulfill my pledge through the Combined Federal Campaign

(AFS is listed as agency #824 for CFC designations)

I prefer to receive my pledge reminder in the month of:

\_\_\_\_\_

**Blueback herring in Lake Ontario and Oneida Lake - from Lars Rudstam, Randy Owens and Ed Mills.** It is confirmed. Blueback herring has entered not only the Oswego River (where it was found in 1994) but also Oneida Lake (at least one adult fish caught in 1994 and 10+ YOY fish in 1995 - the only *Alosa* caught in 1995) and Lake Ontario (1 fish confirmed from 1995). This species has a smaller eye and a dark peritoneum (as compared to alewife). Contact Dave MacNeill, New York Sea Grant, 248 Hartwell Hall, SUNY Brockport, Brockport NY 14420 for a pamphlet on how to tell them apart.

### Great Lakes Technical Panel

A panel of experts convened at the Cornell Biological Field Station in January and February to review the current status of Lake Ontario open water fisheries. A report has been submitted to NYSDEC and a summary is presented as the feature article of this newsletter.

### New Fisheries Scientists in New York State.

**Mark Olson** has accepted the position as Senior Research Associate at the Cornell Biological Field Station. Mark will be part of the Cornell Warmwater Fisheries Unit and is interested in research on various aspects of warmwater species in New York State. He is replacing David Green how retired last year. Mark got his Ph.D. from Michigan State University and comes to us from a postdoctoral posi-

tion at the Center for Limnology - University of Wisconsin-Madison.

**Kyle Hartman** is a new Assistant Research Professor at the Great Lakes Center and the Buffalo State College. His background is in the Great Lakes, estuaries, and the Hudson River, species interactions, bioenergetics modeling and acoustics. He got his Masters from the Ohio State University and his Ph.D. from the University of Maryland.

We welcome both Kyle and Mark to New York State and congratulate them to their new positions.

### Aquatic Animal Health Program at Cornell University from Paul Bowser

Among the various administrative changes that have occurred in 1995 at the College of Veterinary Medicine at Cornell University, was the merger of the Department of Avian and Aquatic Animal Medicine and the Department of Microbiology, Immunology and Parasitology. The result was the Department of Microbiology and Immunology, which became an administrative unit on 1 July 1995. Within this new department is the Aquatic Animal Health Program which coordinates the Teaching, Research and Service activities associated with fish health. Dr. Paul Bowser, Professor of Aquatic Animal Medicine, serves as Director of the Aquatic Animal Health Program. The fish health activities within this new administrative structure are essentially the same as those that existed under the previous department structure.

One of the most exciting recent developments is the relocation of the Aquatic Animal Health Program and the entire Department of Microbiology and Immunology to the new Veterinary Medical Center of the College of Veterinary Medicine complex. The Veterinary Medical Center is part of a major building and renovation program at the College of Veterinary Medicine. After a 5-year period in the P. P. Levine Laboratory, 2 miles from the main College complex, the Aquatic Animal Health Program is now again located within the on-campus College complex. This is seen as a major improvement in that we now have more ready access to all of the resources of the College.

### ACADEMIC PROGRAM:

A variety of courses are available to students within the DVM curriculum as well as to appropriately prepared undergraduates and graduate students. Among them are: Fish Health Management, Management of Aquarium Systems, AQUAVET I: An Introduction to Aquatic Veterinary Medicine, AQUAVET II: Comparative Pathology of Aquatic Invertebrates and Fish, Special Projects in Veterinary Medicine, Special Projects in

Microbiology, and Advanced Work in Aquatic Animal Diseases.

Of particular note is the AQUAVET Program, an educational program presented jointly by the College of Veterinary Medicine at Cornell University and the School of Veterinary Medicine at The University of Pennsylvania. The 1996 program will constitute the 20th anniversary of AQUAVET, which will be noted by a 20th Anniversary Symposium to be held at the Woods Hole, MA on 14-16 November 1996. The program currently consists to two courses which are presented concurrently at the facilities of the Marine Biological Laboratory, Woods Hole, MA. The program takes place during the last two weeks of May and the first two weeks of June each year.

The current AQUAVET courses consist of:

**AQUAVET I: An Introduction to Aquatic Veterinary Medicine.** - This is a four week, four credit hour course that is taught during the last two weeks of May and first two weeks of June. The course provides a broad overview of health issues that impact on fresh water and marine animals. Species covered range from invertebrates to marine mammals. Twenty-four students are selected from a North American applicant pool that typically numbers 60-80. The instruction is provided by an invited faculty of 40 individuals with various specialties in aquatic sciences and aquatic animal medicine.

**AQUAVET II: Comparative Pathology of Aquatic Invertebrates and Fish.** - This is a two week, two credit hour course that is taught during the last two weeks of May. Eighteen students are selected for this course. The prerequisite for this course is completion of AQUAVET I or an equivalent course in aquatic animal medicine. Due to the focused nature of the course material, the applicant pool tends to be more limited. Students enrolled in AQUAVET II may range from second year veterinary students who completed AQUAVET I the previous year to Board Certified Veterinary Pathologists who are faculty at Veterinary Colleges or other university programs. The instruction is provided by an invited faculty of 15 individuals with various specialties in aquatic animal medicine.

### **SERVICE:**

The Fish Diagnostic Laboratory is a service lab within the Department of Microbiology and Immunology. The laboratory provides fish disease diagnostic assistance to aquaculturists in New York State and to researchers using fish as a research animal. The goal of the Fish Diagnostic Laboratory is to serve as a resource in fish health expertise to the New York State community. The laboratory has full capabilities for parasitology, bacteriology, virology, immunology, histopathology and water quality chemistry. In the case of toxicology,

referrals are made to the New York State Veterinary Diagnostic Laboratory.

### **RESEARCH**

Current major research efforts include:

#### **I. Pathogenesis of Retroviral Diseases in Fish.**

In this project we are investigating the pathogenesis of several tumor-causing retroviruses in fish and shellfish. This is joint effort undertaken by the laboratories of Dr. P. Bowser, Dr. J. Casey and Dr. D. Holzschu, all of the Dept. of Microbiology and Immunology, College of Veterinary Medicine and Dr. V. Vogt, Section of Biochemistry, Molecular and Cell Biology, Division of Biological Science, Cornell University. Our efforts have been greatly enhanced through cooperative efforts with the Oneida Fish Hatchery, New York State Department of Environmental Conservation, Constantia, New York and the Cornell University Biological Field Station (CUBFS), Bridgeport, New York. This work was initially funded internally and has received more recent support through external funds from the National Institutes of Health, U.S. Department of Agriculture, and American Cancer Society. Our overall goal is to understand the mechanisms by which these tumors develop and regress on a seasonal basis. Once we understand this, we may be able to develop methods by which other retroviral diseases could be controlled.

Our initial efforts focused on walleye dermal sarcoma. We are now also investigating discrete epidermal hyperplasia in walleye, lymphosarcoma in northern pike, plasmacytoid leukemia in chinook salmon and disseminated leukemia in the soft shell clam. The latter two efforts are assisted by Dr. Michael Kent of the Pacific Biological Station, Nanaimo, British Columbia and Dr. Roxanna Smolowitz of the Laboratory for Marine Animal Health, Marine Biological Laboratory, Woods Hole, MA.

#### **II. National Research Service Project No. 7 (NRSP-7): The minor special drug project.**

This is a USDA project designed to facilitate the development of data in support of labels of therapeutic compounds for minor species food animals. This has provided an important mechanism for funding work for therapeutic compounds for fish. Dr. P. Bowser serves as the Northeast Animal Drug Coordinator for this project. We are currently funding projects on terramycin in lobsters and two projects on use of hydrogen peroxide in salmonids, one for bacterial gill disease and one for sea lice.

#### **III. Early Mortality Syndrome in Atlantic Salmon in Cayuga Lake.**

In cooperation with scientists at the Tunison Laboratory of Aquatic Science, National Biological Service and the Wellsboro Laboratory, National Biological

Service. This study is an investigation of a naturally occurring thiamin deficiency experienced by some salmonid fishes due to predation on an alewife forage base. Alewives contain thiaminase, that apparently is causing a nutritional deficiency in the adult female. Our hypothesis is that the deficiency results in high mortalities of newly hatched fish. In this current study we are cooperators with the scientific staff of the Tunison Laboratory of Aquatic Sciences, Cortland, NY in an effort to reproduce the syndrome in 120 adult Atlantic salmon maintained at that facility. The fish are being fed defined diets that are thiamin deficient in an effort to reproduce the syndrome under controlled conditions.

For further information contact: Dr. Paul R. Bowser, Director, Aquatic Animal Health Program, Dept. Microbiology and Immunology, College of Veterinary Medicine, Cornell University, Ithaca, New York 14853, Tel: (607) 253-3365, Fax: (607) 253-3369

From Gene Buck at the Congressional Research Service and the Internet, we found the following notes having to do with Fish, Fisheries, New York and its neighbors.

**Great Lakes:** Lake Superior Fish Contaminant Load Declines. In early November 1995, the Chippewa-Ottawa Treaty Fishery Management Authority announced that 1995 tests indicated that fish contamination levels for mercury, PCBs, and DDT had declined by 36% to 65% since 1992, to levels of only about one-eighth that of State consumption guidelines.

**Great Lakes Chinook Salmon Disease Declines.** In early January 1996, Michigan biologists announced that the number of female chinook salmon observed with symptoms of bacterial kidney disease declined between 1993 and 1995. Lake Michigan chinook declined from 28% infected to 13% infected in observation on the Little Manistee River, while Lake Huron chinook declined from 16% to 5% infected. [Assoc Press]

**Michigan Fish Consumption Advisories.** On Feb. 2, 1996, the Michigan Dept. of Public Health relaxed consumption restrictions on all salmon taken from the Great Lakes due to low contaminant levels. However, restrictions on consumption of lake trout from Lake Huron waters were increased due to higher dioxin levels. [Reuters]

**Zebra Mussels.** In mid-November 1995, the State of Vermont dismissed a Canadian firm from work designing a zebra mussel control system for a State fish hatchery; the firm was not able to demonstrate or prove its technology for an acoustical sparking system to prevent mussel colonization in a timely manner. On Nov. 26, 1995, the Cleveland Plain Dealer reported that Ohio State

University scientists had found nine species of aquatic plants in Lake Erie that were thought to have been eliminated by pollution. These plants may have reappeared in response to zebra mussels improving the clarity of the Lake's water. [Assoc Press]

**Legislation:** Fisheries Act of 1995 signed into law. This measure implements U.S. participation in the United Nations' High Seas Reflagging Agreement (Title I), implements U.S. participation in the Northwest Atlantic Fisheries Organization (Title II), reauthorizes and amends the Atlantic Tunas Convention Act (Title III), reauthorizes and amends the Fishermen's Protective Act (Title IV), restricts U.S. fishing in the Central Sea of Okhotsk (Title V), prohibits U.S. participation in international agreements contrary to the United Nations' moratorium on large-scale driftnet fishing on the high seas (Title VI), and implements U.S. participation in a Yukon River Salmon Treaty (Title VII).

**Magnuson Reauthorization.** On Mar. 19, 1996, the Senate Commerce Committee released a 113-page staff working redraft of S. 39, with Committee mark-up tentatively scheduled for Mar. 28, 1996. [personal communication]

**New England Fisheries.** Part of the more restrictive regulations would reduce days-at-sea by half over a two-year period. On Jan. 25, 1996, the New England Fishery Management Council preliminary approved a joint venture fishery proposal for US vessels to catch herring and mackerel for delivery to three Russian factory trawlers for processing. On Jan. 26, 1996, the New England Fishery Management Council approved Amendment 7 to its multispecies groundfish management plan. Amendment 7 proposes to close some Gulf of Maine waters, remove most exemptions from the days-at-sea program, and set targets for allowable catch.

**Lake Champlain:** Perch to Canada? On Feb. 6, 1996, the Vermont House Committee on Fish, Wildlife, and Water Resources held a hearing to consider how to better manage the perch fishery on Lake Champlain and other lakes. Vermont fishermen claimed the resource is being harmed by Canadians catching large numbers of perch for commercial sale in Canada. [Assoc Press]

**Mercury Contamination.** In mid-February 1996, Univ. of Rochester, NY, researchers announced results of a 15-year child development study wherein they concluded that pregnant women who eat fish containing low levels of mercury every day "apparently" do not harm their babies. [Greenwire]



## AFS - New York Chapter Newsletter -- Spring, 1996

### Internet Discussion Groups and WWW sites

Corrections for the last list: to subscribe to the Crustacean list (CRUST-L), the correct wording to put in the body of your message is: SUBSCRIBE CRUST-L Crustacean systematics, distribution, ecology <Your name>

FISH-JUNIOR, is a forum for knowledge transfer between marine scientists and children/high school students. The list was initially set up by the Swedish University Network (SUNET) on behalf of a Pilot Project to be conducted by the British Columbia Ministry of Education (Canada). The aim of this forum is to enable juniors of early age to interact with scientists and scientific issues mainly related to Fisheries ecology and related topics. The fish-ecology management would like to encourage the participation of scientists, advisors, PhD students and other research personnel who would like to be involved as teachers in fish-junior. The list owner / contact is: Aldo-Pier Solari <solaris@searn.sunet.se> To subscribe, send mail to: list-serv@searn.sunet.se with the following text in the body of the message: sub fish-junior <Your name> Send mail to the list to: fish-junior@searn.sunet.se

**American Fisheries Society web site:**  
<http://www.esd.ornl.gov.80/afs> -- includes info on AFS, publications (just descriptions journals at this time), current events, AFS Diary, AFS Jobs Bulletin, legislative briefings, AFS position statements, links to AFS Chapter and Section net sites, and links to numerous related WWW servers.

An AFS e-mail list (similar to a listserve) for broadcast, interactive communications among subscribers has been setup by the AFS Computer Users Section. Participation is supposed to be limited to AFS members. To subscribe, send e-mail to "majordomo@wyoming.com" with the subject line blank and the message "subscribe afs-1 ADDRESS" (that is AFS-L, not AFS-One) in the body of the message subscribe, send e-mail to "majordomo@wyoming.com" with the subject line blank and the message "subscribe afs-1 ADDRESS" in the body of the message where ADDRESS is your complete e-mail address. Should you need to contact AFS offices in Bethesda, Maryland, their e-mail address is "73312.1155@compuserve.com" (phone 301-897-8616; fax 301-897-8096).

**US Fish and Wildlife web site** The listserver, FWS-NEWS The fws-news listserver will provide the latest news releases, bulletins, and other information (as issued by the Office of Public Affairs in Washington) about U.S. Fish and Wildlife Service activities. To subscribe, send e-mail to majordomo@www.fws.gov with subscribe fws-news in the **\*\*body\*\*** of the message. Also, if you would

like to see a list of all of the U.S. Fish and Wildlife Service's servers, please visit <http://www.fws.gov/servers.html>.

The **Southern New England** Chapter (SNEC) of the American Fisheries Society (AFS) has established a home page on the World Wide Web (WWW) with the address - <http://www.wh.who.edu/snecafs/enter.html>. This site was established to allow better access to chapter information and functions by Chapter members and other interested parties. In addition, it provides the Internet community with information on the structure, goals, and objectives of our Chapter. The site is still under development, but it currently contains: a history of the Chapter, an interactive guide to chapter officers with links to their E-mail addresses, online versions of current newsletters, an electronic newsletter, downloading of scholarship applications, a job resource center, and links to the Parent Society and other fisheries related WWW sites. Is anyone interested in a New York Chapter web site?

**FISHING FOR INFORMATION HOME PAGE** (Guide to on-line resources in aquaculture, fisheries and aquatic science): <http://www.stir.ac.uk/aqua/fishing/>.

### Upcoming events

**A NEW YORK STATE AFS CHAPTER WORKSHOP IS PLANNED FOR THIS FALL ON HABITAT ASSESSMENT IN RIVERS AND STREAMS. STAY TUNED AND LOOK FOR A SPECIAL MAILING.**

A list of upcoming scientific and general fishery biology related meetings from a number of sources is being updated weekly on <http://www.ocens.com>. The U.S. Fish and Wildlife Service has a meetings page which can be accessed at <http://www.fws.gov/>

**39th Annual Conference on Great Lakes Research** 26-30 May, 1996 Erindale College, University of Toronto, USA Sessions will cover a variety of current large lakes issues such as the effectiveness of international management agreements, endocrine disrupters, non-native species, effects of UV radiation, human health, sea lamprey controls, satellite imagery, food web interactions, and wetland restoration. Exhibitors are encouraged and should phone 313 747 1673. For further information, contact: Gary Sprules, Department of Zoology, Erindale College, University of Toronto, Mississauga, ON L5L 1C6, USA Ph: 905 828 3987, Fax: 905 828 3792 E-mail: [gsprules@cyclops.erin.utoronto.ca](mailto:gsprules@cyclops.erin.utoronto.ca)

Annual Meeting of the **American Society of Ichthyologists and Herpetologists**, American Elasmobranch Society the Neotropical Ichthyological Association. 13-19 June, 1996 Hotel Intercontinental, New Orleans, Louisiana USA. Inquiries: Dr. Bob Cashner, ASIH Local Committee Chair, Dept. Biological Sciences, University of New Orleans, New Orleans, LA 70148 Ph: 504 286 6741, Fax: 504 286 6121 E-mail: rccbs@uno.edu Also, see the ASIH web page at <http://www.utexas.edu/depts/asih/index.html> for meeting updates and additional information.

20th Annual **Larval Fish Conference**, American Fisheries Society Early Life History Section 13-19 June 1996, , New Orleans, Louisiana, USA. To be held in conjunction with the above meetings Contact: Richard F. Shaw, Director, Coastal Fisheries Institute, Louisiana State University, Baton Rouge, LA 70803-7503, USA Ph: 504 388 6455, Fax: 504 388 6513 See the ASIH web page at <http://www.utexas.edu/depts/asih/index.html> or conference updates and additional information.

**International Congress on the Biology of Fishes** 14-18 July, 1996 San Francisco State University, San Francisco, California, USA Sponsored by the Physiology section of the American Fisheries Society. Themes include metabolic performance, biotechnology applications, functional anatomy and others. Contact: Don MacKinlay, Fisheries and Oceans, 555 West Hastings St, Vancouver, BC V6B5G3, USA Ph: 604 666 3520, Fax: 604 666 3450

**2nd World Fisheries Congress** "Developing and Sustaining World Fisheries Resources: The State of Science and Management" 28 July-2 Aug., 1996 in Brisbane, Queensland, Australia Hosted by the Australian Society for Fish Biology Inquiries: Congress Secretariat, PO Box 1280, Milton, Queensland 4064, Australia Ph: (07) 369 0477 / Int Ph: 617 3369 0477, Fax: (07) 369 1512 / Int Fax: 617 3369 1512 E-mail: im@cc.uq.oz.au or fish96@sunray.im.com.au.

1996 **Ecological Society of America** 11-15 August, 1996 Providence, Rhode Island, USA Inquiries: Tasha E-mail: tasha@esa.org

### Mark Your Calendars

**126th Annual Meeting of the American Fisheries Society** 25-29 August, 1996 Hyatt Regency Hotel, Dearborn, Michigan, USA "SUSTAINABLE FISHERIES: ECONOMICS, ECOLOGY, AND ETHICS" Inquiries: Paul Brouha, AFS, 5410 Grosvenor Lane, Ste. 110; Bethesda, MD 20814-2199, USA Ph: 301 897 8616, Fax: 301 897 8096. More information in Fisheries.

## Recent Thesis

Mark Scheuerell received a Masters degree from **Cornell University** (advisor Lars Rudstam) in Jan. 1996 with a thesis on work on spatial distribution of fish in Oneida Lake - implications for predator-prey interactions.

### ABSTRACT

Chapter 1: To better understand the spatial dynamics of predator-prey interactions and the factors that influence them, we studied the effect of predator and prey densities on the spatial distribution of age-0 fish in Oneida Lake, New York. The purpose of this study was to describe the changes in density and spatial distributions of age-0 fish along an inshore-offshore gradient over daily and seasonal time scales and evaluate the efficacy of two simple models (maximizing foraging gain,  $f$ , and minimizing the ratio of predation risk to foraging gain,  $\mu/f$ ) for predicting the observed spatial distributions. We sampled fish distributions with hydroacoustics along two parallel transects day and night on eight occasions from June through October. Light penetration, temperature, and zooplankton were also sampled at 3-5 stations along the two transects. In early summer fish were evenly dispersed during the day and then moved inshore at night. In midsummer fish schooled offshore during the day and then migrated inshore in high densities at night. In late summer and early fall fish were again evenly dispersed during the day and then moved inshore in fewer numbers at night. Using Schoener's index of overlap as a measure of model performance, modeling simulations predicted the observed distributions well during the day in early and late summer, but not well in midsummer when fish schooled. Night distributions were predicted well throughout the summer. Maximizing  $f$  proved the best model during the day and minimizing the ratio of  $\mu/f$  was most effective at night. These results seemed reasonable given the age-0 fish are visual feeders during the day, they may filter feed at night, and the piscivorous walleye predators are active at night.

Chapter 2: Understanding the spatial dynamics of predators and their prey is an important part of interpreting the outcome of predator-prey interactions. Accurate predictions of nonlinear foraging rates require detailed information on the actual density of prey encountered by a predator. In this paper we summarized the whole-lake spatial distribution of both piscivores and planktivores over daily and seasonal time scales in Oneida Lake, investigated the effect of spatial scale on walleye, *Stizostedion vitreum*, foraging rates predicted from a Type II functional response model, and compared those results to actual con-

sumption. We measured predator and prey spatial distributions with hydroacoustics day and night once per month from June through October following eight irregular transects. Miller samplers and vertical gillnets were used to give species composition for age-0 and age-1 and older fish. Diets of adult walleye were also sampled from fish caught in bottom trawls at dawn. Although we found differences in the number of predators detected over time, we observed little change in the spatial distribution over daily and seasonal time scales. Total fish density declined by However, we found dramatic differences in the distribution of prey fish. Fish were dispersed day and night in June as larvae and small juveniles, but as the summer progressed day distributions became increasingly patchy as fish schooled. Night distributions were more even with some higher concentrations found, but also became quite patchy by October. Model results reflected observed differences in the actual density of prey encountered by the predators with the whole-lake average density usually higher than densities calculated at the transect and segment spatial scales. In general, model results also overestimated the observed consumption during midsummer and early fall when walleye fed on fish other than age-0 yellow perch. These results indicate how important the actual density of prey encountered by a predator is when modeling predator consumption.

## Feature Article

### **A Review of the Current Status of Lake Ontario's Pelagic Fish Community. A Report from the 1996 Lake Ontario Technical Panel, March 1996**

edited by Lars Rudstam.

#### **Technical Panel:**

Stephen Brandt, Buffalo State College.

Joseph DePinto, SUNY at Buffalo.

Michael Hansen, NBS, Great Lakes Science Center, Ann Arbor, MI.

Kyle Hartman, Buffalo State College.

Edward Mills, Cornell University.

Robert O'Gorman, NBS - Oswego Station.

Peter Rand, Univ. British Columbia, Vancouver, BC.

Howard Riessen, Buffalo State College.

Lars Rudstam, Cornell University.

Randal Snyder, Buffalo State College.

Donald Stewart, SUNY-ESF - Syracuse.

#### **Introduction.**

In 1993, the New York State Department of Environmental Conservation (NYSDEC) and the Ontario Ministry of Natural Resources (OMNR) decided to decrease the predatory demand from salmonines in Lake Ontario by 50%. This was done by decreasing the stocking rate of lake trout and chinook salmon. Chinook salmon stocking was decreased from 2.6 million (1992) to 1 million annually in 1994 and 1995 (1.7 million were stocked in 1993) and lake trout stocking was reduced from 2 million in 1992 to 1 million per year in 1993 -1995. This decision was based on findings by a technical panel (Jones and Stewart 1992) and an extensive public participation process during 1992. The goal of this stocking reduction was to protect the alewife population and thereby decrease the risk of a disease outbreaks and declines in salmonines, particularly chinook salmon, similar to that observed in Lake Michigan during the 1980s.

However, the decision to cut salmonine stocking did not have unanimous public support. Therefore, NYSDEC asked for a review of the current status Lake Ontario by a panel of experts during January and February 1996. Specific tasks asked of this panel was to:

1. Evaluate the earlier report "Status of the Lake Ontario Pelagic Fish Community and Related Ecosystem in 1992" (Jones and Stewart 1992) and comment on the extent to which the conclusions remain relevant in 1996.
2. Evaluate the status of prey populations, especially alewife and rainbow smelt, in Lake Ontario, with emphasis on their capability to sustain the level of predator demand implied by current stocking rates.
3. Evaluate the anticipated effects, on a risk basis, of increases in predator demand that would result from stocking increases with regard to the status of the prey populations and trout and salmon production.

The panel was given the freedom to change these objectives as it considered appropriate. NYSDEC promised to provide any information requested by the panel and assistance with distribution, printing etc. of this report, but the content was not to be edited, proofread or altered by NYSDEC. This was explicitly stated as part of the panel's initial instructions. Thus, this report and the conclusions and suggestions put forth are the opinions of the Technical Panel and not necessarily of NYSDEC. The panel reviewed information provided by NYSDEC and by letters from charter industry representatives and other concerned citizens. In addition, several panel members presented information on aspects of the Lake Ontario ecosystem

### Background to the problem.

The decision to reduce salmonine stocking in Lake Ontario was based on the following observations (Jones and Stewart 1992):

- A) Phosphorus levels, primary production, and zooplankton production had declined through the 1980s.
- B) Biomass of alewife and smelt, the primary forage fish of salmonines, had declined through 1992.
- C) The number of larger alewife and smelt, sizes selected by salmonines, had decreased proportionally more than the rest of these populations.
- D) Even though alewife and smelt populations declined, the condition of remaining fish did not improve.
- E) Abundance of salmonines remained high with a peak in 1986 indicating continued high predatory demand from these fish. Bioenergetics models predicted that decrease in chinook stocking would be the most efficient way to decrease predatory demand by the salmonine population in Lake Ontario.
- F) The severity of a disease outbreak (bacterial kidney disease, BKD) in the chinook salmon population of Lake Michigan was attributed to decreased food availability increasing the stress on the fish.

These observations led the 1992 technical panel to conclude that the 1992 stocking levels of salmonines in Lake Ontario was not sustainable. The panel argued that the alewife population was affected by both lower productivity and by high predatory demand from salmonines. Given these stresses, the alewife (and smelt) populations were considered at risk, especially if decimated by an unusually cold winter (as observed in 1976/77). A further decline or a collapse of the alewife population was considered likely to increase the risk of a disease outbreak in Lake Ontario, comparable to the outbreak of BKD in chinook salmon in Lake Michigan, with resulting declines in salmonines, especially chinooks. These expectations were supported by a model of fish species interactions in the lake (SIMPLE, Jones et al. 1993). To protect the alewife population and, by extension, the chinook and coho salmon populations (the two species that most heavily rely on alewife), NYSDEC and OMNR decreased stocking of chinook salmon by 60% and lake trout by 50%, staged over two years (1993 and 1994).

Critics of the NYSDEC and OMNR decision has put forth a list of counter-arguments. These arguments can be grouped in three categories:

- 1) Evidence that the current alewife population cannot support the 1992 salmonine stocking levels are weak at best.
- 2) The risk of depleting the alewife population is outweighed by the benefits of maximizing chinook production and by the possibility of higher numbers of valuable native species (yellow perch, walleye, whitefish, lake herring, natural lake trout reproduction).
- 3) Stocking cuts, if needed, should be made on species other than chinook salmon.  
Suggestions put forth by concerned citizens for consideration by the panel were (grouped to contrast the observations by the 1992 panel):
  - A) Phosphorus content in Lake Ontario decreased in the 1970 and early 1980s without further decrease in the late 1980s and 1990s. Thus, alewife production was high enough to support the high salmon stocking levels in the late 1980s and early 1990s even at the current low phosphorus loading rates.
  - B) Alewife populations may have declined but abundances are high enough to support the higher stocking levels.
  - C) The signs of predation effects on the alewife and smelt population (decreased number of larger and older fish) is due to natural mortality of the large alewife that were produced by excellent growth rates of fish surviving the 1976/77 winter die-off and not to predation by salmonines.
  - D) The continuing low condition of alewife indicates that the fish is still too abundant and that the alewife population (and production) would benefit from increased mortality (improving conditions for remaining fish).
  - E) There are large uncertainties in the calculation of predatory demand by salmonines associated with large uncertainties for early mortality of chinook salmon. This questions both the validity of calculations showing chinook salmon to be the major contributor to salmonine predatory demand and the validity of calculations that predators consume up to 30-40% of annual alewife production.
  - F) The decrease in chinook salmon in Lake Michigan was due primarily to BKD and not to decreased alewife stocks, a position held by some Michigan DNR biologists.  
Two additional points made by concerned citizens were discussed:
    - G) Decreased salmonine stocking rates will increase mortality from sea lamprey.
    - H) Compensatory responses to lower alewife populations by both the alewives themselves (increased condition and recruitment) and by the salmonines (decreased growth rates, increased mortality possibly through cannibalism) makes the system more resilient than assumed in the previous models. This would decrease the risk associated with higher stocking levels.

Some of these opposing views can be resolved by careful interpretation of available information, others can not. Still others are beyond the scope of this report. For example, we will follow the opinion of the Great Lakes Fish Disease Control Committee from March 1993 (letter to the Great Lakes Fisheries Commission) that BKD is a

stress related disease and that an "ecosystem imbalance" causes BKD to be expressed in chinook salmon. This panel does not have the expertise to evaluate the alternative even though it is important. If chinook salmon declines in Lake Michigan were not caused by stress due to low forage abundance, the arguments put forth later in this report may be invalid.

### Executive Summary of Panel Findings:

We now have an additional three years of data not available to the 1992 task force. Of these three years, 1993 is unaffected by decrease stocking, 1994 should have a 13% decrease and 1995 a 25% decrease in predatory demand if mortality rates of salmonines stayed the same as in prior years. The reason the full 50% reduction would not yet be fully realized is that there is a time lag from the time stocking cuts are implemented to the time these cuts affect the total salmonine population. For example, because most chinook salmon mature at age 3 and 4, it will take about four years for stocking cuts to affect the whole population of chinooks. The time lag for lake trout is longer because lake trout may live more than 10 years.

The panel considered both the validity of the conclusions of the 1992 technical panel that suggested stocking cuts and the arguments put forth opposing such cuts. This report is our evaluation of the merits of these positions evaluated using the additional data available from 1993-1995 and through two new models: an ecosystem model by Jain and DePinto (1996) and a risk analysis of a food web model centered around alewife population dynamics (Rand, Stewart and O'Gorman, ms in prep.).

Our review of the data available to the panel lead us to a number of conclusions. These are summarized below. If you wish to have more information, contact NYSDEC - Fisheries, 50 Wolf Road, Albany, NY for a full report.

### Phosphorus loading and lower trophic levels.

- 1) Phosphorus loading levels have been fairly constant since the beginning of the 1980s. Lake concentrations of total phosphorus (both spring and summer) declined at least through 1992 (last year of data) although most of this decline had occurred prior to 1985.
- 2) Summer chlorophyll-a levels (measure of algae biomass) declined through the 1980s from about 4 µg/L in 1968-80 to about 2 µg/L in 1990-92. Spring total chlorophyll-a concentration remained between 0.7 and 2.2 µg/L since 1970.
- 3) In 1995, nearshore chlorophyll-a levels were much lower relative to total phosphorus content of the water than either the offshore or the embayments.

Comments: There is always a lag between decreases in phosphorus loading and the full effect on in-lake phosphorus levels. This lag is associated with water residence time and with release of phosphorus stored in the sediments. We argue this is the reason for the approximately 5 year time lag between decrease in phosphorus loading and decrease in in-lake total-phosphorus levels.

The lack of an effect of lower spring total-phosphorus levels on spring chlorophyll-a concentration indicates that the spring bloom is not phosphorus limited. The spring bloom consists of diatoms which may be limited by silica and not phosphorus. Since the spring bloom largely settles on the bottom and feeds the benthic community, there should be less effect of lower nutrient levels on benthic than on pelagic secondary production through the 1990s.

The slow decline in in-lake phosphorus levels after 1985 compared to the beginning of the 1980s is likely the reason for the different views expressed earlier. Thus, there is merit to both points of view, phosphorus content has continued to decline, but this decline has been small since 1985.

The low ratio between algae and phosphorus in near-shore waters compared to what we expected from general relationships may be due to grazing by dreissenid mussels (zebra and quagga mussels). The full effect of dreissenids has likely not yet been realized.

We do not expect large changes in phosphorus loading, total phosphorus concentrations or offshore chlorophyll-a levels during the 1990s. The relationship between phosphorus loading and reductions in lake phosphorus concentrations should now be stabilized. Increasing dreissenid mussels could affect the nearshore phosphorus levels but will likely have little effect on lake-wide algal biomass due to the large volume of water relative to bottom area (which limits dreissenids) in Lake Ontario.

### Fish populations:

- 4) The alewife population has declined steadily and reached very low levels in 1994, possibly the result of an unusually severe winter in 1993/94. A large proportion of the current population is from the 1991 year class.
- 5) The dip in the alewife population in 1994 was accompanied by increases in size of zooplankton, increases in growth and condition of alewife, and increased reproduction of various species including lake trout and yellow perch.
- 6) The growth of chinook and coho salmon declined in 1994, likely a response to lower food abundance. Age at maturity of chinook salmon continued to increase indicating slower average growth of individuals. However the condition of these species did not decline in 1994.

- 7) The continued low abundance of larger alewife and smelt, the most preferred prey of salmonines, indicate high predation pressure on these fish populations. This is not the result of disappearing larger alewife produced after the increased growth rates in 1978 following the winter die-off of 1976-77.
- 8) The smelt population now consists of primarily one year class indicative of a highly exploited population. Even so, the biomass of smelt increased in 1995 compared to 1994.
- 9) The alewife population posted a small increase in 1995. This increase was accompanied by a modest decline in adult condition and increased size of chinook and coho salmon relative to 1994; zooplankton size did not change.
- 10) Decreasing stocking rates will not increase the number of salmonines dying from lamprey attacks. However, the proportion of salmonines affected will increase if the salmonine populations decline.

Comments: We believe these data, particularly for 1994 and 1995 to be very important. First, the 1994 numbers suggest that the alewife population can become low enough so that both their prey (zooplankton) and their predators (salmonines) are affected. We believe this is the first time where negative effects on chinook salmon growth rates have been observed as a result of low alewife abundance (although coho salmon growth has been shown previously to be dependent on abundance of juvenile alewife in Lake Ontario, O'Gorman et al. 1987). In these situations, there might be a risk for increased diseases in the salmonine populations. Second, despite low abundance and high predation pressure, alewife biomass appears to have increased in 1995. This suggests that the alewife population is more resilient than previously thought. Compensatory mechanisms may allow alewife recovery even from low abundance levels. Three potential mechanisms may have operated in 1994: 1) lower predation rates by individual salmonines (indicated by lower growth rates), 2) increased mortality of salmonines, and 3) increased production of zooplankton causing better condition of alewife. Alternatively, the implemented stocking cuts may have caused a decline in predatory demand by salmonines (although predicted effects in 1994 were relatively minor). The main indication of high exploitation and a cause for concern for both the alewife and smelt populations is the dominance of one age class in both populations.

### Model predictions.

The panel reviewed two models that are being developed for improving our understanding of the Lake Ontario ecosystem and alewife population dynamics. The first model is a ecosystem model developed by Jain and De-

Pinto (1996) which has been used to explore the combined effects of stocking rates and phosphorus loading. The second is a food web model by Rand, Stewart and O'Gorman (ms in prep.) centered around the dynamics of the alewife population. This model can be used to estimate the risk associated with different stocking levels of salmonines and will be referred to as the RISK model. This risk was evaluated as the proportion of 15 year simulations that included at least one year when the alewife population is low enough to cause chinook salmon to be prey limited.

- 11) The ecosystem model (Jain and DePinto 1996) suggests that increasing the phosphorus load will have a stronger effect on salmonine biomass than an increase in stocking rates at the current state of the lake. Thus, the model predicts diminishing returns per stocked fish as stocking levels increase above the 1995 levels.
- 12) The RISK model indicates that the alewife population is more resilient than previously thought and that the likelihood of a complete alewife collapse is small.
- 13) With current zooplankton production and stocking rates, the risk of reaching prey limitations for chinook salmon is about 60%. This risk increases to over 80% if stocking levels are returned to the 1992 levels.

Comments: Any model predictions depend on the quality of input data (including limited data to translate trawl catches to lake-wide alewife abundance) and the ability of the model to correctly represent major interactions. Given these caveats, the tentative conclusion is that there is a relatively high probability that the alewife population will become low enough to cause chinook salmon to be prey limited even at current stocking rates. This risk increases if we return to the 1992 stocking levels (60% at current levels and over 80% at 1992 levels). On the other hand, predation by salmonines is not likely to cause a complete collapse the alewife population.

### Future data needs

We believe we are moving forward towards understanding the interactions between salmonines, alewife and nutrient loading in Lake Ontario, but we still have a ways to go. Some additional important data may be available shortly, in particular refined acoustic estimates of forage fish biomass from 1991 through 1995. Accurate whole lake biomass estimates are critical for the interpretations posed here and for resolving some of the differing opinions listed earlier. We need to know that the 1994 alewife biomass is indeed low compared to previous years and that the 1995 biomass is indeed higher than 1994 to solidify the conclusions in this report. The preliminary acoustic biomass for 1993 and 1994 show continued decline in the forage fish biomass that is not mirrored in the trawl data.

The fall 1994 biomass estimate is particularly low (23 kt, Schneider and Schaner 1995). We need an explicit analysis comparing the trawl abundance data with acoustic biomass estimates. The panel cautions against any long term management decision without full consideration of those data.

The cause and extent of alewife winter kills is not well understood. The risk associated with salmonine stocking is to a large degree related to the severity of winter alewife die-offs. Thus, we need to know if there are any interactions between size/condition of alewife and winter kills and what proportion of the alewife population is typically affected.

The lack of annual estimates of salmonine mortality rates is another problem, especially for estimating predatory demand. We need to know the importance of cannibalism for juvenile salmonine survival, and how cannibalism is correlated with abundance of other prey such as alewife. Higher cannibalism at low alewife abundance decrease predatory demand by the salmonines by increasing salmonine mortality.

In addition, the panel considers differences in annual growth rates, condition and energy content of salmonines, and changes in diets of salmonines to be important indicators of the status of the salmonine-alewife interaction in the lake. We recommend that steps be taken to initiate data collections to follow these indicators. Analysis of archived salmonine scales would give some information on changes in annual growth rates over time. Cooperation with charter captains is a potentially fruitful approach to collect diet data. For data on salmonine annual growth, condition and energy content, gill net surveys may be more appropriate as fish in poor condition are less likely to be caught by anglers than fish in good condition.

### Concluding remarks.

Based on the information available to us at present, the panel concludes:

- 1) The increase in alewife biomass in 1995 despite relatively high stocking rates and a low alewife population in 1994 indicates that the alewife population is more resilient than previously suggested. This is also the inference from the RISK model which indicates that the risk of collapsing the alewife population with either stocking scenario is minimal.
- 2) Returning to higher stocking levels will increase the risk for prey limitation and decreased salmonine growth rates and therefore increase the risk for disease outbreaks, especially in chinook salmon. Our best estimates suggest a 30% higher risk for this to occur with the higher stocking rates than with the current stocking rates.

- 3) Returning to higher stocking rates should improve chances for increases in native fish species by keeping the alewife population low. However, it should be remembered that species that could increase include both native species considered valuable (i.e. whitefish, lake herring, lake trout, yellow perch, walleye) and less valued species (both native such as burbot and exotics such as gobids and ruffe). For example, burbot has increased dramatically in Lake Michigan and will likely compete with lake trout and other salmonines (Rudstam et al. 1995). Surprises should be expected when fish communities change.

Managing the Lake Ontario salmonine fisheries through salmonine stocking is a balance between return and risk. The current lowered stocking rates will likely maintain fast growing chinook and coho salmon based on alewife as the primary forage fish. A return to higher stocking rates will likely increase the salmonine population, but also increase the risk of disease outbreaks and slower growth rates. Unfortunately, the risk may be large because an outbreak of, for example BKD in chinook salmon, is very hard to eradicate from the system (as the Lake Michigan example has shown) and may be detrimental to the fishery for a long time period.

Managing for maximum yield in a fishery is a risky enterprise as indicated by the many examples of collapsed marine fisheries. It is often not possible to know the maximum sustainable yield until it has been exceeded. This is one of the reasons Hilborn and Walters (1992) consider managing for maximum yield to be a prescription for disaster. This is likely also true if we exploit a population (in this case alewife) through stocking predators. We do not envy the managers that have to weigh the possibility of increased salmonine returns against the possibility of increased risk for the chinook fishery in Lake Ontario. Maximizing yield and minimizing risk are not compatible management options.

### References

- Hilborn, R., and C. J. Walters. 1992. Quantitative fisheries stock assessment. Chapman and Hall, New York.
- Jain, R. and J.V. DePinto. 1996. Journal of Aquatic Ecosystem Health. 5:1-18.
- Jones, M. L., J. F. Koonce, and R. O'Gorman. 1993. Trans. Am. Fish. Soc. 122:1002-1018.
- Jones, M. L., and D. Stewart. 1992. Status of the Lake Ontario offshore pelagic fish community and related ecosystem in 1992. Unpublished report to the Great Lakes Fishery Commission.
- O'Gorman, R., R. A. Bergstedt, and T. H. Eckert. 1987. Can. J. Fish. Aquat. Sci. 44:390-403.
- Rudstam, L. G., et al. 1995. Can. J. Fish. Aquat. Sci. 52:1074-1082.



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# **Ecosystem Approaches to Management: Interdisciplinary Applications**



## **Abstracts**

from

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The Society of American Foresters,  
and  
The Wildlife Society*

**Liverpool, New York  
February 1-3, 1996**

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## **Holistic Management of Natural Resources**

MICHAEL ZAGATA - Commissioner, NYS DEC 50 Wolf Road, Albany, NY 12233

(Abstract may be available as a handout)

## **U.S. Fish and Wildlife Service's Ecosystem Approach to Fish and Wildlife Conservation**

STEVE RIDEOUT - U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive  
(Room 560), Arlington, VA 22203

The U.S. Fish and Wildlife Service's mission to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people, has not changed only the approach to accomplish our mission. The impetus to look at a new way for federal agencies to accomplish their missions, and in some cases to revise agency missions came with the new administration and the completion of the National Performance Review and establishment of an Interagency Ecosystem Management Task Force. Many agencies, including the Fish and Wildlife Service felt that they had many ongoing projects that were largely based on an ecosystem approach. The Fish and Wildlife Service had many examples in this category. The Service's approach has been to expand the number of successful projects, establish cross-program teams, and focus regional management on geography across resource programs. A watershed based map was prepared to assist in developing a geographic focus. Using an ecosystem approach the Service plans to emphasize three major areas: 1) fulfilling fish and wildlife needs in the context of the natural and human environment in which they occur; 2) increasing cross-program collaboration within the Service; and 3) communicate, coordinate, and collaborate more frequently, more consistently, and more effectively with our partners, affected stakeholders, and the public.

## **Planning for Wildlife Habitat: Approaches on Private Forest Land in Western Washington**

KELLY AUSTIN - Weyerhaeuser Company, WTC 1A5, Environmental Forestry Research,  
Tacoma, WA 98477.

The purpose of the Habitat Management Planning process at Weyerhaeuser is to manage habitat for multiple species within the context of commercial forestry. This approach should reduce the need for species-by-species protection and therefore lead to a more stable regulatory environment. The Habitat Management Planning process derives desired future habitat conditions for all vertebrate species. The plan starts with a detailed watershed analysis to identify methods to project fish habitat and water quality. Habitat models for groups of species with common breeding requirements and provisional habitat objectives are established for each group. Surveys determine ecologically unique areas, current vegetation conditions, and baseline information on current wildlife presence and absence. Potential habitat, current and future, is estimated using the wildlife/habitat models with a Geographic Information System. An economic analysis leads to the development of management plans to produce the desired habitat, and determines the financial impact of achieving each habitat objective. If all objectives cannot be achieved they are ranked using biological and economic criteria with outside stakeholder participation. This process ensures that agreed-upon goals can be met within financial constraints. Results to date from two years of pilot studies indicate that significant diversity of plant and wildlife species exists in young managed forests. Many of these species were previously considered to be associated with old-growth conditions.

### REFERENCES:

- Hansen, A.J., T.A. Spies, F.J. Swanson, and J.L. Ohmann. 1991. Conserving biodiversity in managed forests. *Bioscience* 41:382-392.
- Ruggiero, L.F., K.B. Aubry, A.B. Carey, and M.H. Huff, technical coordinators. 1991. Wildlife and vegetation of unmanaged Douglas-fir forests. General Technical Report PNW-GTR-285. USDA Forest Service Pacific Northwest Research Station, Portland, Oregon.
- Swanson, F.J., J.F. Franklin, and J.R. Sedell. 1990. Landscape patterns, disturbance, and management in the Pacific Northwest, USA. Pages 191-213 *In* I.S. Zonneveld and R.T.T. Forman, editors. *Changing landscapes: an ecological perspective*. Springer-Verlag, New York.

## **Ecosystem Management in Wisconsin**

ROBERT DUMKE - Wisconsin Department of Natural Resources, 125 South Webster Street, P.O. Box 7921, Madison, Wisconsin 53707

Stakeholders in the future of Wisconsin's natural resources are seeking mechanisms to think and act more comprehensively regarding environmental protection and management. Ecosystem management -- as an operating premise -- has emerged to help fill that need. It considers ecological integrity (i.e., components, structure, and function of natural systems), viability of human communities, and economic opportunity in an overall pursuit of sustainable ecological, social, and economic systems.

Implementation of ecosystem management requires an institutional framework that provides mechanisms and tools to integrate stakeholder goals and actions within and among socio-economic and ecological systems. Strategies are also needed to cope with uncertainty inherent in these complex systems and to work across many spatial and temporal scales. Under ecosystem management, consideration should be given to new roles for government (e.g., as a process convener, source of technical information, and participant -- not necessarily leader -- in locally empowered stakeholder forums) and new ways to work (e.g., place-based vs. media-based management and incorporation of adaptive management approaches) and new ideals (e.g., "sense of place" and emphasis on mutual exchange among stakeholders of knowledge and values).

The Wisconsin Department of Natural Resources is exploring these institutional dimensions as part of a major reorganization of the agency. Ecosystem management shows promise as a guiding principal for Department policy and programs based on early experience with application of the concepts.

### REFERENCES:

Implementation Plan for Reorganization of the Wisconsin Department of Natural Resources (available Jan. 1996).

Ecosystem Management Implementation Strategy: Action Plan. Working Draft, August 1995. Florida Department of Environmental Protection.

## **Ecosystem Considerations in the Management of Georges Bank Groundfish**

STEVEN A. MURAWSKI - National Marine Fisheries Service, Woods Hole, MA 02543

Groundfish resources (e.g. cod, haddock, hakes, flatfishes and others) have undergone tremendous changes in abundance during the past century. Several important fishing eras have included the development of intensive domestic trawl fisheries, primarily directed at haddock, the intensive exploitation of the resource by distant water fleets (beginning in the 1960s), and post-200 mile limit management and ensuing bilateral issues with Canada. The productivity and fishery landings of groundfish are now at record low levels, with poor recruitment prospects and large-area closures in effect. Can the resource be rebuilt in a timely and cost-effective manner? Apart from the economic consequences of reducing fishing mortality rates to levels that will allow stock recovery, there are ecological questions including the role of predators and competitors in determining survival of young groundfish.

This paper reviews the scenario and evidence for fishing-related stock collapse, and information on the environmental and ecological factors that may determine the prospects for, and rate of resource recovery. Prospects for building sustainable groundfish fisheries are also reviewed.



## **The Washington Creek Project and the Multidisciplinary Approach to Riparian Zone Rehabilitation in Southern Ontario**

P.A. WILLIAMS - Department of Environmental Biology, University of Guelph, Guelph, Ontario. N1G 2W1 Canada

A.M. GORDON - Department of Environmental Biology, University of Guelph, Guelph, Ontario. N1G 2W1 Canada

J.L. SIMPSON - Department of Environmental Biology, University of Guelph, Guelph, Ontario. N1G 2W1 Canada

Washington creek is a spring-fed tributary of the Nith river in the Grand River basin in southern Ontario. While approximately 50% of the main channel is bordered by treed areas, the primary land use in the watershed is agriculture. Sandy soils are predominant in the area and stream characteristics have been severely degraded by crop and livestock production, and other human activities. When considering ways to improve conditions, the riparian zone was identified as a key because of it is a critical interface between land-based agriculture and waterways, and when appropriately managed can protect waterways from direct impacts, help stabilize channels, improve aquatic habitat, and provide critical wildlife habitat.

In 1985, the University of Guelph initiated a Riparian Zone Rehabilitation project with the owners of several properties traversed by Washington Creek. The project involved establishing forested riparian buffers, fragile-land retirement, and the monitoring of planted trees, wildlife and vegetation characteristics, and water quality. In addition to this activity, other factors have affected the condition of Washington Creek, including rehabilitation projects by other groups and the increased use of conservation tillage and other modified agricultural practices. Since 1985, general improvements in water and terrestrial habitat quality have been noted. Brook trout have been more frequently observed in the study area, likely moving down further from source population in the headwaters, and rainbow and brown trout have been using the stream more regularly, likely from populations in the main channel of the Nith River. Studies in the research area have documented changes in vegetative diversity, breeding and foraging bird populations, benthic invertebrates, and solar radiation. While many of the changes indicate the importance of vegetated riparian buffers, it is clear they are but one of many factors contributing to environmental improvements. The key to successful stream rehabilitation programs and "sustainable" agriculture is in a systems approach using the skills of many disciplines. The combination of improved agricultural practices that are economically attractive to farmers, thoughtful plantings of trees and other vegetation, and consideration for wildlife in farm management and conservation plantings provide the synergism for significant positive change.

## **Use of Outlet Blocks to Prevent Brook Trout Emigration from Adirondack Lakes: Effects on Population Structure and Angling Catch**

DANIEL C. JOSEPHSON - Adirondack Fishery Research Program, Cornell University, PO Box, 1124, Old Forge, NY 13420

CHARLES C. KRUEGER - Adirondack Fishery Research Program, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

Brook trout (*Salvelinus fontinalis*) emigration was measured with inclined screen fish traps on outlet barrier dams from five Adirondack lakes. Emigration occurred in the spring and fall with essentially no movement during the summer and winter. Spring emigrants were primarily yearlings and represented 0-20% of fish marked in spring trapnet samples. Spring emigration coincided with peak run-off from snowmelt (late April through mid-May). Fall emigration was identified as a major source of potential loss of fish. The fall emigrants were primarily mature adults and represented 26-69% of fish marked in fall trapnet samples. Fall emigration coincided with the peak of the brook trout spawning period (October through November). Age 2 and younger brook trout predominated in the lakes.

A larger set of brook trout lakes, with (drainage) and without (seepage) outlets, were examined to compare population age structure where emigration was and was not possible, respectively. Comparison of population age structure revealed significantly greater percentages of age 3 and older brook trout in seepage (41.2%) versus drainage (2.5%) lakes. Large-scale fall emigration likely reduced the abundance of older age brook trout in these lakes.

Barriers to emigration were placed subsequently on four lake outlets to determine the effects of preventing emigration on population structure and angling catch. The barriers were operated for 2-6 years and caused increases in the abundance of age 2 and older brook trout in all lakes. Observed changes in angler catches varied from increases in fish >610 g, total annual catch, and/or catch per trip.

## Do Larval Fish Care About Zooplankton Blooms?

K.E. LIMBURG - Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545

M.L. PACE - Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545

D. FISCHER - Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545

K. AREND - Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545

Each spring in the Hudson River, NY, the cladoceran *Bosmina longirostris* population erupts in a spatiotemporally well-defined bloom. We investigated the importance of this bloom to the feeding, energy contribution, and growth of larval white perch (*Morone americana*) and striped bass (*M. saxatilis*). Gut content studies were combined with otolith microanalysis on larvae (SL range: 3.3 - 10.2 mm) collected prior to, during, and after the bloom. Food selection (measured by Chesson's index) was high for copepods prior to and after the bloom, and conversely were high for *Bosmina* during the bloom. Nevertheless, copepods contributed more energy in the gut contents than did *Bosmina*, even during the bloom. Growth rates (SL/estimated age) were highest ( $p < 0.001$ ) outside the geographic range of the bloom, and second highest at the site where the bloom was most intense. Growth rates tended to increase over time and were correlated with water temperature. Also, growth rates were higher in striped bass than in white perch larvae, with site-specific variation evident. Evidence from this study suggests that the *Bosmina* bloom does not provide larvae a marked increase in energy yield and subsequent growth; nevertheless, positive effects of the bloom on subsequent recruitment are evident.

## **Metrics and Standards for Comparisons of Warmwater River Fish Communities in New York**

DOUGLAS M. CARLSON - NYS DEC, 317 Washington Street, Watertown, NY 13601

Bioassessment and fishery parameters were used to compare fish communities in 8 river sections in northern and central New York State. Native species richness, piscivore proportion and omnivore proportion were valuable predictors of environmental quality, and the Indian River rated highest. Other parameters routinely used to describe the fisheries, such as sportfish abundance, and size and growth were also included and exhibited some sensitivity to environmental disturbances through this range of conditions. Several rivers sections had high abundance of sportfish, including the Mohawk, Indian, lower Black and lower Oswegatchie rivers. The Indian River had highest size indices for walleye and smallmouth bass. The Mohawk River had fastest sportfish growth rates, and the Oswegatchie River had the slowest growth rates. With refinements, these parameters might be useful in development of an Index of Biotic Integrity.

### REFERENCES:

- Carlson, D.M. 1996. Black River fisheries survey, 1992-93. NYS DEC, Watertown, N.Y.
- Plafkin, J.L., M.T. Barbour, K.D. Porter, S.K. Gross and R.M. Hughes. 1989. Rapid bioassessment protocols for use in streams and rivers: benthic macroinvertebrates and fishes. US Environmental Protection Agency. EPA/444/4-89-001. Washington DC.

## **Three Hundred Years of Change: Ecosystem Response of Onondaga Lake, New York, to Pollution History with Emphasis on the Fish Community**

P.J. TANGO - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210.

N.H. RINGLER - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210.

The stresses of more than 100 years of industrial and cultural pollution have severely altered the Onondaga Lake ecosystem (Murphy 1978, Effler and Hennigan 1995). Paleolimnological analyses of the lake sediments show that the lake shifted from mesotrophic to hypereutrophic conditions between the 1700s and the mid-1900s (Rowell 1996). Historical accounts dating to the mid-1600s indicate that the lake once supported a coldwater fishery, which has been replaced by a community dominated by warm water, pollution tolerant species. Pollution controls were implemented in the watershed in the early 1970s and subsequent shifts in indices of lake productivity have been reported (Canale and Effler 1989). Between 1970s and 1990s, increases in species richness among the phytoplankton (Makarawicz et al. 1995, Siegfried et al. 1996) have also been reported in the Lake.

We hypothesized that fish species richness would have also increased in response to ecosystem effects from the pollution control measure. We used rarefaction analyses (Hurlbert 1971) to develop standardized richness values among eight fisheries surveys (Stone and Pasko 1946, Noble and Forney 1971, Chiotti 1981, Ringler et al. 1996, Tango and Ringler 1996). Linear regression of the standardized trap and gill net results over time indicates a significant increase in fish community richness for the period 1946 to 1994 ( $r^2=0.89$ ,  $p<0.01$  and  $r^2=0.79$ ,  $p<0.005$  respectively). The present fish community structure has developed from 1) species declines and extirpations, 2) invasion and establishment of pollution tolerant species, and 3) fishes interacting with regional refugia. Increasing richness in plant and animal taxa may be related to declines in lake productivity.

### REFERENCES:

- Effler, S.W. and R.D. Hennigan. 1996. Onondaga Lake: Legacy of pollution. *Lake and Reserv. Manage.* (in review).
- Rowell, H.C. 1996. Stratigraphic analysis of the sediments of Onondaga Lake: the history of anthropogenic impacts of lake water quality. *Lake and Reserv. Manage.* (in review).
- Tango, P.J. and N.H. Ringler. 1996. The role of eutrophication history, pollution controls and refugia in structuring the Onondaga Lake fish community: 1654-1994. *Lake and Reserv. Manage.* (in review).

**Government/Public Responsibilities: Who Makes the Management Decision?  
A Case Study Involving White-tailed Deer Management in Northern New York.**

JAMES F. FARQUHAR - NYS DEC, 317 Washington St., State Office Building,  
Watertown, NY 13601

DAVID NELSON - NYS DEC, 317 Washington St., State Office Building, Watertown, NY  
13601

For many years, wildlife managers have debated the issue of public involvement in wildlife management decisions: how much is too much? While some biologists fear that formal incorporation of public input will lead to reduced decision-making authority, we have found the opposite to be true. We will describe an experimental process which allows more thorough communication between interested publics and the wildlife manager. Use of this process has resulted in numerous changes in deer hunting opportunity in northern New York.

In response to public pressure, the State Legislature in 1971 revoked DEC's authority to manage deer in northern New York. Over the ensuing 20 years, several attempts to regain deer management authority failed because of public mistrust of DEC.

In 1990, DEC biologists changed our strategy for dealing with interested publics in northern New York. We held a series of open meetings wherein we asked attendees what changes they would like to make in deer management, rather than promoting a state position. We designed and used a structured meeting format that allowed us to listen and learn, rather than talk and tell. Small group "break-out" sessions facilitated information transfer and improved credibility through personal interaction. A timely meeting summary was provided to each attendee reviewing what we heard and what we would do with their input.

Attendees expressed widespread enthusiasm for this new approach. Deer hunters called for many slight changes in hunting opportunity, but also expressed a desire for the agency to be flexible in responding to changing deer herd conditions. As we have made changes suggested by meeting attendees, agency credibility in northern New York has improved dramatically. Also, open discussion with State legislators has begun regarding additional deer management authority.

The public meeting process we used for deer management in northern New York has proven to be an effective technique for improving agency credibility and providing socially acceptable wildlife management programs. Other wildlife management decisions can be improved through application of these techniques.

**REFERENCES:**

Nelson, D.H. 1992. Citizen task forces on deer management: A Case Study. N.E. Wildl. Vol. 49:92-96.

Smolka, R.A., D.J. Decker, N. Sanyal and T.L. Brown. 1983. Northern New York deer management: hunters opinions and preferences.

## **A Comparison of Structural Heterogeneity in Old-growth; Managed, Uneven-aged; and Maturing Adirondack Northern Hardwood Stands.**

GREGORY G. McGEE - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

DONALD J. LEOPOLD - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

RALPH D. NYLAND - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

Current forest ecosystem management practices in the western US are grounded in the understanding that coarse woody debris (CWD) and large/old trees enrich biodiversity. While applying western ecosystem management techniques to eastern US forests has theoretical merit, the necessity and expected benefits of such measures have not been demonstrated. To assess the need for applying ecosystem management techniques in northern hardwoods, our objectives are to (1) determine how typical, uneven-aged management affects the structural characteristics of northern hardwood stands; and (2) determine the extent to which structural features develop over an even-aged rotation of 100 years. We compared the canopy structure and CWD abundance in Adirondack northern hardwood stands of three disturbance/management histories, i.e., old growth; managed, uneven-aged; and 90- to 100-year old, unmanaged, even-aged (maturing). Old-growth stands had more trees of larger size classes, up to 100 cm (39 in.) dbh. No stems >55 cm (22 in.) dbh were sampled in the managed, uneven-aged stands. Maturing stands had scattered large trees. Volumes of downed CWD (stumps  $\leq$  1 m [3.2 ft] tall and logs) were  $116\text{m}^3\text{ha}^{-1}$  ( $1656\text{ft}^3\text{ac}^{-1}$ ),  $52\text{m}^3\text{ha}^{-1}$  ( $743\text{ft}^3\text{ac}^{-1}$ ) and  $39\text{m}^3\text{ha}^{-1}$  ( $557\text{ft}^3\text{ac}^{-1}$ ) for the old-growth, managed, and maturing stands, respectively. Basal areas of standing CWD (standing dead and stumps > 1m tall) were  $9.9\text{m}^2\text{ha}^{-1}$  ( $43\text{ft}^2\text{ac}^{-1}$ ),  $2.3\text{m}^2\text{ha}^{-1}$  ( $10\text{ft}^2\text{ac}^{-1}$ ) and  $4.4\text{m}^2\text{ha}^{-1}$  ( $19\text{ft}^2\text{ac}^{-1}$ ) in the old-growth, managed, and maturing stands, respectively. The old-growth had greater proportions (70% of total log volume) of large logs ( $\geq 25\text{cm}$  [10 in.] diameter) than the managed (49%) or maturing (29%) stands. Stumps accounted for a substantial portion (26%) of CWD volume in the managed stands. The ecological significance of large/old trees, and differences in CWD volume, surface area, size class and decay class will be discussed.

### REFERENCES:

- Gore, J.A. and W.A. Patterson, III. 1986. Mass of downed wood in northern hardwood forests in New Hampshire: potential effects of forest management. *Can. J. For. Res.* 16:35-339.
- McCarthy, B.C. and R.R. Bailey. 1994. Distribution and abundance of coarse woody debris in a managed forest landscape of the Central Appalachians. *Can. J. For. Res.* 24:1317-1329.

## **Integration of Socioeconomic and Environmental Factors in Landscape Change Modeling Using a GIS**

BRYAN C. PIJANOWSKI - Spatial Analysis Laboratory, Department of Entomology,  
Michigan State University, East Lansing, Michigan 48824

Michigan State University, through a Cooperative Agreement with the United States Environmental Protection Agency and the Consortium for International Earth Science Information Network, has begun the development of a dynamic, ecosystem model for Michigan's Saginaw Bay Watershed which we call the Land Transformation Model. The objective of the model is to forecast land use patterns in the watershed over the next fifty years and to predict the potential effects of these changes on the environment and on quality of life for the residents of the watershed. We use a geographic information system as a tool to model the driving forces of land use change.

In this paper, we present the conceptual and analytical framework of the Land Transformation Model. Issues important to land use change in the Saginaw Bay will be highlighted. We discuss how we model driving forces of land use change using political-institutional, socioeconomic and environmental driving forces which operate at different spatial and temporal scales. Examples of how the model makes calculations will be presented. Results of the model execution will be also be presented.

### REFERENCES:

- Pijanowski, B., T. Machemer, S. Gage, D. T. Long, W. Cooper and T. Edens. 1996. The conceptual and analytical framework of a Land Transformation Model: Use of a geographic information system to model land use change in the Saginaw Bay Watershed. In Proceedings of the 3rd International Conference on GIS and Modeling, Sante Fe, New Mexoci, Jan 21-25, 1996.
- Michigan Deperatment of Natural Resources and the Michigan United Conservation Clubs. 1993. Saginaw Bay Watershed Land Use: Trends and Patterns. 326 pp.



## **Ecosystem Approaches to Management: Implications for Professional Education**

AARON N. MOEN - Department of Natural Resources, Cornell University, Fernow Hall,  
Ithaca, NY 14853

The information age is here, a technological revolution has occurred, and ecosystem approaches to management are possible. Prior to the dawn of the information age and the technological revolution in the last 15 years, ecosystem management was only an idea. It still is, but the idea may become reality if:

professional managers recognize the need for authentic integrated resource management, educators begin preparing students for careers in integrated resource management, and students are interested in complex problem-solving and integrated thinking.

Professionals need to recognize the value of authentic ecosystem management in order to identify goals that will require changes in professional education. Educators need to prepare students for careers in ecosystem management now because it will take years to make the transition. Students need to be interested in complex problem-solving and integrated thinking in order to prepare for the challenges in ecosystem management.

What are the basic education components of an ecosystem approach to resource management? Computer modeling is essential; ecosystem approaches require models. Mental models are not enough; working models that stimulate thinking and evaluate complex relationships are needed. Computer programming is essential; resource professionals need to know basic programming concepts in order to communicate with professional programmers who will create the models necessary for ecosystem approaches to management. Team development is essential; complex problems cannot be solved without the contributions of many professionals from many disciplines. Both students and faculty in higher education need to practice working together in order for students to prepare for careers that will depend on it. This suggests that cooperative learning, creative problem-solving, experiential learning, seamless courses, team projects . . . are just a few of the new components of professional education that are needed if ecosystem approaches to management are to become reality in the next century.

How can professional educators meet these challenges? First, we must evaluate information needs in relation to the problem-solving that is essential in ecosystem management. Second, we must maximize active participation in learning environments that promote meaningful problem-solving opportunities. Third, we must promote and be participants ourselves in life-long learning as a professional expectation.

## **Environmental Ethics in Practice: Developing a Personal Ethic**

JAMES E. COUFAL - SUNY College of Environmental Science and Forestry, 1 Forestry Drive, 320 Bray Hall, Syracuse, NY 13210

When a person joins a group, that person must go through the process of "learning the ropes," often called "socialization." This includes being indoctrinated, trained and taught what is important and what is taboo, what is expected and what is unacceptable behavior for the group. Traditionally, environmental and natural resource management curricula have focused on science, technology, and economics. Yet, issues and problems in environmental and resources management often arise from ethics and values rather than from science or technology. In professional life, acceptable behavior is formalized in professional codes of ethics, which generally focus on human ethics. Thus, in both education and professional life, natural resource professionals often are shortchanged in any formal consideration of environmental or land ethics. Land ethics, learned in the socialization process, enter the decision processes of our daily personal, professional, and organizational lives, with or without our awareness. Gaining skill in ethical reflection and decision making is no different from learning skills required by our professions or by a favorite hobby, and all require effort. Resource managers will be better able to meet the public's needs and demands if decision-making processes extend beyond the scientific technological, and socio-political factors that traditionally dominate our decision models. Understanding one's own land ethic is fundamental to land ethics being practical wisdom.

# POSTERS

## Forest Farming: High Value Understory and Edible Tree Crops for Integrated Production and Conservation Systems

LOUISE E. BUCK - Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

ROERT R. BEYFUSS - Cornell Cooperative Extension of Greene County, Mountain Ave., HCR #3, Box 906, Cairo, NY 12413

ELIZABETH J. FICHTNER - Department of Floriculture and Ornamental Horticulture, Plant Science, Cornell University, Ithaca, NY 14853

JAMES P. LASSOIE - 200 Rice Hall, Cornell University, Ithaca, NY 14853

Forest farming is an agroforestry approach to land management that optimizes the collective value of forest and crop resources for natural resources conservation and sustainable economic development. Forest farming practices involve the management of tree crops and high value understory crops in woodland shade or clearings (Douglas and Hart 1984). While numerous crops and animals are potentially suited to forest farming in the northeast, with the exception of maple syrup these have not been commercially developed on a major scale. Needs and opportunities in the agricultural and forestry sectors are now converging to make forest farming an increasingly attractive resource management option. A forest crop with perhaps the highest potential for generating significant long term economic returns to forest owners is our native American ginseng, *Panax quinquefolium*.

In October, 1995 Cornell University's Agroforestry Working Group joined with Catskill Mt. forest owners and maple syrup producers, Tony and Mary Van Glad, Greene County Cooperative Extension, the New York State Ginseng Association, and Ginseng America, Inc. to establish the Wood Homestead Ginseng Garden Trials. The group's research and demonstration activities aim to investigate the relationship between sugar maple (*acer saccharum*) and American ginseng as complementary forest crops. Specifically, we are exploring for evidence of beneficial ecological associations through *hydraulic lift*, or the nocturnal uptake of water and nutrients by deep roots and release from shallow roots into upper soil layers (Dawson 1993). We are examining the effects of specified soil amendment regimes on seed, rootlet and root output to fine-tune current cultural recommendations (Beyfuss 1994). We are also monitoring financial costs and returns to assess how the part-time, seasonality, and niche marketing dimensions of maple and ginseng enterprises affect their integration at the household level.

### REFERENCES:

Beyfuss, R.L. 1994. American Ginseng Production in New York State (revised)., Cornell Cooperative Extension of Green County, N.Y.

Dawson, T.E. Hydraulic lift and water use by plants: implications for water balance, performance, and plant-plant interactions. *Oecologia* 95:565-574.

Douglas, J.S. and Hart, R.A.J. 1984. Forest Farming. Westview Press. Boulder.

## Environmental Ethics in Practice: Developing a Personal Ethic

JAMES E. COUFAL, SUNY-CESF, 320 Bray Hall, 1 Forestry Drive, Syracuse, NY 13210  
CHARLES M. SPUCHES, SUNY-CESF, 13 Moon Library, 1 Forestry Drive, Syracuse, NY  
13210

*Environmental Ethics in Practice* is a set of integrated instructional units providing materials to help instructors introduce students to concepts and skills needed to effectively apply environmental ethics in decision making. The three units cover: the roots, nature, and development of environmental ethics; models for identifying and including ethical dimensions of environmental problems in decision making; and case studies to apply ethical concepts and principles to examples of resource issues and problems. The "Integrative Environmental Ethics Model" is introduced as a diagnostic tool. It is based upon the premise that how one thinks upon environmental and resource management issues depends on the interaction of the role one is playing, the worldview brought to the role, and the ethical principles one values and chooses to use. While focusing on development of a personal ethic, the units discuss the idea that personal, professional, and organizational ethics are difficult to separate in practice.

### REFERENCES:

Code of Ethics of 13 Professional Societies.

Leopold, A. 1949. *A Sand County Almanac with essays on conservation from Round River*.  
Reprinted 1966 by Sierra Club/Ballantine, NY 295 pp.

## **Local Regulation of Forest Practices in New York State**

DONALD W. FLOYD - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

CRAIG J. DAVIS - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

JANYL E. KAESER - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

VALERIE A. LUZADIS - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

LIAJUN ZHANG - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

Many local governments restrict timber harvesting and tree cutting in New York State through timber ordinances. Although the forest industry is an important contributor to the state's economy, the scope and impact of local ordinances remains poorly understood. Harvesters have difficulty learning which towns have ordinances and the specific requirements vary by town. The content of an ordinance can also impact the way that landowners manage their forests. A comprehensive survey of 907 town clerks in New York State was undertaken to identify which towns have ordinances. Results, based on 834 responses, reveal that 100 towns have ordinances which restrict timber harvesting or tree cutting in some way.

In addition to analyzing the geographic distribution of these ordinances, a survey of the attitudes of elected town officials toward regulation of timber harvesting and tree cutting was conducted. Attitudes toward the environment were measured using an adaptation of the new environmental paradigm. Comparisons are made between the attitudes of officials from towns with and without ordinances, based on a set of factors suspected to be related to the enactment of an ordinance. Additionally, census data was used to study the effect of population on the enactment of ordinances. Preliminary results indicate that towns with higher population densities and towns with higher growth rates are more likely to adopt timber harvesting ordinances. Implications for future regulation and impact on non-industrial private forests are discussed.

## **Wetland Research and Education Projects**

GARY R. GOFF - Dept. of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

LARRY GEOHRING - Dept. of Agricultural & Biological Engineering, Riley-Robb Hall, Cornell University, Ithaca, NY 14853

PATRICIA RIEXINGER - NYSDEC, Bur. of Wildlife, 50 Wolf Rd., Albany, NY 12233

CARL SCHWARTZ - US Fish & Wildlife Service, 3817 Luker Rd., Cortland, NY 13045

MICHAEL TOWNSEND - USDA Natural Resources Conservation Service, 5th Fl. Suite 354, 441 So. Salina St., Syracuse, NY 13202-2540

The management, protection, restoration, and creation of wetlands in NY State continues to be a primary focus of many private and public environmental organizations. Recognizing this high interest, Cornell Cooperative Extension has established the Wetland Working Group (WWG) as part of Extension's Environmental Stewardship and Land Use Committee at Cornell University. The WWG's mission is to:

- identify and address issues in wetlands research and education
- provide a locus for contact to agencies and organizations capable of meeting research and educational needs

Current members of the wwg represent Cornell University, Cornell Cooperative Extension County Associations, NYSDEC Bur. of Wildlife, NY Sea Grant, Natural Resources Conservation Service, and US Fish & Wildlife Service. Any individuals interested in participation are welcomed to learn more of the group. Current projects under development include:

- informational display poster
- feasibility of "wetland mitigation banking" in NY State
- inservice training for Cornell Cooperative Extension Agents and other natural resource management professionals
- evaluation of "Wetlands Reserve Program"
- incorporating wildlife habitat enhancement into the "Willow Biomass Project"

The above projects are ongoing and results are not ready for display. However this poster is a prototype of the display project listed above and consequently we will use this opportunity to highlight the following projects and programs undertaken by some of the member organizations:

- \* Use of constructed wetlands to treat stormwater runoff
- \* The Wetlands Reserve Program
- \* Partners for Wildlife Program
- \* Evaluation of Wetlands Created Under the W-48-D Program
- \* Use of constructed wetlands for Phosphorous removal

## **Lake Sturgeon Restoration Through Spawning Habitat Enhancement in the St. Lawrence River**

STEVEN R. LaPAN - Bureau of Fisheries, Region 6 NYS DEC, 317 Washington Street,  
Watertown, NY 13601

JAMES H. JOHNSON - U.S. Department of the Interior, Tunison Laboratory of Aquatic  
Science, 3037 Gracie Road, Cortland, NY 13045

RODGER M. KLINDT - Bureau of Fisheries, Region 6, NYS DEC, 317 Washington Street,  
Watertown, NY 13601

Historically, lake sturgeon (*Acipenser fulvescens*) were common in the St. Lawrence River and supported a commercial fishery. Although commercial harvest of lake sturgeon was banned in New York in 1976, populations have failed to recover. Lake sturgeon were listed as a threatened species in New York in 1983, and are currently a category 2 candidate species for Federal listing under the Endangered Species Act. Causes for the decline of lake sturgeon include over-exploitation, dam construction/habitat degradation, and water pollution. Attainment of sexual maturity at 10 to 25 years of age in concert with spawning periodicity further exacerbated the decline of sturgeon populations. An artificial lake sturgeon spawning site was created in the St. Lawrence River near Ogdensburg, New York in 1993, and lake sturgeon spawning at this site was documented in 1994 and 1995. The spawning site was created through placement of washed, 50 mm diameter limestone in water 4.25 m deep. Water current velocity at the site is approximately 0.5 m/sec.

Video footage of the site documents successful lake sturgeon spawning and describes the site's physical and biological attributes. We also discuss the philosophy and utility of spawning habitat enhancement as a means of restoring remnant lake sturgeon populations.

### REFERENCES:

Carlson, D.M. 1995. Lake sturgeon waters and fisheries in New York State. *J. Great Lakes Res.* 21(1):35-41.

Scott, W.B. and E.J. Crossman. 1973. Lake sturgeon, p. 82-89 *IN* Freshwater Fishes of Canada. *Bull. Fish. Res. Board Can.* 184:966 p.



## Using a GIS Model to Predict Timber Rattlesnake Habitat

CANDIE L. LEUNIG - NYS DEC, Wildlife Resources Center, Latham, NY 12054  
ALVIN BREISCH - NYSDEC, Wildlife Resources Center, Delmar, NY 12210

A habitat model was created, using ARC/INFO software, for the timber rattlesnake (*Crotalus horridus*) in the Hudson Highlands ecological zone in southeastern New York. The locations of all known timber rattlesnake dens in New York, as mapped by Randy Stechert on 1:24,000 scale USGS topographic quadrangles, were digitized into a computer database using a Calcomp 9100 and Arcedit. Den sites, the theoretical summer range of the timber rattlesnakes, and the study area were analyzed using computer coverages of available thematic data layers. Layers, all at a scale of 1:250,000, included bedrock and surficial geology, land use/land cover, and digital elevation models (DEM's). Arcedit was used to analyze and Arcplot was used to create maps of the polygon coverages, which included bedrock geology, surficial geology and land use/land cover. DEM's, prepared by the U.S. Geologic Survey, were analyzed using GRID to determine slope, aspect and elevation. GRID was also used for the final analysis, where all layers were combined to determine suitable habitat. Analyzed individually, these layers predict that from 44% to 93% of the study area has the characteristics of a den area, with aspect being the best predictor and elevation being the poorest. When all 6 layers were overlaid, the resulting map identified 22% of the study area as having the characteristics of a den. Significant positive correlations were found for elevations between 91 and 410 m, southern aspects, slopes greater than 9°, deciduous forests and exposed bedrock of slate, sandstone, conglomerate, feldspar or marble. Characteristics of summer range are less predictable using these layers, but appear to be dependent upon the availability of suitable den sites surrounded by relatively undisturbed habitat.

### REFERENCES:

- Brown, W.S. 1993. Biology, status, and management of the timber rattlesnake (*Crotalus horridus*): A guide for conservation. Society for the Study of Amphibians and Reptiles. Herpetological Circular No. 22. 78 pp.
- Department of the Interior, U.S. Geological Survey. 1990. U.S. GeoData Digital Elevation Models data users guide. National Mapping Program Technical Instructions Data Users Guide 5.
- Department of the Interior, U.S. Geological Survey. 1990. U.S. GeoData Land Use and Land Cover digital data from 1:250,000- and 1:100,000-scale maps data users guide. National Mapping Program Technical Instructions Data Users Guide 4. 287 pp.
- Environmental Systems Research Institute, Inc. 1991. Cell-based modeling with GRID Analysis, display and management. ARC/INFO Users Guide.
- Sperduto, M. 1994. Habitat model identifies potential orchid sites. Endangered Species Technical Bulletin Vol. XIX No.5:11.
- Tynning, T.F., ed. 1992. Conservation of the timber rattlesnake in the northeast. Massachusetts Audubon Society, Lincoln, Mass. 78 pp.

## **Conservation of Aquatic Biodiversity in Agriculturally Dominated Watersheds**

MARCIA S. MEIXLER - New York Cooperative Fish and Wildlife Research Unit, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

MARK B. BAIN - New York Cooperative Fish and Wildlife Research Unit, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

REUBEN R. GOFORTH - New York Cooperative Fish and Wildlife Research Unit, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

SUSAN McALPINE - The Nature Conservancy, 413 N. Main St., Jamestown, NY 14701

STEPHEN D. DeGLORIA - Department of Soil, Crop, and Atmospheric Sciences, Cornell University, Ithaca, NY 14853

ANDREW N. DUFRESNE - Cornell Cooperative Extension Chautauqua County, Jamestown, NY 14701

JOSH WINCHELL - Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

Non-point source pollution associated with agricultural land use is the leading (72%) cause of impaired U.S. streams. More specifically, elevated sediment runoff from crop and grazing lands is the leading (45% of impaired stream miles) agent of stream degradation. Therefore, streams in agricultural regions are sensitive to non-point source pollution effects, and they probably represent the majority of US stream miles under stress. Consequently, there has been an increasing need to promote conservation of stream habitat and aquatic biodiversity in agricultural landscapes.

Some private and Cornell organizations have developed a research and extension effort in the French Creek watershed of Chautauqua County (NY) to resolve scientific and practical issues about conserving biodiversity at the watershed scale. This watershed is a major agriculture area in New York and farming has been well developed in the watershed for over one century. French Creek is considered an outstanding aquatic resource because it harbors the greatest diversity of aquatic species in New York and Pennsylvania. The Nature Conservancy and Cornell Cooperative Extension are promoting watershed conservation practices by working with communities, farmers, and landowners. Research goals are to understand how land use influences the distribution of aquatic biodiversity, and to use this knowledge to design conservation programs. The major Extension need under investigation is the identification of conservation practices that are practical, effective, and acceptable to farmers.

### REFERENCES:

Allan, J. D., and A. S. Flecker. 1993. Biodiversity conservation in running waters. *BioScience* 43:32-43.

Hughes, R. M., and R. F. Noss. 1992. Biological diversity and biological integrity: current concerns for lakes and streams. *Fisheries* 17:11-19.

Swift, B. L. 1984. Status of riparian ecosystems in the United States. *Water Resour. Bull.* 20:223-228.

Further details can be found at: <http://www.dnr.cornell.edu/hydro2/watintro.htm>

## **Ecosystem Management Implications of the Northern Montezuma Wetlands Project**

DAVID E. ODELL - Regional Wildlife Manager, New York State Department of Environmental Conservation, 6274 East Avon-Lima Road, Avon, New York 14414

SHEILA E. SLEGGGS - Faculty of the State University of New York College of Environmental Science and Forestry, 6274 East Avon-Lima Road, Avon, New York, 14414

The Northern Montezuma Wetlands Project (NMP) is a conservation and land management project jointly sponsored by the United State Fish and Wildlife Service (USFWS) and the New York State Department of Environmental Conservation (NYSDEC) in conjunction with the North American Waterfowl Management Plan (NAWMP). The project goal is to acquire real property and property interests in the Montezuma marsh complex of central New York to prevent further losses of wetlands and wildlife habitat, and to manage these lands for waterfowl and wetland wildlife. To attain this goal, cooperative partnerships between federal, state, and local agencies, industry, private landowners, and conservation organizations are necessary. Partnerships such as these are of key importance to successful conservation of habitat and wildlife in the US. Further, such multi-organizational cooperation could serve as a template for ecosystem management on a national scale. The juxtaposition of wetland restoration sites, emergent and forested wetlands, managed grassland areas, agricultural and residential areas, and upland habitat within the NMP area creates an ideal situation for studies focusing on the scientific as well as political implications of ecosystem management. The response of vegetation and wildlife communities, particularly waterfowl populations and grassland bird species, will be of interest as will the success of the cooperative partnerships involved. Current research involving the NMP focuses on vegetation and wildlife communities on natural wetlands within the Montezuma Marsh complex and on selected wetland restoration areas. Data on vegetation and wildlife will be compared between the natural and restored sites in order to develop localized success criteria by which to evaluate wetland restoration in the Montezuma Marsh complex. In addition, a long-term monitoring program is being developed specifically for evaluating muckland agriculture restored to wetlands for providing suitable conditions for wetland vegetation and wildlife species. This study will provide baseline data and results for continued monitoring and future studies on wetland restoration. The NMP offers a multitude of opportunities for examining not only issues relating to restoration, but also political and scientific aspects of ecosystem management.

### REFERENCES:

- Harris, W.F. 1995. Policy and partnership. *BioScience Supp.* 45:S-64-S-65.
- Mitchell, R.S., C.J. Scheviak, and D.J. Leopold. 1990. Ecosystem management: rare species and significant habitats. *Proc. of the 15th annual natural areas conference.* New York State Museum Bull. No. 471. 314pp.
- Solcombe, D.S. 1993. Implementing ecosystem-based management. *BioScience* 43(9):612-622.

## **The SEDIMAT™ Sediment Mat: A New Tool for Stream Protection**

ALLEN PETERSON - NYS Electrical and Gas Corporation, 4500 Vestal Parkway East,  
Binghamton, NY 13902

The SEDIMAT™ sediment mat (patented) is a simple, yet effective new tool for the protection of streams from sedimentation damage during instream construction activities such as right-of-way (ROW) access road installation and pipeline burial. It is a flat, 4' by 10' pad which is laid singly or in a group on the streambed immediately downstream of a site about to be disturbed. Sediment then disturbed by construction is carried along the streambed by the current until it encounters the mat. The sediment then passes through an upper layer of jute mesh and into a layer of excelsior. The lower layer of burlap prevents the sediment from escaping. After construction activities are completed, the mats are removed and staked to the streambank. They are then seeded and mulched and thus provide immediate streambank stabilization. Because the mats are entirely biodegradable there is no need for disposal. The sediment mixed with rotting excelsior provides a seedbed for germination and growth of the seed mix.

The sediment mats are packaged individually in a roll (about 25 lbs. each) and are easy to store, handle, and transport. They can be installed on a streambed using either stones or stakes. The mats can be installed in any configuration or number to provide the desired coverage. They may be used alone or in conjunction with other methods of stream protection such as coffer dams, culverts, haybales, or siltscreen.

Sediment mats were developed and tested under field conditions at 8 different streams in Central and Western New York State during 1992. The amount of fine sediment (sand, silt, and clay) in the streambed immediately downstream of the work sites was measured before and after the disturbance. At 7 of the sites, the disturbance was the excavation of a 4 foot deep trench for the installation of a natural gas pipeline, followed immediately by backfilling. At the eighth site the disturbance was extensive hand digging by shovel. These streams varied in width from 10 to 75 feet and in depth from 6 to 24 inches. Velocities ranged from 0.8 to 3.3 feet per second. Trout were present in most of the watershed, if not at the test sites specifically.

Before construction, the average percent of sediment fines in the streambed just downstream of the work site was 12.2%. After construction, it rose slightly to 14.7%. Both concentrations of sediment represent levels conducive to trout reproduction (egg survival). In contrast, there were locations at 6 of the test streams that were subject to the disturbance but which were not protected by the mats. These were primarily areas between the edge of the mats, or off to a side where mats were purposely not laid. After construction, the average percent of sediment fines at these unprotected sites rose from 11.5% to 24%. This post-construction level of sedimentation is an amount which has been repeatedly documented to cause major declines in trout reproductive success. A comparison of the two before and after sediment concentrations indicates the mats trapped about 80% of the disturbed sediment and prevented or minimized adverse impact to trout reproduction.

Individual mats were able to trap and remove between 500 and 1,000 lbs. of sediment each and did not interfere with construction operations. Because they were laid flat on the streambed, they were not affected by water velocity, nor did they raise water levels and thus flood the work area. The sediment mat is a valuable new tool for stream protection due to its low cost, simplicity, versatility, and effectiveness.

## Distribution and Status of the Timber Rattlesnake in New York and Northern New Jersey.

RANDY STECHERT - 42 School Street, Narrowsburg, N.Y. 12764

ALVIN BREISCH - NYS DEC, Wildlife Resources Center, Delmar, NY. 12054

Historically, the timber rattlesnake (*Crotalus horridus*) occupied habitats throughout much of New York and northern New Jersey except for the higher portions of the Catskills and Adirondacks, the Tug Hill Plateau, and the St. Lawrence River Valley. Deliberate killing, clearing of habitat for logging, agriculture and housing, and a bounty system caused the loss of the species from Long Island and the Great Lakes Plains by the early 1900's. Unregulated and indiscriminate killing continued for over a decade after the bounty system was outlawed in 1971. The timber rattlesnake was listed as threatened in New York in 1983 and as endangered in New Jersey in 1979. Today the greatest threats to the timber rattlesnake are developments, illegal collecting, and the killing by individuals who are unconcerned about the protected status of the species. Intensive field efforts, primarily by R. Stechert, resulted in the documentation of 182 den areas in New York and 26 den areas in northern New Jersey. Approximately 16% of these dens are considered healthy, 74% are moderately to critically depleted, and 9% have been extirpated. Fragmentation of habitat by transportation corridors and residential/commercial developments will continue to threaten long term survival of this species even if it is possible to eliminate illegal collecting and indiscriminate killing.

### REFERENCES:

- Brown, W.S. 1993. Biology, status, and management of the timber rattlesnake (*Crotalus horridus*): a guide for conservation. Herpetological Circular No. 22. Society for the Study of Amphibians and Reptiles. 78 pp.
- Ernst, C.H. 1992. *Crotalus horridus* Linnaeus, 1758, timber rattlesnake. Pp. 108-117. In C.H. Ernst. Venomous reptiles of North America. Smithsonian Inst. Press, Washington, D.C.
- Ernst, C.H. and Barbour, R.W. 1989. *Crotalus horridus*, timber rattlesnake. Pp. 211-214. In C.H. Ernst and R.W. Barbour. Snakes of eastern North America. George Mason University Press, Fairfax, Va.
- Stechert, R. 1982. Historical depletion of timber rattlesnake colonies in New York State. Bull. New York Herpetol. Soc. 17:23-24.
- Tyning, T.F., Ed. 1992. Conservation of the timber rattlesnake in the northeast. Mass. Audubon Society, Lincoln, MA.



A RESOURCE CONFLICT MODEL FOR  
ASSESSING THE SUCCESS OF NEGOTIATION  
AND MEDIATION IN NATURAL RESOURCE DISPUTES

Donald W. Floyd, Rene H. Germain and Kate ter Horst<sup>1</sup>

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<sup>1</sup>The authors are respectively, Associate Professor and Graduate Research Associate, Faculty of Forestry, SUNY, College of Environmental Science and Forestry, Syracuse, New York and Graduate Research Associate, School of Natural Resources, The Ohio State University, Columbus, OH.

Social conflict over forest resources is inevitable given a rapidly expanding population (Marcin, 1993), a relatively fixed resource base (Powell, et al; 1993) and the lack of broadly agreed upon social consensus about the roles our forests will play in the coming century (Romm, 1993). To manage these inevitable conflicts, many have argued for a more accessible, participatory decision making and planning system in forest resource management (Cortner and Shannon, 1993; Sirmon et al, 1993; Wellman and Tipple, 1990). The need for such a process becomes more pronounced as agencies and private organizations embrace ecosystem management (Moote et al, 1994; Wallace et al, 1994 Grumbine, 1994 ; Kemmis, 1990).

Experiments with voluntary, consensus-based negotiation or mediation in resource planning and administrative decision making are one aspect of the movement towards participatory planning and management. Often referred to as alternative dispute resolution (ADR) or environmental dispute resolution (EDR), these techniques have resulted in a variety of outcomes. Research which seeks to identify the conditions under which ADR works or fails to work seems particularly timely as we contemplate the increased participation and shared decision making requirements of managing ecosystems across mixed property ownerships.

A useful case study literature documents efforts to resolve environmental disputes (Crowfoot and Wondolleck 1990; Wondolleck 1988; Bingham 1986; Buckle and Thomas-Buckle 1986; Susskind et al. 1983; Talbot 1983). These studies provide forest resource managers with summaries of others' knowledge, experience and advice.



However, because these studies are largely anecdotal, and little in the way of cross-sectional empirical analysis has been done (Sipe and Stiftel 1993), our understanding of when and how well ADR works and doesn't work has not advanced as quickly as it might. Walker and Daniels (1994) observe that the rich theoretical knowledge derived from strictly controlled experiments in social psychology (such as game theory) are confounded by the multiple parties common in natural resource disputes.

The existing approach to research in evaluating dispute resolution and public participation in forest resource management typifies the lack of a well developed tradition of empirical analysis and theory building in resource related social science (Cubbage, 1994). Natural resource policy in general suffers from an inability to offer explanatory rather than descriptive accounts and is often prescriptive (Francis, 1990). This appears to be particularly true of research in ADR. Rabe (1988:591) writes:

The existing literature is also suspect in that many of the leading researchers in this area are also much in the vanguard of activists promoting expanded EDR [environmental dispute resolution] use. Much of what we know empirically about EDR and its effectiveness has been dominated by individuals with a strong normative commitment to EDR, many of whom are professional mediators.

Forest resource managers need quick and effective tools based on theory and empirical analysis to help answer questions about when to invest limited organizational resources in ADR and when to use traditional conflict management mechanisms like administrative appeals, the courts and legislative remedies.

This article evaluates the use of ADR in 14 forest resource management disputes across a variety of issues, regions and agencies. It identifies variables which were associated with the successful use of ADR in forest resource management and the attitudes of the participants in the process. Finally, it suggests additional areas for fruitful research.

### Models of Forest Conflict

A review of the literature reveals several variables which may influence ADR including the presence of absence of a mediator and time to settlement. Our research was principally focused on whether or not the kinds of resources involved in the dispute make a difference in the likelihood of settlement. The literature is divided on this point. In an overview of 160 mediated environmental disputes, Bingham (1983:xxiii) found that “the likelihood of success is not clearly affected by the number of parties involved in the dispute [or] the issues themselves.” In an extensive review, Jacobs and RuBino (1988) found little in the literature to indicate which kinds of environmental disputes were appropriate candidates for negotiation and mediation. They recommended further study of several typologies based on the nature of the natural resources involved in the dispute.

Floyd (1993 ) developed a model for classifying and predicting the level of conflict based on resource renewability and whether the proposed use is as a commodity or an amenity. This “Resource Conflict Model” (Fig. 1) is arranged along a continuum ranging from geocommodity (Class A-- for example production of a nonrenewable mineral resource ) to biocommodity (Class B-- a renewable resource used for commodity production such as timber or livestock forage), to use amenities (Class C-- for example

outdoor recreation), to preservation amenity (Class D-- for example maintenance of biodiversity).

The resource conflict model suggests the intensity of a given conflict should decrease as resources and uses are in closer proximity along the continuum. More contentious conflicts will likely be value-laden disputes involving resources the greatest distance apart on the spectrum. For instance, a dispute concerning whether to allocate land for livestock grazing versus some form of outdoor recreation (a BC conflict), may be less contentious than a proposal to drill for oil in a wilderness area (an AD conflict). Intra-class conflicts such as a dispute between mountain bikers and traditional backpackers over the use of a hiking trail (a CC conflict) should be most susceptible to resolution.

### Methods

We selected 14 forest resource management cases that used negotiation or mediation to attempt a settlement. We purposefully chose cases that represented the possible combinations of disputes described in the resource conflict model and developed a data analysis plan based on the non-random design. Eleven of the conflicts were forest management planning conflicts from the USDA-FS Region 9 (the Northeast, Midwest and Lake States) one case was a planning dispute from USDA-FS Region 1 appeal, and two cases were conflicts associated with state natural resource agencies in Vermont and Pennsylvania. (Table 1.)

Background information collected for each conflict included the issues involved, the number of participants, participant information and associated documents such as the written agreements. The final population consisted of 76 individuals who had

participated in the disputes.

The disputes were classified based on the respondents' perceptions of the issues. Several of the cases involved multiple disputes. In these cases, the dispute was classified on the resource conflict continuum according to the stated primary interest of each respondent. The distance between the dispute types was then calculated and ranked according to the diagram in Fig. 2. The intra-resource conflicts, such as AA, BB, CC, and DD received a ranking of one. Inter-resource conflicts between geocommodity interests and preservation amenity advocates (an AD conflict) were assigned a rank of four. Other disputes were ranked accordingly.

In addition to a preliminary evaluation of the resource conflict model, we sought to understand the attitudes of the participants toward their experience with ADR. Based on work by Floyd and Sibrel (1992) six attributes of the concept of "quality of resolution" were determined: outcome equity, outcome efficiency, outcome effectiveness and process equity, process efficiency and process effectiveness. Equity involves dealing fairly and equally with all concerned; efficiency is the production of a desired effect while avoiding loss or waste of energy compared with similar outcomes or processes and effectiveness is the degree to which a decided, decisive, or desired effect is produced.

Using a mailed questionnaire following the procedures established by Dillman (1978), attitudes were assessed based on responses to a 50 item Likert-type scale. To minimize instrument error, the questionnaire was assessed for face, content, and construct validity, as well as reliability. Cronbach's alpha was used to assess the internal consistency of each of the six dependent variable scales. Consistency coefficients ranged

from .75 to .86.

We also examined eight other independent variables: 1) the presence or absence of a mediator; 2) the number of parties in the dispute; 3) the time in months to agreement or dissolution; 4) implementation of the agreement; 5) gender; 6) interest group represented; 7) whether the participants were paid or volunteers and 8) the participants perception of whether or not the agreement was “environmentally sound.”

Nonparametric analysis included: The Mann-Whitney U -Wilcoxon Rank Sum Test when matched pairs of categorical variables were examined (gender, mediator present or absent, paid or volunteer). The Kruskal-Wallis One-Way Analysis of Variance by Ranks Test when more than two categorical variables were present (interest groups) and the Spearman Rank Correlation for continuous variables, such as the distance between dispute types and the number of parties and time to resolution. We chose an alpha level of .10 because of the exploratory nature of the research.

## Results

Of the 76 participants surveyed, 43 respondents returned usable surveys (57 percent). Checks for non-response bias showed no significant differences between early and late respondents. Table 2 presents a descriptive summary of the independent variables.

Seventy-four percent of the respondents reported that agreements were reached and implemented in 7 the cases. About one half (49 percent) of the cases dealt with timber management and associated road building. A broad variety of other kinds of resource conflicts involving all four classes of disputes (geocommodity, biocommodity,

use amenity and preservation amenity) were represented.

The reporting participants were almost equally divided among government employees (34 percent) environmental interest groups (34 percent) and commodity interest groups (32 percent). The participants were overwhelmingly male (88 percent) and college educated (86 percent). The median age of the participants was 45. About one-third (37 percent) of the participants were paid representatives in the process; the remainder participated as volunteers.

A mediator was present in 74 percent of the cases. The median number of parties in the disputes was seven. The median time to resolution or dissolution was eight months. Respondents generally reported positive experiences. Seventy-eight percent were satisfied with process equity, 71 percent were satisfied with process effectiveness, and 64 percent were satisfied with process efficiency. Sixty-five percent reported satisfaction with outcome equity, 73 percent were satisfied with outcome effectiveness, and 54 percent were satisfied with outcome efficiency.

Of the independent variables examined, (Table 3) distance between dispute types in the resource conflict model, the dispute type, interest group, number of parties, length to resolution or dissolution were statistically significant. Gender, presence or absence of a mediator and paid or volunteer status of the participants were not statistically significant.

In the resource conflict model, the distance between dispute types is significantly negatively correlated with the participants' perceptions of outcome effectiveness (-.281) outcome efficiency (-.240), process effectiveness (-.251) process efficiency (-.344) and

process equity (-.211). The distance between dispute types in the resource conflict model was significantly positively correlated (.301) with the length of time to resolution or dissolution. The distance between categories in the resource conflict model was significantly negatively correlated (-.214) with the participants' perceptions of whether or not the settlement reached was "environmentally sound."

Participant perceptions of process equity and outcome equity were significantly different among groups (government, environmental groups or commodity groups). The number of parties participating in the dispute was significantly negatively correlated with perceptions of outcome equity (-.36) and outcome efficiency (-.368). The length of time to resolution or dissolution was significantly negatively correlated with process effectiveness (-.237), process efficiency (-.345) and outcome efficiency (-.322).

### Discussion

The resource conflict model appears to have utility for indicating correlations between the participants' perceptions of the quality of resolution and the kinds of resources involved in the dispute and warrants testing on a larger scale. The fact that conflicts that were further apart on the resource conflict continuum took longer to reach resolution or dissolution and were less likely to be characterized as "environmentally sound" adds credence to the concept that the kinds of natural resources involved and their intended uses are promising indicators of the difficulty in reaching settlements through the ADR process. Because of the small sample size and non-random design, readers are cautioned that the results indicate interesting directions for further research but should not be extrapolated.

Differences in the perceived equity of the process and the outcome based on interest group affiliation requires further investigation. Amy (1987) and Crowfoot and Wondolleck (1990) have examined the potential power imbalances that may be part of the ADR process. If further research indicates that perceptions of equity are consistently different for one or more of the participating groups, it would raise questions about the advisability of participating in the ADR process.

Forest resource managers must often choose which kinds of public participation and conflict resolution techniques to apply to resource management disputes. These processes are often time consuming and expensive. The resource conflict model shows promise for helping managers decide which kinds of disputes to submit to ADR.

#### **Literature Cited**

Amy, D.J. 1987. *The politics of environmental mediation*. New York: Columbia University Press.

Bingham, G. 1986. Resolving environmental disputes: A decade of experience. Washington, D.C.: Conservation Foundation.

Buckle, L. G., and Suzann R. Thomas-Buckle. 1986. Placing environmental mediation in context: Lessons from "failed" mediations. *Environmental Impact Assessment Review* 6, 1: 55-70.

Cortner, H.J. and M.A. Shannon. 1993. Embedding Public Participation in Its Political Context. *J. For* 91: (7) 14-16.

Crowfoot, J. E., and Julia M. Wondolleck. 1990. *Environmental disputes: Community involvement in conflict resolution*. Washington, D.C.: Island Press.



Cubbage, F.W. 1994. Forest Resources, Ecosystem Management and Social Science Education: Promises, Problems, and Prospects. Paper presented at the 5th Intl. Symp. on Society and Resource Management. Colo. St. Univ. Ft. Collins, Co.

Dillman, D.A. 1978. Mail and Telephone Surveys: The Total Design Method. New York. John Wiley and Sons.

Floyd, D. W. 1993. Managing rangeland resource conflicts. *Rangelands* 15: (1) 27-30.

\_\_\_\_\_ and C.B. Sibrel. 1992. Evaluating Regulatory Negotiation: Process and Outcomes in Ohio's Wetland Conversion Disputes. Paper presented at 4th North American Symposium on Society and Resource Management. Univ. of Wisc., Madison, Wi.

Francis, J. G. 1990. Natural Resources, Contending Theoretical Perspectives and the Problem of Prescription: An Essay. *Natural Resources Journal* 30:263-282.

Grumbine, R.E. 1994. What is ecosystem management? *Conservation Biology* 8(1): 27- 38.

Jacobs, H. M., and R. G. RuBino. 1988. Predicting the utility of environmental mediation: Natural resource and conflict typologies as a guide to environmental conflict assessment. Disputes Processing Research Program Working Paper Series 9. Madison: University of Wisconsin-Madison Law School.

Kemmis, D. 1990. Community and the Politics of Place. Univ. of Okla. Press. Norman.

Marcin, T.C., 1993. Demographic Change: Implications for Forest Management. *J. For.* 91:(11)39-45.

Moote, M.A., S. Burke, H.J. Cortner and M.G. Wallace 1994. Principles of ecosystem management. Water Resources Research Center. College of Agriculture, The University of Arizona. Tucson, Az.

Powell, D.S., J.L. Faulkner, D.R. Darr, A. Ahu and D.W. MacCleery. 1993. Forest Resources of the United State, 1992. USDA-FS Gen Tech. Rpt. RM-234. Washington, D.C.

- Rabe, B. G. 1988. The politics of environmental dispute resolution. *Policy Studies Journal* 16, 3: 585-601.
- Romm, J. 1993. Sustainable Forestry, An Adaptive Social Process (in) Applet, G.H., N. Johnson, J.T. Olson and V.A. Sample; *Defining Sustainable Forestry*. Island Press. Covelo, Ca.
- Sirmon, J. W.E. Shands and C. Ligget. 1993. Communities of Interests and Open Decisionmaking. *J. For.* 91: (7) 17-21.
- Sipe, N.G. and B. Stiffl. 1993. An Evaluation of Florida's environmental enforcement pilot mediation program. Dept. of Urban and Regional Planning. Florida State Univ. Tallahassee.
- Susskind, L., L. Bacow, and M. Wheeler, eds. 1983. *Resolving environmental regulatory disputes*. Cambridge, Ma.: Schenkman.
- Talbot, A. R. 1983. *Settling things: Six case studies in environmental mediation*. Washington, D.C.: Conservation Foundation.
- Walker, G.B. and S.E. Daniels. 1994. *Resolving Multi-party Public Policy Disputes: What Does Integrative Negotiation Research Have to Offer?* Paper presented at the annual meeting of the Speech Communication Association. New Orleans, LA. 20 Nov.
- Wallace, M.G., H.J. Cortner, S. Burke and M.A. Moote. 1994. *Moving toward ecosystem management--examining a change in philosophy in resource management*. Paper presented at the 5th International Symposium on Society and Resource Management. Ft. Collins, CO.
- Wellman, J.D. and T.J. Tipple. 1990. *Public Forestry and Direct Democracy*. *Envtl. Prof.* 12:76-85.
- Wondolleck, Julia M. 1988. *Public lands conflict and resolution: Managing national forest disputes*. New York: Plenum.

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A	B	C	D
GEOCOMMODITY	BIOCOMMODITY	USE AMENITY	PRESERVATION AMENITY

Fig. 1

The Resource Conflict Model. The model suggests that as the distance between categories increases, settlement through negotiation of mediation becomes less likely.

1	2	3	4	1	2	3	1	2	1
AA	AB	AC	AD	BB	BC	BD	CC	CD	DD

Figure 2.

Calculation of Ranks for Dispute Types. Disputes are classified according to their distance apart on the continuum. Same letter disputes are classified as a "1". The most distant category (AD) is a "4". Intermediate disputes receive ranks of "2" or "3" depending on their distance apart.

DISPUTE TITLE	CONFLICT MODEL TYPES	LOCATION
Huron-Manistee-White River SPA	CC	Michigan
Huron-Manistee Forest Plan Appeal	BD/CD/BC	Michigan
Shawnee NF Plan Appeal	BD/CD	Illinois
Hiawatha NF Plan Appeal	BC/BC/CD	Michigan
Nicolet-Chequamegon NF Plan Appeal	BD	Wisconsin
Superior NF Plan Appeal	BD	Minnesota
Green Mtn./Finger Lakes NF Plan Appeal	BD/BB	Vermont/New York
Wayne NF Plan Appeals (3)	AC/BD/CD	Ohio
Belleville Mining-Wayne NF	AD	Ohio
Sugarbush Ski Area	CC/CD	Vermont
Penzoil Well Plugging	AB	Pennsylvania
Nickelson Mines-Deerlodge NF	AD/AC	Montana

Table 1

Selected Cases

VARIABLE	CATEGORY	PERCENT
Mediator	Present	74.4
	Absent	25.6
Education	High School	9.5
	B.A. or B.S.	42.9
	Some Grad.	4.8
	Grad./Prof. Degree	42.9
Participant Status	Paid	37
	Volunteer	63
Group Represented	Government	34
	Environmental	34
	Industry	32
Reported Agreement	Not Reached	7.1
	Not Implemented	9.5
	Part. Implemented	9.5
	Implemented	73.8
Age	Median Years	45
Number of Parties	Median	7
Time to Resolution	Median (months)	8
Gender	Male	88.4
	Female	11.6

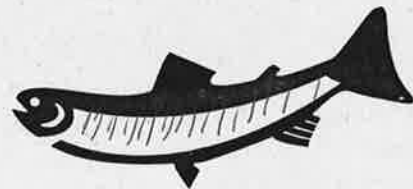
Table 2

Descriptive Statistics

VARIABLE	CATEGORY	CORRELATION	SIGNIFICANCE
Interest Group	Outcome Equity		.056
	Process Equity		.055
Distance Between RCM Categories	Outcome Effectiveness	-.281	.048
	Outcome Efficiency	-.240	.086
	Process Effectiveness	-.251	.057
	Process Efficiency	-.344	.019
	Process Equity	-.211	.099
	Time to Resolution	.301	.025
	Outcome Environment. Sound	-.214	.090
	Time to Resolution	Outcome Efficiency	-.322
Process Effectiveness		-.237	.068
Process Efficiency		-.345	.018
Number of Parties	Outcome Efficiency	-.368	.016
	Outcome Equity	-.360	.022

Table 3

# **Ecosystem Approaches to Management: Interdisciplinary Applications**



## **Abstracts**

from

*The Joint Meeting of the New York Chapters of  
The American Fisheries Society,  
The Society of American Foresters,  
and  
The Wildlife Society*

**Liverpool, New York  
February 1-3, 1996**



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## **Holistic Management of Natural Resources**

MICHAEL ZAGATA - Commissioner, NYS DEC 50 Wolf Road, Albany, NY 12233

(Abstract may be available as a handout)

## **U.S. Fish and Wildlife Service's Ecosystem Approach to Fish and Wildlife Conservation**

STEVE RIDEOUT - U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive  
(Room 560), Arlington, VA 22203

The U.S. Fish and Wildlife Service's mission to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people, has not changed only the approach to accomplish our mission. The impetus to look at a new way for federal agencies to accomplish their missions, and in some cases to revise agency missions came with the new administration and the completion of the National Performance Review and establishment of an Interagency Ecosystem Management Task Force. Many agencies, including the Fish and Wildlife Service felt that they had many ongoing projects that were largely based on an ecosystem approach. The Fish and Wildlife Service had many examples in this category. The Service's approach has been to expand the number of successful projects, establish cross-program teams, and focus regional management on geography across resource programs. A watershed based map was prepared to assist in developing a geographic focus. Using an ecosystem approach the Service plans to emphasize three major areas: 1) fulfilling fish and wildlife needs in the context of the natural and human environment in which they occur; 2) increasing cross-program collaboration within the Service; and 3) communicate, coordinate, and collaborate more frequently, more consistently, and more effectively with our partners, affected stakeholders, and the public.

## **Planning for Wildlife Habitat: Approaches on Private Forest Land in Western Washington**

KELLY AUSTIN - Weyerhaeuser Company, WTC 1A5, Environmental Forestry Research, Tacoma, WA 98477.

The purpose of the Habitat Management Planning process at Weyerhaeuser is to manage habitat for multiple species within the context of commercial forestry. This approach should reduce the need for species-by-species protection and therefore lead to a more stable regulatory environment. The Habitat Management Planning process derives desired future habitat conditions for all vertebrate species. The plan starts with a detailed watershed analysis to identify methods to project fish habitat and water quality. Habitat models for groups of species with common breeding requirements and provisional habitat objectives are established for each group. Surveys determine ecologically unique areas, current vegetation conditions, and baseline information on current wildlife presence and absence. Potential habitat, current and future, is estimated using the wildlife/habitat models with a Geographic Information System. An economic analysis leads to the development of management plans to produce the desired habitat, and determines the financial impact of achieving each habitat objective. If all objectives cannot be achieved they are ranked using biological and economic criteria with outside stakeholder participation. This process ensures that agreed-upon goals can be met within financial constraints. Results to date from two years of pilot studies indicate that significant diversity of plant and wildlife species exists in young managed forests. Many of these species were previously considered to be associated with old-growth conditions.

### REFERENCES:

- Hansen, A.J., T.A. Spies, F.J. Swanson, and J.L. Ohmann. 1991. Conserving biodiversity in managed forests. *Bioscience* 41:382-392.
- Ruggiero, L.F., K.B. Aubry, A.B. Carey, and M.H. Huff, technical coordinators. 1991. Wildlife and vegetation of unmanaged Douglas-fir forests. General Technical Report PNW-GTR-285. USDA Forest Service Pacific Northwest Research Station, Portland, Oregon.
- Swanson, F.J., J.F. Franklin, and J.R. Sedell. 1990. Landscape patterns, disturbance, and management in the Pacific Northwest, USA. Pages 191-213 In I.S. Zonneveld and R.T.T. Forman, editors. *Changing landscapes: an ecological perspective*. Springer-Verlag, New York.

## **Ecosystem Management in Wisconsin**

ROBERT DUMKE - Wisconsin Department of Natural Resources, 125 South Webster Street, P.O. Box 7921, Madison, Wisconsin 53707

Stakeholders in the future of Wisconsin's natural resources are seeking mechanisms to think and act more comprehensively regarding environmental protection and management. Ecosystem management -- as an operating premise -- has emerged to help fill that need. It considers ecological integrity (i.e., components, structure, and function of natural systems), viability of human communities, and economic opportunity in an overall pursuit of sustainable ecological, social, and economic systems.

Implementation of ecosystem management requires an institutional framework that provides mechanisms and tools to integrate stakeholder goals and actions within and among socio-economic and ecological systems. Strategies are also needed to cope with uncertainty inherent in these complex systems and to work across many spatial and temporal scales. Under ecosystem management, consideration should be given to new roles for government (e.g., as a process convener, source of technical information, and participant -- not necessarily leader -- in locally empowered stakeholder forums) and new ways to work (e.g., placed-based vs. media-based management and incorporation of adaptive management approaches) and new ideals (e.g., "sense of place" and emphasis on mutual exchange among stakeholders of knowledge and values).

The Wisconsin Department of Natural Resources is exploring these institutional dimensions as part of a major reorganization of the agency. Ecosystem management shows promise as a guiding principal for Department policy and programs based on early experience with application of the concepts.

### REFERENCES:

Implementation Plan for Reorganization of the Wisconsin Department of Natural Resources (available Jan. 1996).

Ecosystem Management Implementation Strategy: Action Plan. Working Draft, August 1995. Florida Department of Environmental Protection.

## **Ecosystem Considerations in the Management of Georges Bank Groundfish**

STEVEN A. MURAWSKI - National Marine Fisheries Service, Woods Hole, MA 02543

Groundfish resources (e.g. cod, haddock, hakes, flatfishes and others) have undergone tremendous changes in abundance during the past century. Several important fishing eras have included the development of intensive domestic trawl fisheries, primarily directed at haddock, the intensive exploitation of the resource by distant water fleets (beginning in the 1960s), and post-200 mile limit management and ensuing bilateral issues with Canada. The productivity and fishery landings of groundfish are now at record low levels, with poor recruitment prospects and large-area closures in effect. Can the resource be rebuilt in a timely and cost-effective manner? Apart from the economic consequences of reducing fishing mortality rates to levels that will allow stock recovery, there are ecological questions including the role of predators and competitors in determining survival of young groundfish.

This paper reviews the scenario and evidence for fishing-related stock collapse, and information on the environmental and ecological factors that may determine the prospects for, and rate of resource recovery. Prospects for building sustainable groundfish fisheries are also reviewed.

## **The Washington Creek Project and the Multidisciplinary Approach to Riparian Zone Rehabilitation in Southern Ontario**

P.A. WILLIAMS - Department of Environmental Biology, University of Guelph, Guelph, Ontario. N1G 2W1 Canada

A.M. GORDON - Department of Environmental Biology, University of Guelph, Guelph, Ontario. N1G 2W1 Canada

J.L. SIMPSON - Department of Environmental Biology, University of Guelph, Guelph, Ontario. N1G 2W1 Canada

Washington creek is a spring-fed tributary of the Nith river in the Grand River basin in southern Ontario. While approximately 50% of the main channel is bordered by treed areas, the primary land use in the watershed is agriculture. Sandy soils are predominant in the area and stream characteristics have been severely degraded by crop and livestock production, and other human activities. When considering ways to improve conditions, the riparian zone was identified as a key because of it is a critical interface between land-based agriculture and waterways, and when appropriately managed can protect waterways from direct impacts, help stabilize channels, improve aquatic habitat, and provide critical wildlife habitat.

In 1985, the University of Guelph initiated a Riparian Zone Rehabilitation project with the owners of several properties traversed by Washington Creek. The project involved establishing forested riparian buffers, fragile-land retirement, and the monitoring of planted trees, wildlife and vegetation characteristics, and water quality. In addition to this activity, other factors have affected the condition of Washington Creek, including rehabilitation projects by other groups and the increased use of conservation tillage and other modified agricultural practices. Since 1985, general improvements in water and terrestrial habitat quality have been noted. Brook trout have been more frequently observed in the study area, likely moving down further from source population in the headwaters, and rainbow and brown trout have been using the stream more regularly, likely from populations in the main channel of the Nith River. Studies in the research area have documented changes in vegetative diversity, breeding and foraging bird populations, benthic invertebrates, and solar radiation. While many of the changes indicate the importance of vegetated riparian buffers, it is clear they are but one of many factors contributing to environmental improvements. The key to successful stream rehabilitation programs and "sustainable" agriculture is in a systems approach using the skills of many disciplines. The combination of improved agricultural practices that are economically attractive to farmers, thoughtful plantings of trees and other vegetation, and consideration for wildlife in farm management and conservation plantings provide the synergism for significant positive change.



## Use of Outlet Blocks to Prevent Brook Trout Emigration from Adirondack Lakes: Effects on Population Structure and Angling Catch

DANIEL C. JOSEPHSON - Adirondack Fishery Research Program, Cornell University, PO Box, 1124, Old Forge, NY 13420

CHARLES C. KRUEGER - Adirondack Fishery Research Program, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

Brook trout (*Salvelinus fontinalis*) emigration was measured with inclined screen fish traps on outlet barrier dams from five Adirondack lakes. Emigration occurred in the spring and fall with essentially no movement during the summer and winter. Spring emigrants were primarily yearlings and represented 0-20% of fish marked in spring trapnet samples. Spring emigration coincided with peak run-off from snowmelt (late April through mid-May). Fall emigration was identified as a major source of potential loss of fish. The fall emigrants were primarily mature adults and represented 26-69% of fish marked in fall trapnet samples. Fall emigration coincided with the peak of the brook trout spawning period (October through November). Age 2 and younger brook trout predominated in the lakes.

A larger set of brook trout lakes, with (drainage) and without (seepage) outlets, were examined to compare population age structure where emigration was and was not possible, respectively. Comparison of population age structure revealed significantly greater percentages of age 3 and older brook trout in seepage (41.2%) versus drainage (2.5%) lakes. Large-scale fall emigration likely reduced the abundance of older age brook trout in these lakes.

Barriers to emigration were placed subsequently on four lake outlets to determine the effects of preventing emigration on population structure and angling catch. The barriers were operated for 2-6 years and caused increases in the abundance of age 2 and older brook trout in all lakes. Observed changes in angler catches varied from increases in fish >610 g, total annual catch, and/or catch per trip.

## Do Larval Fish Care About Zooplankton Blooms?

K.E. LIMBURG - Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545

M.L. PACE - Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545

D. FISCHER - Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545

K. AREND - Institute of Ecosystem Studies, Box AB, Millbrook, NY 12545

Each spring in the Hudson River, NY, the cladoceran *Bosmina longirostris* population erupts in a spatiotemporally well-defined bloom. We investigated the importance of this bloom to the feeding, energy contribution, and growth of larval white perch (*Morone americana*) and striped bass (*M. saxatilis*). Gut content studies were combined with otolith microanalysis on larvae (SL range: 3.3 - 10.2 mm) collected prior to, during, and after the bloom. Food selection (measured by Chesson's index) was high for copepods prior to and after the bloom, and conversely were high for *Bosmina* during the bloom. Nevertheless, copepods contributed more energy in the gut contents than did *Bosmina*, even during the bloom. Growth rates (SL/estimated age) were highest ( $p < 0.001$ ) outside the geographic range of the bloom, and second highest at the site where the bloom was most intense. Growth rates tended to increase over time and were correlated with water temperature. Also, growth rates were higher in striped bass than in white perch larvae, with site-specific variation evident. Evidence from this study suggests that the *Bosmina* bloom does not provide larvae a marked increase in energy yield and subsequent growth; nevertheless, positive effects of the bloom on subsequent recruitment are evident.

## **Metrics and Standards for Comparisons of Warmwater River Fish Communities in New York**

DOUGLAS M. CARLSON - NYS DEC, 317 Washington Street, Watertown, NY 13601

Bioassessment and fishery parameters were used to compare fish communities in 8 river sections in northern and central New York State. Native species richness, piscivore proportion and omnivore proportion were valuable predictors of environmental quality, and the Indian River rated highest. Other parameters routinely used to describe the fisheries, such as sportfish abundance, and size and growth were also included and exhibited some sensitivity to environmental disturbances through this range of conditions. Several rivers sections had high abundance of sportfish, including the Mohawk, Indian, lower Black and lower Oswegatchie rivers. The Indian River had highest size indices for walleye and smallmouth bass. The Mohawk River had fastest sportfish growth rates, and the Oswegatchie River had the slowest growth rates. With refinements, these parameters might be useful in development of an Index of Biotic Integrity.

### REFERENCES:

Carlson, D.M. 1996. Black River fisheries survey, 1992-93. NYS DEC, Watertown, N.Y.

Plafkin, J.L., M.T. Barbour, K.D. Porter, S.K. Gross and R.M. Hughes. 1989. Rapid bioassessment protocols for use in streams and rivers: benthic macroinvertebrates and fishes. US Environmental Protection Agency. EPA/444/4-89-001. Washington DC.

## **Three Hundred Years of Change: Ecosystem Response of Onondaga Lake, New York, to Pollution History with Emphasis on the Fish Community**

P.J. TANGO - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210.

N.H. RINGLER - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210.

The stresses of more than 100 years of industrial and cultural pollution have severely altered the Onondaga Lake ecosystem (Murphy 1978, Effler and Hennigan 1995). Paleolimnological analyses of the lake sediments show that the lake shifted from mesotrophic to hypereutrophic conditions between the 1700s and the mid-1900s (Rowell 1996). Historical accounts dating to the mid-1600s indicate that the lake once supported a coldwater fishery, which has been replaced by a community dominated by warm water, pollution tolerant species. Pollution controls were implemented in the watershed in the early 1970s and subsequent shifts in indices of lake productivity have been reported (Canale and Effler 1989). Between 1970s and 1990s, increases in species richness among the phytoplankton (Makarawicz et al. 1995, Siegfried et al. 1996) have also been reported in the Lake.

We hypothesized that fish species richness would have also increased in response to ecosystem effects from the pollution control measure. We used rarefaction analyses (Hurlbert 1971) to develop standardized richness values among eight fisheries surveys (Stone and Pasko 1946, Noble and Forney 1971, Chiotti 1981, Ringler et al. 1996, Tango and Ringler 1996). Linear regression of the standardized trap and gill net results over time indicates a significant increase in fish community richness for the period 1946 to 1994 ( $r^2=0.89$ ,  $p<0.01$  and  $r^2=0.79$ ,  $p<0.005$  respectively). The present fish community structure has developed from 1) species declines and extirpations, 2) invasion and establishment of pollution tolerant species, and 3) fishes interacting with regional refugia. Increasing richness in plant and animal taxa may be related to declines in lake productivity.

### REFERENCES:

- Effler, S.W. and R.D. Hennigan. 1996. Onondaga Lake: Legacy of pollution. *Lake and Reserv. Manage.* (in review).
- Rowell, H.C. 1996. Stratigraphic analysis of the sediments of Onondaga Lake: the history of anthropogenic impacts of lake water quality. *Lake and Reserv. Manage.* (in review).
- Tango, P.J. and N.H. Ringler. 1996. The role of eutrophication history, pollution controls and refugia in structuring the Onondaga Lake fish community: 1654-1994. *Lake and Reserv. Manage.* (in review).

**Government/Public Responsibilities: Who Makes the Management Decision?  
A Case Study Involving White-tailed Deer Management in Northern New York.**

JAMES F. FARQUHAR - NYS DEC, 317 Washington St., State Office Building,  
Watertown, NY 13601

DAVID NELSON - NYS DEC, 317 Washington St., State Office Building, Watertown, NY  
13601

For many years, wildlife managers have debated the issue of public involvement in wildlife management decisions: how much is too much? While some biologists fear that formal incorporation of public input will lead to reduced decision-making authority, we have found the opposite to be true. We will describe an experimental process which allows more thorough communication between interested publics and the wildlife manager. Use of this process has resulted in numerous changes in deer hunting opportunity in northern New York.

In response to public pressure, the State Legislature in 1971 revoked DEC's authority to manage deer in northern New York. Over the ensuing 20 years, several attempts to regain deer management authority failed because of public mistrust of DEC.

In 1990, DEC biologists changed our strategy for dealing with interested publics in northern New York. We held a series of open meetings wherein we asked attendees what changes they would like to make in deer management, rather than promoting a state position. We designed and used a structured meeting format that allowed us to listen and learn, rather than talk and tell. Small group "break-out" sessions facilitated information transfer and improved credibility through personal interaction. A timely meeting summary was provided to each attendee reviewing what we heard and what we would do with their input.

Attendees expressed widespread enthusiasm for this new approach. Deer hunters called for many slight changes in hunting opportunity, but also expressed a desire for the agency to be flexible in responding to changing deer herd conditions. As we have made changes suggested by meeting attendees, agency credibility in northern New York has improved dramatically. Also, open discussion with State legislators has begun regarding additional deer management authority.

The public meeting process we used for deer management in northern New York has proven to be an effective technique for improving agency credibility and providing socially acceptable wildlife management programs. Other wildlife management decisions can be improved through application of these techniques.

**REFERENCES:**

Nelson, D.H. 1992. Citizen task forces on deer management: A Case Study. N.E. Wildl. Vol. 49:92-96.

Smolka, R.A., D.J. Decker, N. Sanyal and T.L. Brown. 1983. Northern New York deer management: hunters opinions and preferences.

## **A Comparison of Structural Heterogeneity in Old-growth; Managed, Uneven-aged; and Maturing Adirondack Northern Hardwood Stands.**

GREGORY G. MCGEE - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210  
DONALD J. LEOPOLD - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210  
RALPH D. NYLAND - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

Current forest ecosystem management practices in the western US are grounded in the understanding that coarse woody debris (CWD) and large/old trees enrich biodiversity. While applying western ecosystem management techniques to eastern US forests has theoretical merit, the necessity and expected benefits of such measures have not been demonstrated. To assess the need for applying ecosystem management techniques in northern hardwoods, our objectives are to (1) determine how typical, uneven-aged management affects the structural characteristics of northern hardwood stands; and (2) determine the extent to which structural features develop over an even-aged rotation of 100 years. We compared the canopy structure and CWD abundance in Adirondack northern hardwood stands of three disturbance/management histories, i.e., old growth; managed, uneven-aged; and 90- to 100-year old, unmanaged, even-aged (maturing). Old-growth stands had more trees of larger size classes, up to 100 cm (39 in.) dbh. No stems >55 cm (22 in.) dbh were sampled in the managed, uneven-aged stands. Maturing stands had scattered large trees. Volumes of downed CWD (stumps  $\leq$  1 m [3.2 ft] tall and logs) were  $116\text{ m}^3\text{ ha}^{-1}$  ( $1656\text{ ft}^3\text{ ac}^{-1}$ ),  $52\text{ m}^3\text{ ha}^{-1}$  ( $743\text{ ft}^3\text{ ac}^{-1}$ ) and  $39\text{ m}^3\text{ ha}^{-1}$  ( $557\text{ ft}^3\text{ ac}^{-1}$ ) for the old-growth, managed, and maturing stands, respectively. Basal areas of standing CWD (standing dead and stumps > 1m tall) were  $9.9\text{ m}^2\text{ ha}^{-1}$  ( $43\text{ ft}^2\text{ ac}^{-1}$ ),  $2.3\text{ m}^2\text{ ha}^{-1}$  ( $10\text{ ft}^2\text{ ac}^{-1}$ ) and  $4.4\text{ m}^2\text{ ha}^{-1}$  ( $19\text{ ft}^2\text{ ac}^{-1}$ ) in the old-growth, managed, and maturing stands, respectively. The old-growth had greater proportions (70% of total log volume) of large logs ( $\geq 25\text{ cm}$  [10 in.] diameter) than the managed (49%) or maturing (29%) stands. Stumps accounted for a substantial portion (26%) of CWD volume in the managed stands. The ecological significance of large/old trees, and differences in CWD volume, surface area, size class and decay class will be discussed.

### REFERENCES:

- Gore, J.A. and W.A. Patterson, III. 1986. Mass of downed wood in northern hardwood forests in New Hampshire: potential effects of forest management. *Can. J. For. Res.* 16:35-339.
- McCarthy, B.C. and R.R. Bailey. 1994. Distribution and abundance of coarse woody debris in a managed forest landscape of the Central Appalachians. *Can. J. For. Res.* 24:1317-1329.

## **Integration of Socioeconomic and Environmental Factors in Landscape Change Modeling Using a GIS**

BRYAN C. PIJANOWSKI - Spatial Analysis Laboratory, Department of Entomology,  
Michigan State University, East Lansing, Michigan 48824

Michigan State University, through a Cooperative Agreement with the United States Environmental Protection Agency and the Consortium for International Earth Science Information Network, has begun the development of a dynamic, ecosystem model for Michigan's Saginaw Bay Watershed which we call the Land Transformation Model. The objective of the model is to forecast land use patterns in the watershed over the next fifty years and to predict the potential effects of these changes on the environment and on quality of life for the residents of the watershed. We use a geographic information system as a tool to model the driving forces of land use change.

In this paper, we present the conceptual and analytical framework of the Land Transformation Model. Issues important to land use change in the Saginaw Bay will be highlighted. We discuss how we model driving forces of land use change using political-institutional, socioeconomic and environmental driving forces which operate at different spatial and temporal scales. Examples of how the model makes calculations will be presented. Results of the model execution will be also be presented.

### REFERENCES:

- Pijanowski, B., T. Machemer, S. Gage, D. T. Long, W. Cooper and T. Edens. 1996. The conceptual and analytical framework of a Land Transformation Model: Use of a geographic information system to model land use change in the Saginaw Bay Watershed. In Proceedings of the 3rd International Conference on GIS and Modeling, Sante Fe, New Mexoci, Jan 21-25, 1996.
- Michigan Deperatment of Natural Resources and the Michigan United Conservation Clubs. 1993. Saginaw Bay Watershed Land Use: Trends and Patterns. 326 pp.

## **Ecosystem Approaches to Management: Implications for Professional Education**

AARON N. MOEN - Department of Natural Resources, Cornell University, Fernow Hall,  
Ithaca, NY 14853

The information age is here, a technological revolution has occurred, and ecosystem approaches to management are possible. Prior to the dawn of the information age and the technological revolution in the last 15 years, ecosystem management was only an idea. It still is, but the idea may become reality if:

professional managers recognize the need for authentic integrated resource management, educators begin preparing students for careers in integrated resource management, and students are interested in complex problem-solving and integrated thinking.

Professionals need to recognize the value of authentic ecosystem management in order to identify goals that will require changes in professional education. Educators need to prepare students for careers in ecosystem management now because it will take years to make the transition. Students need to be interested in complex problem-solving and integrated thinking in order to prepare for the challenges in ecosystem management.

What are the basic education components of an ecosystem approach to resource management? Computer modeling is essential; ecosystem approaches require models. Mental models are not enough; working models that stimulate thinking and evaluate complex relationships are needed. Computer programming is essential; resource professionals need to know basic programming concepts in order to communicate with professional programmers who will create the models necessary for ecosystem approaches to management. Team development is essential; complex problems cannot be solved without the contributions of many professionals from many disciplines. Both students and faculty in higher education need to practice working together in order for students to prepare for careers that will depend on it. This suggests that cooperative learning, creative problem-solving, experiential learning, seamless courses, team projects . . . are just a few of the new components of professional education that are needed if ecosystem approaches to management are to become reality in the next century.

How can professional educators meet these challenges? First, we must evaluate information needs in relation to the problem-solving that is essential in ecosystem management. Second, we must maximize active participation in learning environments that promote meaningful problem-solving opportunities. Third, we must promote and be participants ourselves in life-long learning as a professional expectation.



## **Environmental Ethics in Practice: Developing a Personal Ethic**

JAMES E. COUFAL - SUNY College of Environmental Science and Forestry, 1 Forestry Drive, 320 Bray Hall, Syracuse, NY 13210

When a person joins a group, that person must go through the process of "learning the ropes," often called "socialization." This includes being indoctrinated, trained and taught what is important and what is taboo, what is expected and what is unacceptable behavior for the group. Traditionally, environmental and natural resource management curricula have focused on science, technology, and economics. Yet, issues and problems in environmental and resources management often arise from ethics and values rather than from science or technology. In professional life, acceptable behavior is formalized in professional codes of ethics, which generally focus on human ethics. Thus, in both education and professional life, natural resource professionals often are shortchanged in any formal consideration of environmental or land ethics. Land ethics, learned in the socialization process, enter the decision processes of our daily personal, professional, and organizational lives, with or without our awareness. Gaining skill in ethical reflection and decision making is no different from learning skills required by our professions or by a favorite hobby, and all require effort. Resource managers will be better able to meet the public's needs and demands if decision-making processes extend beyond the scientific technological, and socio-political factors that traditionally dominate our decision models. Understanding one's own land ethic is fundamental to land ethics being practical wisdom.

# POSTERS

## Forest Farming: High Value Understory and Edible Tree Crops for Integrated Production and Conservation Systems

LOUISE E. BUCK - Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

ROERT R. BEYFUSS - Cornell Cooperative Extension of Greene County, Mountain Ave., HCR #3, Box 906, Cairo, NY 12413

ELIZABETH J. FICHTNER - Department of Floriculture and Ornamental Horticulture, Plant Science, Cornell University, Ithaca, NY 14853

JAMES P. LASSOIE - 200 Rice Hall, Cornell University, Ithaca, NY 14853

Forest farming is an agroforestry approach to land management that optimizes the collective value of forest and crop resources for natural resources conservation and sustainable economic development. Forest farming practices involve the management of tree crops and high value understory crops in woodland shade or clearings (Douglas and Hart 1984). While numerous crops and animals are potentially suited to forest farming in the northeast, with the exception of maple syrup these have not been commercially developed on a major scale. Needs and opportunities in the agricultural and forestry sectors are now converging to make forest farming an increasingly attractive resource management option. A forest crop with perhaps the highest potential for generating significant long term economic returns to forest owners is our native American ginseng, *Panax quinquefolium*.

In October, 1995 Cornell University's Agroforestry Working Group joined with Catskill Mt. forest owners and maple syrup producers, Tony and Mary Van Glad, Greene County Cooperative Extension, the New York State Ginseng Association, and Ginseng America, Inc. to establish the Wood Homestead Ginseng Garden Trials. The group's research and demonstration activities aim to investigate the relationship between sugar maple (*acer saccharum*) and American ginseng as complementary forest crops. Specifically, we are exploring for evidence of beneficial ecological associations through *hydraulic lift*, or the nocturnal uptake of water and nutrients by deep roots and release from shallow roots into upper soil layers (Dawson 1993). We are examining the effects of specified soil amendment regimes on seed, rootlet and root output to fine-tune current cultural recommendations (Beyfuss 1994). We are also monitoring financial costs and returns to assess how the part-time, seasonality, and niche marketing dimensions of maple and ginseng enterprises affect their integration at the household level.

### REFERENCES:

Beyfuss, R.L. 1994. American Ginseng Production in New York State (revised)., Cornell Cooperative Extension of Green County, N.Y.

Dawson, T.E. Hydraulic lift and water use by plants: implications for water balance, performance, and plant-plant interactions. *Oecologia* 95:565-574.

Douglas, J.S. and Hart, R.A.J. 1984. Forest Farming. Westview Press. Boulder.

## Environmental Ethics in Practice: Developing a Personal Ethic

JAMES E. COUFAL, SUNY-CESF, 320 Bray Hall, 1 Forestry Drive, Syracuse, NY 13210  
CHARLES M. SPUCHES, SUNY-CESF, 13 Moon Library, 1 Forestry Drive, Syracuse, NY  
13210

*Environmental Ethics in Practice* is a set of integrated instructional units providing materials to help instructors introduce students to concepts and skills needed to effectively apply environmental ethics in decision making. The three units cover: the roots, nature, and development of environmental ethics; models for identifying and including ethical dimensions of environmental problems in decision making; and case studies to apply ethical concepts and principles to examples of resource issues and problems. The "Integrative Environmental Ethics Model" is introduced as a diagnostic tool. It is based upon the premise that how one thinks upon environmental and resource management issues depends on the interaction of the role one is playing, the worldview brought to the role, and the ethical principles one values and chooses to use. While focusing on development of a personal ethic, the units discuss the idea that personal, professional, and organizational ethics are difficult to separate in practice.

### REFERENCES:

Code of Ethics of 13 Professional Societies.

Leopold, A. 1949. *A Sand County Almanac with essays on conservation from Round River*. Reprinted 1966 by Sierra Club/Ballantine, NY 295 pp.

## **Local Regulation of Forest Practices in New York State**

DONALD W. FLOYD - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

CRAIG J. DAVIS - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

JANYL E. KAESER - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

VALERIE A. LUZADIS - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

LIAJUN ZHANG - SUNY-CESF, 1 Forestry Drive, Syracuse, NY 13210

Many local governments restrict timber harvesting and tree cutting in New York State through timber ordinances. Although the forest industry is an important contributor to the state's economy, the scope and impact of local ordinances remains poorly understood. Harvesters have difficulty learning which towns have ordinances and the specific requirements vary by town. The content of an ordinance can also impact the way that landowners manage their forests. A comprehensive survey of 907 town clerks in New York State was undertaken to identify which towns have ordinances. Results, based on 834 responses, reveal that 100 towns have ordinances which restrict timber harvesting or tree cutting in some way.

In addition to analyzing the geographic distribution of these ordinances, a survey of the attitudes of elected town officials toward regulation of timber harvesting and tree cutting was conducted. Attitudes toward the environment were measured using an adaptation of the new environmental paradigm. Comparisons are made between the attitudes of officials from towns with and without ordinances, based on a set of factors suspected to be related to the enactment of an ordinance. Additionally, census data was used to study the effect of population on the enactment of ordinances. Preliminary results indicate that towns with higher population densities and towns with higher growth rates are more likely to adopt timber harvesting ordinances. Implications for future regulation and impact on non-industrial private forests are discussed.

## **Wetland Research and Education Projects**

GARY R. GOFF - Dept. of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

LARRY GEOHRING - Dept. of Agricultural & Biological Engineering, Riley-Robb Hall, Cornell University, Ithaca, NY 14853

PATRICIA RIEXINGER - NYSDEC, Bur. of Wildlife, 50 Wolf Rd., Albany, NY 12233

CARL SCHWARTZ - US Fish & Wildlife Service, 3817 Luker Rd., Cortland, NY 13045

MICHAEL TOWNSEND - USDA Natural Resources Conservation Service, 5th Fl. Suite 354, 441 So. Salina St., Syracuse, NY 13202-2540

The management, protection, restoration, and creation of wetlands in NY State continues to be a primary focus of many private and public environmental organizations. Recognizing this high interest, Cornell Cooperative Extension has established the Wetland Working Group (WWG) as part of Extension's Environmental Stewardship and Land Use Committee at Cornell University. The WWG's mission is to:

- identify and address issues in wetlands research and education
- provide a locus for contact to agencies and organizations capable of meeting research and educational needs

Current members of the wwg represent Cornell University, Cornell Cooperative Extension County Associations, NYSDEC Bur. of Wildlife, NY Sea Grant, Natural Resources Conservation Service, and US Fish & Wildlife Service. Any individuals interested in participation are welcomed to learn more of the group. Current projects under development include:

- informational display poster
- feasibility of "wetland mitigation banking" in NY State
- inservice training for Cornell Cooperative Extension Agents and other natural resource management professionals
- evaluation of "Wetlands Reserve Program"
- incorporating wildlife habitat enhancement into the "Willow Biomass Project"

The above projects are ongoing and results are not ready for display. However this poster is a prototype of the display project listed above and consequently we will use this opportunity to highlight the following projects and programs undertaken by some of the member organizations:

- \* Use of constructed wetlands to treat stormwater runoff
- \* The Wetlands Reserve Program
- \* Partners for Wildlife Program
- \* Evaluation of Wetlands Created Under the W-48-D Program
- \* Use of constructed wetlands for Phosphorous removal

## Lake Sturgeon Restoration Through Spawning Habitat Enhancement in the St. Lawrence River

STEVEN R. LaPAN - Bureau of Fisheries, Region 6 NYS DEC, 317 Washington Street, Watertown, NY 13601

JAMES H. JOHNSON - U.S. Department of the Interior, Tunison Laboratory of Aquatic Science, 3037 Gracie Road, Cortland, NY 13045

RODGER M. KLINDT - Bureau of Fisheries, Region 6, NYS DEC, 317 Washington Street, Watertown, NY 13601

Historically, lake sturgeon (*Acipenser fulvescens*) were common in the St. Lawrence River and supported a commercial fishery. Although commercial harvest of lake sturgeon was banned in New York in 1976, populations have failed to recover. Lake sturgeon were listed as a threatened species in New York in 1983, and are currently a category 2 candidate species for Federal listing under the Endangered Species Act. Causes for the decline of lake sturgeon include over-exploitation, dam construction/habitat degradation, and water pollution. Attainment of sexual maturity at 10 to 25 years of age in concert with spawning periodicity further exacerbated the decline of sturgeon populations. An artificial lake sturgeon spawning site was created in the St. Lawrence River near Ogdensburg, New York in 1993, and lake sturgeon spawning at this site was documented in 1994 and 1995. The spawning site was created through placement of washed, 50 mm diameter limestone in water 4.25 m deep. Water current velocity at the site is approximately 0.5 m/sec.

Video footage of the site documents successful lake sturgeon spawning and describes the site's physical and biological attributes. We also discuss the philosophy and utility of spawning habitat enhancement as a means of restoring remnant lake sturgeon populations.

### REFERENCES:

- Carlson, D.M. 1995. Lake sturgeon waters and fisheries in New York State. *J. Great Lakes Res.* 21(1):35-41.
- Scott, W.B. and E.J. Crossman. 1973. Lake sturgeon, p. 82-89 *IN* Freshwater Fishes of Canada. *Bull. Fish. Res. Board Can.* 184:966 p.

## Using a GIS Model to Predict Timber Rattlesnake Habitat

CANDIE L. LEUNIG - NYS DEC, Wildlife Resources Center, Latham, NY 12054  
ALVIN BREISCH - NYSDEC, Wildlife Resources Center, Delmar, NY 12210

A habitat model was created, using ARC/INFO software, for the timber rattlesnake (*Crotalus horridus*) in the Hudson Highlands ecological zone in southeastern New York. The locations of all known timber rattlesnake dens in New York, as mapped by Randy Stechert on 1:24,000 scale USGS topographic quadrangles, were digitized into a computer database using a Calcomp 9100 and Arcedit. Den sites, the theoretical summer range of the timber rattlesnakes, and the study area were analyzed using computer coverages of available thematic data layers. Layers, all at a scale of 1:250,000, included bedrock and surficial geology, land use/land cover, and digital elevation models (DEM's). Arcedit was used to analyze and Arcplot was used to create maps of the polygon coverages, which included bedrock geology, surficial geology and land use/land cover. DEM's, prepared by the U.S. Geologic Survey, were analyzed using GRID to determine slope, aspect and elevation. GRID was also used for the final analysis, where all layers were combined to determine suitable habitat. Analyzed individually, these layers predict that from 44% to 93% of the study area has the characteristics of a den area, with aspect being the best predictor and elevation being the poorest. When all 6 layers were overlaid, the resulting map identified 22% of the study area as having the characteristics of a den. Significant positive correlations were found for elevations between 91 and 410 m, southern aspects, slopes greater than 9°, deciduous forests and exposed bedrock of slate, sandstone, conglomerate, feldspar or marble. Characteristics of summer range are less predictable using these layers, but appear to be dependent upon the availability of suitable den sites surrounded by relatively undisturbed habitat.

### REFERENCES:

- Brown, W.S. 1993. Biology, status, and management of the timber rattlesnake (*Crotalus horridus*): A guide for conservation. Society for the Study of Amphibians and Reptiles. Herpetological Circular No. 22. 78 pp.
- Department of the Interior, U.S. Geological Survey. 1990. U.S. GeoData Digital Elevation Models data users guide. National Mapping Program Technical Instructions Data Users Guide 5.
- Department of the Interior, U.S. Geological Survey. 1990. U.S. GeoData Land Use and Land Cover digital data from 1:250,000- and 1:100,000-scale maps data users guide. National Mapping Program Technical Instructions Data Users Guide 4. 287 pp.
- Environmental Systems Research Institute, Inc. 1991. Cell-based modeling with GRID Analysis, display and management. ARC/INFO Users Guide.
- Sperduto, M. 1994. Habitat model identifies potential orchid sites. Endangered Species Technical Bulletin Vol. XIX No.5:11.
- Tyning, T.F., ed. 1992. Conservation of the timber rattlesnake in the northeast. Massachusetts Audubon Society, Lincoln, Mass. 78 pp.



## **Conservation of Aquatic Biodiversity in Agriculturally Dominated Watersheds**

MARCIA S. MEIXLER - New York Cooperative Fish and Wildlife Research Unit, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

MARK B. BAIN - New York Cooperative Fish and Wildlife Research Unit, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

REUBEN R. GOFORTH - New York Cooperative Fish and Wildlife Research Unit, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

SUSAN McALPINE - The Nature Conservancy, 413 N. Main St., Jamestown, NY 14701

STEPHEN D. DeGLORIA - Department of Soil, Crop, and Atmospheric Sciences, Cornell University, Ithaca, NY 14853

ANDREW N. DUFRESNE - Cornell Cooperative Extension Chautauqua County, Jamestown, NY 14701

JOSH WINCHELL - Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853

Non-point source pollution associated with agricultural land use is the leading (72%) cause of impaired U.S. streams. More specifically, elevated sediment runoff from crop and grazing lands is the leading (45% of impaired stream miles) agent of stream degradation. Therefore, streams in agricultural regions are sensitive to non-point source pollution effects, and they probably represent the majority of US stream miles under stress. Consequently, there has been an increasing need to promote conservation of stream habitat and aquatic biodiversity in agricultural landscapes.

Some private and Cornell organizations have developed a research and extension effort in the French Creek watershed of Chautauqua County (NY) to resolve scientific and practical issues about conserving biodiversity at the watershed scale. This watershed is a major agriculture area in New York and farming has been well developed in the watershed for over one century. French Creek is considered an outstanding aquatic resource because it harbors the greatest diversity of aquatic species in New York and Pennsylvania. The Nature Conservancy and Cornell Cooperative Extension are promoting watershed conservation practices by working with communities, farmers, and landowners. Research goals are to understand how land use influences the distribution of aquatic biodiversity, and to use this knowledge to design conservation programs. The major Extension need under investigation is the identification of conservation practices that are practical, effective, and acceptable to farmers.

### REFERENCES:

Allan, J. D., and A. S. Flecker. 1993. Biodiversity conservation in running waters. *BioScience* 43:32-43.

Hughes, R. M., and R. F. Noss. 1992. Biological diversity and biological integrity: current concerns for lakes and streams. *Fisheries* 17:11-19.

Swift, B. L. 1984. Status of riparian ecosystems in the United States. *Water Resour. Bull.* 20:223-228.

Further details can be found at: <http://www.dnr.cornell.edu/hydro2/watintro.htm>

## **Ecosystem Management Implications of the Northern Montezuma Wetlands Project**

DAVID E. ODELL - Regional Wildlife Manager, New York State Department of Environmental Conservation, 6274 East Avon-Lima Road, Avon, New York 14414  
SHEILA E. SLEGGs - Faculty of the State University of New York College of Environmental Science and Forestry, 6274 East Avon-Lima Road, Avon, New York, 14414

The Northern Montezuma Wetlands Project (NMP) is a conservation and land management project jointly sponsored by the United State Fish and Wildlife Service (USFWS) and the New York State Department of Environmental Conservation (NYSDEC) in conjunction with the North American Waterfowl Management Plan (NAWMP). The project goal is to acquire real property and property interests in the Montezuma marsh complex of central New York to prevent further losses of wetlands and wildlife habitat, and to manage these lands for waterfowl and wetland wildlife. To attain this goal, cooperative partnerships between federal, state, and local agencies, industry, private landowners, and conservation organizations are necessary. Partnerships such as these are of key importance to successful conservation of habitat and wildlife in the US. Further, such multi-organizational cooperation could serve as a template for ecosystem management on a national scale. The juxtaposition of wetland restoration sites, emergent and forested wetlands, managed grassland areas, agricultural and residential areas, and upland habitat within the NMP area creates an ideal situation for studies focusing on the scientific as well as political implications of ecosystem management. The response of vegetation and wildlife communities, particularly waterfowl populations and grassland bird species, will be of interest as will the success of the cooperative partnerships involved. Current research involving the NMP focuses on vegetation and wildlife communities on natural wetlands within the Montezuma Marsh complex and on selected wetland restoration areas. Data on vegetation and wildlife will be compared between the natural and restored sites in order to develop localized success criteria by which to evaluate wetland restoration in the Montezuma Marsh complex. In addition, a long-term monitoring program is being developed specifically for evaluating muckland agriculture restored to wetlands for providing suitable conditions for wetland vegetation and wildlife species. This study will provide baseline data and results for continued monitoring and future studies on wetland restoration. The NMP offers a multitude of opportunities for examining not only issues relating to restoration, but also political and scientific aspects of ecosystem management.

### REFERENCES:

- Harris, W.F. 1995. Policy and partnership. *BioScience Supp.* 45:S-64-S-65.
- Mitchell, R.S., C.J. Scheviak, and D.J. Leopold. 1990. Ecosystem management: rare species and significant habitats. *Proc. of the 15th annual natural areas conference.* New York State Museum Bull. No. 471. 314pp.
- Solcombe, D.S. 1993. Implementing ecosystem-based management. *BioScience* 43(9):612-622.

## **The SEDIMAT™ Sediment Mat: A New Tool for Stream Protection**

ALLEN PETERSON - NYS Electrical and Gas Corporation, 4500 Vestal Parkway East,  
Binghamton, NY 13902

The SEDIMAT™ sediment mat (patented) is a simple, yet effective new tool for the protection of streams from sedimentation damage during instream construction activities such as right-of-way (ROW) access road installation and pipeline burial. It is a flat, 4' by 10' pad which is laid singly or in a group on the streambed immediately downstream of a site about to be disturbed. Sediment then disturbed by construction is carried along the streambed by the current until it encounters the mat. The sediment then passes through an upper layer of jute mesh and into a layer of excelsior. The lower layer of burlap prevents the sediment from escaping. After construction activities are completed, the mats are removed and staked to the streambank. They are then seeded and mulched and thus provide immediate streambank stabilization. Because the mats are entirely biodegradable there is no need for disposal. The sediment mixed with rotting excelsior provides a seedbed for germination and growth of the seed mix.

The sediment mats are packaged individually in a roll (about 25 lbs. each) and are easy to store, handle, and transport. They can be installed on a streambed using either stones or stakes. The mats can be installed in any configuration or number to provide the desired coverage. They may be used alone or in conjunction with other methods of stream protection such as coffer dams, culverts, haybales, or siltscreen.

Sediment mats were developed and tested under field conditions at 8 different streams in Central and Western New York State during 1992. The amount of fine sediment (sand, silt, and clay) in the streambed immediately downstream of the work sites was measured before and after the disturbance. At 7 of the sites, the disturbance was the excavation of a 4 foot deep trench for the installation of a natural gas pipeline, followed immediately by backfilling. At the eighth site the disturbance was extensive hand digging by shovel. These streams varied in width from 10 to 75 feet and in depth from 6 to 24 inches. Velocities ranged from 0.8 to 3.3 feet per second. Trout were present in most of the watershed, if not at the test sites specifically.

Before construction, the average percent of sediment fines in the streambed just downstream of the work site was 12.2%. After construction, it rose slightly to 14.7%. Both concentrations of sediment represent levels conducive to trout reproduction (egg survival). In contrast, there were locations at 6 of the test streams that were subject to the disturbance but which were not protected by the mats. These were primarily areas between the edge of the mats, or off to a side where mats were purposely not laid. After construction, the average percent of sediment fines at these unprotected sites rose from 11.5% to 24%. This post-construction level of sedimentation is an amount which has been repeatedly documented to cause major declines in trout reproductive success. A comparison of the two before and after sediment concentrations indicates the mats trapped about 80% of the disturbed sediment and prevented or minimized adverse impact to trout reproduction.

Individual mats were able to trap and remove between 500 and 1,000 lbs. of sediment each and did not interfere with construction operations. Because they were laid flat on the streambed, they were not affected by water velocity, nor did they raise water levels and thus flood the work area. The sediment mat is a valuable new tool for stream protection due to its low cost, simplicity, versatility, and effectiveness.

## Distribution and Status of the Timber Rattlesnake in New York and Northern New Jersey.

RANDY STECHERT - 42 School Street, Narrowsburg, N.Y. 12764

ALVIN BREISCH - NYS DEC, Wildlife Resources Center, Delmar, NY. 12054

Historically, the timber rattlesnake (*Crotalus horridus*) occupied habitats throughout much of New York and northern New Jersey except for the higher portions of the Catskills and Adirondacks, the Tug Hill Plateau, and the St. Lawrence River Valley. Deliberate killing, clearing of habitat for logging, agriculture and housing, and a bounty system caused the loss of the species from Long Island and the Great Lakes Plains by the early 1900's. Unregulated and indiscriminate killing continued for over a decade after the bounty system was outlawed in 1971. The timber rattlesnake was listed as threatened in New York in 1983 and as endangered in New Jersey in 1979. Today the greatest threats to the timber rattlesnake are developments, illegal collecting, and the killing by individuals who are unconcerned about the protected status of the species. Intensive field efforts, primarily by R. Stechert, resulted in the documentation of 182 den areas in New York and 26 den areas in northern New Jersey. Approximately 16% of these dens are considered healthy, 74% are moderately to critically depleted, and 9% have been extirpated. Fragmentation of habitat by transportation corridors and residential/commercial developments will continue to threaten long term survival of this species even if it is possible to eliminate illegal collecting and indiscriminate killing.

### REFERENCES:

- Brown, W.S. 1993. Biology, status, and management of the timber rattlesnake (*Crotalus horridus*): a guide for conservation. Herpetological Circular No. 22. Society for the Study of Amphibians and Reptiles. 78 pp.
- Ernst, C.H. 1992. *Crotalus horridus* Linnaeus, 1758, timber rattlesnake. Pp. 108-117. In C.H. Ernst. Venomous reptiles of North America. Smithsonian Inst. Press, Washington, D.C.
- Ernst, C.H. and Barbour, R.W. 1989. *Crotalus horridus*, timber rattlesnake. Pp. 211-214. In C.H. Ernst and R.W. Barbour. Snakes of eastern North America. George Mason University Press, Fairfax, Va.
- Stechert, R. 1982. Historical depletion of timber rattlesnake colonies in New York State. Bull. New York Herpetol. Soc. 17:23-24.
- Tyning, T.F., Ed. 1992. Conservation of the timber rattlesnake in the northeast. Mass. Audubon Society, Lincoln, MA.

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**NEW YORK CHAPTER  
AMERICAN FISHERIES SOCIETY**

**Officers and Committee  
Chairpersons' Handbook**

Prepared June 1986; Revised January 1996

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## CHAPTER PRESIDENT

### Primary Responsibilities

1. Upon assuming office, the newly elevated President should:
  - a. Present the outgoing President with the past- President's certificate.
  - b. Announce appointments of standing committee chairpersons.
  - c. Present general statement of objectives for the coming year.
  - d. Present a budget for discussion by the membership for the coming year, including the next Annual Meeting over which he or she presides; final approval will occur within three months of the Annual Meeting.
  - e. Make appointments of ad hoc committee chairpersons at this time, if possible.
  - f. Complete committee appointments within one month. Notify Northeast Division secretary of all appointments.
2. Finalize the budget and present it for final approval by the Executive Committee no later than three months after the Annual Meeting.
3. Be specific in your charges to your committee chairpersons using this handbook and revisions thereof as a basic orientation tool. Distribute a copy of this handbook to all committee chairpersons and Executive Committee members. Distribute a copy of the AFS Procedures Manual to all officers.
4. Keep informed of committee activities.
5. Ensure that Northeast Division President and Secretary are informed about Chapter activities. A Chapter report should be submitted to the Division President before 1 March.
6. Notify the national AFS office regarding the Annual Meeting time and place as soon as it is known, to be published in "Fisheries" and the "AFS Diary".
7. Be familiar with Chapter and Northeast Division bylaws and AFS constitution and bylaws.
8. Review and follow "Robert's Rules of Order" regarding protocol for conduct of Chapter business, particularly meetings at which votes are taken, including Executive Committee meetings and the Annual Business Meeting.
9. Represent the Chapter in Society affairs, as requested.



10. Be aware of Society safeguards concerning lobbying activities by the Chapter to protect the Society's tax exempt status. Consult the Society's Procedural Manual and central office staff regarding restrictions.
11. As a voting member of the Northeast Division Executive Committee, you are expected to ensure Chapter representation and participation in any meetings of same called by the Division President. In addition, every effort should be made to represent the Chapter at the Society's Executive Committee Annual Meeting. You may include travel funds for these meetings as line items in the budget you submit at the Annual Meeting, at which you are installed as President.
12. Present a brief written report of Chapter activities at the annual Division Executive Committee Meeting. Minutes of our Annual Meeting normally serve this function, so the President should ensure these are sent by the Chapter Secretary-Treasurer.
13. Schedule and preside over all Executive Committee meetings. Provide an agenda in advance to all who will be attending. The agenda should list topics to be covered, individuals responsible for addressing each topic, and approximate times to be devoted to discussing each topic. After the initial meeting, these may include telephone conference meetings.
14. Work with the President-elect and Secretary-Treasurer to prepare a budget to be submitted for discussion and approval at the Annual Meeting, at which the President-elect will assume office; and for approval at an Executive Committee Meeting no later than three months after the Annual Meeting.
15. Work with the Secretary-Treasurer to monitor the financial status of the Chapter. If cash reserves approach an upper limit of \$25,000, devise a plan to spend the surplus. If reserves approach a lower limit of \$12,000, put the Chapter on an austerity budget and begin fundraising in earnest.
16. Preside over the Annual Meeting, as needed (e.g., introductory remarks, introduce keynote speaker, introduce session chairs, make announcements).
17. Arrange and provide agenda for Chapter Annual Meeting; preside over meeting:
  - a. Adhere to agenda and time schedule.
  - b. Introduce any AFS and Division officers present and provide them with an opportunity to address the membership.
  - c. Introduce other guests.
  - d. Acknowledge work of your officers and committee chairpersons and members.
  - e. Install the new President; typically, the President-elect is escorted to the rostrum by two past- Presidents.

18. Acknowledge the work of your officers and committee chairpersons, by letter, at the end of your term.
19. Inform your successor of actions taken at the previous Northeast Division Executive Committee Meeting, and see that your successor gets Minutes of same.
20. Serve on the Chapter Executive Committee for an additional year as immediate past-President.
21. Prepare an agenda, and distribute prior to meeting.
22. Send out a separate mailing for the program in mid-December, and then include a notice with the final newsletter in January.
23. Send an invitation for the Annual Meeting to Northeast Division, Parent Society.

#### Calendar

Prior to Annual Meeting, at which you assume office -- to extent possible, identify committee chairpersons (see President-elect duties).

Prior to Annual Meeting, at which you assume office, develop budget for coming year in conjunction with Secretary-Treasurer and outgoing President (see President-elect duties).

At Annual Meeting, assume office and present your budget for discussion.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

By one month after Annual meeting, complete committee chairperson appointments and communicate to Division Secretary.

By three months after Annual Meeting, conduct initial meeting of Chapter Executive Committee, and present budget for final approval.

Summer -- second meeting of Executive Committee.

Fall -- Executive Committee Meeting if business warrants; assist President-elect with developing budget for his/her term of office.

Annual Meeting -- final Executive Committee Meeting and Annual Business Meeting; preside over meeting.

At each meeting, the Executive Committee should vote to approve Minutes of prior meeting.

At the first Executive Committee Meeting following the Annual Meeting, vote to approve the previous year's budget.

In alternate years, vote for election of Secretary-Treasurer.

## EXECUTIVE COMMITTEE

The Executive Committee (EXCOMM) consists of the Chapter officers (President, President-elect, Secretary-Treasurer, Secretary-Treasurer-elect) and the immediate Past-President. The chairpersons of standing committees (Audit/Finance, Environmental Concerns, Membership, Nominating, Program, and Resolutions) and ad hoc committees (Professional Incentives, Newsletter, Workshop, Student Subunit, and Professional Diversity committees currently) shall be non-voting members of the EXCOMM.

### Primary Responsibilities

The EXCOMM is authorized to act for the Chapter between meetings. In so doing, the EXCOMM is responsible for monitoring and directing Chapter activities, as charged by the membership at Annual Business Meetings. The Chapter President presides over all EXCOMM Meetings and provides a meeting agenda in advance.

### Calendar

No more than three months after Annual Meeting, initial organizational meeting and final approval of the President's proposed budget.

Summer -- second meeting.

Fall -- meeting or conference call, if business warrants.

Immediately prior to Annual Meeting, summary meeting; review incoming President's proposed budget for discussion.

## SECRETARY-TREASURER

### Primary Responsibilities

1. Maintain Chapter membership records, including a membership roster and record of payment of dues. Prepare the annual membership directory by 1 June. Include as current members in good standing those for whom dues have been paid for at least the previous calendar year. Only current members in good standing are eligible to vote.
2. Obtain a special third class mailing permit. Mail all newsletters, announcements and correspondence as prepared by the newsletter editor, the Workshop Committee and others, as appropriate. The routing mailing list should include all current members in good standing and the Executive Secretary of the Society, the President and Secretary of the Northeast Division, and the Presidents of all the Chapters within the Northeast Division.
3. Prepare and retain Minutes of all official meetings, and retain Chapter records in good order. Copies of Minutes are to be distributed to Executive Committee members. Approved copies of Minutes are to be distributed to the President of the Northeast Division. A copy of the Minutes of the Annual Meeting should be furnished to the Executive Director and the Secretary and President of the Northeast Division within 30 days after the meeting.
4. Collect and be custodian of Chapter funds. Use the Federal Employer's Identification number assigned to the Chapter, in lieu of a Social Security number. Deposit Chapter funds in an interest-bearing account. Disburse funds as authorized by the Executive Committee or Chapter membership.
5. Notify the membership of the Annual Meeting at least two months in advance. Notification should be sent by First Class mail to assure prompt delivery. The Executive Secretary and President of the Society, and the President and Secretary of the Northeast Division should be informed of the Annual Business Meeting.
6. Keep a supply of Chapter bylaws on hand, and be familiar with their content. Forward proposed amendments to the bylaws promptly to the Executive Director for action by the Executive Committee of the Society.
7. Maintain a supply of information brochures about the Chapter and the Society, and make copies available to anyone who requests them.
8. Order a Past-President's Certificate from the Society office at least six weeks prior to the Annual Meeting. Order "Best Paper" and other award materials, as directed by EXCOMM or Program Committee chairperson.

9. Prepare registration materials for the Annual Meeting, and register attendees starting on the evening preceding scheduled sessions and as needed throughout the meeting. Furnish receipts when requested. Supervise student assistants at the Annual Meeting.
10. Submit financial reports, including reports of receipts and disbursements. Informal, verbal reports are to be made at Executive Committee meetings. A formal, written report is to be provided at Annual Meeting. Cooperate with the Audit/Finance Committee in an annual review of the books. Prepare annual budget proposal, with rough draft to the EXCOMM at least six weeks before the Annual Meeting.
11. Ascertain if there is a quorum present for official actions, and furnish ballots for elections.
12. Submit copies of Chapter resolutions promptly to the Executive Director and the Northeast Division Secretary. Indicate those for which Division and Society support is requested.
13. Serve as voting member of EXCOMM.
14. Orient the Secretary-Treasurer-elect to the responsibilities of the office.
15. Assist Membership Committee chairperson in keeping track of membership status for reports at EXCOMM meetings and Annual Meeting.

### Calendar

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

At least two months prior to Annual Meeting, notify membership of the meeting; assist in preparing annual budget proposal for EXCOMM, to be submitted by the new President at the Annual Meeting, at which he or she is installed.

Six weeks prior to Annual Meeting, order Past-President's Certificate and award materials; distribute President-elect's draft budget to EXCOMM.

Prior to Annual Meeting, prepare annual financial report and review with Audit/Finance Committee. Prepare meeting registration materials and ballots.

At Annual Meeting, register attendees; provide financial report; take Minutes; supervise student assistants; etc.

At EXCOMM meetings, provide fiscal update; take Minutes; distribute Minutes in timely fashion.

During last year in office, orient the Secretary-Treasurer-elect.

Update and distribute Chapter directory to membership every ? years.

## SECRETARY-TREASURER-ELECT

### Primary Responsibilities

1. Develop with Secretary-Treasurer appropriate orientation activities and responsibilities to prepare you for assumption of that role.
2. Attend EXCOMM meetings as a voting member.
3. During year as “elect”, record Minutes of EXCOMM meetings and submit to Secretary-Treasurer for distribution to EXCOMM members.
4. Before assuming Secretary-Treasurer position, arrange to transfer file, financial accounts, and mailing permits.



## PRESIDENT-ELECT

### Primary Responsibilities

1. Serve as voting member of EXCOMM.
2. Serve as Membership Committee chairperson.
3. Serve as Program Committee member.
4. Assume duties of President, if he/she is unable to act.
5. At least six weeks prior to the Annual Meeting, at which you will be installed as President, work with Secretary-Treasurer and current President to develop a proposed annual budget. Submit the budget to EXCOMM for discussion at the Annual Meeting. Donations should be planned for the year as a line item, and expenses for the President (or designate) to represent the Chapter at AFS National or Division meetings should be included as a line item. The Annual Meeting should also be included as a line item.
6. Review and revise the action agenda for the Chapter by the second EXCOMM Meeting in which you participate.
7. Take the lead role in fundraising activities (i.e., raffle, t-shirt sales, etc.).

### Calendar

By second EXCOMM Meeting, revise Chapter's action agenda.

At least six weeks prior to Annual Meeting, submit proposed budget to EXCOMM.

Prior to Annual Meeting, identify new committee chairpersons, to extent possible.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

## MEMBERSHIP COMMITTEE

### Primary Responsibilities

1. President-elect serves as chairperson and appoints committee members, as appropriate (or may serve as sole committee member).
2. Serves as primary contact for prospective members.
3. Reviews with Secretary-Treasurer the status of membership to assess current trends.
4. Develops specific recruitment strategies, as appropriate.
5. Contacts new Society members in New York, as reported by Northeast Division or through other means.
6. With assistance of Secretary-Treasurer, reports membership status at EXCOMM meetings and Annual Meeting.

### Calendar

At first EXCOMM Meeting, prepare membership analysis as basis for discussing objectives and strategies.

Throughout year, contact prospective members; submit newsletter articles, as appropriate.

At each EXCOMM Meeting, submit oral and/or written progress report, as required.

Annual Meeting -- summary report to EXCOMM.

## PROGRAM COMMITTEE (Annual Meeting)

### Primary Responsibilities

1. Organize and coordinate keynote and invited speaker presentations for the program of the Annual Meeting. Coordinate with President regarding who will make announcements and do introductions. Typically, the President presides over all sessions.
2. Organize and conduct paper and poster presentations and recognition awards for the Annual Meeting.
3. Arrange for meeting-rooms, lodging, and meals at Annual Meeting. Coordinate activities and announcements at Annual Meeting.

[NOTE: Because of the diverse nature of the Committee's responsibilities, a co-chairperson system was initiated on a trial basis for 1991-92. This system calls for one co-chair to be responsible for program areas (1 & 2 above), and one co-chair to be responsible for meeting logistics (3 above).]

### Calendar

At each EXCOMM meeting, submit oral and/or written progress reports, as required.

Ten months prior to Annual Meeting, establish site and confirm dates for Annual Meeting. It is helpful if this is accomplished prior to the year's first EXCOMM Meeting. Appoint committee members. Responsibilities include logistics, awards program, invited speaker arrangements, contributed paper and poster abstract review and arrangements, liaison with student Chapter, and program/abstract handout preparation.

Seven months prior to Annual Meeting, establish fee structure for Annual Meeting, based on contract with meeting site establishment and target budget established in conjunction with EXCOMM. Establish meeting theme(s), in consultation with Executive Committee, and identify potential list of invited speakers.

Five months prior to Annual Meeting, confirm Annual Meeting dates with invited speakers. First call for papers advertised in Fall (September) newsletter (check with newsletter editor for submission deadline). Include paper/poster recognition and awards procedures. Fee structure finalized. General announcement of Annual Meeting site, theme, rates, etc. developed and included in September newsletter. Announcement advertised in AFS, Northeast Division, and other AFS subunit newsletters.

Two months prior to Annual Meeting, initiate invited speaker lodging and transportation arrangements. Develop meeting agenda to be included in December newsletter, along with second call for papers. Start review of submitted papers/posters.

One month prior to Annual Meeting, finalize review of submitted paper/poster abstracts. Develop contributed paper/poster agendas, based on this review. Provide directions on paper and poster presentation preparation to those authors selected to participate to ensure high quality. Solicit awards for poster/paper recognition.

Three weeks prior to Annual Meeting, visit meeting site to confirm all plans and arrangements. Organize and conduct Program Committee Meeting prior to Annual Chapter Meeting to identify and arrange final logistical needs, such as recruitment of student assistants and equipment. Appoint award judges, and prepare rating materials. Finalize meeting agenda and have printed for distribution at Annual Meeting, along with abstracts for invited papers and contributed papers and posters.

At Annual Meeting, oversee registration and all sessions of the meeting, working as liaison with site establishment staff to address/correct any problems which arise. Provide brief Program Committee report at Chapter Annual Meeting. Together with Secretary-Treasurer, review billing documents immediately following Annual Meeting.

One month after Annual Meeting, provide report of expenses relative to planned budget to the EXCOMM by the first meeting. Prepare proposed Annual Meeting budget for the next year for discussion by EXCOMM. Report suggested improvements to EXCOMM for the following year.

## WORKSHOP COMMITTEE

### Primary Responsibilities

1. Under guidance of EXCOMM, develop and conduct an educational workshop(s) separate or in conjunction with the Annual Meeting. If the workshop is to be in conjunction with the Annual Meeting, coordinate regarding schedules, logistics, fees, and topics with Program Committee.
2. Solicit workshop topic ideas from Chapter members, and select an appropriate topic(s) with guidance from EXCOMM.
3. Develop workshop content, format, and logistical needs.
4. Arrange publicity.
5. Conduct event.
6. Evaluate event.
7. Make specific recommendations to EXCOMM and future workshop committees.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Twelve months prior to workshop, gain specific subject matter guidance from EXCOMM; appoint primary committee members.

Eight months prior to workshop, make initial logistical contacts for conference facilities and workshop "instructors".

Six months prior to workshop, finalize specific arrangements including lodging, schedule, arrangements, publicity plans; submit a short introductory article to the newsletter.

Four months prior to workshop, advertise workshop and registration procedures to Chapter members and others.

One month prior to workshop, reminder to all Chapter members and others.

One month after workshop, provide final report, evaluation, and recommendations to the EXCOMM and to the newsletter.

## NEWSLETTER COMMITTEE

### Primary Responsibilities

1. Solicit, collate, edit, and arrange for the reproduction and distribution of the Chapter newsletter. Coordinate with the Secretary-Treasurer regarding procedures for copying and distribution. Frequency of publication is determined under guidance of EXCOMM, but typically involves a minimum of three issues per year.
2. Evaluate effectiveness of the newsletter and report to EXCOMM and Chapter membership.
3. Include in newsletter content primary Chapter business and informative current developments or professional resources. The former would include workshop and Annual Meeting announcements, business meeting Minutes, election information, committee reports or requests, draft resolutions, etc.
4. Maintain communications with EXCOMM and other committee chairpersons, especially to remind them when newsletter deadlines are approaching, and seek their contributions to the newsletter.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Dates are tentative and serve as a general guide. Important information often can be added shortly before duplication, which is usually one week before distribution. Example content assumes a late-January Annual Meeting.

- (1) Copy due date 28 February for Distribution date 31 March. This issue normally includes the Annual Meeting Minutes and other reports from that meeting.
- (2) Copy due date 31 July for Distribution date 31 August. This issue normally contains the first, brief publicity about upcoming Annual meeting events to aid members' preparations.
- (3) Copy due date 30 November for Distribution date 31 December. This issue normally contains Annual Meeting program, registration information, and candidate background information for the elections to be held at the Annual Meeting.

## RESOLUTIONS COMMITTEE

### Primary Responsibilities

1. Monitor current events and development that warrant Chapter comment, support, or action. Resolutions are formal expressions of the views of the membership. Typically, there are two types of resolutions:
  - (1) Internal - recognizing achievements of members of other organizations or addressing operations of the Chapter.
  - (2) External - expressing Chapter views on matters of significance to the State's fishery resources.
2. Maintain communication with EXCOMM and other committee chairpersons, particularly the chair of the Environmental Concerns Committee.
3. Develop draft resolution statements, according to current "Roberts Rules of Order".
4. Communicate draft resolution statements through Chapter newsletter and discussion at Annual Meeting.
5. For matters needing fast attention, submit draft resolutions to the EXCOMM rather than the entire membership. The EXCOMM can act on behalf of the membership between Annual Meetings. When this process is used, be sure to inform the membership via the Chapter newsletter. These should be noted as resolutions from the EXCOMM, not from the entire Chapter membership.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required, and any draft resolutions.

At least one month prior to each newsletter deadline, draft any resolutions that are to be included in the newsletter for review by EXCOMM.

Prior to Annual Meeting, distribute via newsletter or other method any resolutions that are to be discussed and voted upon at the Annual Meeting.

## PROFESSIONAL INCENTIVES COMMITTEE

### Primary Responsibilities

1. Develop, initiate, and review Chapter activities considered by EXCOMM to provide or enhance professionalism among Chapter members.
2. Specific proposals developed by the Committee will be subject to the review and approval of EXCOMM and Chapter membership.
3. Monitor the various awards the Chapter gives out and make nominations for each, as appropriate (i.e., Honorary Member, Professional Achievement). Such nominations must be reviewed by EXCOMM before submitting them for final Chapter membership vote.
4. Develop a Conservation Award for non-Chapter members.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

At least four weeks prior to Annual Meeting, submit final nominee credentials for awards to EXCOMM.

Variable, depending on charge.



## ENVIRONMENTAL CONCERNS COMMITTEE

### Primary Responsibilities

1. Monitor current environmental legislation and policy developments that warrant Chapter comment. According to the desires of the Committee, the Committee can be responsive to legislation and policy proposed by others or can be pro-active in suggesting new ideas for environmental policy and management. New, pro-active initiatives should be cleared with EXCOMM before undertaken to make sure the Chapter's tax exempt status is not endangered.
2. Provide timely Chapter comment on important environmental legislation, policies, and procedures. If issue significance warrants and time allows, work with Resolutions Committee to draft a resolution for membership consideration and Chapter resolution at Annual Meeting. If relatively quick response is needed, submit draft response to President and/or EXCOMM for review and possibly to Resolutions Committee to draft an EXCOMM resolution. If immediate response is needed, submit response after Environmental Concerns Committee review. Contact the Chapter President regarding questions of protocol or propriety.
3. Provide update information to membership through newsletter and reports at Annual Meeting.
4. Committee may reach beyond the confines of Chapter membership to take an active public education role on issues of concern. Outreach activities to audiences other than Chapter membership should occur with the guidance of EXCOMM.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

Variable regarding other duties.

## NOMINATING COMMITTEE

### Primary Responsibilities

1. The past-President serves as committee chairperson and shall appoint at least one additional member to the Committee.
2. The Committee must identify at least two willing and capable candidates for each office, as follows:
  - (1) President-elect: annually
  - (2) Secretary-Treasurer: biannually

Selection of candidates is done in consultation with and subject to the approval of EXCOMM.

3. Conduct of elections, including absentee balloting, should be conducted according to accepted procedures, as outlined in current "Roberts Rules of Order".

### Calendar

Six months prior to Annual Meeting, identify committee members.

Five months prior to Annual Meeting, identify slate of candidates and collect biographical summaries for inclusion in newsletter and distribution at Annual Meeting; include directions for absentee balloting.

At Annual Meeting, conduct elections, including absentee ballot tallying, if appropriate.

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

## AUDIT/FINANCE COMMITTEE

### Primary Responsibilities

1. Review with Secretary-Treasurer the status of Chapter financial accounts for report at Annual Meeting.
2. Assess and verify accuracy of Chapter financial records.
3. Advise Secretary-Treasurer on investment of Chapter cash reserves.
4. Upon specific charge of the EXCOMM, review and develop (if necessary) a new, long-range financial strategy in conjunction with a Cash Reserves Committee chosen by the EXCOMM.

### Calendar

Prior to or at Annual Meeting, review financial records with Secretary-Treasurer.

At Annual Meeting, present audit report.

Every five years, review Chapter's financial status.

## STUDENT SUBUNIT

The general purpose of the Student Subunit is to facilitate communications among student members regarding fisheries science issues and to perform activities that advance the training of students in fisheries science. The Student Subunit has its own president, vice-president, secretary, and treasurer. Activities of the subunit are under the direction of a faculty advisor who is a member of the Chapter.

### Primary Responsibilities

1. Elect officers of the subunit.
2. Encourage subunit participation of fisheries students at all colleges and universities in the State.
3. Provide a representative to participate in Chapter EXCOMM meetings as a non-voting member.
4. Perform group activities that will promote and enhance the education of fisheries students in the State.
5. Report on subunit activities in the Chapter newsletter and at Chapter meetings.
6. Encourage participation of subunit members in Chapter, Division, and Society activities.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.

Variable schedule for other activities.

## PROFESSIONAL DIVERSITY COMMITTEE

### Primary Responsibilities

1. Implement the recommendations included in the "Tri-Society Committee on the Status of Women and Minorities in Natural Resources, Final Report (December 1989)". Priorities may be chosen from the following:
  - (1) Expand and propose for Chapter adoption the statement of values and benefits of cultural, racial, and sexual diversity contained in the report.
  - (2) In conjunction with the Membership Committee, develop guidelines for recruiting activities including sources of women and minority candidates and types of presentations to make.
  - (3) Develop recommendations for ways of providing support systems (networking) and mentoring systems for nontraditional professionals. Encourage establishment of support systems in Chapter.
  - (4) Develop Chapter statements on sexual/racial harassment.
  - (5) Develop recommendations for how to diversity Chapter leadership.
  - (6) Develop guidelines for actively involving spouses and partners in Chapter meetings.
  - (7) Suggest draft resolutions to Chapter Resolutions Committee, focusing on professional diversity concerns.
  - (8) Implement strategies for providing women, minorities, and urban students opportunities to acquire technical and professional skills to succeed.
2. Continually assess and characterize the status of women and minorities in the fisheries professions and education systems in the State and to report any associated issues or recommendations to the Chapter for consideration and action.
3. Make recommendations to the EXCOMM regarding activities that may be appropriate for other Chapter committees to undertake in order to achieve professional diversity goals.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.

Variable schedule for other activities.

## **PAST-PRESIDENT**

### Primary Responsibilities

1. Forward all appropriate incoming correspondence to the attention of the new Chapter President.
2. Chair the Nominating Committee.
3. Serve as a voting member of the Executive Committee.
4. Update and distribute the Policy and Procedures Manual to all EXCOMM members at the first EXCOMM Meeting following the Annual Meeting.
5. Provide the incoming President with the revised version of the Policy and Procedures Manual in an acceptable software format.

## YOUTH EDUCATION COMMITTEE

### Primary Responsibilities

1. Become an active committee within the NYC-AFS by soliciting committee members, promoting Aquatic Resource Education (ARE) via poster sessions and workshops, and encouraging ARE stewardship to youth among all Chapter members.
2. Become familiar with the activities of the AFS National Youth Education Committee and bring these concepts to New York State.
3. Participate in the annual review of the New York State Sportfishing Aquatic Resources Education Program (SAREP).
4. Compile and make available aquatic resource education programs currently implemented in schools and outside fishing clinics.
5. Encourage AFS members to initiate personal contacts with a local school, and present ARE topics and activities to a teacher and class.

### Calendar

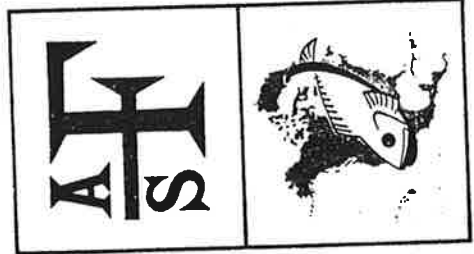
At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.





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The  
AMERICAN FISHERIES SOCIETY  
hereby recognizes the  
New York Chapter

as officially and duly chartered by the parent society

The American Fisheries Society, the oldest professional society in North America dealing with the natural resources, was organized in 1870. Among its objectives are conservation, development and wise utilization of the fisheries, promotion of the educational, scientific, and technological development and advancement of all branches of fisheries science and practice, and exchange and dissemination of knowledge about fish, fisheries, and related subjects.



Date of Charter  
March 12, 1968

President *[Signature]*  
Executive Secretary *Robert H. Norton*

BYLAWS OF THE NEW YORK CHAPTER OF THE AMERICAN FISHERIES  
SOCIETY

SECTION 1. NAME AND OBJECTIVES

1. THE NAME OF THIS ORGANIZATION SHALL BE THE NEW YORK CHAPTER OF THE AMERICAN FISHERIES SOCIETY, HEREINAFTER REFERRED TO AS THE CHAPTER.
2. THE OBJECTIVES OF THE CHAPTER SHALL BE THOSE OF THE AMERICAN FISHERIES SOCIETY AS SET FORTH IN ARTICLE 1 OF ITS CONSTITUTION, AND TO ENCOURAGE THE EXCHANGE OF INFORMATION BY MEMBERS OF THE SOCIETY RESIDING WITHIN THE STATE OF NEW YORK.

SECTION 2. MEMBERSHIP AND DUES

1. THE MEMBERSHIP OF THE CHAPTER SHALL BE OF THE FOLLOWING CLASSES:
  - A. MEMBER: ACTIVE MEMBERS OF THE AMERICAN FISHERIES SOCIETY IN GOOD STANDING, UPON ENROLLMENT IN THE CHAPTER, SHALL BE ELIGIBLE TO VOTE.
  - B. HONORARY MEMBER: PERSONS WHO, BY REASON OF OUTSTANDING SERVICE TO THE CHAPTER OR OFFICIAL POSITION, SHALL BE ELIGIBLE FOR ELECTION AS AN HONORARY MEMBER UPON NOMINATION BY TWO OR MORE CHAPTER MEMBERS IN GOOD STANDING, AND A 2/3 VOTE OF THE MEMBERS PRESENT AT AN ANNUAL MEETING. THERE SHALL BE TWO CLASSES OF HONORARY MEMBERSHIP:
    - (1) DISTINGUISHED SERVICE AND (2) EXOFFICIO. HONORARY MEMBERS SHALL BE ENTITLED TO ALL RIGHTS AND PRIVILEGES OF MEMBERS, EXCEPT THAT EXOFFICIO MEMBERS SHALL NOT VOTE OR HOLD OFFICE.
2. ANNUAL DUES FOR MEMBERS SHALL BE TEN DOLLARS(\$10), EXCEPT THAT DUES FOR FULL-TIME STUDENTS SHALL BE FIVE DOLLARS(\$5). HONORARY MEMBERS WILL NOT BE REQUIRED TO PAY DUES. DUES OF NEW MEMBERS SHALL BE PAYABLE WHEN APPLICATION FOR MEMBERSHIP IS ACCEPTED. MEMBERSHIPS NOT PAID ON OR BEFORE JULY 1 SHALL BE CONSIDERED LAPSED AND THOSE PERSONS SHALL NOT RECEIVE PUBLICATIONS OF THE CHAPTER AND SHALL FORFEIT ALL RIGHTS AND PRIVILEGES OF MEMBERSHIP AS LONG AS DUES ARE UNPAID.

SECTION 3. MEETINGS

THE CHAPTER SHALL HOLD AT LEAST ONE MEETING ANNUALLY AT THE TIME AND PLACE DESIGNATED BY THE EXECUTIVE COMMITTEE. NOTICE OF THE ANNUAL MEETING OF THE CHAPTER SHALL BE MAILED TO EACH MEMBER AT LEAST ONE MONTH BEFORE THE DATE OF SUCH MEETING. BUSINESS SHALL BE CONDUCTED IN ACCORDANCE WITH PROVISIONS OF THESE BYLAWS, AND/OR ROBERT'S RULES OF ORDER IN THE ABSENCE

OF SPECIFIC GUIDELINES. THE PROGRAM SHALL BE THE RESPONSIBILITY OF THE PROGRAM COMMITTEE.

#### SECTION 4. OFFICERS

THE OFFICERS OF THE CHAPTER SHALL CONSIST OF A PRESIDENT, PRESIDENT-ELECT, SECRETARY-TREASURER, AND SECRETARY-TREASURER-ELECT.

THE PRESIDENT-ELECT AND THE SECRETARY-TREASURER-ELECT SHALL BE ELECTED AT THE ANNUAL MEETING. THE SECRETARY-TREASURER SHALL HOLD OFFICE FOR TWO YEARS, BUT THE TERM OF THE OTHER OFFICERS SHALL BE ONE YEAR. THE SECRETARY-TREASURER-ELECT SHALL BE ELECTED IN ALTERNATE YEARS. IN CASE OF A VACATED POSITION, THE EXECUTIVE COMMITTEE SHALL APPOINT A QUALIFIED REPLACEMENT TO FILL AN UNEXPIRED TERM. THE INCUMBENT (NOT NEWLY ELECTED ) PRESIDENT-ELECT AND SECRETARY-TREASURER-ELECT SHALL SUCCEED TO THE OFFICE OF PRESIDENT AND SECRETARY-TREASURER, RESPECTIVELY AT THE EXPIRATION OF THE TERMS OF THOSE OFFICERS.

IN THE EVENT OF A CANCELLATION OF AN ANNUAL MEETING AT WHICH ELECTION OF OFFICERS WAS SCHEDULED, THE OFFICERS AND THE MEMBERS OF ANY COMMITTEE 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 CHAIRPERSON AT THE EXECUTIVE COMMITTEE, REPRESENT THE CHAPTER ON THE NORTHEAST DIVISION EXECUTIVE COMMITTEE AND IN THE AMERICAN FISHERIES SOCIETY, MAKE APPOINTMENTS AND PERFORM OTHER DUTIES AND FUNCTIONS AS ARE AUTHORIZED AND NECESSARY. THE CHAPTER SHALL REIMBURSE THE PRESIDENT OF THE CHAPTER, OR AN ALTERNATE DESIGNATED BY THE PRESIDENT, FOR BUDGETED EXPENSES ASSOCIATED WITH ATTENDANCE AT THE EXECUTIVE COMMITTEE MEETINGS HELD DURING THE ANNUAL AMERICAN FISHERIES SOCIETY MEETING, AND THE EXECUTIVE COMMITTEE MEETINGS OF THE NORTHEAST DIVISION. A BUDGET FOR THESE EXPENSES SHALL BE PROPOSED BY THE CHAPTER PRESIDENT AND APPROVED BY THE CHAPTER EXECUTIVE COMMITTEE.

THE PRESIDENT-ELECT SHALL BE CHAIRPERSON OF THE MEMBERSHIP COMMITTEE AND MEMBER 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, SUBMIT A COPY OF THE MINUTES OF THE ANNUAL BUSINESS MEETING TO THE EXECUTIVE DIRECTOR OF THE SOCIETY AND THE SECRETARY-TREASURER OF THE NORTHEASTERN DIVISION WITHIN 30 DAYS AFTER SAID MEETING; AND COLLECT AND BE CUSTODIAN OF CHAPTER FUNDS, DISBURSE FUNDS AS AUTHORIZED BY THE EXECUTIVE COMMITTEE OR MEMBERSHIP, SUBMIT A RECORD OF RECEIPTS AND

DISBURSEMENTS AT THE ANNUAL MEETING, AND PERFORM SUCH DUTIES AS MAY BE REQUESTED BY THE EXECUTIVE DIRECTOR OF THE AMERICAN FISHERIES SOCIETY AND OFFICERS OF THE NORTHEASTERN DIVISION.

THE SECRETARY-TREASURER-ELECT SHALL AID THE SECRETARY-TREASURER IN HIS/HER DUTIES AND ACT AT THE DIRECTION OF THE SECRETARY-TREASURER AND PRESIDENT.

#### SECTION 6. EXECUTIVE COMMITTEE

THE EXECUTIVE COMMITTEE SHALL CONSIST OF THE CHAPTER OFFICERS (PRESIDENT, PRESIDENT-ELECT, SECRETARY-TREASURER, SECRETARY-TREASURER-ELECT) AND THE IMMEDIATE PAST-PRESIDENT. THE CHAIRPERSONS OF STANDING COMMITTEES AND AD HOC COMMITTEES SHALL BE NON-VOTING MEMBERS OF THE EXECUTIVE COMMITTEE. THE EXECUTIVE COMMITTEE IS AUTHORIZED TO ACT FOR THE CHAPTER BETWEEN MEETINGS AND TO PERFORM APPROPRIATE DUTIES AND FUNCTIONS.

#### SECTION 7. CHAPTER COMMITTEES

CHAIRPERSONS OF COMMITTEES, EXCEPT AS LISTED IN SECTIONS 5 AND 6, SHALL BE APPOINTED BY THE PRESIDENT. COMMITTEE MEMBERS SHALL BE CHOSEN BY THE RESPECTIVE COMMITTEE CHAIRPERSONS. STANDING COMMITTEES SHALL INCLUDE: AUDITING, ENVIRONMENTAL CONCERNS, MEMBERSHIP, NOMINATING, PROGRAM, AND RESOLUTIONS. THE NOMINATING COMMITTEE WILL BE CHAIRED BY THE IMMEDIATE PAST-PRESIDENT AND THE SELECTION OF NOMINEES FOR OFFICE BY THE NOMINATING COMMITTEE WILL BE DONE IN CONSULTATION WITH, AND SUBJECT TO, THE APPROVAL OF THE EXECUTIVE COMMITTEE.

THE COMMITTEES SHALL BE COMPOSED OF THE CHAIRPERSON AND ANY OTHER MEMBERS IN GOOD STANDING SELECTED BY THE CHAIRPERSON. THE COMMITTEES SHALL AID THE PRESIDENT IN THE OPERATION OF CHAPTER BUSINESS AND ACTIVITIES. THE PRESIDENT SHALL DIRECT THEM IN THEIR DUTIES. THEY MAY ALSO BE DIRECTED BY VOTE OF THE MEMBERSHIP AT AN ANNUAL MEETING.

THE TERM OF OFFICE FOR MEMBERS OF THE 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.

#### SECTION 8. VOTING AND QUORUM

DECISIONS AT MEETINGS OF THE CHAPTER SHALL BE BY A MAJORITY OF THOSE VOTING, EXCEPT THAT AMENDMENTS TO THE BYLAWS REQUIRE A 2/3 MAJORITY, AND EXCEPTED FURTHER, THE ELECTION OF HONORARY MEMBERS AND RECIPIENTS OF THE PROFESSIONAL ACHIEVEMENT AWARD REQUIRE A 2/3 MAJORITY VOTE. ANY MEMBER IN GOOD STANDING WHO CANNOT ATTEND A MEETING MAY REQUEST THE EXECUTIVE COMMITTEE IN WRITING TO REGISTER A VOTE ON A PREVIOUSLY PUBLISHED QUESTION AND SUCH A VOTE SHALL BE

COUNTED WITH THE VOTES OF MEMBERS PRESENT. SUCH VOTES SHALL NOT BE USED TO DETERMINE A QUORUM. PROXY VOTES MUST BE RECEIVED BY THE SECRETARY-TREASURER BEFORE THE ANNUAL MEETING AT WHICH THE VOTE IS TAKEN.

A QUORUM FOR THE TRANSACTION OF OFFICIAL BUSINESS SHALL BE 20 OF THE CHAPTER'S VOTING MEMBERS.

#### SECTION 9. REGISTRATION

THE EXECUTIVE COMMITTEE MAY ASSESS EACH REGISTRANT ATTENDING MEETINGS OF THE CHAPTER A REGISTRATION FEE NECESSARY TO COVER THE COSTS OF THE MEETING AND CHAPTER ACTIVITIES. COLLECTIONS SHALL BE MADE BY THE SECRETARY-TREASURER OR A REPRESENTATIVE APPOINTED BY THAT OFFICER.

#### SECTION 10. AMENDMENTS OF THE BYLAWS

THE BYLAWS OF THE CHAPTER MAY BE AMENDED IN ACCORDANCE WITH SECTION 8 OF THESE BYLAWS, 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.

#### SECTION 11. PROFESSIONAL ACHIEVEMENT AWARD

A COMMITTEE APPOINTED BY THE EXECUTIVE COMMITTEE SHALL NOMINATE AS APPROPRIATE, A CANDIDATE WHOSE DISTINGUISHED PROFESSIONAL ACCOMPLISHMENTS ARE DESERVING OF RECOGNITION BY HIS/HER PEERS. NOMINATIONS WILL BE SUBMITTED TO THE EXECUTIVE COMMITTEE FOR REVIEW AND FINAL SELECTION BEFORE BEING SUBMITTED TO THE MEMBERSHIP FOR ELECTION BY 2/3 VOTE OF THE MEMBERS PRESENT AT AN ANNUAL MEETING. THIS AWARD SHALL BE DISTINGUISHED FROM THE HONORARY MEMBERSHIP AWARD IN THAT IT WILL BE PRESENTED TO ACTIVE PROFESSIONALS FOR ACHIEVEMENTS JUDGED AS OUTSTANDING BY FELLOW FISHERIES PROFESSIONALS, RATHER THAN FOR OUTSTANDING SERVICE TO THE CHAPTER OR OFFICIAL POSITION.

(REVISIONS OF THE NEW YORK CHAPTER BYLAWS RECEIVED EXECUTIVE COMMITTEE, AMERICAN FISHERIES SOCIETY, APPROVAL IN SEPTEMBER, 1991, AND APPROVAL BY THE CHAPTER MEMBERSHIP AT THE ANNUAL BUSINESS MEETING OF JANUARY 31, 1992.)

A CENTURY OF FISHERIES  
 ACT OF INCORPORATION  
 OF THE  
 AMERICAN FISHERIES SOCIETY

We, the undersigned, persons of full age and citizens of the United States, majority being citizens of the District of Columbia, pursuant to and in conformity with sections 599 to 603, inclusive, of the Code of Law for the District of Columbia enacted March 3, 1901, as amended by the Acts approved January 31 and June 30, 1902, hereby associate ourselves together as a society or body corporate and certify in writing:

1. That the name of the society is the AMERICAN FISHERIES SOCIETY.
2. That the term for which it is organized is nine hundred and ninety-nine years.
3. That its particular business and objects are to promote the cause of fish culture; to gather and diffuse information bearing upon its practical success, upon all matters relating to the fisheries; to unite and encourage all interests of fish culture and the fisheries; and to treat all questions of a scientific and economic character regarding; with power:
  - a. To acquire, hold and convey real estate and other property, and to establish general and special funds.
  - b. To hold meetings.
  - c. To publish and distribute documents.
  - d. To conduct lectures.
  - e. To conduct, endow, or assist investigation in any department of fishery and fish-cultural science.
  - f. To acquire and maintain a library.
  - g. And, in general, to transact any business pertinent to a learned society.
4. That the affairs, funds, and property of the corporation shall be in general charge of a Council, consisting of the officers and the executive committee, the number of whose members for the first year shall be seventeen, all of whom shall be chosen from among the members of the society.

Witness our hands and seals this 15th day of December, 1910.

Seymour Bower  
 Theo. Gill  
 William E. Meehan  
 Theodore S. Palmer  
 Bertrand H. Roberts  
 Hugh M. Smith  
 Richard Sylvester

*Recorded April 11, 1911 as instrument 680013 in Incorporation Liber 28 Folio 211, Office of Recorder of Deeds, Corporation Division, Washington, District of Columbia.*

CONSTITUTION, BYLAWS, AND STANDING RULES OF THE AMERICAN FISHERIES SOCIETY

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In the cross-referencing notation, A = Article,  
B = Bylaw, and R = Rule.

**ARTICLE I**

**Names and Objectives**

1. The name of the corporation is the AMERICAN FISHERIES SOCIETY, hereinafter called the SOCIETY. The term "Society" refers to the corporation as a whole and to its central functions and products; except in the aggregate, it does not refer to the corporation's organizational subunits or to their functions or products.

2. The Society's objectives are to:

- (a) promote the conservation, development, and wise use of the fisheries;
  - (b) promote and evaluate the development and advancement of all branches of fisheries science and practice;
  - (c) gather and disseminate to Society members and the general public scientific, technical, and other information about fisheries science and practice through publications, meetings, and other forms of communication;
  - (d) encourage the teaching of fisheries science and practice in colleges and universities and the continuing professional development of fisheries workers.
3. (a) The Society may undertake any lawful activity to administer its affairs and attain its objectives, alone or in conjunction with others, except as proscribed in paragraph 1.3.(b).
- (b) The Society may not undertake any activity that would cause it to lose its exemption from United States federal taxation as provided by Section 501 (c) (3) of the Internal Revenue Code of 1954, in that Section's present or future form.





**NEW YORK CHAPTER  
AMERICAN FISHERIES SOCIETY**

**Officers and Committee  
Chairpersons' Handbook**

**Prepared June 1986; Revised January 1996**

## CHAPTER PRESIDENT

### Primary Responsibilities

1. Upon assuming office, the newly elevated President should:
  - a. Present the outgoing President with the past- President's certificate.
  - b. Announce appointments of standing committee chairpersons.
  - c. Present general statement of objectives for the coming year.
  - d. Present a budget for discussion by the membership for the coming year, including the next Annual Meeting over which he or she presides; final approval will occur within three months of the Annual Meeting.
  - e. Make appointments of ad hoc committee chairpersons at this time, if possible.
  - f. Complete committee appointments within one month. Notify Northeast Division secretary of all appointments.
2. Finalize the budget and present it for final approval by the Executive Committee no later than three months after the Annual Meeting.
3. Be specific in your charges to your committee chairpersons using this handbook and revisions thereof as a basic orientation tool. Distribute a copy of this handbook to all committee chairpersons and Executive Committee members. Distribute a copy of the AFS Procedures Manual to all officers.
4. Keep informed of committee activities.
5. Ensure that Northeast Division President and Secretary are informed about Chapter activities. A Chapter report should be submitted to the Division President before 1 March.
6. Notify the national AFS office regarding the Annual Meeting time and place as soon as it is known, to be published in "Fisheries" and the "AFS Diary".
7. Be familiar with Chapter and Northeast Division bylaws and AFS constitution and bylaws.
8. Review and follow "Robert's Rules of Order" regarding protocol for conduct of Chapter business, particularly meetings at which votes are taken, including Executive Committee meetings and the Annual Business Meeting.
9. Represent the Chapter in Society affairs, as requested.

18. Acknowledge the work of your officers and committee chairpersons, by letter, at the end of your term.
19. Inform your successor of actions taken at the previous Northeast Division Executive Committee Meeting, and see that your successor gets Minutes of same.
20. Serve on the Chapter Executive Committee for an additional year as immediate past-President.
21. Prepare an agenda, and distribute prior to meeting.
22. Send out a separate mailing for the program in mid-December, and then include a notice with the final newsletter in January.
23. Send an invitation for the Annual Meeting to Northeast Division, Parent Society.

### Calendar

Prior to Annual Meeting, at which you assume office -- to extent possible, identify committee chairpersons (see President-elect duties).

Prior to Annual Meeting, at which you assume office, develop budget for coming year in conjunction with Secretary-Treasurer and outgoing President (see President-elect duties).

At Annual Meeting, assume office and present your budget for discussion.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

By one month after Annual meeting, complete committee chairperson appointments and communicate to Division Secretary.

By three months after Annual Meeting, conduct initial meeting of Chapter Executive Committee, and present budget for final approval.

Summer -- second meeting of Executive Committee.

Fall -- Executive Committee Meeting if business warrants; assist President-elect with developing budget for his/her term of office.

Annual Meeting -- final Executive Committee Meeting and Annual Business Meeting; preside over meeting.

## EXECUTIVE COMMITTEE

The Executive Committee (EXCOMM) consists of the Chapter officers (President, President-elect, Secretary-Treasurer, Secretary-Treasurer-elect) and the immediate Past-President. The chairpersons of standing committees (Audit/Finance, Environmental Concerns, Membership, Nominating, Program, and Resolutions) and ad hoc committees (Professional Incentives, Newsletter, Workshop, Student Subunit, and Professional Diversity committees currently) shall be non-voting members of the EXCOMM.

### Primary Responsibilities

The EXCOMM is authorized to act for the Chapter between meetings. In so doing, the EXCOMM is responsible for monitoring and directing Chapter activities, as charged by the membership at Annual Business Meetings. The Chapter President presides over all EXCOMM Meetings and provides a meeting agenda in advance.

### Calendar

No more than three months after Annual Meeting, initial organizational meeting and final approval of the President's proposed budget.

Summer -- second meeting.

Fall -- meeting or conference call, if business warrants.

Immediately prior to Annual Meeting, summary meeting; review incoming President's proposed budget for discussion.

9. Prepare registration materials for the Annual Meeting, and register attendees starting on the evening preceding scheduled sessions and as needed throughout the meeting. Furnish receipts when requested. Supervise student assistants at the Annual Meeting.
10. Submit financial reports, including reports of receipts and disbursements. Informal, verbal reports are to be made at Executive Committee meetings. A formal, written report is to be provided at Annual Meeting. Cooperate with the Audit/Finance Committee in an annual review of the books. Prepare annual budget proposal, with rough draft to the EXCOMM at least six weeks before the Annual Meeting.
11. Ascertain if there is a quorum present for official actions, and furnish ballots for elections.
12. Submit copies of Chapter resolutions promptly to the Executive Director and the Northeast Division Secretary. Indicate those for which Division and Society support is requested.
13. Serve as voting member of EXCOMM.
14. Orient the Secretary-Treasurer-elect to the responsibilities of the office.
15. Assist Membership Committee chairperson in keeping track of membership status for reports at EXCOMM meetings and Annual Meeting.

### Calendar

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

At least two months prior to Annual Meeting, notify membership of the meeting; assist in preparing annual budget proposal for EXCOMM, to be submitted by the new President at the Annual Meeting, at which he or she is installed.

Six weeks prior to Annual Meeting, order Past-President's Certificate and award materials; distribute President-elect's draft budget to EXCOMM.

Prior to Annual Meeting, prepare annual financial report and review with Audit/Finance Committee. Prepare meeting registration materials and ballots.

At Annual Meeting, register attendees; provide financial report; take Minutes; supervise student assistants; etc.

At EXCOMM meetings, provide fiscal update; take Minutes; distribute Minutes in timely fashion.

## **SECRETARY-TREASURER-ELECT**

### **Primary Responsibilities**

1. Develop with Secretary-Treasurer appropriate orientation activities and responsibilities to prepare you for assumption of that role.
2. Attend EXCOMM meetings as a voting member.
3. During year as “elect”, record Minutes of EXCOMM meetings and submit to Secretary-Treasurer for distribution to EXCOMM members.
4. Before assuming Secretary-Treasurer position, arrange to transfer file, financial accounts, and mailing permits.

## MEMBERSHIP COMMITTEE

### Primary Responsibilities

1. President-elect serves as chairperson and appoints committee members, as appropriate (or may serve as sole committee member).
2. Serves as primary contact for prospective members.
3. Reviews with Secretary-Treasurer the status of membership to assess current trends.
4. Develops specific recruitment strategies, as appropriate.
5. Contacts new Society members in New York, as reported by Northeast Division or through other means.
6. With assistance of Secretary-Treasurer, reports membership status at EXCOMM meetings and Annual Meeting.

### Calendar

At first EXCOMM Meeting, prepare membership analysis as basis for discussing objectives and strategies.

Throughout year, contact prospective members; submit newsletter articles, as appropriate.

At each EXCOMM Meeting, submit oral and/or written progress report, as required.

Annual Meeting -- summary report to EXCOMM.

Two months prior to Annual Meeting, initiate invited speaker lodging and transportation arrangements. Develop meeting agenda to be included in December newsletter, along with second call for papers. Start review of submitted papers/posters.

One month prior to Annual Meeting, finalize review of submitted paper/poster abstracts. Develop contributed paper/poster agendas, based on this review. Provide directions on paper and poster presentation preparation to those authors selected to participate to ensure high quality. Solicit awards for poster/paper recognition.

Three weeks prior to Annual Meeting, visit meeting site to confirm all plans and arrangements. Organize and conduct Program Committee Meeting prior to Annual Chapter Meeting to identify and arrange final logistical needs, such as recruitment of student assistants and equipment. Appoint award judges, and prepare rating materials. Finalize meeting agenda and have printed for distribution at Annual Meeting, along with abstracts for invited papers and contributed papers and posters.

At Annual Meeting, oversee registration and all sessions of the meeting, working as liaison with site establishment staff to address/correct any problems which arise. Provide brief Program Committee report at Chapter Annual Meeting. Together with Secretary-Treasurer, review billing documents immediately following Annual Meeting.

One month after Annual Meeting, provide report of expenses relative to planned budget to the EXCOMM by the first meeting. Prepare proposed Annual Meeting budget for the next year for discussion by EXCOMM. Report suggested improvements to EXCOMM for the following year.



## NEWSLETTER COMMITTEE

### Primary Responsibilities

1. Solicit, collate, edit, and arrange for the reproduction and distribution of the Chapter newsletter. Coordinate with the Secretary-Treasurer regarding procedures for copying and distribution. Frequency of publication is determined under guidance of EXCOMM, but typically involves a minimum of three issues per year.
2. Evaluate effectiveness of the newsletter and report to EXCOMM and Chapter membership.
3. Include in newsletter content primary Chapter business and informative current developments or professional resources. The former would include workshop and Annual Meeting announcements, business meeting Minutes, election information, committee reports or requests, draft resolutions, etc.
4. Maintain communications with EXCOMM and other committee chairpersons, especially to remind them when newsletter deadlines are approaching, and seek their contributions to the newsletter.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Dates are tentative and serve as a general guide. Important information often can be added shortly before duplication, which is usually one week before distribution. Example content assumes a late-January Annual Meeting.

- (1) Copy due date 28 February for Distribution date 31 March. This issue normally includes the Annual Meeting Minutes and other reports from that meeting.
- (2) Copy due date 31 July for Distribution date 31 August. This issue normally contains the first, brief publicity about upcoming Annual meeting events to aid members' preparations.
- (3) Copy due date 30 November for Distribution date 31 December. This issue normally contains Annual Meeting program, registration information, and candidate background information for the elections to be held at the Annual Meeting.

## **PROFESSIONAL INCENTIVES COMMITTEE**

### **Primary Responsibilities**

1. Develop, initiate, and review Chapter activities considered by EXCOMM to provide or enhance professionalism among Chapter members.
2. Specific proposals developed by the Committee will be subject to the review and approval of EXCOMM and Chapter membership.
3. Monitor the various awards the Chapter gives out and make nominations for each, as appropriate (i.e., Honorary Member, Professional Achievement). Such nominations must be reviewed by EXCOMM before submitting them for final Chapter membership vote.
4. Develop a Conservation Award for non-Chapter members.

### **Calendar**

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

At least four weeks prior to Annual Meeting, submit final nominee credentials for awards to EXCOMM.

Variable, depending on charge.

## NOMINATING COMMITTEE

### Primary Responsibilities

1. The past-President serves as committee chairperson and shall appoint at least one additional member to the Committee.
2. The Committee must identify at least two willing and capable candidates for each office, as follows:
  - (1) President-elect: annually
  - (2) Secretary-Treasurer: biannually

Selection of candidates is done in consultation with and subject to the approval of EXCOMM.

3. Conduct of elections, including absentee balloting, should be conducted according to accepted procedures, as outlined in current "Roberts Rules of Order".

### Calendar

Six months prior to Annual Meeting, identify committee members.

Five months prior to Annual Meeting, identify slate of candidates and collect biographical summaries for inclusion in newsletter and distribution at Annual Meeting; include directions for absentee balloting.

At Annual Meeting, conduct elections, including absentee ballot tallying, if appropriate.

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

## STUDENT SUBUNIT

The general purpose of the Student Subunit is to facilitate communications among student members regarding fisheries science issues and to perform activities that advance the training of students in fisheries science. The Student Subunit has its own president, vice-president, secretary, and treasurer. Activities of the subunit are under the direction of a faculty advisor who is a member of the Chapter.

### Primary Responsibilities

1. Elect officers of the subunit.
2. Encourage subunit participation of fisheries students at all colleges and universities in the State.
3. Provide a representative to participate in Chapter EXCOMM meetings as a non-voting member.
4. Perform group activities that will promote and enhance the education of fisheries students in the State.
5. Report on subunit activities in the Chapter newsletter and at Chapter meetings.
6. Encourage participation of subunit members in Chapter, Division, and Society activities.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.

Variable schedule for other activities.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.

Variable schedule for other activities.

## **YOUTH EDUCATION COMMITTEE**

### **Primary Responsibilities**

1. Become an active committee within the NYC-AFS by soliciting committee members, promoting Aquatic Resource Education (ARE) via poster sessions and workshops, and encouraging ARE stewardship to youth among all Chapter members.
2. Become familiar with the activities of the AFS National Youth Education Committee and bring these concepts to New York State.
3. Participate in the annual review of the New York State Sportfishing Aquatic Resources Education Program (SAREP).
4. Compile and make available aquatic resource education programs currently implemented in schools and outside fishing clinics.
5. Encourage AFS members to initiate personal contacts with a local school, and present ARE topics and activities to a teacher and class.

### **Calendar**

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.



**NEW YORK CHAPTER  
AMERICAN FISHERIES SOCIETY**

**Officers and Committee  
Chairpersons' Handbook**

**Prepared June 1986; Revised January 1996**

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## CHAPTER PRESIDENT

### Primary Responsibilities

1. Upon assuming office, the newly elevated President should:
  - a. Present the outgoing President with the past- President's certificate.
  - b. Announce appointments of standing committee chairpersons.
  - c. Present general statement of objectives for the coming year.
  - d. Present a budget for discussion by the membership for the coming year, including the next Annual Meeting over which he or she presides; final approval will occur within three months of the Annual Meeting.
  - e. Make appointments of ad hoc committee chairpersons at this time, if possible.
  - f. Complete committee appointments within one month. Notify Northeast Division secretary of all appointments.
2. Finalize the budget and present it for final approval by the Executive Committee no later than three months after the Annual Meeting.
3. Be specific in your charges to your committee chairpersons using this handbook and revisions thereof as a basic orientation tool. Distribute a copy of this handbook to all committee chairpersons and Executive Committee members. Distribute a copy of the AFS Procedures Manual to all officers.
4. Keep informed of committee activities.
5. Ensure that Northeast Division President and Secretary are informed about Chapter activities. A Chapter report should be submitted to the Division President before 1 March.
6. Notify the national AFS office regarding the Annual Meeting time and place as soon as it is known, to be published in "Fisheries" and the "AFS Diary".
7. Be familiar with Chapter and Northeast Division bylaws and AFS constitution and bylaws.
8. Review and follow "Robert's Rules of Order" regarding protocol for conduct of Chapter business, particularly meetings at which votes are taken, including Executive Committee meetings and the Annual Business Meeting.
9. Represent the Chapter in Society affairs, as requested.

10. Be aware of Society safeguards concerning lobbying activities by the Chapter to protect the Society's tax exempt status. Consult the Society's Procedural Manual and central office staff regarding restrictions.
11. As a voting member of the Northeast Division Executive Committee, you are expected to ensure Chapter representation and participation in any meetings of same called by the Division President. In addition, every effort should be made to represent the Chapter at the Society's Executive Committee Annual Meeting. You may include travel funds for these meetings as line items in the budget you submit at the Annual Meeting, at which you are installed as President.
12. Present a brief written report of Chapter activities at the annual Division Executive Committee Meeting. Minutes of our Annual Meeting normally serve this function, so the President should ensure these are sent by the Chapter Secretary-Treasurer.
13. Schedule and preside over all Executive Committee meetings. Provide an agenda in advance to all who will be attending. The agenda should list topics to be covered, individuals responsible for addressing each topic, and approximate times to be devoted to discussing each topic. After the initial meeting, these may include telephone conference meetings.
14. Work with the President-elect and Secretary-Treasurer to prepare a budget to be submitted for discussion and approval at the Annual Meeting, at which the President-elect will assume office; and for approval at an Executive Committee Meeting no later than three months after the Annual Meeting.
15. Work with the Secretary-Treasurer to monitor the financial status of the Chapter. If cash reserves approach an upper limit of \$25,000, devise a plan to spend the surplus. If reserves approach a lower limit of \$12,000, put the Chapter on an austerity budget and begin fundraising in earnest.
16. Preside over the Annual Meeting, as needed (e.g., introductory remarks, introduce keynote speaker, introduce session chairs, make announcements).
17. Arrange and provide agenda for Chapter Annual Meeting; preside over meeting:
  - a. Adhere to agenda and time schedule.
  - b. Introduce any AFS and Division officers present and provide them with an opportunity to address the membership.
  - c. Introduce other guests.
  - d. Acknowledge work of your officers and committee chairpersons and members.
  - e. Install the new President; typically, the President-elect is escorted to the rostrum by two past- Presidents.

18. Acknowledge the work of your officers and committee chairpersons, by letter, at the end of your term.
19. Inform your successor of actions taken at the previous Northeast Division Executive Committee Meeting, and see that your successor gets Minutes of same.
20. Serve on the Chapter Executive Committee for an additional year as immediate past-President.
21. Prepare an agenda, and distribute prior to meeting.
22. Send out a separate mailing for the program in mid-December, and then include a notice with the final newsletter in January.
23. Send an invitation for the Annual Meeting to Northeast Division, Parent Society.

#### Calendar

Prior to Annual Meeting, at which you assume office -- to extent possible, identify committee chairpersons (see President-elect duties).

Prior to Annual Meeting, at which you assume office, develop budget for coming year in conjunction with Secretary-Treasurer and outgoing President (see President-elect duties).

At Annual Meeting, assume office and present your budget for discussion.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

By one month after Annual meeting, complete committee chairperson appointments and communicate to Division Secretary.

By three months after Annual Meeting, conduct initial meeting of Chapter Executive Committee, and present budget for final approval.

Summer -- second meeting of Executive Committee.

Fall -- Executive Committee Meeting if business warrants; assist President-elect with developing budget for his/her term of office.

Annual Meeting -- final Executive Committee Meeting and Annual Business Meeting; preside over meeting.

**At each meeting, the Executive Committee should vote to approve Minutes of prior meeting.**

**At the first Executive Committee Meeting following the Annual Meeting, vote to approve the previous year's budget.**

**In alternate years, vote for election of Secretary-Treasurer.**

## EXECUTIVE COMMITTEE

The Executive Committee (EXCOMM) consists of the Chapter officers (President, President-elect, Secretary-Treasurer, Secretary-Treasurer-elect) and the immediate Past-President. The chairpersons of standing committees (Audit/Finance, Environmental Concerns, Membership, Nominating, Program, and Resolutions) and ad hoc committees (Professional Incentives, Newsletter, Workshop, Student Subunit, and Professional Diversity committees currently) shall be non-voting members of the EXCOMM.

### Primary Responsibilities

The EXCOMM is authorized to act for the Chapter between meetings. In so doing, the EXCOMM is responsible for monitoring and directing Chapter activities, as charged by the membership at Annual Business Meetings. The Chapter President presides over all EXCOMM Meetings and provides a meeting agenda in advance.

### Calendar

No more than three months after Annual Meeting, initial organizational meeting and final approval of the President's proposed budget.

Summer -- second meeting.

Fall -- meeting or conference call, if business warrants.

Immediately prior to Annual Meeting, summary meeting; review incoming President's proposed budget for discussion.

## SECRETARY-TREASURER

### Primary Responsibilities

1. Maintain Chapter membership records, including a membership roster and record of payment of dues. Prepare the annual membership directory by 1 June. Include as current members in good standing those for whom dues have been paid for at least the previous calendar year. Only current members in good standing are eligible to vote.
2. Obtain a special third class mailing permit. Mail all newsletters, announcements and correspondence as prepared by the newsletter editor, the Workshop Committee and others, as appropriate. The routing mailing list should include all current members in good standing and the Executive Secretary of the Society, the President and Secretary of the Northeast Division, and the Presidents of all the Chapters within the Northeast Division.
3. Prepare and retain Minutes of all official meetings, and retain Chapter records in good order. Copies of Minutes are to be distributed to Executive Committee members. Approved copies of Minutes are to be distributed to the President of the Northeast Division. A copy of the Minutes of the Annual Meeting should be furnished to the Executive Director and the Secretary and President of the Northeast Division within 30 days after the meeting.
4. Collect and be custodian of Chapter funds. Use the Federal Employer's Identification number assigned to the Chapter, in lieu of a Social Security number. Deposit Chapter funds in an interest-bearing account. Disburse funds as authorized by the Executive Committee or Chapter membership.
5. Notify the membership of the Annual Meeting at least two months in advance. Notification should be sent by First Class mail to assure prompt delivery. The Executive Secretary and President of the Society, and the President and Secretary of the Northeast Division should be informed of the Annual Business Meeting.
6. Keep a supply of Chapter bylaws on hand, and be familiar with their content. Forward proposed amendments to the bylaws promptly to the Executive Director for action by the Executive Committee of the Society.
7. Maintain a supply of information brochures about the Chapter and the Society, and make copies available to anyone who requests them.
8. Order a Past-President's Certificate from the Society office at least six weeks prior to the Annual Meeting. Order "Best Paper" and other award materials, as directed by EXCOMM or Program Committee chairperson.

9. Prepare registration materials for the Annual Meeting, and register attendees starting on the evening preceding scheduled sessions and as needed throughout the meeting. Furnish receipts when requested. Supervise student assistants at the Annual Meeting.
10. Submit financial reports, including reports of receipts and disbursements. Informal, verbal reports are to be made at Executive Committee meetings. A formal, written report is to be provided at Annual Meeting. Cooperate with the Audit/Finance Committee in an annual review of the books. Prepare annual budget proposal, with rough draft to the EXCOMM at least six weeks before the Annual Meeting.
11. Ascertain if there is a quorum present for official actions, and furnish ballots for elections.
12. Submit copies of Chapter resolutions promptly to the Executive Director and the Northeast Division Secretary. Indicate those for which Division and Society support is requested.
13. Serve as voting member of EXCOMM.
14. Orient the Secretary-Treasurer-elect to the responsibilities of the office.
15. Assist Membership Committee chairperson in keeping track of membership status for reports at EXCOMM meetings and Annual Meeting.

### Calendar

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

At least two months prior to Annual Meeting, notify membership of the meeting; assist in preparing annual budget proposal for EXCOMM, to be submitted by the new President at the Annual Meeting, at which he or she is installed.

Six weeks prior to Annual Meeting, order Past-President's Certificate and award materials; distribute President-elect's draft budget to EXCOMM.

Prior to Annual Meeting, prepare annual financial report and review with Audit/Finance Committee. Prepare meeting registration materials and ballots.

At Annual Meeting, register attendees; provide financial report; take Minutes; supervise student assistants; etc.

At EXCOMM meetings, provide fiscal update; take Minutes; distribute Minutes in timely fashion.

During last year in office, orient the Secretary-Treasurer-elect.

Update and distribute Chapter directory to membership every ? years.



## **SECRETARY-TREASURER-ELECT**

### **Primary Responsibilities**

1. Develop with Secretary-Treasurer appropriate orientation activities and responsibilities to prepare you for assumption of that role.
2. Attend EXCOMM meetings as a voting member.
3. During year as “elect”, record Minutes of EXCOMM meetings and submit to Secretary-Treasurer for distribution to EXCOMM members.
4. Before assuming Secretary-Treasurer position, arrange to transfer file, financial accounts, and mailing permits.

## **PRESIDENT-ELECT**

### Primary Responsibilities

1. Serve as voting member of EXCOMM.
2. Serve as Membership Committee chairperson.
3. Serve as Program Committee member.
4. Assume duties of President, if he/she is unable to act.
5. At least six weeks prior to the Annual Meeting, at which you will be installed as President, work with Secretary-Treasurer and current President to develop a proposed annual budget. Submit the budget to EXCOMM for discussion at the Annual Meeting. Donations should be planned for the year as a line item, and expenses for the President (or designate) to represent the Chapter at AFS National or Division meetings should be included as a line item. The Annual Meeting should also be included as a line item.
6. Review and revise the action agenda for the Chapter by the second EXCOMM Meeting in which you participate.
7. Take the lead role in fundraising activities (i.e., raffle, t-shirt sales, etc.).

### Calendar

By second EXCOMM Meeting, revise Chapter's action agenda.

At least six weeks prior to Annual Meeting, submit proposed budget to EXCOMM.

Prior to Annual Meeting, identify new committee chairpersons, to extent possible.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

## **MEMBERSHIP COMMITTEE**

### **Primary Responsibilities**

1. President-elect serves as chairperson and appoints committee members, as appropriate (or may serve as sole committee member).
2. Serves as primary contact for prospective members.
3. Reviews with Secretary-Treasurer the status of membership to assess current trends.
4. Develops specific recruitment strategies, as appropriate.
5. Contacts new Society members in New York, as reported by Northeast Division or through other means.
6. With assistance of Secretary-Treasurer, reports membership status at EXCOMM meetings and Annual Meeting.

### **Calendar**

At first EXCOMM Meeting, prepare membership analysis as basis for discussing objectives and strategies.

Throughout year, contact prospective members; submit newsletter articles, as appropriate.

At each EXCOMM Meeting, submit oral and/or written progress report, as required.

Annual Meeting -- summary report to EXCOMM.

## **PROGRAM COMMITTEE (Annual Meeting)**

### Primary Responsibilities

1. Organize and coordinate keynote and invited speaker presentations for the program of the Annual Meeting. Coordinate with President regarding who will make announcements and do introductions. Typically, the President presides over all sessions.
2. Organize and conduct paper and poster presentations and recognition awards for the Annual Meeting.
3. Arrange for meeting-rooms, lodging, and meals at Annual Meeting. Coordinate activities and announcements at Annual Meeting.

[NOTE: Because of the diverse nature of the Committee's responsibilities, a co-chairperson system was initiated on a trial basis for 1991-92. This system calls for one co-chair to be responsible for program areas (1 & 2 above), and one co-chair to be responsible for meeting logistics (3 above).]

### Calendar

At each EXCOMM meeting, submit oral and/or written progress reports, as required.

Ten months prior to Annual Meeting, establish site and confirm dates for Annual Meeting. It is helpful if this is accomplished prior to the year's first EXCOMM Meeting. Appoint committee members. Responsibilities include logistics, awards program, invited speaker arrangements, contributed paper and poster abstract review and arrangements, liaison with student Chapter, and program/abstract handout preparation.

Seven months prior to Annual Meeting, establish fee structure for Annual Meeting, based on contract with meeting site establishment and target budget established in conjunction with EXCOMM. Establish meeting theme(s), in consultation with Executive Committee, and identify potential list of invited speakers.

Five months prior to Annual Meeting, confirm Annual Meeting dates with invited speakers. First call for papers advertised in Fall (September) newsletter (check with newsletter editor for submission deadline). Include paper/poster recognition and awards procedures. Fee structure finalized. General announcement of Annual Meeting site, theme, rates, etc. developed and included in September newsletter. Announcement advertised in AFS, Northeast Division, and other AFS subunit newsletters.

Two months prior to Annual Meeting, initiate invited speaker lodging and transportation arrangements. Develop meeting agenda to be included in December newsletter, along with second call for papers. Start review of submitted papers/posters.

One month prior to Annual Meeting, finalize review of submitted paper/poster abstracts. Develop contributed paper/poster agendas, based on this review. Provide directions on paper and poster presentation preparation to those authors selected to participate to ensure high quality. Solicit awards for poster/paper recognition.

Three weeks prior to Annual Meeting, visit meeting site to confirm all plans and arrangements. Organize and conduct Program Committee Meeting prior to Annual Chapter Meeting to identify and arrange final logistical needs, such as recruitment of student assistants and equipment. Appoint award judges, and prepare rating materials. Finalize meeting agenda and have printed for distribution at Annual Meeting, along with abstracts for invited papers and contributed papers and posters.

At Annual Meeting, oversee registration and all sessions of the meeting, working as liaison with site establishment staff to address/correct any problems which arise. Provide brief Program Committee report at Chapter Annual Meeting. Together with Secretary-Treasurer, review billing documents immediately following Annual Meeting.

One month after Annual Meeting, provide report of expenses relative to planned budget to the EXCOMM by the first meeting. Prepare proposed Annual Meeting budget for the next year for discussion by EXCOMM. Report suggested improvements to EXCOMM for the following year.

## WORKSHOP COMMITTEE

### Primary Responsibilities

1. Under guidance of EXCOMM, develop and conduct an educational workshop(s) separate or in conjunction with the Annual Meeting. If the workshop is to be in conjunction with the Annual Meeting, coordinate regarding schedules, logistics, fees, and topics with Program Committee.
2. Solicit workshop topic ideas from Chapter members, and select an appropriate topic(s) with guidance from EXCOMM.
3. Develop workshop content, format, and logistical needs.
4. Arrange publicity.
5. Conduct event.
6. Evaluate event.
7. Make specific recommendations to EXCOMM and future workshop committees.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Twelve months prior to workshop, gain specific subject matter guidance from EXCOMM; appoint primary committee members.

Eight months prior to workshop, make initial logistical contacts for conference facilities and workshop "instructors".

Six months prior to workshop, finalize specific arrangements including lodging, schedule, arrangements, publicity plans; submit a short introductory article to the newsletter.

Four months prior to workshop, advertise workshop and registration procedures to Chapter members and others.

One month prior to workshop, reminder to all Chapter members and others.

One month after workshop, provide final report, evaluation, and recommendations to the EXCOMM and to the newsletter.

## NEWSLETTER COMMITTEE

### Primary Responsibilities

1. Solicit, collate, edit, and arrange for the reproduction and distribution of the Chapter newsletter. Coordinate with the Secretary-Treasurer regarding procedures for copying and distribution. Frequency of publication is determined under guidance of EXCOMM, but typically involves a minimum of three issues per year.
2. Evaluate effectiveness of the newsletter and report to EXCOMM and Chapter membership.
3. Include in newsletter content primary Chapter business and informative current developments or professional resources. The former would include workshop and Annual Meeting announcements, business meeting Minutes, election information, committee reports or requests, draft resolutions, etc.
4. Maintain communications with EXCOMM and other committee chairpersons, especially to remind them when newsletter deadlines are approaching, and seek their contributions to the newsletter.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Dates are tentative and serve as a general guide. Important information often can be added shortly before duplication, which is usually one week before distribution. Example content assumes a late-January Annual Meeting.

- (1) Copy due date 28 February for Distribution date 31 March. This issue normally includes the Annual Meeting Minutes and other reports from that meeting.
- (2) Copy due date 31 July for Distribution date 31 August. This issue normally contains the first, brief publicity about upcoming Annual meeting events to aid members' preparations.
- (3) Copy due date 30 November for Distribution date 31 December. This issue normally contains Annual Meeting program, registration information, and candidate background information for the elections to be held at the Annual Meeting.

## RESOLUTIONS COMMITTEE

### Primary Responsibilities

1. Monitor current events and development that warrant Chapter comment, support, or action. Resolutions are formal expressions of the views of the membership. Typically, there are two types of resolutions:
  - (1) Internal - recognizing achievements of members of other organizations or addressing operations of the Chapter.
  - (2) External - expressing Chapter views on matters of significance to the State's fishery resources.
2. Maintain communication with EXCOMM and other committee chairpersons, particularly the chair of the Environmental Concerns Committee.
3. Develop draft resolution statements, according to current "Roberts Rules of Order".
4. Communicate draft resolution statements through Chapter newsletter and discussion at Annual Meeting.
5. For matters needing fast attention, submit draft resolutions to the EXCOMM rather than the entire membership. The EXCOMM can act on behalf of the membership between Annual Meetings. When this process is used, be sure to inform the membership via the Chapter newsletter. These should be noted as resolutions from the EXCOMM, not from the entire Chapter membership.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required, and any draft resolutions.

At least one month prior to each newsletter deadline, draft any resolutions that are to be included in the newsletter for review by EXCOMM.

Prior to Annual Meeting, distribute via newsletter or other method any resolutions that are to be discussed and voted upon at the Annual Meeting.



## PROFESSIONAL INCENTIVES COMMITTEE

### Primary Responsibilities

1. Develop, initiate, and review Chapter activities considered by EXCOMM to provide or enhance professionalism among Chapter members.
2. Specific proposals developed by the Committee will be subject to the review and approval of EXCOMM and Chapter membership.
3. Monitor the various awards the Chapter gives out and make nominations for each, as appropriate (i.e., Honorary Member, Professional Achievement). Such nominations must be reviewed by EXCOMM before submitting them for final Chapter membership vote.
4. Develop a Conservation Award for non-Chapter members.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

At least four weeks prior to Annual Meeting, submit final nominee credentials for awards to EXCOMM.

Variable, depending on charge.

## ENVIRONMENTAL CONCERNS COMMITTEE

### Primary Responsibilities

1. Monitor current environmental legislation and policy developments that warrant Chapter comment. According to the desires of the Committee, the Committee can be responsive to legislation and policy proposed by others or can be pro-active in suggesting new ideas for environmental policy and management. New, pro-active initiatives should be cleared with EXCOMM before undertaken to make sure the Chapter's tax exempt status is not endangered.
2. Provide timely Chapter comment on important environmental legislation, policies, and procedures. If issue significance warrants and time allows, work with Resolutions Committee to draft a resolution for membership consideration and Chapter resolution at Annual Meeting. If relatively quick response is needed, submit draft response to President and/or EXCOMM for review and possibly to Resolutions Committee to draft an EXCOMM resolution. If immediate response is needed, submit response after Environmental Concerns Committee review. Contact the Chapter President regarding questions of protocol or propriety.
3. Provide update information to membership through newsletter and reports at Annual Meeting.
4. Committee may reach beyond the confines of Chapter membership to take an active public education role on issues of concern. Outreach activities to audiences other than Chapter membership should occur with the guidance of EXCOMM.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

Variable regarding other duties.

## NOMINATING COMMITTEE

### Primary Responsibilities

1. The past-President serves as committee chairperson and shall appoint at least one additional member to the Committee.
2. The Committee must identify at least two willing and capable candidates for each office, as follows:
  - (1) President-elect: annually
  - (2) Secretary-Treasurer: biannually

Selection of candidates is done in consultation with and subject to the approval of EXCOMM.

3. Conduct of elections, including absentee balloting, should be conducted according to accepted procedures, as outlined in current "Roberts Rules of Order".

### Calendar

Six months prior to Annual Meeting, identify committee members.

Five months prior to Annual Meeting, identify slate of candidates and collect biographical summaries for inclusion in newsletter and distribution at Annual Meeting; include directions for absentee balloting.

At Annual Meeting, conduct elections, including absentee ballot tallying, if appropriate.

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

## AUDIT/FINANCE COMMITTEE

### Primary Responsibilities

1. Review with Secretary-Treasurer the status of Chapter financial accounts for report at Annual Meeting.
2. Assess and verify accuracy of Chapter financial records.
3. Advise Secretary-Treasurer on investment of Chapter cash reserves.
4. Upon specific charge of the EXCOMM, review and develop (if necessary) a new, long-range financial strategy in conjunction with a Cash Reserves Committee chosen by the EXCOMM.

### Calendar

Prior to or at Annual Meeting, review financial records with Secretary-Treasurer.

At Annual Meeting, present audit report.

Every five years, review Chapter's financial status.

## STUDENT SUBUNIT

The general purpose of the Student Subunit is to facilitate communications among student members regarding fisheries science issues and to perform activities that advance the training of students in fisheries science. The Student Subunit has its own president, vice-president, secretary, and treasurer. Activities of the subunit are under the direction of a faculty advisor who is a member of the Chapter.

### Primary Responsibilities

1. Elect officers of the subunit.
2. Encourage subunit participation of fisheries students at all colleges and universities in the State.
3. Provide a representative to participate in Chapter EXCOMM meetings as a non-voting member.
4. Perform group activities that will promote and enhance the education of fisheries students in the State.
5. Report on subunit activities in the Chapter newsletter and at Chapter meetings.
6. Encourage participation of subunit members in Chapter, Division, and Society activities.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.

Variable schedule for other activities.

## PROFESSIONAL DIVERSITY COMMITTEE

### Primary Responsibilities

1. Implement the recommendations included in the "Tri-Society Committee on the Status of Women and Minorities in Natural Resources, Final Report (December 1989)". Priorities may be chosen from the following:
  - (1) Expand and propose for Chapter adoption the statement of values and benefits of cultural, racial, and sexual diversity contained in the report.
  - (2) In conjunction with the Membership Committee, develop guidelines for recruiting activities including sources of women and minority candidates and types of presentations to make.
  - (3) Develop recommendations for ways of providing support systems (networking) and mentoring systems for nontraditional professionals. Encourage establishment of support systems in Chapter.
  - (4) Develop Chapter statements on sexual/racial harassment.
  - (5) Develop recommendations for how to diversity Chapter leadership.
  - (6) Develop guidelines for actively involving spouses and partners in Chapter meetings.
  - (7) Suggest draft resolutions to Chapter Resolutions Committee, focusing on professional diversity concerns.
  - (8) Implement strategies for providing women, minorities, and urban students opportunities to acquire technical and professional skills to succeed.
2. Continually assess and characterize the status of women and minorities in the fisheries professions and education systems in the State and to report any associated issues or recommendations to the Chapter for consideration and action.
3. Make recommendations to the EXCOMM regarding activities that may be appropriate for other Chapter committees to undertake in order to achieve professional diversity goals.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.

Variable schedule for other activities.

## **PAST-PRESIDENT**

### **Primary Responsibilities**

1. Forward all appropriate incoming correspondence to the attention of the new Chapter President.
2. Chair the Nominating Committee.
3. Serve as a voting member of the Executive Committee.
4. Update and distribute the Policy and Procedures Manual to all EXCOMM members at the first EXCOMM Meeting following the Annual Meeting.
5. Provide the incoming President with the revised version of the Policy and Procedures Manual in an acceptable software format.



## YOUTH EDUCATION COMMITTEE

### Primary Responsibilities

1. Become an active committee within the NYC-AFS by soliciting committee members, promoting Aquatic Resource Education (ARE) via poster sessions and workshops, and encouraging ARE stewardship to youth among all Chapter members.
2. Become familiar with the activities of the AFS National Youth Education Committee and bring these concepts to New York State.
3. Participate in the annual review of the New York State Sportfishing Aquatic Resources Education Program (SAREP).
4. Compile and make available aquatic resource education programs currently implemented in schools and outside fishing clinics.
5. Encourage AFS members to initiate personal contacts with a local school, and present ARE topics and activities to a teacher and class.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.

**NEW YORK CHAPTER  
AMERICAN FISHERIES SOCIETY**

**Officers and Committee  
Chairpersons' Handbook**

**Prepared June 1986; Revised January 1996**

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## CHAPTER PRESIDENT

### Primary Responsibilities

1. Upon assuming office, the newly elevated President should:
  - a. Present the outgoing President with the past- President's certificate.
  - b. Announce appointments of standing committee chairpersons.
  - c. Present general statement of objectives for the coming year.
  - d. Present a budget for discussion by the membership for the coming year, including the next Annual Meeting over which he or she presides; final approval will occur within three months of the Annual Meeting.
  - e. Make appointments of ad hoc committee chairpersons at this time, if possible.
  - f. Complete committee appointments within one month. Notify Northeast Division secretary of all appointments.
  
2. Finalize the budget and present it for final approval by the Executive Committee no later than three months after the Annual Meeting.
  
3. Be specific in your charges to your committee chairpersons using this handbook and revisions thereof as a basic orientation tool. Distribute a copy of this handbook to all committee chairpersons and Executive Committee members. Distribute a copy of the AFS Procedures Manual to all officers.
  
4. Keep informed of committee activities.
  
5. Ensure that Northeast Division President and Secretary are informed about Chapter activities. A Chapter report should be submitted to the Division President before 1 March.
  
6. Notify the national AFS office regarding the Annual Meeting time and place as soon as it is known, to be published in "Fisheries" and the "AFS Diary".
  
7. Be familiar with Chapter and Northeast Division bylaws and AFS constitution and bylaws.
  
8. Review and follow "Robert's Rules of Order" regarding protocol for conduct of Chapter business, particularly meetings at which votes are taken, including Executive Committee meetings and the Annual Business Meeting.
  
9. Represent the Chapter in Society affairs, as requested.

10. Be aware of Society safeguards concerning lobbying activities by the Chapter to protect the Society's tax exempt status. Consult the Society's Procedural Manual and central office staff regarding restrictions.
11. As a voting member of the Northeast Division Executive Committee, you are expected to ensure Chapter representation and participation in any meetings of same called by the Division President. In addition, every effort should be made to represent the Chapter at the Society's Executive Committee Annual Meeting. You may include travel funds for these meetings as line items in the budget you submit at the Annual Meeting, at which you are installed as President.
12. Present a brief written report of Chapter activities at the annual Division Executive Committee Meeting. Minutes of our Annual Meeting normally serve this function, so the President should ensure these are sent by the Chapter Secretary-Treasurer.
13. Schedule and preside over all Executive Committee meetings. Provide an agenda in advance to all who will be attending. The agenda should list topics to be covered, individuals responsible for addressing each topic, and approximate times to be devoted to discussing each topic. After the initial meeting, these may include telephone conference meetings.
14. Work with the President-elect and Secretary-Treasurer to prepare a budget to be submitted for discussion and approval at the Annual Meeting, at which the President-elect will assume office; and for approval at an Executive Committee Meeting no later than three months after the Annual Meeting.
15. Work with the Secretary-Treasurer to monitor the financial status of the Chapter. If cash reserves approach an upper limit of \$25,000, devise a plan to spend the surplus. If reserves approach a lower limit of \$12,000, put the Chapter on an austerity budget and begin fundraising in earnest.
16. Preside over the Annual Meeting, as needed (e.g., introductory remarks, introduce keynote speaker, introduce session chairs, make announcements).
17. Arrange and provide agenda for Chapter Annual Meeting; preside over meeting:
  - a. Adhere to agenda and time schedule.
  - b. Introduce any AFS and Division officers present and provide them with an opportunity to address the membership.
  - c. Introduce other guests.
  - d. Acknowledge work of your officers and committee chairpersons and members.
  - e. Install the new President; typically, the President-elect is escorted to the rostrum by two past- Presidents.

18. Acknowledge the work of your officers and committee chairpersons, by letter, at the end of your term.
19. Inform your successor of actions taken at the previous Northeast Division Executive Committee Meeting, and see that your successor gets Minutes of same.
20. Serve on the Chapter Executive Committee for an additional year as immediate past-President.
21. Prepare an agenda, and distribute prior to meeting.
22. Send out a separate mailing for the program in mid-December, and then include a notice with the final newsletter in January.
23. Send an invitation for the Annual Meeting to Northeast Division, Parent Society.

### Calendar

Prior to Annual Meeting, at which you assume office -- to extent possible, identify committee chairpersons (see President-elect duties).

Prior to Annual Meeting, at which you assume office, develop budget for coming year in conjunction with Secretary-Treasurer and outgoing President (see President-elect duties).

At Annual Meeting, assume office and present your budget for discussion.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

By one month after Annual meeting, complete committee chairperson appointments and communicate to Division Secretary.

By three months after Annual Meeting, conduct initial meeting of Chapter Executive Committee, and present budget for final approval.

Summer -- second meeting of Executive Committee.

Fall -- Executive Committee Meeting if business warrants; assist President-elect with developing budget for his/her term of office.

Annual Meeting -- final Executive Committee Meeting and Annual Business Meeting; preside

over meeting.

At each meeting, the Executive Committee should vote to approve Minutes of prior meeting.

At the first Executive Committee Meeting following the Annual Meeting, vote to approve the previous year's budget.

In alternate years, vote for election of Secretary-Treasurer.

## EXECUTIVE COMMITTEE

The Executive Committee (EXCOMM) consists of the Chapter officers (President, President-elect, Secretary-Treasurer, Secretary-Treasurer-elect) and the immediate Past-President. The chairpersons of standing committees (Audit/Finance, Environmental Concerns, Membership, Nominating, Program, and Resolutions) and ad hoc committees (Professional Incentives, Newsletter, Workshop, Student Subunit, and Professional Diversity committees currently) shall be non-voting members of the EXCOMM.

### Primary Responsibilities

The EXCOMM is authorized to act for the Chapter between meetings. In so doing, the EXCOMM is responsible for monitoring and directing Chapter activities, as charged by the membership at Annual Business Meetings. The Chapter President presides over all EXCOMM Meetings and provides a meeting agenda in advance.

### Calendar

No more than three months after Annual Meeting, initial organizational meeting and final approval of the President's proposed budget.

Summer -- second meeting.

Fall -- meeting or conference call, if business warrants.

Immediately prior to Annual Meeting, summary meeting; review incoming President's proposed budget for discussion.



## SECRETARY-TREASURER

### Primary Responsibilities

1. Maintain Chapter membership records, including a membership roster and record of payment of dues. Prepare the annual membership directory by 1 June. Include as current members in good standing those for whom dues have been paid for at least the previous calendar year. Only current members in good standing are eligible to vote.
2. Obtain a special third class mailing permit. Mail all newsletters, announcements and correspondence as prepared by the newsletter editor, the Workshop Committee and others, as appropriate. The routing mailing list should include all current members in good standing and the Executive Secretary of the Society, the President and Secretary of the Northeast Division, and the Presidents of all the Chapters within the Northeast Division.
3. Prepare and retain Minutes of all official meetings, and retain Chapter records in good order. Copies of Minutes are to be distributed to Executive Committee members. Approved copies of Minutes are to be distributed to the President of the Northeast Division. A copy of the Minutes of the Annual Meeting should be furnished to the Executive Director and the Secretary and President of the Northeast Division within 30 days after the meeting.
4. Collect and be custodian of Chapter funds. Use the Federal Employer's Identification number assigned to the Chapter, in lieu of a Social Security number. Deposit Chapter funds in an interest-bearing account. Disburse funds as authorized by the Executive Committee or Chapter membership.
5. Notify the membership of the Annual Meeting at least two months in advance. Notification should be sent by First Class mail to assure prompt delivery. The Executive Secretary and President of the Society, and the President and Secretary of the Northeast Division should be informed of the Annual Business Meeting.
6. Keep a supply of Chapter bylaws on hand, and be familiar with their content. Forward proposed amendments to the bylaws promptly to the Executive Director for action by the Executive Committee of the Society.
7. Maintain a supply of information brochures about the Chapter and the Society, and make copies available to anyone who requests them.
8. Order a Past-President's Certificate from the Society office at least six weeks prior to the Annual Meeting. Order "Best Paper" and other award materials, as directed by

EXCOMM or Program Committee chairperson.

9. Prepare registration materials for the Annual Meeting, and register attendees starting on the evening preceding scheduled sessions and as needed throughout the meeting. Furnish receipts when requested. Supervise student assistants at the Annual Meeting.
10. Submit financial reports, including reports of receipts and disbursements. Informal, verbal reports are to be made at Executive Committee meetings. A formal, written report is to be provided at Annual Meeting. Cooperate with the Audit/Finance Committee in an annual review of the books. Prepare annual budget proposal, with rough draft to the EXCOMM at least six weeks before the Annual Meeting.
11. Ascertain if there is a quorum present for official actions, and furnish ballots for elections.
12. Submit copies of Chapter resolutions promptly to the Executive Director and the Northeast Division Secretary. Indicate those for which Division and Society support is requested.
13. Serve as voting member of EXCOMM.
14. Orient the Secretary-Treasurer-elect to the responsibilities of the office.
15. Assist Membership Committee chairperson in keeping track of membership status for reports at EXCOMM meetings and Annual Meeting.

### Calendar

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

At least two months prior to Annual Meeting, notify membership of the meeting; assist in preparing annual budget proposal for EXCOMM, to be submitted by the new President at the Annual Meeting, at which he or she is installed.

Six weeks prior to Annual Meeting, order Past-President's Certificate and award materials; distribute President-elect's draft budget to EXCOMM.

Prior to Annual Meeting, prepare annual financial report and review with Audit/Finance Committee. Prepare meeting registration materials and ballots.

At Annual Meeting, register attendees; provide financial report; take Minutes; supervise student assistants; etc.

At EXCOMM meetings, provide fiscal update; take Minutes; distribute Minutes in timely fashion.

During last year in office, orient the Secretary-Treasurer-elect.

Update and distribute Chapter directory to membership every ? years.

## **SECRETARY-TREASURER-ELECT**

### Primary Responsibilities

1. Develop with Secretary-Treasurer appropriate orientation activities and responsibilities to prepare you for assumption of that role.
2. Attend EXCOMM meetings as a voting member.
3. During year as “elect”, record Minutes of EXCOMM meetings and submit to Secretary-Treasurer for distribution to EXCOMM members.
4. Before assuming Secretary-Treasurer position, arrange to transfer file, financial accounts, and mailing permits.

## **PRESIDENT-ELECT**

### Primary Responsibilities

1. Serve as voting member of EXCOMM.
2. Serve as Membership Committee chairperson.
3. Serve as Program Committee member.
4. Assume duties of President, if he/she is unable to act.
5. At least six weeks prior to the Annual Meeting, at which you will be installed as President, work with Secretary-Treasurer and current President to develop a proposed annual budget. Submit the budget to EXCOMM for discussion at the Annual Meeting. Donations should be planned for the year as a line item, and expenses for the President (or designate) to represent the Chapter at AFS National or Division meetings should be included as a line item. The Annual Meeting should also be included as a line item.
6. Review and revise the action agenda for the Chapter by the second EXCOMM Meeting in which you participate.
7. Take the lead role in fundraising activities (i.e., raffle, t-shirt sales, etc.).

### Calendar

By second EXCOMM Meeting, revise Chapter's action agenda.

At least six weeks prior to Annual Meeting, submit proposed budget to EXCOMM.

Prior to Annual Meeting, identify new committee chairpersons, to extent possible.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

## **MEMBERSHIP COMMITTEE**

### Primary Responsibilities

1. President-elect serves as chairperson and appoints committee members, as appropriate (or may serve as sole committee member).
2. Serves as primary contact for prospective members.
3. Reviews with Secretary-Treasurer the status of membership to assess current trends.
4. Develops specific recruitment strategies, as appropriate.
5. Contacts new Society members in New York, as reported by Northeast Division or through other means.
6. With assistance of Secretary-Treasurer, reports membership status at EXCOMM meetings and Annual Meeting.

### Calendar

At first EXCOMM Meeting, prepare membership analysis as basis for discussing objectives and strategies.

Throughout year, contact prospective members; submit newsletter articles, as appropriate.

At each EXCOMM Meeting, submit oral and/or written progress report, as required.

Annual Meeting -- summary report to EXCOMM.

## **PROGRAM COMMITTEE** **(Annual Meeting)**

### Primary Responsibilities

1. Organize and coordinate keynote and invited speaker presentations for the program of the Annual Meeting. Coordinate with President regarding who will make announcements and do introductions. Typically, the President presides over all sessions.
2. Organize and conduct paper and poster presentations and recognition awards for the Annual Meeting.
3. Arrange for meeting-rooms, lodging, and meals at Annual Meeting. Coordinate activities and announcements at Annual Meeting.

[NOTE: Because of the diverse nature of the Committee's responsibilities, a co-chairperson system was initiated on a trial basis for 1991-92. This system calls for one co-chair to be responsible for program areas (1 & 2 above), and one co-chair to be responsible for meeting logistics (3 above).]

### Calendar

At each EXCOMM meeting, submit oral and/or written progress reports, as required.

Ten months prior to Annual Meeting, establish site and confirm dates for Annual Meeting. It is helpful if this is accomplished prior to the year's first EXCOMM Meeting. Appoint committee members. Responsibilities include logistics, awards program, invited speaker arrangements, contributed paper and poster abstract review and arrangements, liaison with student Chapter, and program/abstract handout preparation.

Seven months prior to Annual Meeting, establish fee structure for Annual Meeting, based on contract with meeting site establishment and target budget established in conjunction with EXCOMM. Establish meeting theme(s), in consultation with Executive Committee, and identify potential list of invited speakers.

Five months prior to Annual Meeting, confirm Annual Meeting dates with invited speakers. First call for papers advertised in Fall (September) newsletter (check with newsletter editor for submission deadline). Include paper/poster recognition and awards procedures. Fee structure finalized. General announcement of Annual Meeting site, theme, rates, etc. developed and included in September newsletter. Announcement advertised in AFS, Northeast Division, and other AFS subunit newsletters.



Two months prior to Annual Meeting, initiate invited speaker lodging and transportation arrangements. Develop meeting agenda to be included in December newsletter, along with second call for papers. Start review of submitted papers/posters.

One month prior to Annual Meeting, finalize review of submitted paper/poster abstracts. Develop contributed paper/poster agendas, based on this review. Provide directions on paper and poster presentation preparation to those authors selected to participate to ensure high quality. Solicit awards for poster/paper recognition.

Three weeks prior to Annual Meeting, visit meeting site to confirm all plans and arrangements. Organize and conduct Program Committee Meeting prior to Annual Chapter Meeting to identify and arrange final logistical needs, such as recruitment of student assistants and equipment. Appoint award judges, and prepare rating materials. Finalize meeting agenda and have printed for distribution at Annual Meeting, along with abstracts for invited papers and contributed papers and posters.

At Annual Meeting, oversee registration and all sessions of the meeting, working as liaison with site establishment staff to address/correct any problems which arise. Provide brief Program Committee report at Chapter Annual Meeting. Together with Secretary-Treasurer, review billing documents immediately following Annual Meeting.

One month after Annual Meeting, provide report of expenses relative to planned budget to the EXCOMM by the first meeting. Prepare proposed Annual Meeting budget for the next year for discussion by EXCOMM. Report suggested improvements to EXCOMM for the following year.

## **WORKSHOP COMMITTEE**

### Primary Responsibilities

1. Under guidance of EXCOMM, develop and conduct an educational workshop(s) separate or in conjunction with the Annual Meeting. If the workshop is to be in conjunction with the Annual Meeting, coordinate regarding schedules, logistics, fees, and topics with Program Committee.
2. Solicit workshop topic ideas from Chapter members, and select an appropriate topic(s) with guidance from EXCOMM.
3. Develop workshop content, format, and logistical needs.
4. Arrange publicity.
5. Conduct event.
6. Evaluate event.
7. Make specific recommendations to EXCOMM and future workshop committees.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Twelve months prior to workshop, gain specific subject matter guidance from EXCOMM; appoint primary committee members.

Eight months prior to workshop, make initial logistical contacts for conference facilities and workshop “instructors”.

Six months prior to workshop, finalize specific arrangements including lodging, schedule, arrangements, publicity plans; submit a short introductory article to the newsletter.

Four months prior to workshop, advertise workshop and registration procedures to Chapter members and others.

One month prior to workshop, reminder to all Chapter members and others.

One month after workshop, provide final report, evaluation, and recommendations to the EXCOMM and to the newsletter.

## NEWSLETTER COMMITTEE

### Primary Responsibilities

1. Solicit, collate, edit, and arrange for the reproduction and distribution of the Chapter newsletter. Coordinate with the Secretary-Treasurer regarding procedures for copying and distribution. Frequency of publication is determined under guidance of EXCOMM, but typically involves a minimum of three issues per year.
2. Evaluate effectiveness of the newsletter and report to EXCOMM and Chapter membership.
3. Include in newsletter content primary Chapter business and informative current developments or professional resources. The former would include workshop and Annual Meeting announcements, business meeting Minutes, election information, committee reports or requests, draft resolutions, etc.
4. Maintain communications with EXCOMM and other committee chairpersons, especially to remind them when newsletter deadlines are approaching, and seek their contributions to the newsletter.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Dates are tentative and serve as a general guide. Important information often can be added shortly before duplication, which is usually one week before distribution. Example content assumes a late-January Annual Meeting.

- (1) Copy due date 28 February for Distribution date 31 March. This issue normally includes the Annual Meeting Minutes and other reports from that meeting.
- (2) Copy due date 31 July for Distribution date 31 August. This issue normally contains the first, brief publicity about upcoming Annual meeting events to aid members' preparations.
- (3) Copy due date 30 November for Distribution date 31 December. This issue normally contains Annual Meeting program, registration information, and candidate background information for the elections to be held at the Annual Meeting.

## RESOLUTIONS COMMITTEE

### Primary Responsibilities

1. Monitor current events and development that warrant Chapter comment, support, or action. Resolutions are formal expressions of the views of the membership. Typically, there are two types of resolutions:
  - (1) Internal - recognizing achievements of members of other organizations or addressing operations of the Chapter.
  - (2) External - expressing Chapter views on matters of significance to the State's fishery resources.
2. Maintain communication with EXCOMM and other committee chairpersons, particularly the chair of the Environmental Concerns Committee.
3. Develop draft resolution statements, according to current "Roberts Rules of Order".
4. Communicate draft resolution statements through Chapter newsletter and discussion at Annual Meeting.
5. For matters needing fast attention, submit draft resolutions to the EXCOMM rather than the entire membership. The EXCOMM can act on behalf of the membership between Annual Meetings. When this process is used, be sure to inform the membership via the Chapter newsletter. These should be noted as resolutions from the EXCOMM, not from the entire Chapter membership.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required, and any draft resolutions.

At least one month prior to each newsletter deadline, draft any resolutions that are to be included in the newsletter for review by EXCOMM.

Prior to Annual Meeting, distribute via newsletter or other method any resolutions that are to be discussed and voted upon at the Annual Meeting.

## **PROFESSIONAL INCENTIVES COMMITTEE**

### Primary Responsibilities

1. Develop, initiate, and review Chapter activities considered by EXCOMM to provide or enhance professionalism among Chapter members.
2. Specific proposals developed by the Committee will be subject to the review and approval of EXCOMM and Chapter membership.
3. Monitor the various awards the Chapter gives out and make nominations for each, as appropriate (i.e., Honorary Member, Professional Achievement). Such nominations must be reviewed by EXCOMM before submitting them for final Chapter membership vote.
4. Develop a Conservation Award for non-Chapter members.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

At least four weeks prior to Annual Meeting, submit final nominee credentials for awards to EXCOMM.

Variable, depending on charge.

## ENVIRONMENTAL CONCERNS COMMITTEE

### Primary Responsibilities

1. Monitor current environmental legislation and policy developments that warrant Chapter comment. According to the desires of the Committee, the Committee can be responsive to legislation and policy proposed by others or can be pro-active in suggesting new ideas for environmental policy and management. New, pro-active initiatives should be cleared with EXCOMM before undertaken to make sure the Chapter's tax exempt status is not endangered.
2. Provide timely Chapter comment on important environmental legislation, policies, and procedures. If issue significance warrants and time allows, work with Resolutions Committee to draft a resolution for membership consideration and Chapter resolution at Annual Meeting. If relatively quick response is needed, submit draft response to President and/or EXCOMM for review and possibly to Resolutions Committee to draft an EXCOMM resolution. If immediate response is needed, submit response after Environmental Concerns Committee review. Contact the Chapter President regarding questions of protocol or propriety.
3. Provide update information to membership through newsletter and reports at Annual Meeting.
4. Committee may reach beyond the confines of Chapter membership to take an active public education role on issues of concern. Outreach activities to audiences other than Chapter membership should occur with the guidance of EXCOMM.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of committee activities.

Variable regarding other duties.

## NOMINATING COMMITTEE

### Primary Responsibilities

1. The past-President serves as committee chairperson and shall appoint at least one additional member to the Committee.
2. The Committee must identify at least two willing and capable candidates for each office, as follows:
  - (1) President-elect: annually
  - (2) Secretary-Treasurer: biannually

Selection of candidates is done in consultation with and subject to the approval of EXCOMM.

3. Conduct of elections, including absentee balloting, should be conducted according to accepted procedures, as outlined in current "Roberts Rules of Order".

### Calendar

Six months prior to Annual Meeting, identify committee members.

Five months prior to Annual Meeting, identify slate of candidates and collect biographical summaries for inclusion in newsletter and distribution at Annual Meeting; include directions for absentee balloting.

At Annual Meeting, conduct elections, including absentee ballot tallying, if appropriate.

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

## **AUDIT/FINANCE COMMITTEE**

### Primary Responsibilities

1. Review with Secretary-Treasurer the status of Chapter financial accounts for report at Annual Meeting.
2. Assess and verify accuracy of Chapter financial records.
3. Advise Secretary-Treasurer on investment of Chapter cash reserves.
4. Upon specific charge of the EXCOMM, review and develop (if necessary) a new, long-range financial strategy in conjunction with a Cash Reserves Committee chosen by the EXCOMM.

### Calendar

Prior to or at Annual Meeting, review financial records with Secretary-Treasurer.

At Annual Meeting, present audit report.

Every five years, review Chapter's financial status.



## **STUDENT SUBUNIT**

The general purpose of the Student Subunit is to facilitate communications among student members regarding fisheries science issues and to perform activities that advance the training of students in fisheries science. The Student Subunit has its own president, vice-president, secretary, and treasurer. Activities of the subunit are under the direction of a faculty advisor who is a member of the Chapter.

### Primary Responsibilities

1. Elect officers of the subunit.
2. Encourage subunit participation of fisheries students at all colleges and universities in the State.
3. Provide a representative to participate in Chapter EXCOMM meetings as a non-voting member.
4. Perform group activities that will promote and enhance the education of fisheries students in the State.
5. Report on subunit activities in the Chapter newsletter and at Chapter meetings.
6. Encourage participation of subunit members in Chapter, Division, and Society activities.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.

Variable schedule for other activities.

## PROFESSIONAL DIVERSITY COMMITTEE

### Primary Responsibilities

1. Implement the recommendations included in the “Tri-Society Committee on the Status of Women and Minorities in Natural Resources, Final Report (December 1989)”. Priorities may be chosen from the following:
  - (1) Expand and propose for Chapter adoption the statement of values and benefits of cultural, racial, and sexual diversity contained in the report.
  - (2) In conjunction with the Membership Committee, develop guidelines for recruiting activities including sources of women and minority candidates and types of presentations to make.
  - (3) Develop recommendations for ways of providing support systems (networking) and mentoring systems for nontraditional professionals. Encourage establishment of support systems in Chapter.
  - (4) Develop Chapter statements on sexual/racial harassment.
  - (5) Develop recommendations for how to diversity Chapter leadership.
  - (6) Develop guidelines for actively involving spouses and partners in Chapter meetings.
  - (7) Suggest draft resolutions to Chapter Resolutions Committee, focusing on professional diversity concerns.
  - (8) Implement strategies for providing women, minorities, and urban students opportunities to acquire technical and professional skills to succeed.
2. Continually assess and characterize the status of women and minorities in the fisheries professions and education systems in the State and to report any associated issues or recommendations to the Chapter for consideration and action.
3. Make recommendations to the EXCOMM regarding activities that may be appropriate for other Chapter committees to undertake in order to achieve professional diversity goals.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.

Variable schedule for other activities.

## **PAST-PRESIDENT**

### Primary Responsibilities

1. Forward all appropriate incoming correspondence to the attention of the new Chapter President.
2. Chair the Nominating Committee.
3. Serve as a voting member of the Executive Committee.
4. Update and distribute the Policy and Procedures Manual to all EXCOMM members at the first EXCOMM Meeting following the Annual Meeting.
5. Provide the incoming President with the revised version of the Policy and Procedures Manual in an acceptable software format.

## YOUTH EDUCATION COMMITTEE

### Primary Responsibilities

1. Become an active committee within the NYC-AFS by soliciting committee members, promoting Aquatic Resource Education (ARE) via poster sessions and workshops, and encouraging ARE stewardship to youth among all Chapter members.
2. Become familiar with the activities of the AFS National Youth Education Committee and bring these concepts to New York State.
3. Participate in the annual review of the New York State Sportfishing Aquatic Resources Education Program (SAREP).
4. Compile and make available aquatic resource education programs currently implemented in schools and outside fishing clinics.
5. Encourage AFS members to initiate personal contacts with a local school, and present ARE topics and activities to a teacher and class.

### Calendar

At each EXCOMM Meeting, submit oral and/or written progress reports, as required.

Throughout year, follow newsletter deadline dates for submitting materials to inform Chapter membership of subunit activities.