



NEW YORK CHAPTER - AMERICAN FISHERIES SOCIETY

# NEWSLETTER

March

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## NEW YORK NEWS

On 20-31 January 1987 the New York Chapter of the American Fisheries Society held its annual meeting at The Beeches in Rome, NY. The meeting attracted 189 participants, the largest attendance ever for an annual meeting of the Chapter. Nearly 50 papers were presented on a variety of topics; aquaculture, large rivers, fish contaminants, freshwater fisheries, marine fisheries, and computer applications in fisheries. A very illuminating panel discussion on "Aquaculture in New York State: Perspectives and Opportunities" and 7 excellent posters rounded out the presentations.

Mr. David B. MacNeill won the best paper and best student paper award for his enlightening and timely paper "Ontogenetic shifts in gill-raker morphology and prey capture efficiency of the alewife." The paper was coauthored by Mr. MacNeill's advisor, Dr. Stephen Brandt of the State University of New York, College of Environmental Science and Forestry at Syracuse, NY. Congratulations to presentator and advisor for a job well-done!

The Business Meeting commenced with a few moments of silence in remembrance of Dr. Dwight Webster and Mr. Martin Smith, two of our members that recently passed away. On a happier note Robert Lange of the New York State Department of Environmental Conservation was sworn in as president and Jack Hasse, also of the NYSDEC, assumed the office of secretary/treasurer. Past president Mike Duttweiler and past secretary/treasurer Gaylord Rough received a well deserved round of applause in recognition of their many contributions. Andrew Kahnle was also recognized for the excellent program that he and the program committee developed for the annual meeting. The finances of our Chapter were judged healthy, with total assets in excess of \$17,000 (a detailed Treasurer's Report is appended as the last page of the Newsletter).

"The Social Sciences as a Tool in Natural Resources Management" was identified as the topic for this summer's annual workshop. Paul McKeown (NYSDEC) will serve as Chairman of the Workshop Committee. It was also determined that the Chapter's challenge for ten other AFS units to match a \$500 contribution to the Skinner Fund was not met. Since over \$20,000 was contributed to the Fund from the raffle at the

Department of Fish and Wildlife and the U.S. Fish and Wildlife Service. While similar programs that employ chemical lampricides have had great success in the Great Lakes and the Finger Lakes, the Lake Champlain program has raised many issues and concerns among government regulatory agencies, environmental and sportsmen's groups and residents in that area. These concerns will be discussed in a draft Environmental Impact Statement involving a multi-disciplinary team effort that includes professionals from the U.S. and Vermont Fish and Wildlife agencies, the NYSDEC Division of Fish and Wildlife and area universities.

(Note, a Canadian group is presently exploring the potential of net pen culture in Lake Champlain. They propose to grow Atlantic salmon in 40 acres of net pens. The proposal is well developed and the project has a strong likelihood of becoming a reality).

Source: (in part) NYSDEC Water Bulletin, November 1986

Water quality of New York's lakes, streams and rivers has become cleaner over the past four years. Water quality in the Mohawk and Hudson rivers was reported to be greatly improved, but major pollution problems still exist in Lakes Erie and Ontario. A new study shows that 78% of the streams now meet standards for fishing, drinking and swimming, an increase of 14% since 1982. Eighty percent of lakes and reservoirs now meet the same standards, a six percent increase in four years. The improvement has been attributed to the construction of several secondary sewage treatment plants.

Source: Clean Water Report, 16 December 1986

EPA Administrator Lee Thomas and his Canadian counterpart, Thomas McMillan, announced a compromise work plan on Oct. 20 in Canada. The agreement provides for cleanup and control of toxic chemicals entering the Niagara River. While falling short of imposing limits on nine major industries along the New York banks, the agreement will impose schedules for toxic cleanup, and the countries agree to issue an annual report on progress.

Source: Clean Water Report, 4 November 1986

Lake Ontario water levels will probably be close to 20th-Century record highs during the 1987 boating and fishing season according to forecasts by the U.S. Army Corps of Engineers. Despite allowing maximum amounts of water to be released out of the St. Lawrence River over the last year, the Corps is predicting lake levels at or near 1900-1986 high monthly records come next year. The reason behind the high levels is greater than average precipitation throughout the Great Lakes basin in 17 out of the last 20 years, and especially in 1986. All the upper Great Lakes have been at or near record levels for the last year, and because Ontario receives over 80% of its water inflows via the Niagara River, its water level has responded in kind.

Putting matters into perspective, there's little doubt that Lake Ontario water levels will be higher than they were in 1986, and, for those who recall the very high water years of 1976, 1973, and 1952, levels are likely to approach, if not exceed, marks from these years. Again, for comparison's sake, the 1987 April-June peak is currently predicted to go about a foot higher than what was experienced last season.

Shorelands and facilities located in low-lying areas may experience some degree of inundation or storm-related flooding. This can effect the use and physical stability of launch ramps, fixed docks, boat houses and hoists, and banks and

The NYSDEC intends to hold public hearings for the purpose of reviewing and revising, if necessary, the classification of surface waters of the state pursuant to 6 NYCRR Parts 609 and 800-941. Certain waters will be proposed for reclassification by Department staff. Anyone who wishes to petition the department to reclassify or classify a specific surface water within the state must petition the department (address given below) before the date shown for the applicable drainage basin. The hearing schedule set forth below is tentative and is to give advance notice for the purpose of soliciting reclassification petitions in a timely manner.

The exact date, time and location of each hearing, as well as a formal notice of a proposed agency action which will set forth the water bodies which will be considered at the hearing will be published at least 30 days before the hearing.

DRAINAGE BASIN	TENTATIVE HEARING DATE	FINAL DAY FOR SUBMITTING PETITIONS
Susquehanna	July 1987	January 6, 1987
Marine Waters	August 1987	February 2, 1987
Lake Erie-Niagara River	September 1987	March 9, 1987
Upper Hudson	October 1987	April 6, 1987
Seneca-Oneida-Oswego	November 1987	May 4, 1987
Lake Champlain	December 1987	June 8, 1987
St. Lawrence	January 1988	July 20, 1987
Black	February 1988	August 17, 1987

Descriptions of the drainage basins and the current classifications of water bodies can be found in 6 NYCRR Parts 800-941.

Anyone interested in more information or wishing to submit a petition should contact; Allan C. Tedrow, P.E., Division of Water, Room 312, DEC, 50 Wolf Road, Albany, NY 12233, (518) 457-7463.

As part of an ongoing study to learn more about Hudson River striped bass (*Morone saxatilis*) movements and population dynamics, over 18,500 striped bass measuring  $\geq 200$ mm total length were tagged and released during the winter of 1985 and the spring of 1986 in the lower Hudson River region. An internal anchor tag was inserted through the abdominal cavity of each fish. Through January 1987, over 675 striped bass had been recaptured in seven states and one Canadian province. The farthest a striped bass travelled was from Nyack, NY in the Hudson River on April 1, to the Bear River, Nova Scotia on August 6. This fish, together with four recaptured in Maine, appears to extend the documented northern range of the Hudson River striped bass stock. Numerous striped bass were recaptured in New York, Massachusetts, both north and south of Cape Cod, Rhode Island and Connecticut. Although relatively few fish were recaptured south of Sandy Hook, NJ, two tags were returned from Chesapeake Bay. A report on this study should be available by mid-1987.

Source: News Release by The Hudson River Foundation, January 1987

As of December 4, 1986, preliminary figures from the DEC's 1986 Lake Ontario boat creel census showed an increase in total salmonids caught, and bigger harvests in every species category except for rainbow trout.

During the 1986 fishing season, the census estimated 269,340 salmonids were harvested by boat anglers, up 15% from the estimated 1985 season harvest of 234,750.

Box 50, Kearneysville, WV 25430. Doug would appreciate your suggestions and questions.

The AFS Annual Meeting in 1989 will be held in Anchorage, Alaska. Some concern has been expressed that attendance at the meeting may be low (Europe is closer and more affordable for many AFS members in the northeast than Alaska!) The Executive Committee acknowledges that "this could happen" but hopes many AFS members elect to vacation in Alaska concurrently with the meeting. Fortunately the 1990 and 1991 meetings are scheduled for the northeast and southeast, respectively.

Best student paper presented at the 1986 annual AFS meeting was given by Brian D. Chipman of VPI. The paper, entitled "Recreational Management Preferences of Virginia Anglers"; was coauthored by his advisor, Dr. L.A. Helfrich. Honorable mention was shared by Douglas A. Barton of Oregon State University and Gerald T. Ankley of the University of Georgia. Best poster award went to Carl V. Burger of Anchorage, Alaska for "Thermal adaptation in Alaskan Chinook and Sockeye Salmon."

### NATIONAL NEWS

The Reagan Administration is again attempting to raid Wallop-Breaux funds. The 1988 budget would transfer \$25 million from Wallop-Breaux to the operating account of the U.S. Fish and Wildlife Service. (Fisheries assistance to Contra culturists?) AFS and all other members of the American League of Anglers and Boaters (ALAB) are vigorously opposing the diversion.

Texas has initiated a rather interesting "Share a Lone Star Lunker" program. The initiative, the brainstorm of the ever creative Bill Rutledge and his boys from the Texas Fish Hatchery System, encourages anglers to donate living largemouth bass (13 lbs and larger) to the hatchery system. The first day of promotion produced a 17 lb 10 oz. state record fish. The plump piscivore is presently at the Tyler Fish Hatchery. It is hoped that propagation of "Ethyl" will produce progeny that also attain ponderous proportions!

Texas A & M University has developed a software package for fishing tournaments. The package has proven useful in several saltwater tournaments and is compatible to more than a half dozen computers. Given the abundance of fishing derbies that have blossomed on Lake Ontario, the floppy disk could have practical application in New York. For more information contact Dr. Robert Ditton, Department of Recreation and Parks, Texas A & M University, College Station, TX 77843.

The U.S. EPA is developing a list of violators of the Clean Water and Clean Air Acts. What happens to illustrious contractors that make the "Honor Roll" remains unclear, however it certainly will not make for good public relations!

Source: (in part) Clean Water Report December 16, 1986

U.S. legislators and industrial companies are locking horns over the suitability of marine life mortality as a standard for determining industrial waste disposal permits. The choice is whether to use "chemical-by-chemical, industry-by-industry" standards, as Sen. Charles Mathias (R.--MD.) calls them, or to use the more complex, but revealing, standards of what happens to "the critters downstream," as an electrical utility representative said recently. Environment Canada, the Canadian equivalent of the EPA, appears to be considering a marine resources standard stiffer than mortality. Scientists backed by a state-sponsored, oil-industry-financed revolving fund endorse an elaborate taste test for determining marine contamination

watershed, and when the ice melted, the limestone dissolved and was available to neutralize incoming acid precipitation. For more information on the Pocono Lake Acid-Mitigation Study, contact: Dr. Patricia Bradt, Research Scientist, Center for Marine and Environmental Studies, Lehigh University, Bethlehem, Pa. 18015, (Note, researchers at Cornell University have also made substantial contributions to deacidification of Adirondack lakes. Much of the work has been under the direction of Dr. Stephen Gloss).

Massachusetts had the most acidic rain sampled of all states in 1984. Five of the next seven most acidic measurements were taken in Kentucky, Illinois, Indiana and Ohio.

Source: Ecology USA, 15 December 1986

Scientists probing the Great Lakes report finding thicker than normal mepheloid layers (clouds of microorganisms) that may be absorbing particles of pollution dumped in the Lakes. Researchers on the month-long expedition, funded by the National Oceanic and Atmospheric Administration, expected the layers to be similar to those in the oceans, but instead of being a few inches thick, the layers were very dense, like a "snowstorm of particulate matter 20 to 30 feet deep." Organic pollutants could stick to the mepheloid particles and remain in the food chain instead of settling to the lake bottom.

Source: Ecology USA, 8 September 1986

Hydrilla verticillata, once described as a "monster" plant which would make the Potomac River "unusable" in three years, now is receiving credit for clearing up the river while restoring wildlife.

Hydrilla, a water plant native to parts of Asia and Australia, was mistakenly planted in the Potomac along with common waterweed, a native species, by National Park Service employees about six years ago. The plant was so feared that authorities considered dumping massive doses of herbicide into the river in an attempt to control its rapid spread (EUSA, May 7, 1984). Aquatic biologists had feared the plant would upset food chains, and eventually kill all plants, fish and other water animals as it turned the Potomac into a weed-choked waterway.

Now, thanks in part to Hydrilla, water quality in the Potomac is improving. Hydrilla absorbs polluting nutrients that might otherwise foster the growth of unwanted algae, stabilizes stream beds, traps sediment and cleanses the water, while providing a natural habitat for fish and food for birds and ducks. U.S. Geological Survey biologist Virginia Carter said the river is "dramatically improved" from 20 years ago with "all kinds of shelter ... where there was none before." "We went out on the river for years and years and there were no birds. Now there's eagles, herons, ducks, everything."

Source: Ecology USA, Sept. 8, 1986

An artificial reef, made of industrial waste was dropped 1 1/2 miles southeast of Indian River Inlet south of Rehobeth, Dela. in May. It is now covered with barnacles, mussels and other marine animals. The 40-foot-long reef, structured in blocks the size of file cabinets and sitting 35 feet below the surface, began attracting marine life within three weeks of its placement.

Made of coal ash, the reef is a project being carried out by a research team from the University of Delaware's College of Marine Studies in Lewes, financed by

An organizational meeting is scheduled for early March to develop administrative policy for the Northeast region. The meeting will be held on campus at Southeastern Massachusetts University. Invited participants include representatives from academic institutions, state agencies and commercial operations.

Copies of the Proceedings of the International Warm Water Aquaculture Conference 1983 (crustaceans) and of the 2nd Conference (on finfish) are available for \$12.00 each. Checks should be made payable to the Warm Water Aquaculture Conference and mailed to Dr. Thomas L. Richards, Biological Sciences Department, Cal Poly State University, San Luis, Obispo, CA 93407.

A "Sea Fish Marketing Guide" is available from Seafood Business Report, 21 Elm Street, Camden, ME 04843 (\$14.95).

AFS has produced a new brochure listing "Aquaculture Publications" available from the Society.

Demand for aquaculture products continues to increase. Per capita consumption in 1985 was 14.5 lb vs. 13.6 lb in 1984. Concurrent with increased demand are higher prices. Retail prices for fisheries products appreciated by 9% in 1986 vs 3.1% for agricultural products in general.

The Hudson River Striped Bass Hatchery completed its fourth year of operation in 1986. Nearly 570,000 fingerlings (3" TL) were produced; approximately 530,000 had coded magnetized wire tags inserted in the left cheek muscle. All fish were stocked in the Hudson River. Programs have been initiated to estimate the contribution of hatchery produced fish to the Hudson River Stock. For more information contact Dennis J. Dunning, 123 Main Street, White Plains, NY 10601 or call (914) 681-6401.

#### TIDBITS

A Bibliography of Cooperative Extension Service Literature on Wildlife Fish and Forest Resources is available free from the Department of Wildlife Ecology, Cooperative Extension Programs, University of Wisconsin, Madison, WI 53706.

Trout Unlimited recently won the grand prize for fisheries conservation films at the International Film Festival in France. "Way of Trout" was also aired on French television.

Mansfield University (Mansfield, PA) now offers a BSC degree in fisheries. The curriculum includes 11 courses in Fisheries. For more information contact Dr. Richard Soderberg, Biology Department, Mansfield University, Mansfield, PA 16933.

Pennsylvania Fish Ponds, a new extension publication that covers pond management from construction to harvest can be purchased for \$3.00. Contact the Pennsylvania State University, College of Agriculture Cooperative Extension Service, University Park, PA 16802.

Vice President George Bush received the Sport Fishing Institute's 1986 "Fisherman of the Year" award.

Sodium dodecyl sulfate, the chemical that makes detergent foamy, is being investigated as a shark repellent by researchers at the University of Miami.

questions for my students! It has been fun.

My efforts as Newsletter Editor were lightened considerably through the contributions of many people. Three, in particular, deserve special mention. Mr. Joseph Gosuch proofed and corrected the "final version" before duplicating and mailing it to Mr. Gaylord Rough. Gaylord made certain that the over 300 copies of each Newsletter were distributed in a timely manner. Ms. Leslie Kusek provided many informative articles and served as Assistant Newsletter Editor for the last year. A very special thanks goes to each of my three musketeers for sharing of their time and energies. Thanks also goes to the many members of our Chapter that provided useful information for inclusion in the Newsletter.

The next Newsletter that you receive will be the product of Ms. Leslie Kusek. She brings on-board new insight, new enthusiasm, and new priorities. I am confident that Leslie will produce a high quality Newsletter and I look forward to working with her as Assistant Newsletter Editor. Welcome to your new home, Leslie!

#### LETTER FROM THE NEW NEWSLETTER EDITOR

Joe Buttner has ushered me into the AFS newsletter biz and now has pledged his aquaculture and editorial experience as assistant newsletter editor and handed the quill pen to me. I will be off and writing for the next issue of the newsletter, but first a quick introduction.

I am originally from the Detroit area. I graduated from Michigan State University with a Bachelor of Science degree in Fisheries and Wildlife in June 1985. While at Michigan State, I was recruited into the AFS student chapter by Bill Taylor. After graduation, I began working with Malcolm Pirnie, Inc., an environmental consulting firm in White Plains, New York. I became active with the New York State AFS Chapter shortly thereafter as assistant newsletter editor.

My enjoyment of writing is matched only by my intrigue for the biological sciences and nature, so what better opportunity than writing for a fisheries newsletter!

I welcome all new ideas, comments, suggestions and criticism from the membership on past, current and future newsletter issues. With your input, Joe Buttner's valuable experience and my enthusiasm, the newsletter will continue to be an effective and enjoyable line of communication and information throughout the Chapter.

#### CALENDAR

- 18-20 March 1987 - Fisheries Law Conference. New Orleans, LA. Contact Sea Grant Communications, LSU Center for Wetland Resources, Baton Rouge, LA 70803.
- 20-25 March 1987 - 52nd North American Wildlife and Natural Resources Conference. Le Chateau Frontenac Hotel, Quebec City, Quebec. Contact L.R. Jahn, Wildlife Management Institute, Suite 725, 1101 Fourteenth St., NW, Washington, DC 20005. (202) 371-1808.
- 22-24 March 1987 - 6th Annual Meeting of the Midwest Aquatic Plant Management Society. Amway Grand Plaza Hotel, Grand Rapids, MI. Contact Robert Johnson, MAPMS, P.O. Box 100, Seymour, IN. 47274.

- 26-28 August 1987 - Wetlands '87. University of Alberta, Edmonton, Alberta. Contact Wetlands '87 Coordinator, CCELC Secretariat, Lands Directorate Environment Canada, Ottawa, Ontario K1A 0E2.
- 11-17 September 1987 - The Annual Meeting of American Fisheries Society. Winston-Salem, NC. Contact Carl Sullivan, Exec. Dir. AFS, 5410 Grosvenor Lane, Bethesda, MD 20814. (301) 897-8616.
- 12-15 September 1987 - 77th Annual Meeting of the International Association of Fish and Wildlife Agencies. Winston-Salem, NC. Contact Jack H. Berryman, 1412 Sixteenth St., NW, Washington, DC 20036. (202) 639-8200.
- 4-7 October 1987 - Water Pollution Control Federation. Philadelphia, PA. Contact WPCF office, 601 Wythe St., Alexandria, VA 22314.
- 2-6 November 1987 - 4th International Conference Artificial Habitats for Fisheries. Knight Center/Hyatt Regency, Miami, FL. Contact Dr. Bill Seaman, Florida Sea Grant College Program, Building 803, Rm 4, University of Florida, Gainesville, FL 32611. (904) 392-5870.
- 7-11 November 1987 - Annual Conference of American Water Resources Association. Milwaukee, WI. Contact Ron Preston, 303 Methodist Bldg., Wheeling, WV 26003. (304) 233-1271.
- 6-9 December 1987 - Annual Meeting of the North Central Division of AFS. Marc Plaza Hotel, Milwaukee, WI. Contact John Lyons, Wisconsin Dept. Nat. Res., 3911 Fish Hatchery Rd., Madison, WI 53711. (608) 275-3223.
- 13-17 June 1988 - Computational Methods in Water Resources. Contact Michael A. Celia, Parsons Lab., Rm. 48-207, Department of Civil Engineering, MIT, Cambridge, MA 02139

If you have any questions or would like to contribute an article for the Newsletter contact:

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NEW YORK CHAPTER  
AMERICAN FISHERIES SOCIETY

JUNE 1987



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EDITOR'S CORNER

Welcome to the best New York Chapter AFS Newsletter I've written yet - my first!

Recently, I have been considering possible new avenues that this Newsletter could explore, which could broaden its scope of information or add an extra feature to its character. I have identified two such areas. First, I would like to incorporate more of the membership's personality into these pages, to learn more about what is happening in specific areas of New York State. Some issues and events never reach this media because they are not considered of state or national concern and therefore are not discussed in most sources of information. I would like to initiate a column entitled "Right in My Backyard". This column will feature local highlights that may never make the New York Times, but are certainly of concern to those closely involved. The source of information for this column is the readers - what appears in their local papers or occurs in their daily lives. So send me clips from your local papers or jot down a few lines describing what's happening right in your backyard!

The second area that I would like to expand is the involvement of the private sector. Historically, regulatory agencies and educational institutions have provided much of our news data. To provide an expanded scope of information, I think that it is important to incorporate the activities of private firms into our Newsletter as well. I have sent letters to some firms that may be interested in contributing information to the Newsletter. However, I have by no means reached all those potentially interested. I intend to continue my mailings, and I hope that the membership will also extend this effort and send information reflecting activities and projects currently underway involving private industry. This issue of the Newsletter contains an article provided by Richard K. Keiser, Ph.D., an AFS member who is employed by Environmental Information Systems. The article discusses the development of the Hudson River Data Base, funded by the Hudson River Foundation.

PRESIDENT'S MESSAGE

When I began my term as President of the New York Chapter in early February, I took stock of the Chapter to define for myself what course was appropriate. My "audit" revealed the most dynamic chapter in the AFS, with activities and programs that rival or surpass those of AFS Divisions, and which does not have so much as a whiff of red ink associated with its

facets of our profession become more important every year and I strongly recommend your attendance at the workshop. I'm looking forward to seeing you there!

#### NEWS TIDBITS

National Water Alliance (NWA) is attempting to launch an unprecedented nationwide ad campaign on the environment. Beginning with household hazardous wastes and their potential threat to drinking water, NWA is planning to run ads on television, radio, billboards and magazines in an attempt to increase public awareness. The group says the general public is unaware that improper disposal of household wastes such as oil, pesticides and cleansers, could lead to water contamination. However, an obstacle to their efforts has arisen. U.S. Geological Survey has pulled out of the campaign due to lack of funds. EPA, saying it supports the effort in theory, is also claiming a lack of money. The advertising campaign is now contingent on NWA kicking off an aggressive fundraising effort.

Source: Clean Water Report, March 10, 1987.

The first full meeting of the Federal Fisheries Responsibility Committee was held in Washington, D.C., on March 18-19. Chairman Bill Gordon led the group in the preparation of a "capsulized" proposal and a specific strategy and timetable for action. AFS President Shelby Gerking and President-Elect Stan Moberly were on hand for this important session. There is a perception among committee members that national concerns with the present inadequacies of federal government fisheries programs is growing. These concerns stem in part from the overlapping and sometimes combative postures of our many federal aquatic resource agencies. Even greater anxiety is focused on the debilitated status of the nation's fisheries resources and habitats. The AFS Federal Fisheries Responsibilities Committee is recommending a comprehensive solution which includes the creation of a single national fisheries agency with attendant efficiencies and economies. For details see Fisheries, Vol II, No. 4, pages 2-6 (July-August 1986).

Chemicals and metals carried by the wind are allegedly contaminating the Great Lakes, according to a recent report released by the Sierra Club and Great Lakes United. The groups called on the governments of the United States and Canada to impose stringent controls to prevent further lake deterioration. The toxic substances, including some which are banned in the U.S. such as DDT and PCBs, are carried to the lakes from as far away as South America, the report says. They are accumulating in the lakes and entering the food chain of fish and other aquatic life. The report said airborne pollution deposited on the lakes comes from industrial smokestacks, motor vehicle exhausts, aerial spraying of pesticides, chronic and accidental release of toxic pollutants, evaporation from waste treatment plants and from places such as dry cleaners and auto-finishing plants that release volatile substances.

Source: Clean Water Report, March 10, 1987.

The EPA has asked the Department of Interior to expand its Environmental Impact Statement on its proposal to allow oil exploration, development and production in Arctic National Wildlife Refuge. A letter to Assistant Secretary for Fish and Wildlife and Parks, William Horn, from an EPA regional official said, "There is no discussion in the EIS of air quality deterioration, the effects of noise upon wildlife in the refuge, or of the consequences of marine transportation facilities on fish populations. The EIS acknowledges that water supplies may be inadequate to support all the activities associated with oil development within the refuge, but does not discuss how overcoming these shortfalls will affect the available fresh water resources."

Source: Clean Water Report, March 10, 1987.

The U.S. Forest Service Fisheries Task Force staged a "press conference" signing ceremony in Washington on March 16, with AFS and a number of other conservation organizations in attendance. In signing the new Forest Service Fisheries Action Plan, Chief Dale Robertson said, "This is not just something we are talking about, we are going to go for it." AFS helped arrange the ceremony which included slide show presentations by Forest Service Wildlife and Fisheries Director Bob Nelson and introductory remarks by the President of National AFS. The Fisheries Action Plan is the final product of a year-long study by the FS Fisheries Task Force which in turn was appointed as a consequence of the 1983-85 AFS study of fisheries conditions and policies in the National Forest System.

The 1987 North American Wildlife Conference was held March 21-25 in Quebec City, Canada. Paul Brouha represented the AFS central office and devoted particular attention to: (1) discussing with the Wildlife Society about JOBLINK, a developing fisheries/wildlife/forestry society computerized employment service, (2) explaining the AFS Federal Fisheries Reorganization Proposal (Harville Committee plan) to the committees of the International Association and, (3) participating in the deliberations of the Inland Fisheries Committee.

A panel to develop a comprehensive, long-term program for the oceans and Great Lakes is being sought by members of Congress. The lawmakers say the panel is necessary because recent concern about expanding federal expenditures has resulted in the retrenchment of many of the ocean initiatives of the last decade. The 17-member body would have two years to reexamine the country's priorities for oceans and lakes under legislation introduced by Rep. Walter Jones (D.-N.C.), chairman of the House Merchant Marine and Fisheries Committee, and Sen. Lowell Weicker (R.-Conn). As proposed, panel members would be nominated by the leaders of both houses of Congress and appointed by the President. Nominees are to represent a broad range of interests -- non-profit, commercial, coastal governors, and academics.

Source: Clean Water Report, March 10, 1987.

Two fiberglass boat molds were added to the growing Garden State South Reef off Long Beach Island this past fall. The molds, which had been used to

Department to commission a consortium of research institutions to conduct the first toxicological study of oil's effects on these aquatic reptiles -- all of which are either endangered or threatened species. The resulting data show that the turtles' inability to avoid oil, combined with the fact that they were so strongly affected physiologically by the oil, is probably the worst combination they could have, according to Sandy Vargo of the Florida Institute of Oceanography in St. Petersburg, which directed the research project.

Source: Science News, Vol. 130.

Curbing acid rain could add almost 200,000 jobs and \$13 billion into the economy, according to a Management Information Services Inc. study released Feb. 2. After factoring in job and sales losses in coal mining, annual net economic gain would range from \$7.5 billion to \$13 billion, with a net gain of 100,000 to 194,000 jobs. The Washington, D.C. economic research firm said the states estimated to gain the most are California, Vermont, Indiana, Michigan, Florida and New York, while the biggest losers would be Kentucky, Pennsylvania, Ohio, Illinois and Indiana. Estimates are based on last year's failed House and Senate bills, some of which have already been reintroduced.

Source: Ecology USA, February 16, 1987.

Toxic fog made up of microscopic water droplets which contain unexpectedly high concentrations of pesticides, herbicides and other chemicals may be a principal cause of damage to U.S. forests. Samples from Beltsville, MD. and California's San Joaquin Valley bear concentrations of some toxic substances that are thousands of times higher than had been predicted by the widely used Henry's Law of chemistry. Henry's Law assumes the fog droplets behave as an "ideal solution," meaning the ability of any one vapor to dissolve into the droplet is not affected by any substance already in the droplet. New findings suggest, however, that chemicals already in the droplet or on its surface can make it easier for the droplet to take up other substances. As a result, some toxic vapors considered nearly insoluble and virtually incapable of entering a droplet were able to do so and reach concentrations thousands of times higher than predicted.

Source: Ecology USA, February 16, 1987

Pesticides in agricultural runoff flowing through tidal marshes may be trapped and broken down in marsh sediment before they can pollute the Chesapeake Bay. Working in a micro-ecosystem designed to trace and measure vertical and horizontal movement of pesticides, scientists found that isotope-labeled atrazine was chemically inactivated and tightly bound to organic matter in marsh sediment. It had been assumed, but not scientifically confirmed, that pesticides could build up to levels injurious to life in tidal marsh ecosystems. This experiment suggests that marshes have a natural filtering system that prevents such build-up, say researchers at the USDA Pesticide Degradation Laboratory in Beltsville, Maryland.

Source: BioCycle, March, 1987.

and politically made it accessible to commercial fishermen and their products. Ms. Bromley has circulated a questionnaire that she developed for supermarkets chains and grocery stores with major seafood departments. Responses have been received from 25 retailers. Information obtained to date indicates that over 100 varieties of seafood are being carried by respondents. Two of the biggest problems in marketing are the lack of knowledge on proper preparation of fish and the unpredictable nature of fish supplies (a shortcoming that is readily alleviated by aquaculture). Three major consumer concerns are price, freshness, and preparation of fish. Ms. Bromley is developing video-tapes to educate store managers on fish products; one tape for finfish and one for shellfish. The tapes are currently being edited and should be available shortly.

Source: NY Sea Grant Notices 2(1).

An aquaculture genetics steering committee has been developed. The committee will assess the current status of aquaculture genetics research to determine the needs for additional research. Research priorities as well as institutional linkages are being addressed. A report is being prepared and should be available this year. Dr. Graham Gall, University of California - Davis, will chair this committee. Other committee members include some of the top geneticists in the country.

Source: Extension Service Update 1(3).

In addition to allocating \$3 million to develop four regional aquaculture consortiums, the U.S. Congress appropriated funds for fiscal year 1987 to USDA aquaculture programs as follows:

- \$1,736,000 - For continuing the Gulf Coast shrimp aquaculture research project which was first funded in fiscal year 1985. This grant will be made to the Oceanic Institute in Hawaii and the Gulf Coast Research Laboratory, Ocean Springs, Mississippi.
- \$400,000 - For aquaculture research at the Delta Branch Experiment Station, Stoneville, Mississippi, Mississippi State University.
- \$200,000 - To establish the aquaculture research program in Louisiana on crawfish, prawns, and redfish. Louisiana State University.
- \$152,000 - For research in Hawaii to improve aquaculture efficiency through multi-cropping strategies for marine aquaculture. University of Hawaii.
- \$100,000 - To expand the on-going aquaculture research at Tishomingo, Oklahoma Fish Hatchery. This is a cooperative effort between the U.S. Fish and Wildlife Service and the Agricultural Research Service (ARS), USDA.
- \$285,000 - For the Aquaculture Research (General) program. This program (less than 10% of funds available for U.S.D.A. sponsored aquaculture programs in 1987) provides funding for aquaculture development on a nationwide, competitive basis.

north of the Alaska Range in the Fairbanks area. The Unit is expected to be particularly important to students and faculty at the University of Alaska, Fairbanks campus. First president is Mary Shiffer, vice president is Joe Klein, and secretary/treasurer responsibilities will be shared by Nicole Jones and Bob Piorkowski.

The Kansas Chapter passed three resolutions during its annual meeting with copies provided for the AFS central office. The resolutions concern (1) support for necessary legislation to implement the Fish, Wildlife, and Recreation Section of the State Water Plan; (2) support for banning use of chlorodane; and (3) support for minimum desirable streamflows for nine additional Kansas streams. For details, write David Willis, Chapter President, Emporia Investigations Office, P.O. Box 1525, Emporia, KS 66801.

AFS support for continued USFWS funding of The Fishery Review (formerly Sport Fishing Abstracts) was voted by National Excom during their spring meeting. If Congress fails to provide such funding for FY 88, Director Sullivan was asked to develop a proposal for the journal's publication by AFS under a contractual arrangement with the USFWS. This action resulted from the news that the long-standing review journal will be zero-funded and abandoned by the Service in 1988.

The revised AFS Constitution and Bylaws have been published as part of the 1986 Membership Directory recently mailed to all members. Constitutional Consultant Rich Gregory urged all subunit officers to examine their bylaws to see that they comply with the updated AFS version. If they do not, he will be pleased to help make any necessary adjustments. Upon the recommendation of the Constitutional Consultant, the Excom approved (1) the Louisiana and Idaho Chapter bylaw revisions, (2) the restructuring of the Northeastern Division Finance Committee, and (3) the formation of an AFS International Section providing final endorsement by the membership at the annual meeting.

The proposed Guidelines for Use of Fishes in Field Research were discussed at great length at the spring meeting of National Excom. In the absence of consensus of the acceptability of the draft guidelines, the Excom directed President Gerking to appoint a new committee representing the several points of view in the Society. The committee will be asked to develop a proposed new set of "Guidelines for Use of Fishes in Field Research" and to bring the proposal to the Excom as soon as possible.

The organization and coordination of a World Fisheries Congress in 1990 was unanimously approved by the National Excom. The proposal was made by Tapan Banerjee, chairman of the Internationalism Committee and acting president of the newly-organized AFS International Section. In endorsing the plan, the Excom directed the appointment of a Steering Committee to present a more detailed report at the annual meeting in North Carolina.

members are from DEC, Cornell, and private industry. The topic will be "The Social Sciences as a Tool in Natural Resource Management". We will again be operating out of Cornell. Comments to the seminar outline passed out by Paul were requested by February 15, 1987.

1987 Chapter Meeting - Andy stated that a quarter of the papers submitted indicated a willingness to be placed in the poster session. Sixty percent of the student papers and thirty percent of the professional papers will be judged. Instructions were sent to poster presenters discussing format, display times, etc. Doug Carlson has produced a new form to be used in judging papers. After some discussion it was decided to use the new system on a trial basis this year with judges feedback having a bearing on its acceptance. This format change has resulted from the change in judging only student and professional papers. The former format favored experimental design format to the detriment of synthesis or case history formats.

After a short discussion it was decided that back-to-back winners would not be allowed. There must be at least one annual meeting between an award to the same individual.

It was agreed to present a "Best Poster" award next year. Awards are \$50 and a certificate for the best student paper and a copy of "Fishes of NY" for the best paper award.

There was some thought on posting scores of high ranking paper who were not selected a winner. Larry Skinner made a motion that no posting of scores take place, seconded and carried. If a presenter wants a copy of his score he/she may request it and it will be done privately.

This has been the most expensive meeting thus far. In the past, DEC and Kodak have paid the hidden costs of printing and mailing. This year we spent about \$600 on printing and mailing.

Invited speakers will be asked to pay the registration fee if they can be reimbursed by their employer. If they have to pay it out of pocket, the Chapter will pick up the bill. A list of speakers will be provided the secretary-treasurer.

Old Business - Our Skinner Fund Challenge was not met by other Chapters around the country. Because the fund seems to be on solid ground now, we will not extend the challenge.

We have been approached by the Wildlife and Forestry Societies of New York to form an ad hoc committee to look into the employment opportunities for minorities and women in New York in the natural resources fields. President Duttweiler will seek a volunteer to serve on this committee.

New Business - Dwight Webster and Martin Smith will be eulogized at the annual business meeting. Members will be asked to notify the chapter when they are aware of the death of a member.

A motion to adjourn was made and carried at 9:10 p.m.



NEW YORK CHAPTER, AMERICAN FISHERIES SOCIETY, TREASURER'S REPORT, 1986

	Checking Account	Certificate of Deposit	Money Market	Totals
Balance as of 1/31/86	251.06	5,233.60	10,305.34	15,790.00
<b>Receipts and Transfers</b>				
Interest Received		506.17	570.48	1,076.65
1986 Annual mtg. Receipts	308.00		1,106.00	1,414.00
Dues, After Annual Mtg.	448.00			448.00
Workshop Proceedings	12.00			12.00
1986 Workshop Receipts			1,605.21	1,605.21
Misc.: Gift, Doug Carlson	25.00			25.00
Subtotal, Receipts	793.00	506.17	3,281.69	4,580.86
Total	1,044.06	5,739.77	13,587.03	20,370.86
<b>Expenses and Transfers</b>				
1986 Annual Mtg. Expenses	266.40			266.40
Best Student Paper Award	50.00			50.00
Past President's Certificate				
Best Paper Certificates	36.50			36.50
Mailings (Newsletters, Etc.)	79.65		267.93	347.58
Workshop Printing	102.25		215.00	317.25
Workshop Consultants	119.00		1,200.00	1,319.00
Workshop Mailings	26.18			26.18
Stamps	94.00			94.00
Printing and Supplies	42.33		167.54	209.87
Checking Acct. Service Chg.	15.60			15.60
Skinner Memorial Fund (AFS)			500.00	500.00
Transfer to Jack Hasse		5,739.77	500.00	6,239.77
Subtotals, Expenses	831.91	5,739.77	2,850.47	9,422.15
Balance 1/14/87	212.15	0.0	10,736.56	10,948.71
Total Within-Chapter Trfr.				6,239.77
Total Chapter Assets				17,188.48

Submitted by  
Gaylord E. Rough, Sec.-Treas.

Bob Lange was escorted to the podium and installed as president for 1987. President Lange then presented past president Duttweiler with a past president certificate and thanked him for his efforts over the preceding year.

A motion to adjourn was made and carried at 5:15 p.m.

EXECUTIVE COMMITTEE MEETING, MARCH 12, 1987  
UTICA, NY

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Meeting was called to order by President Lange at 10:52 a.m., Members present were B. Lange, J. Hasse, L. Skinner, P. McKeown, L. Kusek, and T. Sinnott.

Reading of the minutes of the previous Executive Committee meeting were waived, minutes were accepted as printed.

President's Report

AFS membership has increased 3½%, section membership has increased 14%.

Student membership is the lowest in 20 years.

The PASER job service has been terminated because employers never purchased the listing. A new system through Colorado State is being considered.

Forty-one percent of Chapter members do not belong to National AFS.

A new salary survey will be conducted by AFS later this year.

Some sections are worrying about large numbers of commercial fisherman joining AFS and interfering with the professional nature of the organization.

The 1990 national meeting will be held in the northeast. No specific host has stepped forth yet.

Guidelines for research with vertebrates, including fish, are being developed.

Treasurer's Report

Checking	\$ 122.03
C.D.	\$5,796.65
Money Market	\$1,642.77
Cash	\$ 20.00
Total	\$7,581.45 *

\* This does not include monies from checking and money market accounts that Gaylord Rough has not closed out.

Newsletter Committee - Leslie Kusek

The draft of the March issue is finished and should be going to the printer in the next week to ten days. The draft for the June issue should be ready by early May. This will be Leslie's first issue. We will attempt to issue the newsletter on a quarterly basis. An attempt will be made to involve the private industry more in the newsletter.

Resolutions Committee -

Ray Tuttle has accepted the chair for this committee assuming his employer has no objections.

Membership Committee -

Jack Hasse reported for Frank Panek. There are 46 new members in 1987 so far, while 166 old members have renewed for a total of 212 paid-up members. We have 109 members from 1986 who have not renewed. This gives us a grand total of 321 members on the current listing compared to 306 last year.

The annual 1987 meeting had 189 in attendance of which 87% were paid-up members.

Nominating Committee -

No Report.

Status of Women/Minorities Committee -

Committee members Knuth, Duttweiler, VanRyn, and Lassori met on February 13, 1987 and determined the objectives of the committee: (1) involve the Wildlife Society and Society of American Foresters Chapters in New York, and (2) compile a cursory assessment of the status of women in natural resources in education and employment. The committee members are currently contacting various employers to obtain a rough idea of the status of women and minorities in the natural resource fields. Future actions may include expanding the employment survey, determining how many women and minorities leave the field after being educated, and proposing actions to be taken based on the survey results.

Presentation Standards Committee -

Prompted by complaints that speakers at the 1987 Chapter meeting had too much information on slides, overused overhead projectors, and had poor quality slides, president Lange has given Jim Haynes the following charges. First, critique technical presentations at recent Chapter meetings from the standpoint of audio-visual effectiveness. Second, develop instructional materials on effective presentation techniques for distribution to the membership, and third, develop presentation standards for adoption by the program chairperson for future Chapter meetings.

## RIGHT IN MY BACKYARD

To start this new section of the Newsletter off on course, I clipped a couple of articles from my local newspaper, the Times, Herald, Record.

I am hoping that the next issue will contain local news tidbits from members located throughout the state!

(April 3, 1987)

In an attempt to promote planned growth for the region, Assemblyman Maurice D. Hinchey Jr. has proposed legislation to create a Hudson River Valley Authority.

The state-funded group, to be comprised of 11 members appointed by the governor and State Legislature, would develop plans to tackle the region's problems, such as the lack of affordable housing, inadequate transportation services and recreational and cultural needs.

Hinchey said the regional authority could develop and finance a Hudson Valley performing arts center or conference center to improve the area's quality of life or stimulate economic growth.

A similar regional authority is operating in the North Country area upstate. Other regional authorities in the state are more specific, such as solid waste management agencies and transportation authorities. Hinchey said the Hudson Valley agency would be given \$150,000 in state start-up money and then could borrow money through bonds.

The idea of setting up the Hudson Valley authority is one of a five-piece package of legislation announced yesterday by Hinchey to set the pace for future growth in the Hudson Valley and other environmentally sensitive areas of the state.

1. Create a Hudson River Valley Authority that would plan, develop and finance regional projects.
2. Create a statewide "land banking" program that would enable municipalities to charge a 2 percent surcharge on real estate transactions of \$100,000. Money could be used only for preservation and acquisition of environmentally sensitive lands, open space, and cultural and historical projects.
3. Allow local planning boards to require waterfront developers to provide increased public access to the river for recreational purposes. If plans could not include such increased public access, Hinchey said the municipalities would be able to collect a fee from the developers for a public trust fund to improve waterfront recreation elsewhere.
4. Establish a 15-year estuary management program for the Hudson River to protect spawning, wintering, feeding and nursery areas for fish and wildlife.
5. Have the State Department of Environmental Conservation develop a master plan of the public land along the Hudson River, establishing a "green line" of protected land.

guide, proper use of the data sets would require extensive research into "grey literature" reports on methodology and tracking down principal investigators now widely dispersed. The approach used to make the Hudson River Data Base available to the scientific and lay community can be used equally well to make other historic data sets accessible.

Further information on this effort can be obtained by contacting the Hudson River Foundation, 122 East 42nd Street - Suite 1901, New York, NY 10168, or Richard K. Keiser, Environmental Information Systems, 32 Stillway Court, Cockeysville, MD 21030.

Source: Users Guide to the Hudson River Data Base, Richard K. Keiser, Jr., Jon Cooper, and Ronald J. Klauda

#### UPCOMING EVENTS

An International Symposium on Fish Tagging will be held in the spring of 1988 under sponsorship of the Fisheries Management and Fisheries Administrators Sections of AFS and the Federal Aid (Wallop-Breaux) Office of the U.S. Fish and Wildlife Service. AFS President Gerking has appointed a Program Committee which includes Nick Parker, Eric Prince, Fred Utter, Roy Heidinger, and Douglas Jetter, Jr. Overall policy direction will be provided by a steering committee of USFWS representatives and Section officers. The symposium will probably be held in the Seattle area in June of 1988. Tony Novotny will serve as arrangements chairman, assisted by selected members of the North Pacific International Chapter. A specific goal of the symposium is the production of a fish tagging handbook based on the proceedings. Members with specific questions or comments on fish tagging should contact AFS headquarters.

The Great Lakes Research Consortium, composed of five SUNY institutions and Clarkson University, is sponsoring several workshops of the Great Lakes. A workshop, scheduled for early fall 1987, is being developed to investigate the aquaculture potential of the Great Lakes. For more information contact Joe Buttner, Department of Biological Sciences, SUNY Brockport Brockport, NY 14420. (716) 395-5750.

International Conference; Shellfishing and Coastal Resources Management: A Global Perspective. August 19-21, 1987. Hofstra University, Hempstead NY. Contact Terry Baker, Hofstra University, Hempstead, NY 11550 (516) 560-5742.

Wetlands '87. August 26-28, 1987. University of Alberta, Edmonton, Alberta. Contact Wetlands '87 Coordinator, CCELC Secretariat, Lands Directorate Environment Canada, Ottawa, Ontario KIA 0E2.

Water Pollution Control Federation. October 4-7, 1987. Philadelphia, PA. Contact WPCF office, 601 Wythe St., Alexandria, VA 22314.

4th International Conference on Artificial Habitats for Fisheries, Nov. 2-6, 1987: University of Florida, Gainesville, Florida. For info: Dr. William Seaman, Conference Chairman, Bldg. 803, University of Florida, Gainesville, FL 32611.

49th Midwest Fish & Wildlife Conference, Dec. 6-9, 1987: Marc Plaza Hotel, Milwaukee, Wisconsin, For info: John Lyons, Wisconsin Dept. Natural Resources, 3911 Fish Hatchery Rd., Madison, WI 53711. (608) 275-3223.

ETC...

Academic research positions. New and pending research projects have created a need for new fisheries researchers. Positions will include one or more of the following: project managers (post-MS or PhD), graduate research assistants, and field research technicians. Research areas with immediate needs include: regulated river fisheries, larval fish ecology, and reservoir smallmouth bass fishery analysis and management. Pending projects involve behavior and feeding preference of grass carp, large-reservoir biotelemetry, estuarine fish community ecology, cumulative impact assessment for wetlands. Preference will be given to minority applicants and those interested in field-oriented and highly quantitative research. For information on immediate opportunities or positions during the next year, contact Dr. Mark Bain at the Alabama Cooperative Fish and Wildlife Research Unit, 331 Funchess Hall, Auburn University, AL 36849-4201; phone (205) 826-4786.

A Career Opportunities Center will be sponsored by the AFS Education Section at the 117th annual meeting in Winston-Salem, NC. The Center will include a new, interactive, computer-based job searching system. All employers with positions in fisheries and aquatic sciences should send information about job openings to the COC chairman. Included should be all appropriate information or brochures about their organization. By arrangement with the COC chairman, the Career Center may be used for interviewing potential employees. Job seekers should send a resume to the COC chairman. Vacancy and resume submissions are encouraged throughout the year, but should arrive no later than September 1, 1987. All submissions will be available for review during the September 13-17 annual meeting. Send materials to Dr. James M. Haynes, AFS ES COC Chair, Department of Biological Sciences, SUNY College at Brockport, Brockport, NY 14420.

A new AFS job service called JOBLINK won unanimous approval at the spring national Excom meeting, provided it is primarily a service to AFS members and provided the financing can be arranged. JOBLINK is a computerized, telecommunications daily-updated program which allows users to run their own computer job searches or they may call or write for the same information to be mailed in hard copy. The JOBLINK Service will be operated for professionals in the natural resources fields and probably will service the Society of American Foresters and The Wildlife Society, in addition to AFS. All three of these scientific professional societies will contract with Colorado State University for the telecommunications system. JOBLINK is not an inexpensive service and will require each Society to invest a

mental matters. Environmental Telephone Directory is available from Government Institutes, Inc., 966 Hungerford Dr., #24, Rockville, MD, 20850, (301) 251-9250.

A Checklist of New York State Plants, from the New York State Museum, brings 150 years of plant records on over 3,400 species into modern perspective, giving common names and synonyms, rarity status and code and complete author citations for each species, subspecies and variety. Book is available in hardcover only, for \$12,50 (including shipping and handling), from The New York State Library, State Science Service, Publications Sales, Cultural Education Center, Empire State Plaza, Albany, NY 12230. All orders must be prepaid. For more information call (518) 474-5816.

Riparian Ecosystems and Their Management: Reconciling Conflicting Uses, second printing of the proceedings of the First North American Riparian Conference held in Tucson, Arizona, in 1985, is available for \$20 from R. Roy Johnson, RM 125, Bio. Sci. (East), University of Arizona, Tucson, Arizona 85721.

A "what you can do" publication entitled Baybook has been developed by the Citizen Program for Chesapeake Bay. The book is a guide to reducing water pollution at home and focuses on citizen participation. Copies are available from the Citizen's Program for the Chesapeake Bay, Inc., 6600 York Road, Baltimore, Maryland, 21212 (301) 377-6270.

Publication by AFS of an International Directory of fisheries science associations, foundations, societies, institutes, etc., and the names and addresses of their officers was authorized by unanimous National Excom vote. Neil Armantrout and other members of the International Section have already begun compiling the information. AFS members with information on this subject are asked to forward it to the central office in care of Tapan Banerjee, International Section Chairman.

The National Marine Fisheries Services has compiled figures for aquaculture production in the United States for 1980-85. Value of production and percent of total production by group are included. For a new copy contact the National Marine Fisheries Services, Washington, D.C. 20235 (202) 673-5359.

"The Seafood Shippers Guide," lists trucking firms in Canada and the United States that service the industry. The guide is produced by the Rhode Island Seafood Council and can be obtained from R.I. Seafood Council, 387 Main Street, Wakefield, RI 02879. Cost is \$23 for members and \$33 for non-members.

AFS has produced a new brochure listing "Aquaculture Publications" available from the Society. For a copy contact the American Fisheries Society, 5410 Grosvenor Lane, Suite 110 Bethesda, MD 20814.



NEW YORK CHAPTER  
AMERICAN FISHERIES SOCIETY

DECEMBER 1987





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EDITOR'S CORNER

The weekend we have all been awaiting is fast approaching! As a special welcome into the new year, fisheries scientists of New York will rendezvous - at the annual New York Chapter American Fisheries Society meeting January 28-30, 1988 in Binghamton, NY. The Holiday Inn - Arena in downtown Binghamton is playing host, and offers many combinations of accomodation packages.

Tim Sinnott, Program Committee Chairperson, has devoted much time and energy to arranging the event. The theme of the meeting is "Integrating Ecosystem Theory into Fisheries Management." A second invited paper session entitled "Management of Aquatic and Fisheries Resources in New York State, the Present and the Future," has also been arranged. Additional meeting activities will include a poster session, a contributed paper session on Freshwater and Marine Fisheries, and a special session for students to discuss employment opportunities as fisheries professionals.

Accomodations including a room and meals are priced at approximately \$65 for one night, double occupancy. Any questions? Contact Tim at NYSDEC, Biological Survey Unit, Room 522, 50 Wolf Road, Albany, NY 12233-4753 or (518) 457-8174.

See you there!

PRESIDENT'S MESSAGE

I recently had the privilege of representing the New York Chapter at the annual meeting of the American Fisheries Society in Winston-Salem, North Carolina. One of the most prominent themes to emerge from the meeting was the importance of chapters as subunits of the parent society.

One reason for this may be the annual report of the Membership Concerns Committee. The Membership Concerns Committee recently completed a survey of AFS members to ascertain, among other things, the importance of AFS subunits to members. Chapters clearly stood out, with 71 percent of the respondents rating chapters as very or somewhat important, compared to 59 and 52 percent for Sections and Divisions, respectively.

Respondents were also asked to rate the importance of chapters with respect to student participation. Here again, chapters clearly dominated. Sixty-three percent considered chapters very important, and 24 percent ranked them a somewhat important. Sections and Divisions combined had "very" and "somewhat important" ratings of 64 and 44 percent, respectively.

## NEW YORK NEWS

Since 1976, NYSDEC has sought to implement a project aimed at reducing PCB contamination of the Hudson River. Between 1976 and 1978, the NYSDOT dredged a number of contaminated areas to reduce PCB levels in the Hudson River. In 1981, as a result of federal Congressional authorization and funding, the EPA in accordance with the National Environmental Protection Act (NEPA) prepared and issued a Draft Environmental Impact Statement (DEIS) that addressed the feasibility of removing PCBs from the Upper Hudson River by dredging. On October 8, 1981, EPA issued a Final Environmental Impact Statement (FEIS) for the project that recommended the dredging and long - term encapsulation of PCB contaminated sediments. However, the project was not implemented when use of the encapsulation site was prohibited on the basis that the construction of the containment cell would violate local zoning ordinances. In 1984, a river sediment survey and new disposal site selection study were undertaken by the NYSDEC. The river sediment survey showed that PCB hot spots were still present in the Thompson Island Pool, while the site selection study recommended a new disposal site in an area zoned for industrial use adjacent to the Town of Fort Edward's sanitary landfill.

The proposed action, outlined in the January 1987 supplement to the 1982 FEIS, consists of hydraulically dredging identified hot spots in the Thompson Island Pool to a depth of approximately two feet and containing dredged material in a secure, upland site located in the Town of Fort Edward. The containment cell will be sized to receive up to 360,000 cubic yards of hydraulically dredged sediments, which will be pumped to the site as a slurry, and will be designed and operated in accordance with federal and state requirements. Public hearings have been held on this document, and a response document is now being prepared.

On May 7, 1987, a Federal Court Judge approved a modification to the schedule for the proposed Hudson River PCB Reclamation Demonstration project. The approval extends the deadline for issuance of all state permits and approvals to February 1, 1988. It allows until May 1, 1988 for issuance of federal approvals. The modified order does not change the state's May 10, 1989 deadline for issuing the contract for construction work for the project. An original consent order signed in 1984 would have required that all state and federal approvals be obtained by May 10, 1987. For further information, contact NYSDEC at 1-800-342-9296.

New York Sea Grant Institute (NYSGI) has begun a project to evaluate potential public health risks of consuming fish containing residues of toxic contaminants. The project, funded by National Oceanic and Atmospheric Administration's National Marine Pollution Program Office (NMPPPO), will provide a preliminary overview to assist state and federal programs in managing the health risks of consuming contaminated fish.

The one-year study will: (1) survey existing public health consumption advisories issued by coastal and Great Lakes states; (2) compile a data base of nationwide advisory locations, fish species and toxic contaminants; (3) describe and compare state policies and public information programs regarding health advisories; (4) analyze effectiveness of state

Meanwhile, back at NYSDEC, Region 3 has been knee-deep in wetland work as they completed final field determinations in preparation for filing wetland maps for Westchester County. Field determinations were also begun in Ulster County. Additionally, all necessary forms were assembled to acquire more Bashakill wetland areas north of Route 17. This proposed acquisition would involve lands (approximately 600 acres) from Route 17 north to the incorporated limits of Wurtzboro, which would become part of the Bashakill Wildlife Management Area under the Environmental Quality Bond Act.

#### NATIONAL NEWS

Although delegation of resources may remain a battle between some oil resources developers and fisheries managers, a spin off of the relationship may actually produce a winning combination. It appears that government and industry have found benefits associated with using non-productive offshore oil and gas structures as artificial reefs. On November 8, 1984, President Reagan signed into law the National Fishing Enhancement Act of 1984, which recognized social and economic value in developing artificial reefs. The Gulf of Mexico has over 4,000 gas and oil platforms reaching depths over 1,000 feet and extending over 130 miles from shore. These structures constitute 28 percent of the known hard-bottom habitat off the coasts of Louisiana and Texas. Data from the National Marine Fisheries Service's 1984 Marine Recreational Fishery Statistics Survey for the Gulf of Mexico indicate that 37 percent of all salt water fishing trips made by Louisiana coastal residents in 1984 were to oil and gas structures. Louisiana is only one of the gulf states that is now in the process of implementing a plan that will salvage fishery benefits currently associated with these structures. The oil and gas industry appears anxious to cooperate with responsible reef developers willing and able to accept future responsibility and liability for these artificial reef development projects, and may even devote a portion of their reef disposal savings to supporting such endeavors.

Source: July-August 1987 Fisheries, "Rigs-to-Reefs".

Results of a preliminary Environmental Protection Agency study of five paper mills in Maine, Minnesota, Ohio, Oregon and Texas, seem to be confirming what environmental officials have suspected for at least four years: some paper mills are contaminating the nation's waterways with dioxin. According to the report, some mills discharge minute amounts of the most toxic dioxin, 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD), which accumulates in fish and consequently could pose an increased risk of cancer to people who regularly eat the contaminated fish over a prolonged period of time. The report says the dioxin levels found at the mills were up to 100 parts per quadrillion. Paper industry officials say measuring one part per quadrillion is like counting off one second every 32 million years. EPA is planning to set limits on how much dioxin can be discharged by the mills, but has yet to decide what those limits should be or how many mills will be included. The EPA is also considering establishing national dioxin standards or recommending other bleaching processes. Since the agency has delegated the authority to issue discharge permits to many of the states, the response of the states to an EPA initiative will be crucial.

Source: Ecology USA, September 14, 1987.

fund will back two graduate scholarships in the study of hazardous substance control and one in environmental science. An interesting landmark case?

Source: Clean Water Report, July 28, 1987.

What started as a classroom science project on the life cycle of salmon, created by retired teacher Bob Boye and piloted by Edmonds School District, now involves local and state officials, the University of Washington, a utility company, and a host of interested citizens. Called the Salmon Enhancement Program, this classroom-community program involves elementary and middle school students in every aspect of the salmon's life cycle from October through April, especially the spawning, hatching and raising of young fry. The program provides children with a hands-on exercise in environmental education, water quality, conservation, science, art, social studies, history and math, by relating what they are trying to accomplish to all other subjects.

Students from nine Bellevue schools and the Bellevue Storm and Surface Water Utility staff raise the salmon, the students in school aquariums, the utility in an aquarium at City Hall. Also involved in the project are the State Department of Fisheries and Metro's Community Action Grant Program (Seattle-Bellevue area). For more information on this project, contact Alexandra Hubbard (206) 624-8242.

Source: Ecology USA, July 6, 1987.

The U.S. EPA has prohibited land disposal of 12 classes of hazardous wastes, including liquid wastes containing cyanides, metals, and polychlorinated biphenyls (PCBs). Also forbidden is the disposal of liquid and solid wastes containing halogenated organic compounds (HOCs) and all corrosive wastes. Under the new rules, announced July 8, 1987 wastes containing 50 parts per million or more of PCBs must be incinerated; so must non-liquid wastes containing HOCs at levels above 1000 milligrams per kilogram (mg/kg) and liquid wastes containing 10,000 mg/kg or more of HOCs. The pH of corrosive wastes must be raised above 2. Metals may be removed by precipitation and cyanides by oxidation. J. Winston Porter, EPA's assistant administrator for solid waste and emergency response, estimates that the new rules will prohibit the land disposal of millions of gallons of hazardous wastes each year.

Source: Environmental Science and Technology, September 1987.

An agreement between American Rivers, Inc., and the U.S. Forest Service is expected to result in the evaluation and protection of more than 112 potential wild and scenic rivers. An estimated 1,000 river miles and 300,000 riverside acres in 11 states are affected. The agreement calls for American Rivers to release its appeals of four Forest Service proposals mandated for future forest planning. The rivers will be evalu-

Governor Thomas H. Kean has signed a bill to protect New Jersey's freshwater wetlands, and torn up his controversial executive order halting new development in 323,000 acres of wetlands for 18 months. He had said the moratorium would last until he got a strong wetlands protection bill. The bill was the result of a compromise that came after four years of negotiations, centered mainly around the issue of buffers, non-wetlands areas preserved to separate fragile wetlands from surrounding development. The compromise divides wetlands into three categories with varying buffer zones.

Source: Clean Water Report, July 28, 1987.

The deaths of more than 200 Atlantic bottlenose dolphins on the east coast this past summer have apparently been caused, in part, by a bacteria commonly found in ocean water, a finding which seems to add to the mystery of the dolphin deaths. Scientists are now asking why the dolphins have succumbed to bacteria that normally do not cause them serious illnesses. The bacteria have been termed a secondary cause of death, and the focus is now on finding the primary cause, which may be a chemical compound, toxin or other microorganism, including a virus, that is weakening the animals' defense system. According to the more recent findings, air pollution could have also been a major factor in the deaths. Apparently, the epidemic began in mid-June. At the same time, traffic jams were occurring with record volume (over 30 miles of traffic was stopped at one point). Heavy concentrations of ozone from the auto emissions could have seared dolphin lungs. Lung lesions were a common denominator in the deaths. The 200 tons of plastic and hospital waste that washed up on shore during that same period is another possible contributing factor.

Source: Ecology USA, August 31, 1987 and October 12, 1987.

#### AQUACULTURE NEWS

The second Annual Meeting of the New York State Aquaculture Association was held on September 9, 1987 at Cornell University, Ithaca, NY. Thirty-five of the nearly 90 active members of the Association were in attendance. Participants included representatives from state agencies (NYSDEC, NYS Dept. Ag and Markets), academic institutions (Morrisville Ag and Tech, Cornell University, SUNY Brockport) and industry (nearly 60% of those in attendance). Topics covered included and overview of pending legislation, update on the Northeast Regional Aquaculture Center, discussion on the need to identify aquaculture as a form of agriculture, identification of potential sources of set-up and expansion funds (a chronic limiting factor), concern over the introduction of exotic fish (including diseases and parasites that they may harbor), and a mini-lesson on how to prepare diseased fish for shipment to a diagnostic laboratory. Four new Directors were elected to the Board (Jerry Brown, John Grim, Garth Stevens, and L. Nadeau; all practicing aquaculturists). Ad hoc committees were formed to advise elected officials, agency personnel and academics on

Perhaps the most exciting presentations on finfish culture at the Conference related to the striped bass x white bass hybrid and net pen culture of Atlantic salmon (this exciting industry is apparently smolt limited, with healthy smolts commanding up to \$2.50 a piece). As a personal aside, Portland was an extremely lovely city with cobble stone streets, great seafood, a friendly populace and several atmospheric watering holes.

Congratulations to Plainville Farms (New York's largest turkey farm) and Cornell University for their project being funded by the New York State Department of Agriculture and Markets. The cooperative effort will culture salmonines (rainbow trout, brook trout, or perhaps Atlantic salmon) in reuse systems. The project was one of approximately 140 submitted, and the only aquaculture effort funded.

Occasionally all of us who grow fish experience disease and parasite surprises. Dr. Paul Bowser (Department of Avian and Aquatic Animal Medicine, NYS College of Veterinary Medicine, Ithaca, NY 14853, 607-253-3365) developed a summary on how to prepare diseased and/or parasitized fish for shipment to a Diagnostic Laboratory. This information could help you to avoid catastrophic losses, and it should be kept in an accessible spot (vs. being filed in the ole circular container or misplaced under last year's reports) just in case an emergency develops. Interested in having a copy? Contact J. Buttner or L. Kusek!

#### AFS ACTIVITIES

As a result of the national AFS Excom of September 11, 1987, the following decisions and actions were taken:

Nominations for the AFS Award of Excellence, the society's most prestigious award, have not been as numerous or well-documented as the national AFS executive committee would like. The annual January/February issue of Fisheries will contain more explicit guidelines to stimulate member interest. Divisions and Sections are urged to nominate their award winners for the national award.

The 1987 AFS Award of Excellence was presented to Dr. David Cushing of Suffolk, England during the annual IAFWA/AFS banquet. Dr. Cushing's work in fisheries research is world renowned, and he has had a great effect on the development of fisheries research throughout the world. The award consists of a bronze medal and a certificate mounted on a walnut plaque.

The AFS Excom ranked the re-examination of existing policy statements in the following priority: (1) Point Source Pollution; (2) Effects of River and Stream Flow Allocations on the Fishery; (3) Cumulative Effects of Small Habitat Modifications; (4) Effects of Surface Mining on Aquatic Resources. Finally, the Excom prioritized future policy statement development as: (1) Livestock Grazing Fees and Practices; (2) Abandoned

jointly developed by AFS with the American Society of Ichthyologists and Herpetologists (ASIH), provided the guidelines are approved by the AFS Fish Handling Guidelines Committee (John Nickum, Chairman) and by the AFS officers.

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Frank Panek, President-Elect NY Chapter AFS, has recently spent some time comparing the chapter's 1987-88 Membership Directory to the 1986 Membership Directory for the national society. The comparison was both surprising and disappointing. Of the members listed in the Chapter directory, 55% were not national AFS members! Interestingly, non-AFS members were not restricted to students. Within the non-member group, the following is a simple breakdown of employment:

Faculty and students	-	38%
Government employees	-	34%
Business employees	-	21%
Other (unknown)	-	7%

Of the government employees, the largest single sub-group was NYSDEC employees.

Frank will be contacting non-AFS members to discuss the benefits of national membership.

The California-Nevada Chapter Courses and Workshops Catalog is available. For 1987-88, it lists 12 courses which will be offered at widely scattered locations through June 1988. The courses and/or workshops require from one to five days and have registration costs (depending on time, material, instruction, and travel) from \$50 to \$675. Subjects include: Analysis of Small Hydroelectric Projects; Scientific/Technical Report Writing; Environmental Ethics Application; Aerial Photography; Habitat Evaluation Procedures; and Watershed Hydrology. This is the fourth year the Chapter has sponsored classes to help natural resource biologists expand their skills. The Cal-Neva Chapter is certainly the continuing education pacesetter among AFS Chapters and undoubtedly has excellent counsel to offer any group with similar needs. For details contact Chuck Knutson, Chairman, Continuing Education Committee, California-Nevada Chapter AFS, 3400, College Avenue, Sacramento, CA 95818, Phone (916) 445-6294. If you request a copy of the catalog, enclose two dollars for postage and handling.

More than 1900 letters have been written to fisheries scientist employers announcing the new American Fisheries Society/The Wildlife Society JOBSource employment service. AFS advised them that JOBSource is an innovative computer program that quickly locates and sorts detailed job applications for a database of continuously updated nationwide job listings. For an introductory period, the service will be free to employers whose openings will receive exposure throughout the U.S. and Canada. Correspondence and job position announcements should be directed to

Ambrose Monell, who died in 1920, and George LaBranche, who died in the early 1960's, were honored in recognition of their contributions to conservation. Among other accomplishments, Monell is credited with being the first to take a salmon on a dry fly in this country. In his time, fly fishing was a mere infant.

LaBranche was the author of "The Dry Fly and the Fast Water," published in 1914, and "Salmon and the Dry Fly," in 1924. Monell and LaBranche and their colleagues tied various flies, fished, and compared notes, so adding their part to environmental history and casting dry fly fishing on its way.

#### UPCOMING EVENTS

January 28-30, 1988: New York State Chapter AFS Annual Meeting at the Holiday Inn-Arena, Binghamton, NY. For information: Timothy J. Sinnott, NYSDEC, Biological Survey Unit, Room 522, 50 Wolf Road, Albany, NY 12233-4753 or (518) 457-8174.

January 28, 1988: Simulating Oil Spills on Great Lakes Connecting Channels - Seminar, at SUNY Center at Buffalo, given by Professor Hung Tao Shen. For more information, Jack Manno, Great Lakes Research Consortium, 214 Baker Lab, SUNY CESF, Syracuse, NY, 13201 or (315) 470-6816.

February 10, 1988: Biologically Available Phosphorus: Analyses and Applications in Lower Great Lakes - Seminar, at SUNY College at Brockport, given by Thomas C. Young. For more info, contact Jack Manno, Great Lakes Research Consortium (see address above).

February 18, 1988: A proposed Governance Structure for the Great Lakes, Seminar at SUNY College at Oswego, given by Lester W. Milbrath. For more info, contact Jack Manno, Great Lakes Research Consortium (see address above).

February 17-19, 1988: International Seafood Trade Show at Long Beach, CA Convention Center with Hyatt Regency Long Beach as host hotel. For details, contact Sea Fare Expositions, Inc., 3510 1st Avenue, NW, Seattle, Washington 98107 or (206) 547-6030.

February 23, 1988: Habitat Enhancement for the Sport Fishery near Buffalo, NY - Seminar, at SUNY College of Environmental Science and Forestry, Syracuse, given by James R. Spotila. For more info, contact Jack Manno, Great Lakes Research Consortium (see address above).

March 3, 1988: The Future of Biological Controls in Great Lakes Management-Seminar, at Clarkston University, given by R. Warren Flint. For more info, contact Jack Manno, Great Lakes Research Consortium (see address above).



## RECENT PUBLICATIONS

Law of Environmental Protection is a comprehensive and critical restatement of American pollution control law from the Environmental Law Institute. Edited by Sheldon Novick, Donald Stever, Margaret Mellon and others, the two-volume treatise points out what does not work as well as what does, and could serve as a guide for future development of environmental law. Law of Environmental Protection is published by Clark Boardman Company of New York City, and will be updated annually. ISBN 0-87632-541-X. For more information, contact Ann Phelan, Director Publications Marketing, ELI, 1616 P St., NW, Washington, DC 20036, (202) 328-5150.

A sixth guidance document is now available on the Water Quality Act of 1987, "Draft Final Guidance for Implementation of Requirements Under Section 304(1) of the Clean Water Act as amended. Contact Mario Hegewald, Office of Water, WH-556, U.S. EPA, 401 M St., SW, Washington D.C., 20460, (202) 382-5700.

Making Soil and Water Conservation Work: Scientific and Policy Perspectives, edited by Daniel Halbach, C.F. Runge and William Larson of the University of Minnesota, discusses the dilemma of how to apply scientific knowledge to improve soil and water conservation efforts while recognizing political realities. The book also assesses federal conservation efforts, and looks at how federal and state governments share conservation authority. The book is available for \$10 from the Soil Conservation Society, 7515 Ankeny Rd., Ankeny, Iowa 50021-9764.

## ETC.

Women in Natural Resources Society - A Professional Society whose goal is to promote professionalism and career satisfaction among women working in natural resource fields. Need more information? Contact: Sue Morgansen, President, 10510 E. Clinton, Scottsdale, AZ 85259, (602) 860-1049.

The American Paper Institute and the National Forest Products Association announced the winners of the API/NFPA Environmental and Energy Achievement Awards. Winners and their categories are: James River Corporation, Filtration Products Division (Richmond, VA) and Willamette Industries, Inc. (Oxnard, CA) -- air pollution control; Stone Container Corporation (Hodge, LA) -- water pollution control; Georgia-Pacific Corporation (Asheboro, NC) -- solid waste management; and Westvaco Corporation (Wickcliffe, KY). No awards were given in the energy innovation and forest management categories.

Stone Container Corporation's award was for "vastly reducing stream water discoloration through adaptation of a polyelectrolyte coagulation procedure to remove lignin materials from waste water." The Georgia-Pacific Corporation's award was for its conversion of wet sludge to a dry, hard product that can be disposed of safely on land.

the public, provides more than 5,000 acres of water and land resources for cross-country skiing, snowshoeing, hiking, nature study, interpretive boat tours, educational nature programs, picnicking, fishing, hunting and camping. For more information, contact R.J. Gallagher at (203) 665-5424.

Source: Clean Water Report, August 11, 1987.

The Soil Conservation Society has changed its name to the Soil and Water Conservation Society to more accurately reflect the group's interest in water conservation as well as soil conservation.

U.S. Geological Survey has announced approximately \$1.81 million in awards available for fiscal year 1988 under the Water Resources Research Program. Grants are on a dollar-for-dollar matching basis, with federal money ranging from \$25,000 to \$175,000 for project periods to three years.

Areas of program interest include: (1) aspects of the hydrologic cycle; (2) supply and demand for water; (3) demineralization of saline and other impaired waters; (4) conservation and best use of available supplies of water and methods of increasing such supplies; (5) water reuse; (6) depletion and degradation of ground water supplies; (7) improvements in the productivity of water when used for agricultural, municipal or commercial purposes; and (8) economic, legal, engineering, social, recreational, biological, geographic, ecological and other aspects of water problems. For program announcement, write: Melissa Calloway, USGS, Branch of Procurement and Contracts, MS 205C, 12201 Sunrise Valley Dr., Reston, VA 22092. Reference: Sol 7336, proposals due approximately Jan. 22.

Do you have any questions? Would you like to contribute to the Newsletter? Please contact:

Leslie Kusek  
(Newsletter Editor)

or

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(Assistant Newsletter Editor)  
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NEW YORK CHAPTER  
AMERICAN FISHERIES SOCIETY

SEPTEMBER 1987



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EDITOR'S CORNER

What's a value? What's a fact? What is knowledge? What is public good? How do all of these relate to natural resource management?

Quite an intro to quite a presentation at the NYS AFS 1987 Workshop: Social Science-Applications to Fisheries Management. And one of many outstanding discussions given over the three-day event. The Ithaca sun did its best to bake us in our Cornell dorm rooms, but Paul McKeown, workshop chairperson, led the fight in battling the heat and kept the beverages flowing and the natives relatively sedate.

The issues presented focused attendees on the fact that the public demands consideration in resource decisions. Discussions addressed such topics as the educational needs of natural resource professionals, development of social skills to accompany professional knowledge, techniques for assessing public concern, socioeconomic needs in natural resource management, value systems, and conflict resolution.

The workshop provided excellent insight into an area where many resource managers are currently struggling. Paul and his committee did an excellent job of organizing the event and playing host. Many thanks!

PRESIDENT'S MESSAGE

The ecosystem approach to natural resources management - you've probably heard or read about it. Maybe you've thought about it. But, do you know how to do it? Is it a breakthrough concept, the latest ecobuzzword or something in between? If you were to approach your work from an ecosystem perspective (assuming you aren't now) what should you be doing differently?

If you don't know the answers to these questions (like me) you should be looking forward to the Chapter's 1988 Annual Meeting on January 28-30. The major theme of that meeting will explore the ecosystem approach to management. This topic is expected to highlight a program that will be stimulating, challenging and a little provocative.

Details about the 1988 Annual Meeting appear elsewhere in the newsletter, and the first call for contributed papers is enclosed. Please make early plans to attend and, if possible, participate in the program by presenting a paper or poster.

Three more species of Hudson River fish have become too contaminated to eat more than once a month. The tiger muskellunge, northern pike, and bluefish have been found to contain high levels of PCB's, according to a health advisory released by NYSDEC and the state Department of Health. The 1986 advisory warned against eating any American eel, white perch, carp, goldfish, brown bullhead, largemouth bass, pumpkinseed, white catfish, striped bass or walleye caught between the Troy dam and New York Harbor. This 1986 advisory also warned against eating black crappie, rainbow smelt or Atlantic needle fish more than once a month. With the three new 1987 additions, the advisory list contains 16 species. There are approximately 190 different fish in the Hudson, although many are too small or too infrequently seen to make the list. In addition, NYSDEC and the health department make a general warning against eating more than a half pound of fish a week from any state waters. Although not all state waters contain levels of PCB's exceeding federal guidelines, this conservative warning indicates that some of the state water's tested do contain such levels.

Since 1982, New York's wildlife have become beneficiaries of a wide variety of efforts. Hundreds of thousands of New York residents have demonstrated their support for their fish and wildlife through contributions to "Return a Gift to Wildlife." The program has received more than \$6.6 million in contributions from 1.3 million state tax returns, through which taxpayers make their donations. Overall, more than 43 projects received \$2.2 million during fiscal year 1986-87, the fourth year of the program. Current projects include: short-headed garter snake study, colonial waterbirds management, monitoring toxicants in wildlife, developing wildlife information hotline, Kemp's Ridley sea turtle telemetry study, cavity nesting bird species management, investigation of endangered and threatened species, non-game law enforcement, funding a fish pathologist, biological survey of New York waters, Four Brothers colonial waterbird studies, research on blanding's turtle, measuring contaminants in great horned owls, compilation of a film library, and the natural heritage program.

Source: The NYSDEC Conservationist, March-April 1987

NYSDEC collected data from 38,000 anglers in a 1984 New York Great Lakes Angler Survey which was summarized by Sea Grant. Since the first coho salmon were stocked into Lake Ontario in 1968, interest has developed in knowing how the growing coolwater and coldwater fisheries have affected state and local economies. In 1984, anglers spent 6.8 million hours fishing during 1.27 million angler trips to Lakes Erie and Ontario and the Niagara River. Most of this effort was expended by anglers in boats on open lake waters (42%) and anglers on tributary streams (28%). The majority of sportfishing effort was spent on the Lake Ontario system (77%), including tributary streams, embayments, and lower Niagara River. Oswego County was the location for one-third of that angler activity. The Lake Erie system, including its tributaries and Upper Niagara River, was the focus for 23% of the angler effort, with Erie County experiencing the

appoint an 11-member advisory committee, which would develop a 15-year estuary management plan to be reviewed by the senate and assembly environmental conservation committees by March 1, 1988.

#### NATIONAL AND WORLD NEWS

Australia has signed a fishing treaty with several other south Pacific countries that limits access to the Australian fishing zone and calls for careful monitoring of any fishing. The U.S. fishing fleet catches, especially of dolphins, are of particular interest.

Source: Ecology USA, May 11, 1987

A bill directing the Environmental Protection Agency to crack down on dumping of plastic waste into ocean waters was introduced on May 28 by Rep. Leon Panetta (D.-CA), who said the U.S. may be source of one-third of all such debris worldwide. The bill (H.R. 2527) would, among other things, require the EPA to identify those items that could be made of naturally degradable material and make this a requirement through regulation. Senate legislation requiring all plastic six-pack holders to be made from degradable materials was introduced earlier by Sen. John Chafee (R.-RI). "The world's seas and oceans, already polluted with spilled oil, toxic chemicals and radioactive waste, are now being fouled by a new and insidious form of pollution - plastic waste," Panetta said. Thousands of sea birds, mammals and fish die each year because they swallow or become ensnared in discarded plastic products, including nets, bags, bottle caps and six-pack holders, he added.

Twenty-four organizations have united to fight marine pollution by forming the Entanglement Network Coalition (ENC). Consisting of regional, national and international conservation, environmental, and animal protection organizations, ENC wants to reduce marinelife fatalities from plastics and commercial fishing in marine and freshwater environments. For more information, contact Center for Environmental Education (producer of the coalition's newsletter), 1725 DeSales Street, NW, Suite 500, Washington, DC, Attn: Kathy O'Hara, (202) 429-5609.

Source: Clean Water Report, June 16, 1987

The Robert E. Barrett Fish Viewing Facility at the Holyoke dam (Massachusetts) was dedicated in July. Visitors to the dam can now watch the spring shad run from unique vantage points. The facility is named for the former president of the Holyoke Water Power Company, a subsidiary of Northeast Utilities, whose efforts have contributed greatly to the return of anadromous fish to the upper Connecticut River. During the migration period (late April through mid-June), visitors will be able to watch elevators carry fish over the dam. A glass-walled observation area

An innovative reclamation procedure for turning slurry waste ponds into wetland habitats has won acclaim for Southern Illinois University-Carbondale Cooperative Wildlife Research Laboratory. The procedure, developed on a 50-acre reclamation site at AMAX Coal Co.'s Ayrshire Mine in Indiana, was recognized by the state's Department of Natural Resources and now qualifies for the U.S. Department of Interior's national competition. Slurry ponds are formed by wastes from coal-cleaning. Wastes have acid-forming potential which may convert to sulfuric acid when exposed to air and water. Current federal regulations require coal companies to cover slurry ponds with several feet of soil, which is expensive. SICU researchers say by growing vegetation instead, mine companies can reclaim slurry ponds more economically as wetlands, while also providing food and shelter for waterfowl and other wildlife.

Source: Clean Water Report, June 16, 1987

High-energy subatomic particles raining into the atmosphere every 27 days may be responsible for the ozone hole that opens periodically over Antarctica, scientists from Los Alamos National Laboratory in New Mexico say. Reporting to the American Geophysical Union May 21, Dan Baker of the lab said the particle shower lasts an average of 2½ days during which time a billion watts of energy per second are dumped into the mid-atmosphere. Particles are electrons and carry from 2 to 15 million electron volts. That is enough energy to send them crashing several inches deep into aluminum, according to project investigator, Ray Klebesadel. Scientists hypothesize that the electrons mix with atmospheric gases, creating a reaction that depletes ozone. A stable air-circulation pattern combined with a non-uniform structure of the Earth's magnetic field makes this possible over Antarctica, but apparently not over the north pole.

Source: Ecology USA, June 8, 1987

Argentina-born weevils (Neochetina eichhorniae), and other select insects from around the world, are being hand-carried through United States Customs areas at airports by U.S. Department of Agriculture researchers to be enlisted in the war to unclog the nation's lakes and rivers. The weevils are taken to such places as the Biological Pest Control laboratory (BPCL) in Gainesville, FL, where they are reared and field tested by scientists to be sure they have an appetite only for the weeds they are supposed to eat. States and the Army Corps of Engineers then put the insects to work to open clogged waterways for fishing, boating, shipping and irrigation water pumping. In one such case, the weevils were released in Louisiana in 1974 to attack water hyacinth. The infested waterways there have been reduced from 1.2 million acres to about 358,000 acres today.

For more information, contact Gary R. Buckingham, Entomologist, BPCL, Agricultural Research Service, USDA, Gainesville, FL 32602, (904) 372-3505.

Source: Ecology USA, June 8, 1987

The Administration is making another attempt to grab Wallop-Breaux funds by submitting a 1988 budget which would transfer \$25 million from Wallop-Breaux to the operating account of the U.S. Fish and Wildlife Service. This action is being vigorously opposed by AFS and all of the other fishing and boating organizations that are members of the American League of Anglers and Boaters (ALAB). ALAB was created by more than 20 nationally involved fishing and boating organizations for the express purpose of protecting, defending, and encouraging the Wallop-Breaux legislation. ALAB has jumped immediately into the fray and is determined to thwart any and all efforts to divert W-B funds.

Source: AFS Diary, May-June, 1987

The lifetime risk of cancer from eating a large Great Lakes sport fish is comparable to that from breathing the air in a large urban area or from drinking water from some of the nation's more polluted groundwater supplies, according to William Sonzogni, a University of Wisconsin Sea Grant water chemist. In a paper presented at the annual meeting of the American Association for the Advancement of Science, Sonzogni said that cancer from all causes affects about 250 out of every 1,000 U.S. residents. The maximum plausible lifetime risk from eating large sport fish from southern Lake Michigan is 5 to 30 additional cases of cancer per 1,000 anglers, he said, and the actual risk is likely to be much lower.

That estimate is based on the levels of four major contaminants (dieldrin, PCBs, DDT, and Toxaphene) in Great Lakes fish in the early 1980s, he said, and assumes an annual consumption of 33 pounds of sport fish by a 154-pound person over a 70-year lifespan.

The maximum lifetime cancer risk from eating similar amount of Lake Superior fish is less than one per 1,000 - less than the average U.S. citizen faces from eating half as much commercially caught ocean fish, according to Sonzogni, who is head of Environmental Sciences at the Wisconsin State laboratory Hygiene. He said drinking raw water from Niagara River - one of the most polluted bodies of Great Lakes water - poses less cancer risk than does the average U.S. groundwater supply serving 10,000 or more people.

Source: Fisheries, May-June, 1987

The silverside is a species of fish whose ratio of males to females can be influenced by temperature of the environment during larval development, an example of the "adaptive sex ratio theory." Yet others in the species apparently have sex ratios determined only by genetic factors, with sex determined at conception. Which case of sex selection applies seems to be a matter of latitude, according to a report in the April 2 NATURE. David O. Conover and Stephen W. Heins, of the Marine Sciences Research Center at the State University of New York in Stony Brook, transferred fish embryos from various ocean sites to the laboratory to study the strange case of



3. Improvements in diets/feed for aquacultural applications.
4. Improvements in disease/stress control in cultured species and in cultural systems.
5. Innovations in cultural technology and mechanical hydrolic engineering to support such innovations.
6. Enhancement and improvements of marketing research efforts.
7. Improvements in handling, processing and transport of aquacultural products.

There was no strong consensus among the groups on the formal instructional programs and curricula needed to advance aquacultural development in New York State. However, it is felt that graduate and undergraduate training is important and that internships are an important value in the educational process.

Extension, the practical marriage of research and instruction, was strongly supported. Participants called for an enhanced and expanded statewide extension education effort in aquaculture. A desirable extension program would be comprehensive in its form and activity. The program would involve campus based specialists to field agents, from one-on-one personalized transfer of knowledge to development of continuing education coursework for practitioners. Specific needs identified include youth education, video tape or demonstration projects, basic primer courses for prospective culturists and entrepreneurs considering entering into aquacultural enterprises, and a facilitation of a statewide communication network between field practitioners and university based personnel. Disease diagnosis services were also identified as a priority item.

Species identified with particular aquaculture potential include sturgeon, striped bass, walleye, yellow perch, bullhead, tilapia, carp (both the common carp and grass carp or white amur), crawfish, salmon and trout, freshwater prawns, freshwater mussels (potentially a source of pearls, which was the topic of a most interesting segment on a recent 20/20 broadcast), freshwater macrophytes, and live bait.

Potential uses and purposes of aquaculture identified include: as human food, as stocking organisms, as research aids in bioassay studies, as live bait, and for ornamental trade. Methods of production that were explored include pond culture, single-pass and reuse systems, cage culture, polyculture, and hydroponic operations, as well as the Great Lakes.

Restrictions to aquaculture development included: need to educate the public, to identify political support and the venture capital, to expand graduate education, to develop research centers, to formulate comprehensive extension programs, to assess consumer preference, perception and acceptance of aquaculture as an agricultural activity, and improve genetic and biotechnological research.

(Note, this summary of recent trends in aquaculture is only a taste of the wealth of information provided in the New York State Aquaculture Association Newsletter, editor: Joseph Buttner).

"Be it resolved . . ."

These three words appear to be headed for the graveyard, at least organized in that order and as they relate to our Chapter. Resolutions seem to be a thing of the past - I can't remember the last one generated from our members. I know there are environmental/political/professional issues developing which we should, as fisheries professionals, make a statement about. However, the Resolutions Committee cannot generate these statements - we need the input of the membership. Please contact me with your ideas. I'll use the Newsletter as the medium for presenting proposed resolutions prior to voting on them at our annual meeting. I look forward to hearing from you.

Ray Tuttle, Resolutions Committee

New York State Electric & Gas  
4500 Vestal Parkway East  
Binghamton, NY 13903-1082

The River Science Center, a "brand" new public education and research facility, has mailed AFS a descriptive brochure. The Center, sponsored by the Nature Institute, is located on Illinois state park land, 2.5 miles west of Grafton and 30 miles from St. Louis. The nonprofit center's program includes (1) public exhibits; (2) public seminars and workshops; (3) research and non-technical publication. Its mission is to promote river natural resources, particularly those of the Mississippi, Illinois, and Missouri Rivers. For more information write the director, Dr. Kenneth Lubinski, River Science Center, RR#1, Box 221, Grafton, Illinois 62037, or call (618) 786-3317.

The lead story in the May/June 1987 Montana Outdoors is by AFS member Janet Dicker-Hess and is entitled, "Spring Creeks - Precious Secrets." Decker-Hess, a past president of the Montana Chapter of AFS, did a detailed study of Montana natural spring streams using a grant from AFS plus enthusiastic support from the Montana Department of Fish, Wildlife, and Parks. The Decker-Hess final report features many excellent photographs, and it stimulated a great deal of new interest from Montana conservationists. Janet reports that her study has contributed to the protection of several stream reaches against hydro development. AFS is proud to have played a part and looks forward to similar study reports from New Mexico, West Virginia, and Virginia. For additional information about the Montana study, write the author at 370 Third Avenue, NW, Kalispell, MT 59901. Other AFS subunits having a keen interest in doing a similar study of the spring streams in their state are asked to contact the central AFS office.

The Arctic Unit of the Alaska AFS Chapter is now reality and includes AFS members living in the Fairbanks area and other communities north of the Alaska Range. Unit President Mary Shiffer, like all Unit officers, is a fisheries student at the University of Alaska-Fairbanks.

Minutes of NYS AFS  
Executive Committee Meeting, July 20, 1987  
Ithaca, NY

Meeting was called to order by President Lange at 3:15pm. Members present were B. Lange, L. Skinner, P. McKeown, L. Kusek, T. Sinnott, and M. Duttweiler.

Reading of minutes of the previous Execom meeting were waived, minutes were accepted as printed.

President's Report

Due to miscommunication, the most recent Excom meeting of the Northeast Division was not attended by a representative of NY Chapter of AFS.

National AFS Excom meeting in September will be attended by President Lange. At this meeting, he will request a resolution to have briefing materials mailed to chapter presidents who request such literature prior to the meeting.

Treasurer/Secretary Report - Jack Hasse

Bob Lange reported for Jack Hasse.

Checking	\$	59.36
C.D.	\$	5,912.12
Money Market	\$	<u>11,971.94</u>

Total	\$	17,940.44	(as of July 16, 1987)
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Income during the period of 3/13/87 - 7/15/87 was \$163.00 from dues and \$270.60 in interest for a total of \$433.60. Expenses during this period were \$605.14 for the workshop, \$163.79 for postage, and \$24.00 in miscellaneous expenses, totaling \$792.93.

Membership Committee - Frank Panek

Bob Lange reported for Frank Panek. The current membership of the chapter totals 316. The most recent membership directory will be mailed to chapter members shortly. All membership information is now on the IBM Computer System. All of the chapter's historical records are now being stored in the Herkimer NYSDEC office.

Audit/ Finance Committee - Larry Skinner

Larry has asked J. Hasse to assist him with the Chapter Fiscal Plan, and J. Hasse has agreed. The Plan will be presented at the 1988 annual meeting of NY Chapter of AFS.

### Status of Women/Minorities Committee - Barbara Knuth

National offices of The Wildlife Society, Society of American Foresters, and American Fisheries Society were contacted for statistics regarding women and minority participation in education, employment, and professional societies. Responses were received from TWS and SAF. SAF was also able to furnish data specific to New York. Employment statistics by gender for DEC and OPR were obtained from civil service records. Efforts are still being made to seek updated employment information (we have data from 1979 and 1982).

In the next few weeks, New York chapters of SAF and TWS will be contacted to join in our effort. We will share with them initial statistics we have gathered.

Future activities will depend largely on the interest shown by SAF and TWS. If a joint society committee is formed, a chair will be elected from that group and direction set jointly. If no joint committee is formed, the ad hoc committee will focus its direction on the original charge. In that case, future activities would likely involve a more comprehensive survey of the New York employment situation focusing on private as well as government employers.

### Presentation Standards Committee - Jim Haynes

Draft guidelines of standards have been prepared for review, and draft critiques outlined. These will be finalized and issued to chapter members for review.

### Unfinished Business

The Excom unanimously decided that an ad hoc committee should be formed to explore potential future AFS Workshop topics, determine the best direction for these workshops to pursue, investigate why attendance has been lacking at recent workshops, and determine methods of encouraging greater membership involvement. Due to time constraints, this committee will focus on assembling a 1989 Workshop, and a 1988 Workshop will not be held.

The Excom wished to stress that the cancellation of a 1988 Workshop does not set precedence for elimination of these events. Instead, it is intended to permit time to reevaluate membership needs and to determine alternative avenues for Workshop format.

### New Business

The 1990 National AFS meeting is scheduled to be held by the Northeast Division. The New York Chapter has stated that it does not wish to host the event.

## RIGHT IN MY BACKYARD

Source: Dunkirk Evening Observer, July 3, 1987, Capt. Paul Cybart

Do we take for granted the fishing opportunities we enjoy in this area? In my opinion, the great majority of us do.

Our fishing opportunities are great, and most of us could not even fathom a reason why it would deteriorate. We always expect it to get even better.

Some of you may not share these opinions, but you may change your mind after reading further.

During the past week I meet a man from Hamburg, Germany in one of the area's tackle shops. He was traveling with his family through the United States and Canada. Of course, he was looking to do a bit of fishing during his travels, and we talked a bit about fishing.

How would you like to buy separate licenses to cover bait, fly, or spin fishing, and have to take a test for each one of them? According to our visiting angler, it's possible to purchase up to 15 different fishing licenses in Germany. Then, there are very few places where you can fish. If you wish to wet a line in what is thought of as a good fishing area, you will more than likely have to pay for that privilege.

How about species? According to this German fisherman, their most popular species is very protected. The season is closed during spawning time of this game fish, and the possession limit is restrictive at two fish per month. Most of us would think this fish would have to be the brown trout, but it's not. According to our visiting angler, carp is Germany's No. 1 game fish.

Next time a license fee increase is needed to ensure that we maintain what we enjoy now, I know I won't complain.

Source: Times, Herald, Record, July 19, 1987

Researchers are delving into the National Estuarine Research Reserve. The Reserve covers Iona Marsh Island near Bear Mountain, Stockport Flats four miles north of the city of Hudson, and Piermont Marsh, four miles south of Nyack. The wetland and shallows found in these areas account for about 13 percent of the Hudson River's estuary wetlands and shallows. The point of the site research is to use the whole ecosystem to better manage it, according to Elizabeth Blair, manager of the Hudson River Research Reserve. Baseline information is lacking, she says, and there is a lot of catching up to do with other estuaries.

November 2-6, 1987: Fourth International Conference on Artificial Habitats for Fisheries at the Knight Center/Hyatt Regency Hotel in Miami, Florida. With heavy involvement from AFS members, this promises to be a stimulating event. Call Conference Chairman Bill Seaman at (904) 392-5870 for details.

November 3-7, 1987: 7th Annual International Symposium and Applied Lake and Watersheet Management at Peabody Hotel, Orlando, Florida. For information: North American Lake Management Society, P.O. Box 217, Merrifield, VA 21116. (202) 833-3382.

November 12-14, 1987: Nineteenth Annual Meeting of the Desert Fishes Council at Holiday Inn in Hermosillo, Mexico. Two mini-symposia are contemplated: "Fishes and Aquatic Habitats of the Sonoran Desert Region" and "Fish Community and Habitat Monitoring - What do we need? What can we expect to accomplish?" A banquet is planned as a highlight to end the first day. For details contact Phil Pister, 407 West Line Street, Bishop, CA 93514.

November 21-23, 1987: New Orleans-Fish Farming Expo. in New Orleans, LA. For information: Public Relations Group Inc., 3801 Canal St., Suite 208, New Orleans, LA. (504) 482-9500.

December 6-9, 1987: Annual Meeting of the North Central Division of AFS and 49th Midwest Fish and Wildlife Conference at Marc Plaza Hotel, Milwaukee, Wisconsin. For information: John Lyons, Wisconsin Dept. Natural Resources, 3911 Fish Hatchery Rd., Madison, WI 53711. (608) 275-3223.

January 28-30, 1988: New York State Chapter AFS Annual Meeting at the Holiday Inn-Arena, Binghamton, NY. For information: Timothy J. Sinnott, NYSDEC, Biological Survey Unit, Room 522, 50 Wolf Road, Albany, NY 12233-4753.

March 18-23, 1988: 53rd North American Wildlife and Natural Resources Conference at The Galt House, Louisville, Kentucky. For information: L.R. Jahn, Wildlife Management Institute, 1101 Fourteenth St., N.W., Suite 725, Washington, DC 20005. (202) 371-1808.

April 28-30, 1988: National Workshop on Brown Trout Biology, Use, and Management at Great Smokie Mountain Hilton in Ashville, NY. The symposium hopes to (1) assess current brown trout management techniques, (2) exchange information and ideas among users and managers, (3) stimulate new ideas from brown trout management and (4) identify critical research and management needs. For information contact T. Wayne Jones, Division of Boating and Fisheries, 512 N. Salisbury Street, Archdale Bldg., Raleigh, NC 27611, or call (919) 733-3633.

June 13-17, 1988: Computational Methods in Water Resources. For information: Michael A. Celia, Parsons Lab, Room 48-207, Dept. of Civil Engineering, MIT, Cambridge, MA 02139.

from the contributions, and only projects needing both funds and direct field assistance are eligible. Preliminary proposals should be submitted approximately 14 months prior to the intended project date; exceptions will be made in some cases. Upon favorable review, a full proposal will be invited. For further information contact: Dede Robbins Leighton, Associate Director, Center for Field Research, Box 403, 680 Mt. Auburn St., Watertown, MA 02172, (617) 926-8200.

FIRST CALL FOR PAPERS

**New York Chapter of the American Fisheries Society**

**28-30 January, 1988**

**The Holiday Inn - Arena**

**Binghamton, New York**

The 1988 Annual Meeting will consist of:

1. Invited Paper sessions on;
  - A. Integrating Ecosystem Theory into Fisheries Management;  
and
  - B. Management of Aquatic and Fisheries Resources in New York State, the Present and the Future.
2. Contributed Paper sessions on;
  - A. Freshwater Fisheries Topics; and
  - B. Marine Fisheries Topics.
3. Poster Session;
4. Student Session - Beginning a Career in Fisheries;
5. The Lighter Side - Informal Audiovisual Evening Presentation,  
and;
6. Annual Chapter Business Meeting.

Abstracts are solicited from all interested professionals. Please use the form attached to this announcement and send to:

- Timothy J. Sinnott  
NYS Department of Environmental Conservation  
Biological Survey Unit  
Room 522, 50 Wolf Road  
Albany, New York 12233-4753



New York Chapter - American Fisheries Society  
1988 Annual Meeting  
Binghamton, New York

AUTHOR:

TITLE:

ABSTRACT:

Date Submitted: \_\_\_\_\_  Student Paper  Professional Paper

Would you like your presentation to be evaluated for award competition

Yes  No

Would you prefer to make a presentation at:

Technical Session  Poster Session  Either

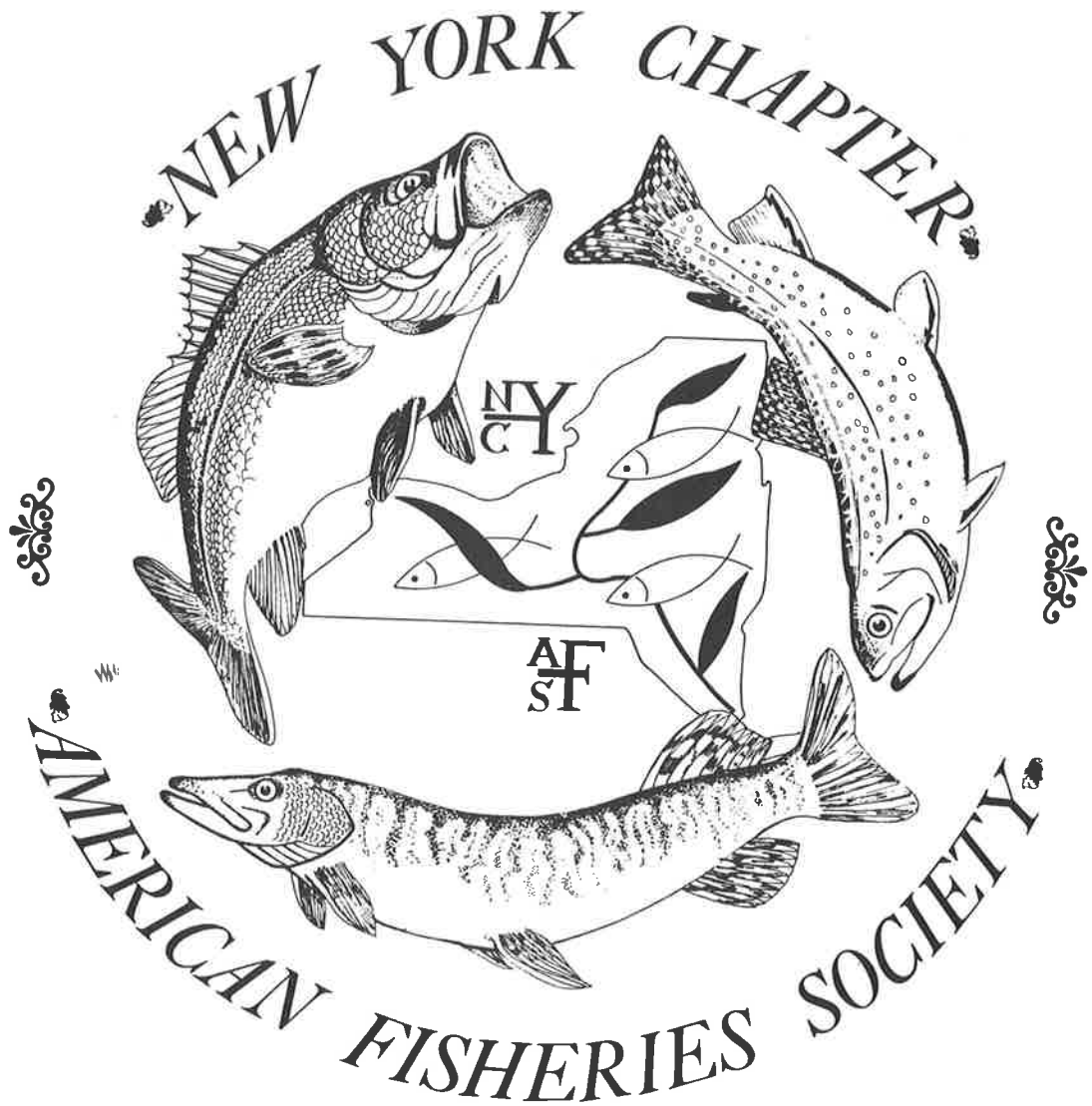
Address of Senior Author: \_\_\_\_\_

Phone Number (days): (       ) \_\_\_\_\_



ABSTRACTS  
1987 ANNUAL MEETING  
NEW YORK CHAPTER - AMERICAN FISHERIES SOCIETY

30 - 31 JANUARY 1987  
THE BEECHES  
ROME, NEW YORK



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## FISH ASSEMBLAGES IN THE DRAINAGES OF NEW YORK.

Robert A. Daniels, Ph.D.

New York State Museum, Albany

Drainage patterns dictate fish distribution. The observed fish assemblage is the result of the climatological, geological and hydrological history of the drainage, the heterogeneity of the available habitat, random factors and the interactions occurring among the fishes present. New York, with its six major drainages, holds a diverse fish fauna. There are over 150 species of freshwater or diadromous fishes reported from the state. Over half of these species are found in three or more drainages and 30% of the species are found in only one drainage. So the assemblages among the drainages tend to be similar, differences swamped by the ubiquity of just a few species. But assemblages do differ among the drainages; it is the rare-species component that distinguishes each system.

In an area, such as the northeast, another factor becomes important. Man has altered many of the systems and has become the single greatest feature affecting fish assemblage structure and distribution. Despite this, assemblages in certain systems have remained fairly stable over the last 5-7 decades (e.g. Schoharie Creek); others (e.g. Allegheny River system) have changed markedly. Often these changes result from the loss of rarer species.

In this review I focus on the differences existing among the drainages and emphasize the rarer species associated with each. I argue that each system must be treated as a unit in order to insure that the high diversity currently found in New York continues.

## RESTORATION OF AMERICAN SHAD TO THE SUSQUEHANNA RIVER.

Richard A. St. Pierre

Susquehanna River Coordinator, USFWS

Harrisburg, PA

Fishery resource agencies from New York, Pennsylvania and Maryland are working cooperatively with the U.S. Fish and Wildlife Service and four private utility companies to restore American shad to historically important spawning and nursery areas above hydroelectric dams in the Susquehanna River. A trap and lift at Conowingo Dam, MD is used each year to collect prespawn adult shad for transport above all dams to the river at Harrisburg, PA. Additionally, thousands of adults are seined from the Hudson River and transplanted into the north branch Susquehanna. With financial support from the utilities, the PA Fish Commission operates a hatchery on a major Susquehanna tributary. In addition to reseeding nursery waters with spawners and cultured juveniles, numerous research efforts are underway to improve survival of downstream migrant shad past hydroprojects. These include studies of movement, timing and behavior using hydroacoustics, radio-telemetry and attraction/repulsion devices in project forebays. Since all hatchery fish are chemically marked, analysis of autumn collections of outmigrating shad indicate the relative contribution of natural production versus hatchery rearing.

Shad returns to Conowingo Dam have grown dramatically in recent years from an average annual 127 fish per year in the trap throughout the 1970's to a record 5,200 shad in 1986. With most of these fish successfully hauled upstream last year, the addition of 5,000 Hudson adults and a record 16 million shad fry produced at the hatchery, we anticipate continued growth of the stock returning to spawn in the Susquehanna River. Success in this demonstration phase of the restoration program should result in construction of permanent fish passage facilities at all dams capable of eventually supporting an annual run of 2 million shad.

FISH ILLUSTRATIONS OF THE 1926 - 1939 WATERSHED SURVEY  
IN NEW YORK STATE.

Carl J. George, Robert A. Daniels, Ph.D. and Timothy J. Sinnott  
Union College, Schenectady; New York State Museum, Albany; and  
NYSDEC, Albany

In 1926, the New York State Legislature appropriated funds to initiate biological surveys of the watersheds of New York. The biological surveys conducted between 1926 and 1939 were probably the most comprehensive inventories of aquatic resources ever conducted in the United States over so large an area in so short a time. One product of the surveys was a series of fish portraits of especially fine quality. The collection, largely the work of Ellen Edmonson and Hugh Crisp, is comprised of 139 color paintings and one black and white drawing that depict 127 freshwater fishes that inhabit the major river systems of New York. This material is a legacy and resource important to fisheries biologists, other natural historians and natural history illustrators. While the beauty of the paintings is sufficient alone to insure their value, the true significance of the paintings lies in the accurate coloring and anatomical detail. Most of the paintings were published in the annual reports of the Biological Survey, and photographs of the paintings of the more popular game fish have appeared in various Bureau of Fisheries publications; however 32 of the paintings have never been published. New York State is currently contemplating the production of a series of prints, thus making this valuable resource available to the public.

LABORATORY CULTURE TECHNIQUES FOR SIX FRESHWATER MACROINVERTEBRATES.

W. S. Ewell, J. W. Gorsuch, R. J. O'Boyle, and K. A. Robillard  
Eastman Kodak Company, Rochester

Laboratory culture techniques are described for six freshwater macroinvertebrates: the segmented worm, *Lumbriculus variegatus*; the water flea, *Daphnia magna*; the pillbug, *Asellus intermedius*; the sideswimmer, *Gammarus fasciatus*; the snail, *Helisoma trivolvis*; and the flatworm, *Dugesia dorotocephala*. Topics covered include supply water, feeding regimes, rearing tank design, physical requirements for reproduction, and ways to maintain genetic diversity within each colony. Documentation conforming to Good Laboratory Practice Standards, colony histories, and taxonomic verification of the laboratory strains are also discussed. Each of the organisms can be used in acute and chronic aquatic effects testing. Appropriate combinations of these organisms will satisfy three of the five freshwater invertebrate requirements established by the United States Environmental Protection Agency for deriving national water quality criteria.

PRELIMINARY RESULTS OF CHEMICAL AND BIOLOGICAL SURVEYS OF 830  
WATERS WITHIN THE ADIRONDACK ECOLOGICAL ZONE.

David C. Nettles  
Adirondack Lakes Survey Corp., Raybrook

In 1984 the Adirondack Lakes Survey Corporation initiated an intensive survey of waters located in three major watersheds in the Adirondack Ecological Zone. This effort continued through 1985 and resulted in biological, chemical and physical surveys of 830 randomly selected waters.

The waters ranged in size from 0.3 to 287.0 hectares and represented a total of 13176.2 hectares of waters with complete surveys. Twenty-seven percent of the 830 waters sampled were located at elevations above 600 meters.

A total of 830 waters were examined for detailed water chemistry and samples from each ponded water were analyzed for 21 different parameters. Air equilibrated pH ranged from 4.0 to 8.8. Twenty-seven percent of the waters were found to have a pH less than 5.0, 19 % of the waters had a pH from 5.0 to 6.0 and 54 % had a pH greater than 6.0. Acid Neutralizing Capacity (ANC) ranged from -102.4 to 1743.7 ueq/l; however, 85 % of the waters sampled had an ANC equal to or less than 200 ueq/l.

Intensive netting efforts were conducted on 830 waters. Fish were collected in 598 or 72 % of the waters sampled. Twenty-eight percent (332 waters) were found without fish.

Selected data gathered during the 1984 and 1985 field seasons are summarized in this poster, but have not been treated statistically. A complete analysis of the data will occur following the completion of the project.

RESOURCE PARTITIONING IN A STREAM FISH COMMUNITY.

Antonios Pappantoniou, Joseph W. Rachlin and Barbara E. Warkentine  
Herbert H. Lehman College (CUNY), Bronx

A study of the feeding structure of a discrete pool fish community revealed that the three congeneric centrarchids, *Lepomis auritus*, *L. macrochirus*, and *L. gibbosus* had no significant dietary overlap or similarity, and were apparently not in direct competition for the available food resources of the stream. Significant dietary overlap and similarity was found between *L. auritus* and *Semotilus corporalis*, between *L. macrochirus* and *Micropterus salmoides*, and between *L. gibbosus* and *Exoglossum maxillingua*.

Significant dietary overlap and similarity was also found among the bottom feeding *Catostomus commersoni*, *Rhinichthys atratulus*, and *Etheostoma olmstedii*. However, stomach content analysis indicated sufficient diet diversity in all of these fish to allow for the avoidance of competition, in the face of reduced food resources, through the mechanism of preferential prey switching.

ASPECTS OF THE ECOLOGY OF THE TESSELLATED DARTER IN A HUDSON RIVER  
TIDAL FRESHWATER MARSH.

Robert E. Schmidt and Maria Duryea  
Simon's Rock College, Great Barrington, MA

The feeding habits of tessellated darters (*Etheostoma olmstedii* *atromaculatum*) were examined in Tivoli North Bay, Hudson River National Estuarine Sanctuary during July and August, 1986. The most significant food items were Chironomidae larvae, Cladocera, and Copepoda with a variety of invertebrates of lesser importance. The relative importance of the three major food items changed with increasing size of darters such that midges (Chironomidae) became more significant as darters grew.

Darters inhabiting the tidal marsh were almost all young of the year. Older individuals may be inhabiting the main Hudson estuary during the summer. This possible movement of darters out of the marsh as they mature represents an export of biomass from the marshes to the main Hudson estuary.

LIVING LAKES AQUATIC LIMING AND FISH RESTORATION DEMONSTRATION PROGRAM.

Douglas L. Britt  
International Science & Technology, Inc.  
Reston, VA

The acidification of lakes and streams directly affects the management of sport and commercial fisheries. Acidification is not a new phenomenon and its implications for resource managers have been recognized in some parts of the world for decades. The causes of surface water acidification are complex. Among other factors, watershed topography and geochemistry, certain vegetation types, biological productivity, precipitation chemistry and amounts, climate, and industrial/residential atmospheric and aqueous discharges all may contribute to the process.

Now, however, water resources and fisheries managers may obtain the needed technical and financial assistance from a newly formed organization, Living Lakes, Inc. to renovate acid surface waters, and to restore or protect ecologically, recreationally, or commercially important fisheries. Financed largely by donations from public utilities and coal companies, Living Lakes, Inc. is the largest privately sponsored aquatic resources management program in North America.

Fifteen ponds were treated with a slurried calcite in 1986. The calcite (96%  $\text{CaCO}_3$ , 1.5%  $\text{MgCO}_3$ ) was applied by helicopter in a slurry of 60-70% solids. Water chemistry measurements prior to calcite addition were used as inputs to a dose calculation model (DeAcid). Concentration of calcite applied to the lakes ranged from 11.2 to 16.3 mg/l. A post treatment monitoring program consisting of three annual sampling periods were initiated. All samples were collected in duplicate and analyzed for the following parameters: pH, ANC, DOC, Conductivity, total dissolved Al, Ca, Cd, Fe, Mn, Pb, total N, total P,  $\text{SO}_4$ , and  $\text{NO}_3$ . An annual fish survey was initiated prior to calcite addition to determine the presence or absence of target fish species. Fish surveys will be conducted on an annual basis to determine the success of the program.



## JUVENILE SMELT (*Osmerus mordax*) DIET IN LAKE ONTARIO.

Timothy Urban, Sharook Madon, and Stephen Brandt  
SUNY College of Environmental Science and Forestry, Syracuse

Seasonal and diel changes in the diet of juvenile smelt caught in bottom trawls in southeastern Lake Ontario were examined. Young-of-the-year smelt first appeared in bottom trawls in August. At this time zooplankton were the major food items. In October, when the smelt were larger, *Mysis relicta* appeared in the diet but only during the day. When present, *Mysis* accounted for 94% of the diet on a dry-weight basis. During the night, *Gammarus fasciatus* and *Pontoporeia hoyi* contributed the most (>80%) to the diet. Although always present in the stomachs, zooplankton appeared to be important dietary items only during the early morning and evening hours. Cyclopoids, primarily *Diacyclops thomasi*, were the major zooplanktors consumed although in some stomachs *Daphnia retrocurva* was also quite abundant. Seasonal and diel changes in the average size of individual zooplankton taxa were observed. However, actual size-selective predation was not strongly indicated. Diet suggests juvenile smelt may compete with adult alewife (*Alosa pseudoharengus*) in the Great Lakes.

## INITIAL IMPACT OF AN EXPERIMENTAL ARTIFICIAL REEF IN LAKE ERIE NEAR BUFFALO NEW YORK ON THE FISH COMMUNITY IN THE AREA.

Denise A. Cattarin, James R. Spotila, Charles Merckel, Robert E. Ratajczak, Jr.,  
John Keinath, Debra Barnard Keinath, Cynthia Vernale, and Gary McDannell  
SUNY College at Buffalo

We constructed an experimental artificial reef in Lake Erie 1300 m off Buffalo Harbor. In an ongoing study we are comparing the fish populations on the artificial reef with those on a natural reef and control site. The artificial reef is 200 x 50 ft and is up to 12 ft high. It is composed of concrete slabs (10 x 20 x 1 ft) and was built during September, 1986 at a cost of \$43,000. A pre-reef gill netting study during 1985 and 1986 indicated that the natural reef supported a diverse community of warm-water fishes, especially smallmouth bass (*Micropterus dolomieu*), rockbass (*Ambloplites rupestris*), and yellow perch (*Perca flavescens*). An occasional walleye (*Stizostedion vitreum*) and salmonid were also collected. The control site and artificial reef site provided few fish. These results were supported by SCUBA observations.

After construction of the reef, gill netting in October and November, 1986 produced a variety of fish on the new reef. These included walleye, muskellunge (*Esox masquinongy*), perch and other species. Divers reported the presence of smallmouth bass. Our divers found the reef covered with a layer of silt, apparently the result of the construction activity. We will study sedimentation rates on the reef in 1987. The use of this small artificial reef by sports fish suggests that construction of a major artificial reef in the vicinity of Buffalo will lead to an increase in sports fishing opportunities and an increase in local economy.

THE NEW YORK FISHERIES DATABASE.  
Richard J. Preall and Timothy J. Sinnot  
NYSDEC, Albany

In April 1984, the Biological Survey Unit was formed with assigned task of developing a computer database from the 60 years of paper files that made up the Bureau of Fisheries Watershed Files. The watershed files consisted of more than 426 inches of reports in 38 file drawers. The voluminous nature of the files made it impossible to accomplish complex searches of the data, such as identifying all the waters in the state with a given fish species, or with a given set of physical or chemical parameters. The database, "Model 204", produced by Computer Corporation of America was selected, procedures developed, staff hired, and data encoding began in March 1985. In February 1986, the first data was entered into the computer. Currently, about 35% of the watershed data in the state is on-line in the DBMS. A friendly, menu-driven system encompassing eight of the most frequently used application programs has been developed for routine recurring data searches by non-technical personnel. However, the strength of the database is the capability to conduct complex ad hoc queries of the data that are available. Work is continuing with the goal of having all of the watershed data on line by September, 1988.

EVALUATION OF THE EFFECTS OF FRY STOCKING AND LENGTH LIMITS ON THE  
WALLEYE FISHERY OF ONEIDA LAKE BY USE OF A COMPUTER MODEL.

Russell W. Brown  
Cornell University, Ithaca

A study was made to evaluate the long-term effects of fry stocking and length limits on adult walleye biomass and recreational fishery harvest rates in Oneida Lake. A computer simulation model was constructed based on functional relationships to estimate walleye population dynamics occurring in the lake. Twenty-year simulations were conducted to estimate the long-term effects of management actions on the walleye populations. The model predicted significantly different ( $p < 0.05$ ) walleye standing stocks and angler harvest (numbers and weight) as a result of stocking zero versus 300-million fry. Angler harvest (numbers and weight) was highest and walleye standing stock was lowest when a minimum length limit of 12-inches was in effect, as opposed to an 18-inch limit.

A MICROCOMPUTER BASED ENVIRONMENTAL DATA BASE MANAGEMENT SYSTEM.

Rostyslaw Caryk  
Beak Consultants Inc., Akron

A microcomputer DBMS set up for managing the data base for an EIS program done at the Somerset Power Station on Lake Ontario is demonstrated. The system is set up for easy use by people with minimal computer experience through the use of menus and structured prompts, producing preprogrammed reports or ad hoc queries. The system uses PC/FOCUS as the data base manager and the PC version of BASE SAS and SAS STAT for advanced statistical analysis.

## SKIN TUMORS IN WALLEYES FROM ONEIDA LAKE, NEW YORK.

Paul R. Bowser, Ph.D. and Gregory A. Wooster  
Cornell University, Ithaca

A number of skin tumors have been reported for walleyes from Oneida Lake, New York. These include lymphocystis (not a true neoplasm), dermal sarcoma, discrete epidermal hyperplasia and diffuse epidermal hyperplasia. This report will describe our preliminary findings of tumor prevalence with regard to time of year, water temperature, size of fish and host response. Examination of 1038 walleyes captured from Oneida Lake with trapnets, gillnets, and trawls revealed the following:

- a) tumor prevalence was high in the spring, low during the summer and high in the fall;
- b) prevalence of tumors decreased as water temperature increased;
- c) no tumors were observed on fish less than 250 mm total length; above 250 mm prevalence of tumors increased with size; and
- d) host reaction to tumors was least developed in the fall and most developed in the spring and summer.

## CULTURE OF FATHEAD MINNOWS IN THE LABORATORY

Stephen W. Duda, Joseph K. Buttner, Ph.D, and William S. Ewell  
SUNY College at Brockport and Eastman Kodak Co., Rochester

The fathead minnow (*Pimephales promelas*) is commonly used in toxicological studies. Although techniques to culture the minnow in ponds are well documented, techniques for its culture in the laboratory are less well known. Fathead minnows have been maintained through 2 generations under controlled environmental conditions (20-25 C; 16h light; 8h dark) in the Wet Laboratory at SUNY Brockport. Fish are cultured in recirculated systems; 2 units for adult fish (segregated by sex), 1-2 units for subadult fish and juveniles, and 1-2 units for breeding fish. Each unit consists of a 8x2x1 ft trough and a 2.6 cu ft biological filter composed of 1-3 in gravel and crushed oyster shells. Water flows by gravity from the trough to the biofilter and is returned to the trough at a rate of 3-8 gal/min by a submersible pump. The recirculated systems require less maintenance (5-10 min/day/unit) and promoted better survival and growth than static units. Consistent reproduction is usually obtained within 7 days after 4 males and 8 females are introduced to a breeding unit. Hormonal injection (10 IU Human Chorionic Gonadotropin, intracoelomically) promoted earlier spawning and increased egg deposition. Feeding studies using *Artemia*, 3 different prepared feeds, and controls (no food) were run with <24-hr old fry and terminated after 30 days. Best survival (>86%) and growth were obtained with *Artemia*; survival with prepared foods was poor (<20%). There was no apparent benefit from combining *Artemia* and prepared feeds. Techniques used to spawn and rear fathead minnow in the lab may be applied to other species.

EFFECT OF THE SMALL BOAT HARBOR MARINA ON THE FISHERY OF  
BUFFALO HARBOR, LAKE ERIE.

Robert E. Ratajczak, Jr., Denise A. Cattarin, David Adrian, Kurt Bogenreider,  
Charles Merckel, Scott Pickard, Cynthia Vernale, and James R. Spotila  
SUNY College at Buffalo

The Small Boat Harbor and related South Area are the only sizeable shallow water embayments on Lake Erie in Erie County, New York. These areas support a diverse warmwater fish community containing many important sports fish. In 1986 we sampled these areas in spring and summer with gill nets and electroshocking techniques. Both of these areas had 19 species of fish. The South Area had 8 species of sports fish while the marina area had 10 species. Fishes of particular importance included muskellunge (*Esox masquinongy*), northern pike (*Esox lucius*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), pumpkinseed (*Lepomis gibbosus*), rock bass (*Ambloplites rupestris*), and yellow perch (*Perca flavescens*). Both areas were spawning grounds for muskellunge and northern pike. Walleye (*Stizostedion vitreum*) are occasionally present but do not appear to spawn here.

The overall fish community structure in the Small Boat Harbor has not been adversely affected by the activities associated with the construction and operation of the marina. It is essentially the same species and similar numbers as are present in the more open South Area. The Small Boat Harbor could be further improved as a fish habitat by improving water circulation from the outer harbor through the breakwall and by restoring spawning grounds and nursery grounds along the shoreline.

ACOUSTIC ASSESSMENT OF FISH ABUNDANCE IN SMALL LAKES; EFFECTS OF FISH  
AND ZOOPLANKTON DENSITIES.

Philip A. Unger, Stephen B. Brandt, Ph. D. and Gregory Yogis  
SUNY College at Oswego and SUNY College of Environmental Science  
and Forestry, Syracuse

Acoustic assessment of fish abundances were conducted in 9 lakes of the Adirondack region (New York) and northern Wisconsin during summer and fall, 1985. Lakes ranged in size from 5 to 87 ha and in maximum depth from 7 to 25 m. Our objectives were to evaluate hydroacoustic procedures for small-lake studies and to identify potential sources of error and variance in abundance estimates. Acoustic estimates of fish abundance varied greatly with season. During summer, when the lakes were thermally stratified, fish aggregated in the thermocline and were thus in deep water and off the bottom. After fall turnover, the fish either migrated to shallow water or moved toward the bottom. Therefore, summer was more suitable than fall for acoustic assessment of fish stocks. Time of day also affected acoustic measurement. Fish were more dispersed at night than during day, and thus sampling variance was lower at night. Also, fish were generally off the bottom at night. Strong plankton scattering layers were often present at night during summer but generally not after fall turnover. These scattering layers often interfered with efforts to measure fish abundance, particularly when the planktonic dipteran, *Chaoborus*, was abundant. We conclude that acoustic techniques can be used effectively for assessments of fish stocks in small lakes, but that temporal variations in the distributions of fish and plankton greatly affect data reliability and statistical validity.

## WAS 1986 A BAD YEAR FOR ADIRONDACK HEADWATER STREAMS?

Howard A. Simonin and Paul Van Valkenburg  
NYSDEC, Rome Field Station, Rome

The water chemistry of six adirondack headwater streams has been monitored during the ice-free months since 1983. The monitoring is part of an effort to document the effects of changes in acidic deposition levels on our aquatic resources. Alkalinity, conductivity, pH, and color were measured each year over a range of flow conditions. Values were then plotted and compared to previous years data. Headwater streams respond quickly to changes in deposition levels, and water chemistry changes are directly correlated with changes in stream flow.

During the summer of 1986, the Big Moose region of New York received higher than average amounts of precipitation. This increased precipitation resulted in increased levels of sulfur deposition over the same period. This increased precipitation and sulfur deposition were reflected in the water chemistry of the the study streams. Stream flow remained high throughout the summer of 1986, and the stream water was more acidic than in previous years. The highest measured pH during 1986 was a full pH unit lower than previous years in several of the study streams. Streams which in past years became acceptable brook trout habitat during the summer low-flow months, remained acidic throughout the summer of 1986.

## BLACK RIVER SALMON FISHERY CREEL SURVEY REPORT 1982 - 1985.

W. H. Gordon, R. D. McCullough, and D. E. Richardson  
NYSDEC, Watertown

Fishing effort on the Black River during fall salmon runs increased steadily from 1982 through 1985. During the fall of 1985, the river provided an estimated 25,108 angler days of recreation. Catch rates along with numbers of salmon harvested have also increased over the four year period due to increases in angler effort and numbers of fish available. The largest salmon harvest of 20,661 fish was recorded in 1984. Anglers using snatching techniques fished slightly more days and had significantly higher catch rates than anglers using traditional techniques. The number of anglers utilizing the Black River fishery from outside the Jefferson County area has increased with approximately 70% of the anglers in 1984 and 1985 included in this group.

RELATIONSHIPS OF FLUCTUATIONS IN ABUNDANCE AND DISTRIBUTION OF  
NORTH-EASTERN FISH STOCKS TO CHANGES IN MARINE CLIMATE.

Peter M. J. Woodhead  
SUNY College at Stony Brook

Using commercial fishery catch statistics from the last half century, it is shown that large changes in annual catch which have occurred, appear related to changes in sea temperature. Data analysis suggests that for some fishes of the New York Bight changes in marine climate (temperature) may account for as much as half of the variability in the annual catches of the trawler fleet.

ECONOMIC VALUES ASSOCIATED WITH CHARTER AND PARTY BOAT  
ANGLERS ON LONG ISLAND.

James R. Kahn, Ph.D.  
SUNY College at Binghamton

This paper examines the economic value of charter and party boat fishing on Long Island, by utilizing data collected from intercept surveys. Two types of value estimates are computed. These are total expenditures and consumers' surplus. Consumers' surplus is the value obtained by recreational anglers in excess of the costs of producing the activity. The consumers' surplus is calculated by employing travel cost demand function methodologies.

SIZE AND AGE COMPOSITION OF THE OPEN BOAT RECREATIONAL FISHERY FOR  
SUMMER FLOUNDER, *Paralichthys dentatus*, IN GREAT SOUTH BAY, LONG ISLAND,  
NEW YORK.

R. E. Casteneda and K. R. BuBois  
NYSDEC, Stony Brook

Summer flounder, *Paralichthys dentatus*, were measured aboard open charter boats in Long Island's Great South Bay during 1985 and 1986. Anglers and crew cooperated in allowing us to measure all fish caught, and take scale samples from both "keeper" and short summer flounder. Seasonal mean catch per angler hour was .57 and 1.10 for 1985 and 1986, respectively; while "keeper" (14 in or greater) CPUE was .30 and .21, respectively. Catch per effort varied widely but showed no overall decrease throughout the season. Percent length frequency was calculated and age was read from the scale samples on 567 fish. Preliminary age readings indicate that 1+, 2+, 3+, 4+ and 5+ age summer flounder make up 7.4, 73.1, 17.1, 2.3 and 0.2 percent of the catch respectively, with almost no 3+ or older from mid August on. Starting with the first week in August, 1+ fish (17-28 cm) are taken. Length frequencies indicate an extremely sharp decline in numbers of fish available to the sport fishery after they reach 14 in (356 mm). This is comparable to results shown by Poole in 1958-59, though more pronounced. These data indicate a heavily exploited population and a fishery strongly dependent on each year class having good spawning success.

AQUACULTURE SESSION

INTENSIVE CULTURE OF WALLEYES.

Richard T. Colesante

NYSDEC, Constantia

The Oneida Hatchery Research Unit has spent portions of the last ten years developing techniques to rear walleyes to fingerling (4") size in an economical and practical manner. There are three methods which have been explored to accomplish this. First, the culture of walleyes to 4" has been done successfully using extensive-intensive systems. This method requires culturing walleyes in earthen ponds for about 55 days, transferring fingerlings (1.5") to hatchery troughs, converting to artificial diets and rearing to target size. Approximate survivals using these methods are as follows:

55 day pond program -----	40%
Diet conversion period -----	58%
Post diet conversion period -----	65%
Overall (to 4") -----	15%

Secondly, walleyes can be reared using completely intensive methods. Considerable success has been recently obtained starting walleye fry on brine shrimp, introducing zooplankton, weaning from live food to artificial diets, and rearing to target size; all of this occurring in specialized troughs within the hatchery. Approximate and most recent survivals using this method are:

First 30 days -----	37%
Diet conversion period -----	53%
Post diet conversion period -----	50%
Overall to (4") -----	10%

Finally, although considerable progress has been made in rearing walleye fry on artificial diets only, fingerlings cannot be produced practically using this method. Eventhough many fry eat the diets (up to 75%), the best survival to date has been 14.4% at 21 days of age.

## OYSTER CULTURE AND NEW YORK'S OYSTER INDUSTRY.

Robert E. Malouf, Ph.D.  
SUNY College at Stony Brook

The oyster industry of New York has declined over the past half century from the state's dominant shellfishery to near extinction in 1986. The causes for this decline include environmental changes in part caused: by the increasing population of Long Island; by inlet modifications and dredging generally leading to increased salinities; by catastrophic disease outbreaks (MSX in particular); and by poor management of oyster growing grounds. Even a cursory view of the oyster's life cycle show the opportunity for manipulating that cycle in culture. Current oyster culture practises on Long Island include the use of hatcheries and intensive nursery systems. Recent research emphasis at SUNY Stony Brook has been placed: 1) on documenting and improving hatchery operations; 2) on studies of the behavior of selected predators (mud crabs and lady crabs) in an effort to control their impact on cultured bivalves; and 3) studies of feeding and growth of oysters in Long Island Sound. Among other findings, studies of a commercial oyster hatchery suggest that problems in maintaining accurate accounting of the number of animals being held at each stage of the culture process (hatchery through harvest) can result in serious planning and marketing difficulties. On-going studies of predation (being directed now by Dr. Peter Lawton) suggest that substrate plays an important part in the activity of crabs and that it may be possible to use the crabs' predators (e.g. toad fish) to control their activity and thereby limiting their impact on cultured shellfish. Studies of oyster growth in L.I. Sound showed that growth was greatest among animals cultured within 1 m of the surface and that phytoplankton abundance, not total particulates, determined oyster growth.

## ASSIGNMENT OF DISSOLVED OXYGEN MINIMA AND UN-IONIZED AMONIA MAXIMA FOR FISH CULTURE.

Richard W. Soderberg, Ph.D.  
Mansfield University, Mansfield, PA

Depletion of dissolved oxygen (DO) and accumulation of un-ionized amonia ( $\text{NH}_3$ ) are the two most important factors determining the production capacity in flowing-water fish culture. A review of the effects of hypoxia on fish is presented, along with recommendations for assignment of minimum DO tensions that result in a satisfactory compromise between fish quality and quantity. The reported chronic effects of  $\text{NH}_3$  on fish are reviewed and the process of assignment of a maximum allowable level is discussed.



THE ROLE OF INSTITUTIONS OF HIGHER EDUCATION IN A  
DEVELOPING AQUACULTURE INDUSTRY.

William D. Youngs, Ph.D.  
Cornell University, Ithaca

Current consumer awareness of the nutritional benefits of fish will lead to an increase of fish products in the diet of the average US person. This increase consumer demand will likely stimulate an increase in aquaculture since most major natural fisheries are presently over-harvested. The role academic institutions could play in a developing aquaculture industry is in the areas of teaching, extension and research.

Although specific material will be dependent upon species and method of culture, there will be a need for programs teaching aquaculture at both the technical and graduate levels. The need for people trained in the daily operation of aquaculture facilities and hatchery management exists and could be satisfied by developing programs at technical colleges. There is an apparent need for academic-clinical training leading to degrees in health management. Less apparent, but equally needed are personnel trained in fish nutrition, water quality management, engineering, business management and marketing as they apply to aquaculture.

The role for extension will be a critical one during the development phase of aquaculture and will continue to be necessary in a maturing industry. Training opportunities providing background information on aquaculture to county agents will be necessary; a demand will be created for specialists in a number of areas such as water quality, engineering, marketing and biology, to provide on site guidance and advice. As research in aquaculture develops, there will be information produced which will be provided to the aquaculturists through the extension network.

Research projects will in large measure be dictated by the specific types of aquaculture undertaken and may in turn lead to the development of certain types of aquaculture. Opportunities for additional work in genetics, fish nutrition as related to broodstock, water quality, processing and marketing, and system optimization and control are general areas for research which could apply to any specific aquaculture.

1987 ANNUAL MEETING PROGRAM  
NEW YORK CHAPTER - AMERICAN FISHERIES SOCIETY

Mini - Session Agenda  
Computer Applications in New York State Fisheries  
Richard Preall, NYSDEC, Session Moderator

Friday, January 30 1987  
8:00 p.m. - 10:00 p.m.

The session will be split into two one hour sections: a presentation section and a demonstration section.

Presentation Section: 8:00 p.m. - 9:00 p.m.

- 8:00 p.m. - 8:15 p.m. NEW YORK STATE FISHERIES DATABASE.  
Richard Preall  
NYSDEC, Albany
  
- 8:15 p.m. - 8:30 p.m. A MICR COMPUTER BASED ENVIRONMENTAL DATA BASE MANAGEMENT SYSTEM.  
Rostyslaw Caryk  
Beak Consultants, Inc., Akron
  
- 8:30 p.m. - 8:45 p.m. EVALUATION OF MANAGEMENT ACTIONS ON THE WALLEYE FISHERY OF ONEIDA LAKE USING A COMPUTER.  
Russell Brown  
Cornell University, Ithaca
  
- 8:45 p.m. - 9:00 p.m. IBM - PC SOFTWARE FOR ECOLOGICAL MEASURES.  
Paul M. Kotila, Ph.D.  
St. Lawrence University, Canton
  
- 9:00 p.m. -10:00 p.m. Demonstration Section.

Each of the authors listed above will have one-half hour to demonstrate and discuss their application on one of two IBM PC/XT microcomputers.

- 9:00 p.m. - 9:30 p.m. Rostyslaw Caryk  
Russell Brown
  
- 9:30 p.m.-10:00 p.m. Paul Kotila  
Richard Preall

COMMITTEE  
1987 ANNUAL MEETING  
30-31 January 1987  
THE BEECHES/PAUL REVERE LODGE  
ROME, N.Y.

Program Chairperson:	Andrew Kahnle
Co-Chairperson:	Douglas Stang
Local Arrangements:	Jack Hasse
Paper Judging:	Douglas Carlson James Winter
Technical Session Chairpeople:	
Rivers of New York	Andrew Kahnle
Fish Contaminants/ human health	Larry Skinner
Marine Fisheries	John Poole
Freshwater Fisheries	Douglas Stang
Fish Culture	Paul Bowser Joseph Buttner John Schachte
Poster Session Chairperson:	Charles Guthrie
Microcomputer Mini-session:	Timothy Sinnott Richard Preall

1987 ANNUAL MEETING PROGRAM  
NEW YORK CHAPTER - AMERICAN FISHERIES SOCIETY  
POSTER ADDENDUM

ASPECTS OF THE ECOLOGY OF THE TESSELLATED DARTER IN A HUDSON RIVER  
TIDAL FRESHWATER MARSH.

Robert E. Schmidt and Marie Duryea  
Simon's Rock College  
Great Barrington, MA

ALLOZYME FREQUENCIES IN THE SMALLMOUTH BASS AND THEIR RELATIONSHIP  
TO POST GLACIAL COLONIZATION OF THE LAKE ONTARIO DRAINAGE.

Betty Lou Brett, Glen Garber, and James Haynes  
University of Rochester, Rochester and SUNY College at Brockport

OTSSELIC RIVER GREENBELT PROJECT.

Louis G. Olney  
School of Agriculture and Natural Resources, Morrisville

LIVING LAKES AQUATIC LIMING AND FISH RESTORATION DEMONSTRATION PROJECT.

Douglas L. Britt  
International Science and Technology, Inc.  
Reston, VA

GUIDELINES FOR PREPARING AND DELIVERING PROFESSIONAL QUALITY  
ORAL AND POSTER PRESENTATIONS

New York Chapter  
American Fisheries Society  
1987

A. Preparing Slides (also see Kodak Publication S-22)

1. The BASIC STANDARD: Can the audience read and understand your slides as you speak?
  - a. Readability Tips: no single spacing; no more than eight lines per slide; use a series of simple slides to reveal a complex process; never photograph or otherwise reproduce a printed text or table--you must simplify and enlarge
  - b. Can the audience read it? Use two tests before you speak: Can you read all the text on a slide at normal reading distance?; Can you read all information on the projected slide from 60-80 ft away?
2. Preparing Graphics for Slides: See Kodak Publication S-22 for information about line widths, letter point sizes, etc. necessary to produce visible graphics for conditions existing at your presentation site; consult a professional graphics artist for special or non-routine requirements.
  - a. Hand-drawn: use different width pens, markers etc. to create different line widths, letter sizes, etc. As long as your work is legible and neat, this is acceptable.
  - b. Leroy or similar drafting set: does the same job as hand-drawn, but more precisely.
  - c. Stick-on letters, symbols, etc. are available from most book and office supply stores; these can be used in combination with hand- or Leroy-drawn graphs, etc.
  - d. Personal computer graphics packages are widely available: Some interface with statistical packages for direct graphical output; all provide or allow you to choose appropriate letter sizes, line weights, etc.; dot matrix printers with double strike capability produce acceptable quality work.

- e. Professional typesetting, photostats, etc.: This is the most expensive and time-consuming option, but produces the highest quality graphics.

### 3. Turning Graphics into Slides

- a. All typed text must fit in the 80x122 mm template space shown in Kodak Publication S-22; each artwork should fit in a 152x229 mm space for direct reduction to slide format; larger artwork will require larger lettering before reduction to slide format.
- b. Standard black and white dark room techniques or various instant films will produce black lines and letters on a light background, but white letters and art on a dark colored background is far superior in quality (see c and d below for two examples).
- c. High Contrast Negative Films (Kodalith and other Lith Films; e.g., 35 mm, 36 exp, Ekta-Graphic film with Kodalith developer) gives a white image on black background.
  - i) Food color can be used to create colored text/art on a black background (yellow gives the highest contrast).
  - ii) Alternatively, double expose color slide film on a slide copier stand; for the first exposure use a clear base slide and whatever background color you choose (blue and green work well); for the second exposure use the original kodalith to burn white or color filtered light through the original color exposure.
  - iii) Before attempting this on your own, consult an experienced photographer.
- d. Instant Slide Transparency Film (e.g., Polaroid PolaBlue film; this also requires a desk top processing unit, < \$100); this process will produce white letters/art on a blue background.
- e. Commercially Generated Slides by Computer (e.g. Visual Horizons, Rochester, NY); for a few dollars original graphics are made into multicolor slides.

#### 4. Taking Suitable Photographs

- a. While you are doing the research, think about what photos you will need for your presentation or recreate appropriate scenes.
  - b. Photos should be clearly focused on the object/action of interest with minimum background clutter.
  - c. Use high contrast views that will be visible with background light in meeting rooms; check visibility under lighted conditions before using the slide in a presentation
  - d. Use a series of simple photos to illustrate complex procedures, etc.
5. **BOTTOM LINE:** Whether you are showing a graphic or a photo in a presentation, if you have to say "I know you can't see/read that" or "this slide isn't very clear", then you should have prepared a better slide; do not use this kind of slide -- it detracts from your talk and insults your audience.

#### B. Organizing a Presentation

1. In a 15 min talk at most 1-3 key results can be addressed appropriately.
2. Slides should be used to highlight and amplify important points, not simply to reiterate what is said.
  - a. Introductory slides commonly include the Title, Authors and Affiliations, Purpose(s), Objective(s) and Study Area.
  - b. Methods slides may combine lists, diagrams and photographs of research techniques, depending on the subject.
  - c. Results and Discussion usually are best done together for an oral presentation; slides may include tables, figures, lists or photographs.
  - d. Concluding slides often include lists of key findings and "pretty" pictures from the study.

### 3. Key Points to Remember

- a. Plan for about one slide per minute during talk; introductory and methods slides may require less time, but results and discussion slides may require more time.
- b. Keep slides simple to illustrate the most important points only--people who are interested in more detail will seek you out or request a copy of your publication.
- c. Never photograph text, graphs or tables from printed work for direct use as a slide: this will result in projecting too much information illegibly in the wrong scale; you must simplify and enlarge printed information before converting to a slide format.
- d. Do not leave a slide on the screen after you have finished talking about it; use a dark blank or a neutral scenery picture.
- e. Load your slides in a proper tray well in advance of your presentation and project them to be sure they are in order, right-side up and that your tray and the projector work together.

### 4. Delivering the Presentation

- a. Think of the best speakers you have seen: Did they deliver their presentations in a robotic stance and monotone voice? Vigorous voice inflection to maneuver audience attention plus eye contact, facial expressions and body movements are just as essential to a good presentation as good data. If the audience is bored, confused or sleepy, your message will go unheard.
- b. Ideally your slides should prompt all of your remarks without use of notes, but this level of speaking ability only comes with much practice before live audiences.
- c. Note cards with main points keyed to slides are fine as long as eye contact is maintained with the audience.



- d. For the very nervous speaker, a detailed script may be necessary, but it must be written as you would speak it (not write it in a report) and nearly memorized so that quick glances allow the recall of whole sentences; conscious attention must be given to eye contact and voice inflection.
- e. Practice your talk many times to assure that it fits comfortably in the allotted time and that you have a smooth, dynamic, confident delivery.
- f. Dress professionally: a coat and tie plus neat grooming demonstrate respect for the audience.
- g. Use humor appropriately to enliven your talk and the audience: AVOID off-color or socially controversial humor, especially jokes with racial, ethnic or sexual implications. Do not disparage your data or make "cute" remarks.

### C. Organizing a Poster Presentation

1. Essential to a quality poster is clarity, brevity and readability from a distance of six or more feet.
2. A key point to remember is that posters are completely visual presentations: emphacize graphics, photographs, patterns and scales; minimize text.
3. The attached mimeo, "Poster Design and Preparation Guidelines", prepared for the 1986 AFS Annual Meeting by Jim Rice, North Carolina State University, provides complete guidance on how to plan, organize and prepare a high quality poster.

Have you ever squinted and strained through an entire AV presentation because you just couldn't read what was on the screen? Frustrating, isn't it? It's also a waste of time—both yours and the presenter's. You came to gather some sort of information, and the presenter came to communicate that information to you and the rest of the audience. Sounds like a winning combination, but everyone comes up a loser when a presentation can't be seen . . . and no information is conveyed!

When it's your turn to present, don't make the same mistakes! Make sure that your lecture slides clearly communicate and clarify your message!

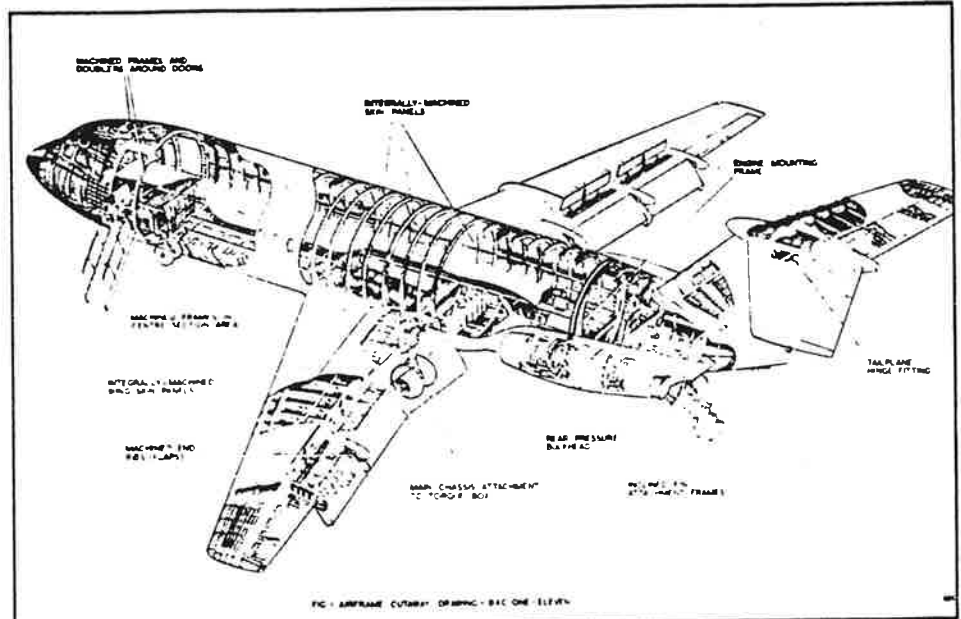
If your budget allows, perhaps the best way to do this is to work with a slide specialist who can convert your information into dynamic, exciting visuals that influence and stimulate your audience. But whether you hire someone or do the work yourself, here are some important points you should know.

**About Illustrations, Graphs, Tables, etc**

One of the biggest mistakes you can make is to think that legibility in one form means legibility in another. In other words, that picture you want to use from a book in your library isn't going to be as easy to read on the screen as it is on the printed page. We ordinarily read printed material at a distance of 12 to 14 in. (305 to 356 mm). The same image projected for presentation will be about 4 x 6 ft (1.2 x 1.8 m), and the rear seats in a large room are often 70 ft (21.3 m) from the screen. "Four feet high" sounds big, but reading the text of a 4-foot-high image from 70 feet is like reading a 2-inch version of this page. You'd probably only see the title.

Here's where your creativity and concern for your audience come in! Increase those line widths. And if there's too much detail in a drawing or too much copy to fit comfortably on a slide, *simplify*. The before and after line drawings of the airplane show the visual benefits of this approach.

# Effective Lecture Slides



Before ▲

▼ After

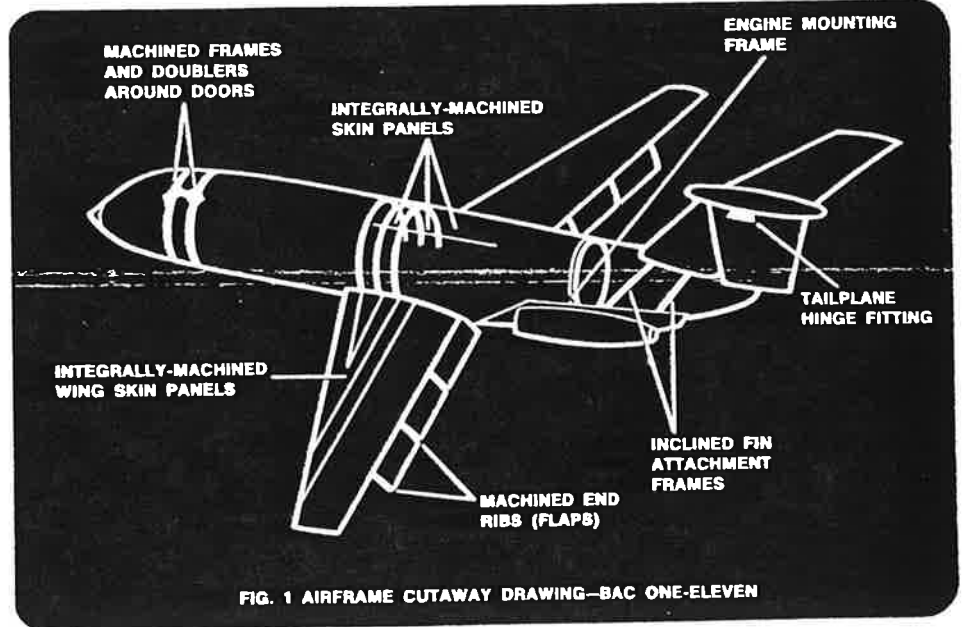
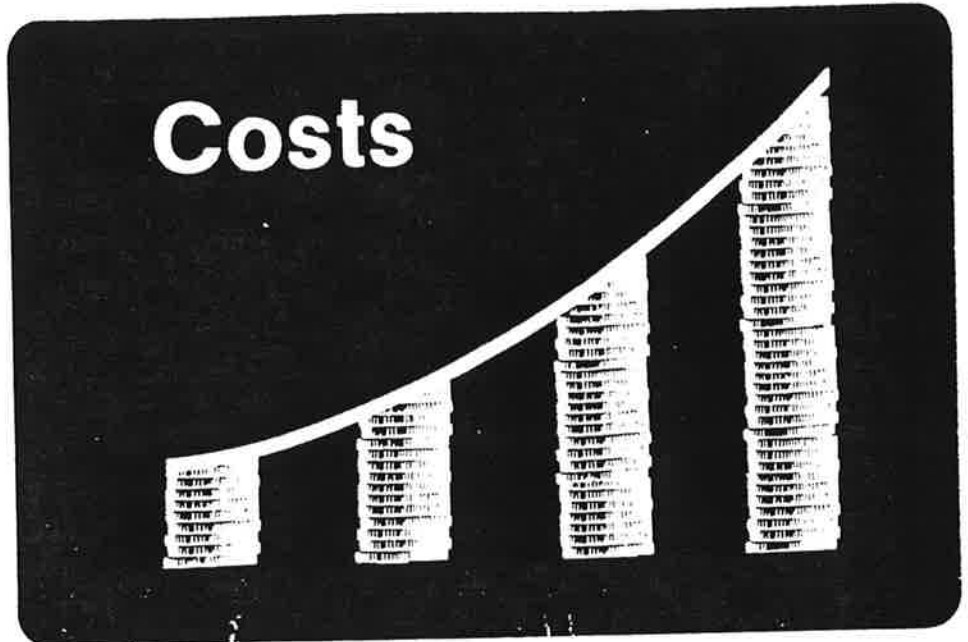


FIG. 1 AIRFRAME CUTAWAY DRAWING—BAC ONE-ELEVEN

This graph is another good example of simplification. It shows a clean, simple way to, in this case, show rising costs. If you want to show specific amounts, you can also add numbers, in easy-to-read type, under each stack of coins. If you can't simplify your material and still fit it on one slide, as we did in this example, use several slides. Two or more simple slides are much better than one complicated slide that no one can read or understand!

Another point to think about is that sometimes one form of artwork is better than another for certain kinds of data. Depending on your subject matter, you may want to use a line drawing, a tabular chart, a bar chart, or another creative solution to show the information you want to communicate in the best possible way.



### About Photography

The "don't show too much" approach works with photographs, too. You don't have to show a photograph in its entirety, unless *all* of it is important to your message. You might want to use an overall view to *introduce* a topic and a close-up view to present important details. A general rule to remember is that a close-up shot presents the details more clearly and results in a less distracting image on the screen. To get the best possible image, try to do any necessary cropping during your photography session.



Wide Shot ➤



Detailed Close-Up ➤

### Some Important Tips on Lettering

Artists spend years learning to produce good lettering. How can you do it in a few hours? The answer's simple. You can't. What you can do, though, is use rub-down lettering (available from most art dealers or stationery stores). Or you can forget about the neat, precise approach and deliberately go for a bold, carefree style using a brush, broad pen, or chalk. This can look extremely effective if it's *obviously* casual—make single strokes and don't go over them a second time.

You can also use a thin black marker to make some free-form lettering, and then use bright colors to fill in, as in the example on the right. And don't forget the *typewriter*. For charts and flow diagrams, try typing on a light-colored paper. Cut the lines of type into strips and paste them onto a dark-colored background to make up the chart you want. You can even type in white, if you wish. Set the typewriter to "stencil," select a black or dark-colored paper, and type on it using the white paper for correcting typing errors.

Use the template on this page when you type copy for your slides. Remember not to go beyond 9 double-spaced lines high and 54-elite- (or 45 pica-) characters wide. Keep captions, lines, or other markings within the template rectangle, too.

Upper- and lowercase *elite* type is legible up to 40 ft (12.2 m) from a projected image 5 ft (1.5 m) high; *pica* type is legible up to about 60 ft (18.3 m). Also remember that if you only use *uppercase* letters for a limited number of words, the screen legibility will increase somewhat.

You might want to trace the template on onionskin or clear plastic material that you can use as a guide to check the copy area and align the camera. Make sure that the viewfinder of your camera includes about 1/8 in. (3 mm) outside the template area on all sides. And be sure to remove your template before you photograph the copy!



▶ Rub-Down Letters offer a creative alternative.



▲ Colorful, Free-Form Style

▼ Typing Template

USE THIS TEMPLATE, SAME SIZE, FOR  
TYPING. ENLARGE THE RECTANGLE  
TO 6 x 9 INCHES (152 x 229 mm)  
FOR ALL ARTWORK.

### Some Additional Points to Remember

- Use 2 x 2-inch color slides—they are effective, easy to make, and inexpensive. Color film is also convenient for making slides from black-and-white copy.
- Use a dark-colored background—it's more effective than black or white.
- Limit each slide to one main idea.
- Use a slide series for progressive disclosure—it clarifies your message greatly.
- Limit each slide to as few words as possible (maximum 15 to 20 words); include no more than you want to discuss.
- Leave space—at least the height of a capital letter—between lines.
- Include titles to supplement, not duplicate, slide data.
- Use several simple slides rather than one complicated one, especially if you plan to discuss a subject at length.
- Use duplicates if you need to refer to the same slide at several different times in your talk. It's impractical to expect the projectionist to search for and reshow a particular slide, and it's irritating to your audience.
- Plan your slides for a good visual pace in your presentation. Don't leave a slide on the screen after discussing it.
- Thumb-spot all slides in the lower-left corner when the slide reads correctly on hand viewing, and add sequence numbers.

### And for a Smooth Presentation . . .

- Rehearse your slide presentation several times so that you're familiar with the sequence and timing of the slides.
- Several days in advance, let the program chairperson know the size and mounting (glass, metal, *KODAK READY-MOUNT*, etc) of your slides and the kind of tray you will use, so that you'll be provided with the right projector. Be sure you use a widely accepted mount.
- On your trip, carry your boxed tray of slides with you, if possible. Don't risk packing them with your baggage if it's checked through.
- Request a projector with remote control so that you can operate it from the lectern. Otherwise, have a signal light for the projectionist or arrange some other means, such as a copy of the script marked to show the slide changes.
- Give your slides to the projectionist before the meeting to assure ample time to discuss any special instructions. If you wait until just before your talk, the projectionist may be busy with the previous speaker's slides.
- Use the slides to supplement and support your oral presentation, not repeat it.
- Request a pointer, if you need one.
- Consider your audience size in terms of screen size and projector output. For example, an audience of 400 needs a screen image 8 ft (2.4 m) high.

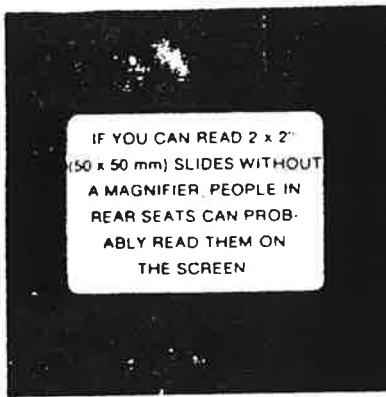
### There's More!

For additional information on planning, preparing, or using projected visuals, look through the *Kodak MP&AV Publications Index (S-4)* listing over 225 publications for visual communicators. For your free copy, write to Eastman Kodak Company, Dept. 412L, Rochester, NY 14650. Just ask for *Publications Index, S-4!*

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**MOTION PICTURE AND AUDIOVISUAL MARKETS DIVISION**  
Rochester, New York 14650



# Effective Lecture Slides

Good slides amplify and clarify the message, stimulate interest, and help the speaker keep "on the track." They merit the same care in preparation as the commentary. Slides that cannot be read when projected lessen the impact and effectiveness of the presentation; in other words, the primary consideration is *legibility*.

Ideally, the author should work with a specialist who can translate information into effective visuals and who will instruct an artist and a photographer in making slides. Whether or not such assistance is available to you, here are some of the ways to make effective lecture slides.

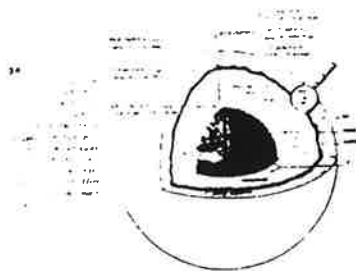
While the emphasis in this pamphlet is on 2 x 2-inch (50 x 50 mm\*) slides, the general information applies also to other projected visuals.

## COMMON ERRORS

Most errors in slide-making stem from the mistaken assumption that legibility in one form assures legibility in another.

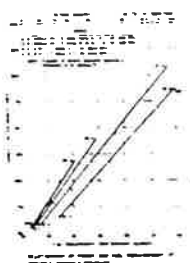
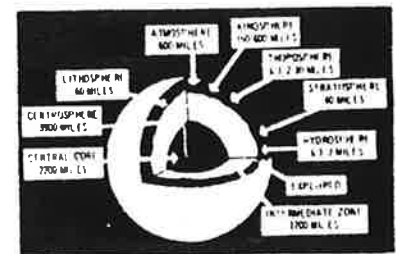
A person ordinarily reads printed material at a distance of 12 to 14 inches (305 to 356 mm). But frequently at a slide presentation the image projected is only 4 x 6 feet (1.2 x 1.8 m); the rear seats are 70 feet (21.3 m) from the screen! Reading the

text of a 4-foot-high image at 70 feet is like reading the miniature version of this page, shown below. Only the title is legible, because of the size of the original characters.



Example 1

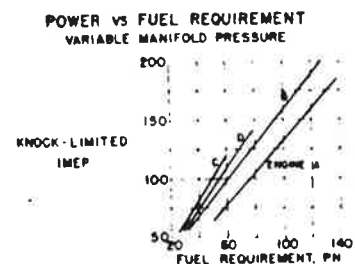
Illustrations in textbooks are usually drawn carefully and explained in detail, as in the illustration at the left. Copying such illustrations in slide form usually shows that what may be adequate on the printed page is inadequate on the screen. Line widths must be increased, and captions must be reduced in number, simplified, and increased in size (right).



Example 2

At left is a slide from an illustration that was satisfactory in a technical report, but the caption is too long and the copy is set in typeface too small for use as a legible slide. On the right is the graph redrawn with larger, simpler captions.

Line graphs reproduced from pamphlet, *Make Slides Worth While*, courtesy of author B.A. Jones, Ethyl Corporation.



\*For ease in reading, the metric conversion is given once per dimension

### Close-Up Lens Data

Close-Up Lenses and Focus Setting in Feet	Lens-to-Subject Distance in Inches	Approximate Field Size for Picture Area in 2 x 2-inch Slide		
		44 to 46 mm Lens	50 mm Lens	
1+	Inf	39	21 x 30	18 x 26½
	15	32¼	17½ x 24¼	14¼ x 22
	6	25½	13¼ x 19	11½ x 17
	3½	20½	10½ x 15	9 x 13¼
2+	Inf	19½	10¼ x 15	9 x 13¼
	15	17¼	9¼ x 13¾	8 x 12
	6	15¼	7¼ x 11½	7 x 10
	3½	13¼	6½ x 9¼	6¼ x 9
3+	Inf	13	6¼ x 10	6 x 8¼
	15	12¼	6¼ x 9¼	5¼ x 8½
	6	11¼	5¼ x 8¼	5 x 7¼
	3½	9¼	4¼ x 7¼	4½ x 6¼
3+ plus 3+	Inf	6¼	3¼ x 5¼	3¼ x 4¼
	15	6½	3¼ x 4¼	2¼ x 4¼
	6	6¼	3¼ x 4¼	2¼ x 4¼
	3½	5¼	2¼ x 4¼	2¼ x 3¼

**Example 3: Representative figures —for illustrative purposes only.**

The table at the left is too crowded with data. In such situations, either reduce the data to essential and rounded figures only, or present representative data in smaller groupings, as shown below. Two or more simple slides are better than one complicated slide.

### CLOSE-UP LENS DATA (50 mm LENS SET FOR 3 1/2 FT)

CLOSE-UP LENS	LENS-SUBJ (INCHES)	FIELD SIZE (INCHES)
1+	20 1/2	9 x 13 1/4
2+	13 1/8	6 1/8 x 9
3+	9 3/4	4 1/2 x 6 3/8
3+ PLUS 3+	5 3/4	2 5/8 x 3 15/16

The copy area at the right is in actual working size, chosen for the height-to-width ratio of the artwork area. It fits the same area as shown on the template on page 3. Filling a large area with more typewritten copy would reduce legibility.

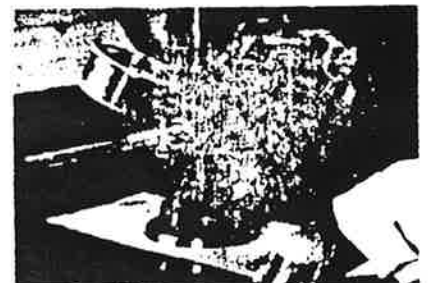
Illustrations for Examples 1, 2, 4, 5, and 6 do not represent an artwork size. They are reduced to fit the page.

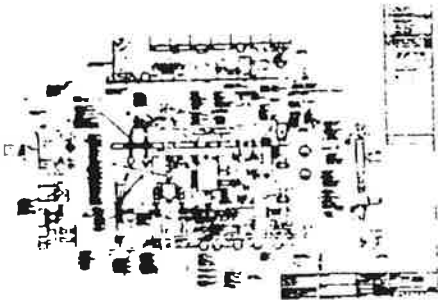


**Example 4**

Artwork need not be shown in its entirety, unless all the surroundings of a particular operation are important. Maybe an overall view and a close-up are needed. A close-up presents important details clearly and results in a less distracting image on the screen.

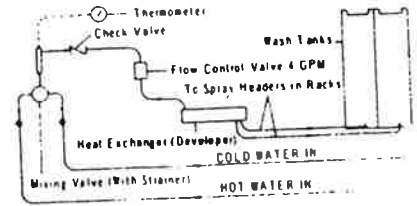
Where possible, any necessary cropping should be done during original photography.





Example 5

If you reduce a blueprint to slide form and project it, the screen image will be illegible (left). Lines will be too faint, lettering will be too small, and the narrator will usually lose the audience while trying to explain in words what the audience *should* be seeing. A thick-line tracing of essentials, made with crayon, felt-tip pen, etc. or a simplified version, as shown at the right, is preferable.

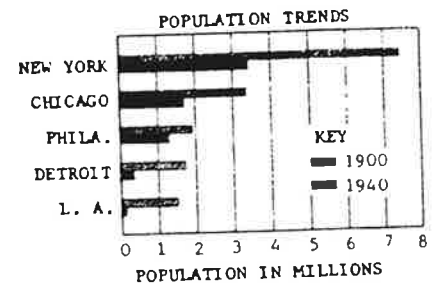


WATER CIRCULATION KODAK VERSAMAT PROCESSOR, MODEL 11

POPULATION TRENDS		
CITY	POPULATION IN THOUSANDS	
	YEAR 1900	1940
NEW YORK	3437	7455
CHICAGO	1699	3397
PHILADELPHIA	1294	1931
DETROIT	286	1623
LOS ANGELES	102	1504

Example 6

The graph form is better than the tabular for some kinds of data. In the table, left, population increase is not immediately evident. In the graph, comparisons are made easily. Use rounded figures. Keep graphs simple. Be sparing in the use of captions.



### TEMPLATE FOR TYPEWRITTEN COPY FOR 35 mm SLIDES

Use this template when you are typing copy for slides: 9 double-spaced lines (maximum) and 54 elite (or 45 pica) characters wide.

Upper- and lowercase elite type will be legible up to 40 feet (12.2 m) from the projected image 5 feet (1.5 m)

high; pica type, to about 60 feet (18.3 m). The use of uppercase letters only will extend the legibility distance somewhat.

Keep captions, lines, or other markings (added to illustrations from which slides will be made) within the rectangle.

Use the template as a guide for

setting up your camera; the viewfinder should include about 1/8 inch (3 mm) outside the template area on all slides.

You may find it helpful to trace the template on onionskin or clear plastic material that can be used to check copy area and to align the camera. (Be sure to remove the tracing before photographing the copy.)

USE THIS TEMPLATE, SAME SIZE, FOR  
 TYPING. ENLARGE THE RECTANGLE  
 TO 6 x 9 INCHES (152 x 229 mm)  
 FOR ALL ARTWORK. USE LINE WIDTHS  
 SHOWN ON PAGE 4.



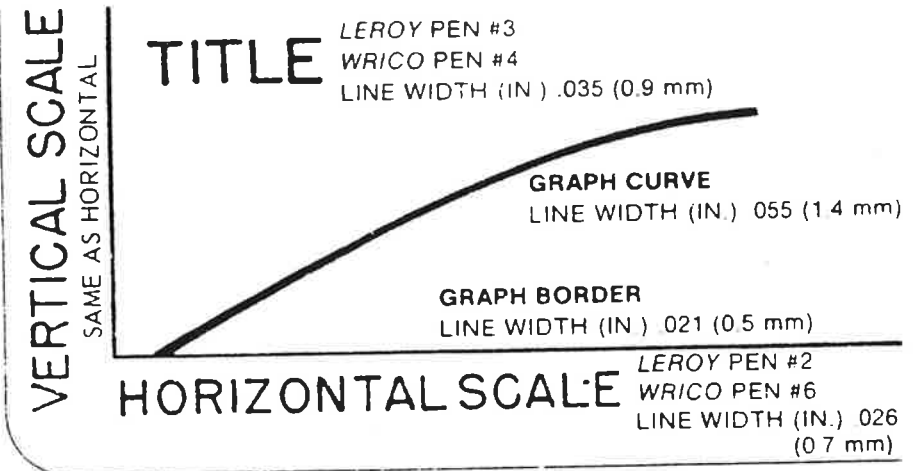
## LINE WEIGHT

Plan line weights carefully for greatest legibility. Make curves prominent. Construct axes and grid lines so they are clearly visible but relatively inconspicuous.

The illustration at right is reproduced, same size, from a portion of the original material, which measured 6 inches wide and 4 1/2 inches (114 mm) high. Reference for grid and line weights: American National Standard Y15.1-1959 (see "References"). For 6 x 9-inch template, increase line weights 1/3.

## OBSERVE THESE IMPORTANT POINTS

- Use 2 x 2-inch color slides—they are effective, easy to make, and inexpensive. Color film is also convenient for making slides from black-and-white copy.
- Use a dark-colored background—it is better than black or white.
- Limit each slide to one main idea.
- Use a slide series for progressive disclosure—it clarifies greatly.
- Limit each slide to 15 to 20 words or 25 to 30 elements; include no more than you will discuss.
- Leave space—at least the height of a capital letter—between lines.
- Include titles to supplement, not duplicate, slide data.
- Use several simple slides rather than one complicated one, especially if you must discuss a subject at length.
- Use duplicates if you need to refer to the same slide at several different times in your talk. It is impractical for the projectionist to search for and reshew a slide.
- Plan your slides for a good visual pace in your presentation. Don't leave a slide on the screen after discussing its subject.
- Thumb-spot all slides in the lower left corner when the slide reads



correctly on hand viewing. Add sequence numbers.

## PREPARE FOR A SMOOTH PRESENTATION

- Rehearse your slide presentation several times so that you will be familiar with the sequence and timing of the slides.
- Several days in advance, let the program chairman know the size and mounting (glass, metal, *KODAK READY-MOUNT*, etc) of your slides, and the kind of tray you will use, so that you will be provided with the right projector. Be sure you use a widely accepted mount.
- On your trip, carry your slides with you—in the tray, if possible. Don't trust them to your baggage if it is checked through.
- Check with the projectionist early concerning the required projector. If necessary, plan for the time it will take to load a projector tray.
- Request a projector with remote control that you can operate from the lectern. Otherwise, have a signal light for the projectionist or arrange some other means, for instance, a copy of the commentary marked to show the slide changes.

- Give your slides to the projectionist before the meeting, when you'll have time to discuss any special instructions with him. If you wait until just before your talk, he may be busy with the previous speaker's slides.
- Use the slides to supplement and support your oral presentation, not simply to repeat what you are saying.
- Request a pointer, if needed.
- Consider your audience size in terms of screen size and projector output. As an example, an audience of 400 needs a screen image 8 feet (2.4 m) high.

## REFERENCES

*Illustrations for Publication and Projection*, ANSI Standard Y15.1-1959, American National Standards Institute, 1430 Broadway, New York, N.Y. 10018.

Additional information helpful to those who plan, prepare, or use projected visuals is contained in other Kodak publications. A comprehensive listing of this literature, together with ordering instructions, is included in Kodak Pamphlet No. L-5, *Index to Kodak Information*, available on request from Eastman Kodak Company, Dept. 412L, Rochester, N.Y. 14650.

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MOTION PICTURE AND AUDIOVISUAL MARKETS DIVISION  
Rochester, New York 14650

## Poster Design and Preparation Guidelines

There are several important goals to keep in mind when planning your poster. First, keep it simple; stick to key points and essential information, using a minimum of text. Second, make it self-explanatory; there will be times your poster is on display without you present, so be sure it tells a logical, coherent story. Remember, excessive detail hurts rather than helps in this regard; interested viewers can ask you about particulars during the formal session. Third, make your poster easy to read; large lettering, bold, simple figures, and a clear, easy-to-follow layout are essential. The following guidelines offer some practical suggestions for achieving these goals.

### Contents

Your poster should include the following:

- Title, followed by name and affiliation of the author(s)
- Abstract (always first)- what, why, how, results
- Introduction- state the problem or area of investigation
- Purpose- what you intend to investigate
- Methods- lab techniques, experimental design, sampling methods, etc.
- Presentation of results- graphs, photos, artwork, etc.
- Conclusion (always last)- list findings, summary, interpretation and implications

### Legibility and Readability

#### **Title and Headings**

- Reserve the top 4 inches of your poster for the title, author's name(s) and affiliation(s).
- Use letters about 1 inch high (all caps) for the title
- letters 1/2 - 2/3 inch high for authors and affiliations
- letters 3/8 - 5/8 inch high for headings (see example 1)

#### **Text**

- All text should be legible from 5' away. This means a minimum letter size of 3/16-1/4" for all text, including tables, figure captions and labels (see example 1).
- Make text upper and lower case.
- Use a sans serif typeface (e.g., Megaron, Helvetica, Univers, Letter Gothic); it's easier to read and looks neater.
- Use all-caps, bold, or italic lettering to highlight words, tradenames, etc.
- short, clear statements are easier to read than long paragraphs (see example 2).
- Keep adequate "white" space around statements for easier reading.
- Remember! Stick to key points and essential information. Keep text to a minimum.

## **Figures, Tables, Photographs**

- Figures can be understood much more easily and quickly than tables; convert all tables to figures if possible (see example 3).
- Keep figures simple. Use bold lines and large symbols for easy reading from a distance. Make lines at least 0.8 mm wide, preferably larger (drawing pen sizes 3-7 make lines ranging from about 0.8 to 2 mm wide), and symbols at least 3 mm in diameter.
- Each figure should be accompanied by a short line of interpretation that summarizes the "take-home" message of the figure.
- Photographs should be clear, and show what they are intended to. If they don't, consider artwork instead.
- If you must use a table, keep it simple -- just a few rows and columns.
- Stick to a minimum 3/16-1/4" lettering in all tables, figure captions and labels.

## **Layout and Organization**

Poster size is usually 4x4'. Reserve the top 4 inches of your poster for the title, author's name(s) and affiliation(s).

A 4' wide poster can accommodate 3 columns 12-14" wide, or 4 columns 10-11" wide. Height of individual panels (e.g., figures, sections of text) need not be uniform, however keeping column widths the same will result in a more pleasing layout (see example 4).

Your poster should start with the abstract and introduction in the upper left corner, and end with the conclusion in the lower right corner. The poster abstract need not be identical to the one appearing in the program; shorten it if possible.

Try to avoid using large paragraphs or blocks of text anywhere on your poster. Separate, individual statements are much easier to read (see example 1).

Do not crowd your poster. Leave space and/or colored borders around individual panels, and plenty of "white" space around text within panels.

How should you proceed if your paper was originally intended for an oral/slide presentation? Planning such a presentation requires thinking of your material as a series of "blocks," each to be represented by a slide (about 15 for a typical 15-20 min talk). The same approach can be used in planning a poster; Make a list of the key points you need to convey, and decide how you want to present each of them (e.g., text, figure, photo, etc.). Once you determine the number, sequence and rough content of these blocks, decide how much of your available space to allocate to each. Then final copy can be prepared for each block without worrying about whether or not all the pieces will fit.

## Production Methods for Titles, Headings and Text

Methods vary widely in cost, availability and time required. Here are some suggestions:

- Typesetting produces very high quality results, but is probably the most expensive approach. Smaller type can be used, and then enlarged photographically or by photocopying.
- Many micro and mainframe computers equipped with plotters can produce lettering of appropriate size and quality. Some high-quality printers may also give good results. But pay attention to letter darkness and heaviness as well as size; printer output may be light, and plotter lines tend to be narrow.
- Kroytype machines, which produce various sizes of lettering on clear, adhesive tape, are good for making titles and headings but not too feasible for large amounts of text. Titles will probably have to be enlarged photographically or by photocopying.
- Press-on lettering can also be used for titles and headings, but extra care is required to achieve proper letter spacing and alignment.
- If stranded on a desert island, you can still produce adequate text, provided you have access to a quality typewriter and enlargement capabilities, either photographically or by photocopying (see example below). Always use a new carbon film ribbon and if possible, a bold or multiple strike option.

The techniques used to produce example 1 are outlined here just to illustrate one possible approach; they can be modified to suit your individual needs:

### **Title and Heading**

- These were produced using a Kroytype machine. Letters were 5/16" tall initially.
- the title was enlarged 154% x 154% x 129% on a photocopy machine to produce about 1" letters, and the heading was enlarged 154% to produce 1/2" letters (154 and 129% are fairly standard options on most enlarging copy machines).

### **Text**

- Text was typed in letter gothic typeface using a carbon film ribbon and a bold (multiple strike) feature.
- Lines were single spaced and 45 characters long, with 10 characters per inch.
- The text was enlarged 154% x 129%, resulting in upper case letters 1/4" tall and lower case letters 3/16" tall, 9" line length and 3 lines per inch.

Photocopying can provide fairly respectable results if a good copy machine is used with quality paper and clean glass (not all these precautions were taken with Example 1, which was also

photocopied again for distribution, but it illustrates the point). Large letters may need to be filled in with a pen or marker after enlarging.

### Use of Color

Color can be used to help organize your poster and make it easier to read as well as more attractive.

- A backing of colored paper for each panel on the poster (extending about 1/2" beyond each edge) is an inexpensive and attractive way to highlight material.
- This is especially helpful if the poster board background color is white. Different colors of backing paper or colored bars down the margin(s) can be used for material in different sections (e.g., methods, results) to help organize the poster.
- Colored tape or yarn stretched between pins can be used as a "pointer" to connect sections of text with key points on figures.
- Colored lines or strips of tape between columns or rows can help guide the viewer through the poster in the proper sequence.

Color can be added by the following methods:

- Markers
- Transparent, adhesive, transfer films
- Colored tape, yarn
- Transfer symbols
- Backing paper
- Many computer plotters have color capabilities
- Photographic conversion onto color print paper\* (Requires the use of an intermediate negative which is then filtered with colors that are the "opposite" of what you want to end up with. Example: A yellow filter will print blue, a green filter will print magenta, etc.).
- Colored lettering or colored backgrounds with white lettering can also be achieved quite easily by photographic processes\*.

\*The following Kodak publications, available from local Kodak stores, will help explain these processes more fully:

Creative Darkroom Techniques, No. AG-18  
Darkroom Expression, No. KW-21

In addition, technical information can be readily obtained from Kodak by calling 1-800-242-2424.

### Poster Assembly

Posters can be either mounted or unmounted:

- Mounted- This gives a neater, more professional look. When mounted, use a lightweight board- approx. 1/16" thick. A 10" x 12" panel will fit comfortably in most

briefcases. The title can be cut in 2-3 pieces, or scored and folded. You can also mount your whole poster on one full-size foamcore or posterboard backing, if you can conveniently transport it to the meeting.

- Unmounted- This is lighter, and panels can be rolled up; a reverse roll will usually fix the curl.

Be prepared to assemble and hang the poster yourself; bring your own supply of the necessary materials:

- Push pins (1/2" shaft) for wood, fiberboard, cork, etc.
- Double sided masking tape for paint, hard surfaces
- "Hold it" plastic adhesive for texture and wall paper
- "Hook" tape (Velcro) for carpet or burlap covered boards
- \*Warning!\* Foam type tape is not recommended; it can easily ruin many surfaces as well as your poster.

Your session chairperson should provide details on poster board size, color and material; if not, be sure to ask. Do not expect them to provide pins, tape, etc.

Plan to use only the easel and allotted board space for your presentation. Do not expect a table, electrical outlet, extra wall space, etc. unless you have cleared this through your session chairperson in advance.

Consider having handouts or sign-up sheets for people interested in more information.

---

Portions of the material presented here were taken from a handout prepared by Bob A. LaFleur of the Eastman Kodak Company.

James A. Rice

# TITLE

ex. 1

## HEADING

A poster may contain a plethora of important and interesting information, but unless it is read by the audience, that information will never be communicated. Here are several tips for producing a successful poster:

Keep text to a minimum, and use large letters in a sans serif typeface (like this).

Avoid large blocks of text; short statements are easier to read than long paragraphs.

Use simple figures with bold lines and large symbols, and avoid tables.

**SAMPLES DEMONSTRATING SEVERAL  
LEGIBILITY FACTORS**

BAD

**INTRODUCTION**

IN THE CIRCULATION. ALBUMIN INTERACTS WITH A WIDE VARIETY OF SUBSTANCES INCLUDING, CALCIUM, BILIRUBIN, HORMONES, DRUGS, ETC. AND THEREBY PLAYS A CENTRAL ROLE IN THE TRANSPORT AND DISTRIBUTION OF THESE SUBSTANCES IN VIVO. IN PARTICULAR, THE DISTRIBUTION OF CALCIUM IN BLOOD HAS BEEN THE FOCUS OF MUCH INTEREST SINCE IT WAS FIRST DEMONSTRATED THAT TOTAL SERUM CALCIUM REPRESENTS THE SUM OF THREE FRACTIONS: FREE, COMPLEXED AND PROTEIN-BOUND. DIRECT KNOWLEDGE OF THE CONCENTRATION OF THESE CALCIUM FRACTIONS AND THE FACTORS WHICH AFFECT THEIR CONCENTRATIONS ARE IMPORTANT IN ORDER TO ATTAIN A MORE COMPLETE UNDERSTANDING OF THE REGULATION OF CALCIUM IN VIVO. TOTAL CALCIUM, PROTEIN CONCENTRATION AND pH ARE SIGNIFICANT VARIABLES IN CONTROLLING THE LEVELS OF PROTEIN-BOUND CALCIUM AND THEREFORE INDIRECTLY FREE CALCIUM. HOWEVER, IT HAS BEEN FOUND THAT THESE VARIABLES MAY NOT BE SUFFICIENT TO ADEQUATELY DESCRIBE THE RELATIONSHIP BETWEEN FREE AND TOTAL CALCIUM IN CERTAIN CLINICAL SITUATIONS.

PRELIMINARY DATA SUGGESTED THAT A DIALYZABLE FACTOR COULD AFFECT CALCIUM BINDING TO ALBUMIN. THIS FACTOR WAS LATER IDENTIFIED AS A LONG-CHAIN FATTY ACID AND QUALITATIVE DATA SHOWED THAT FATTY ACIDS COULD INDEED ENHANCE THE BINDING OF CALCIUM TO ALBUMIN AND THAT REMOVAL OF THE FATTY ACID REVERSED THE EFFECT. THEREFORE, THE PURPOSE OF THIS PAPER IS TO CONFIRM THE EARLIER OBSERVATION AND TO INVESTIGATE THE QUANTITATIVE ASPECTS OF THE CALCIUM BINDING TO HUMAN ALBUMIN IN THE PRESENCE OF VARIOUS FATTY ACIDS AND TO ELUCIDATE THE POSSIBLE MECHANISM OF THE ENHANCED BINDING.

GOOD

**INTRODUCTION**

1. In the serum, 35% of the total calcium is bound to albumin.
2. Free calcium concentration cannot be predicted from the total calcium and albumin levels.
3. Therefore, substances which can alter calcium binding are of potential interest.
4. Previously fatty acids were shown to qualitatively increase calcium binding to albumin.

**PURPOSE**

1. To investigate the qualitative and quantitative aspects of calcium binding to human albumin in the presence of fatty acids with particular emphasis on the nature of the fatty acid, e.g. chain length, degree of unsaturation and cis/trans configuration
2. to elucidate the mechanism of the enhanced binding of calcium to albumin caused by the presence of fatty acids

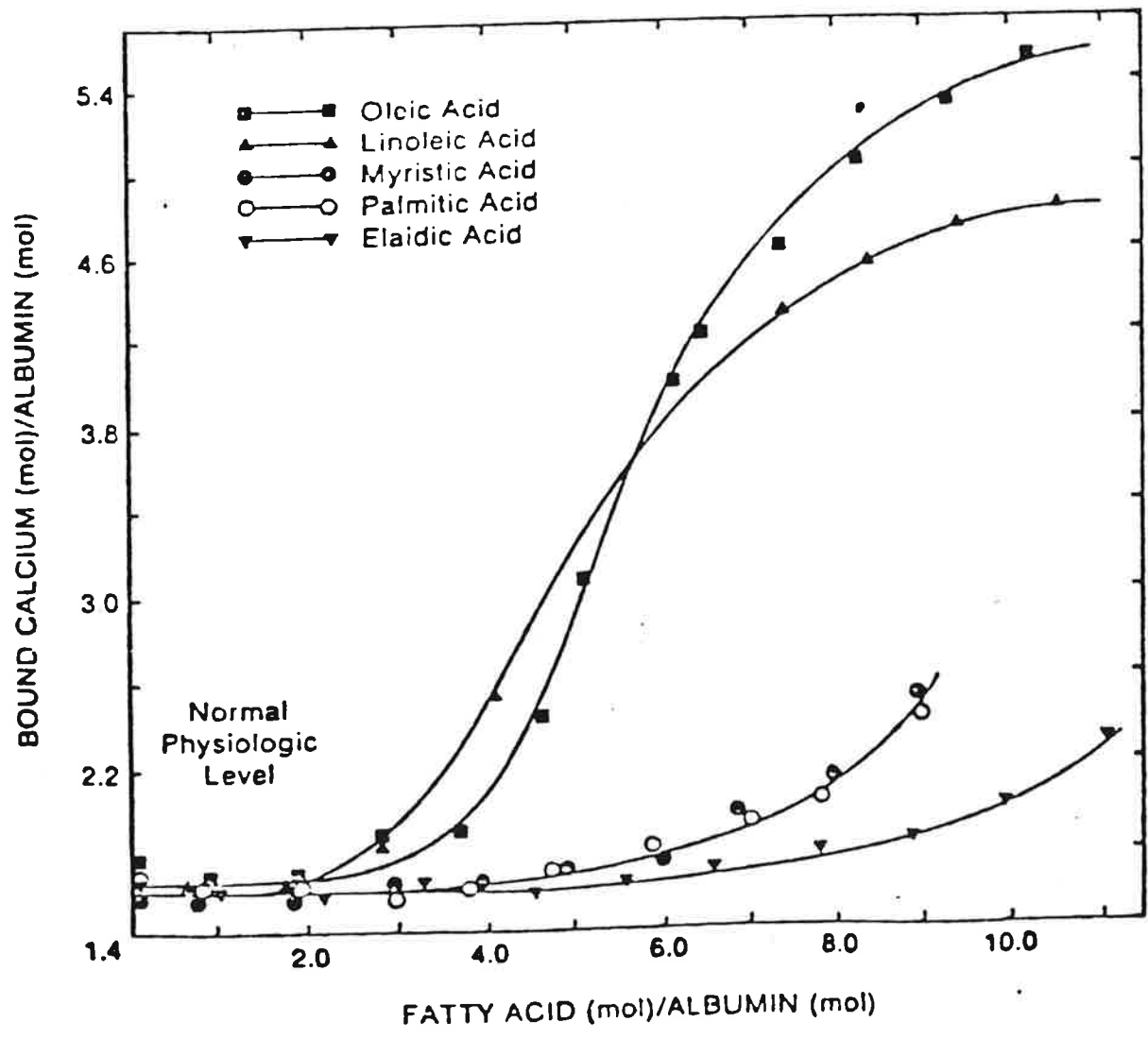


FATTY ACID	FATTY ACID (MOL)/ALBUMIN (MOL)										
	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0
MYRISTIC	1.6	1.6	1.6	1.6	1.7	1.7	1.9	2.1	2.5		
PALMITIC	1.6	1.6	1.6	1.6	1.7	1.8	1.9	2.1	2.4		
ELAIDIC	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.8	2.0	2.3
LINOLEIC	1.6	1.6	1.7	2.0	2.8	3.8	4.6	5.0	5.3	5.5	
OLEIC	1.6	1.6	1.9	2.5	3.2	3.7	4.1	4.4	4.6	4.8	

Example 3

Figure 2

BOUND CALCIUM AS A FUNCTION OF FATTY ACID CONCENTRATION



The fatty acid concentration at which a significant increase in calcium binding occurs is dependent on the nature of the fatty acid.

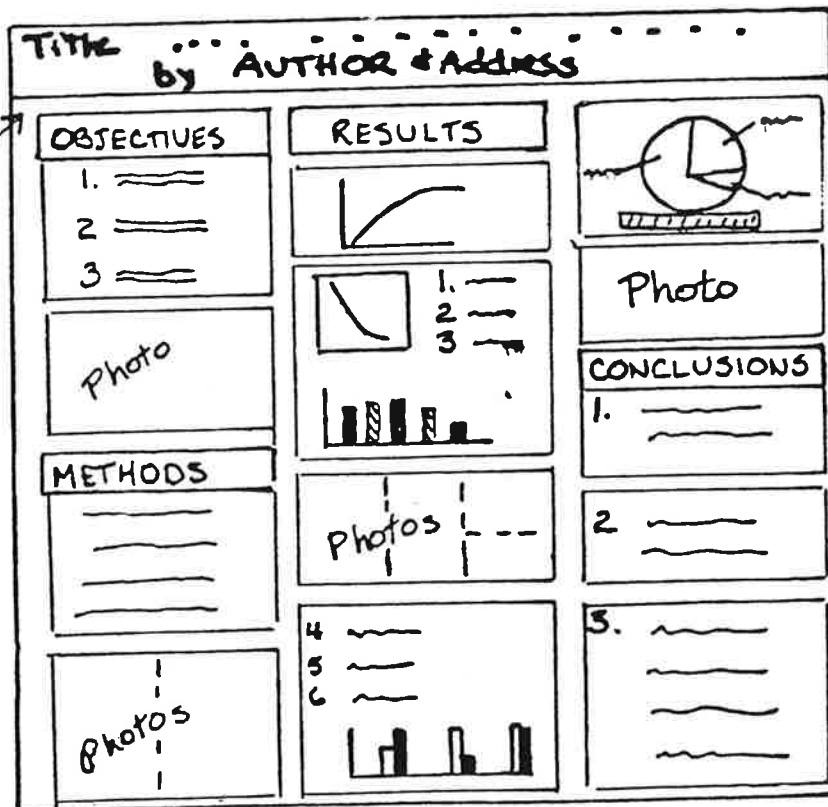
RECEIVED

TRU 100 400

UNIVERSITY OF TORONTO  
LIBRARY

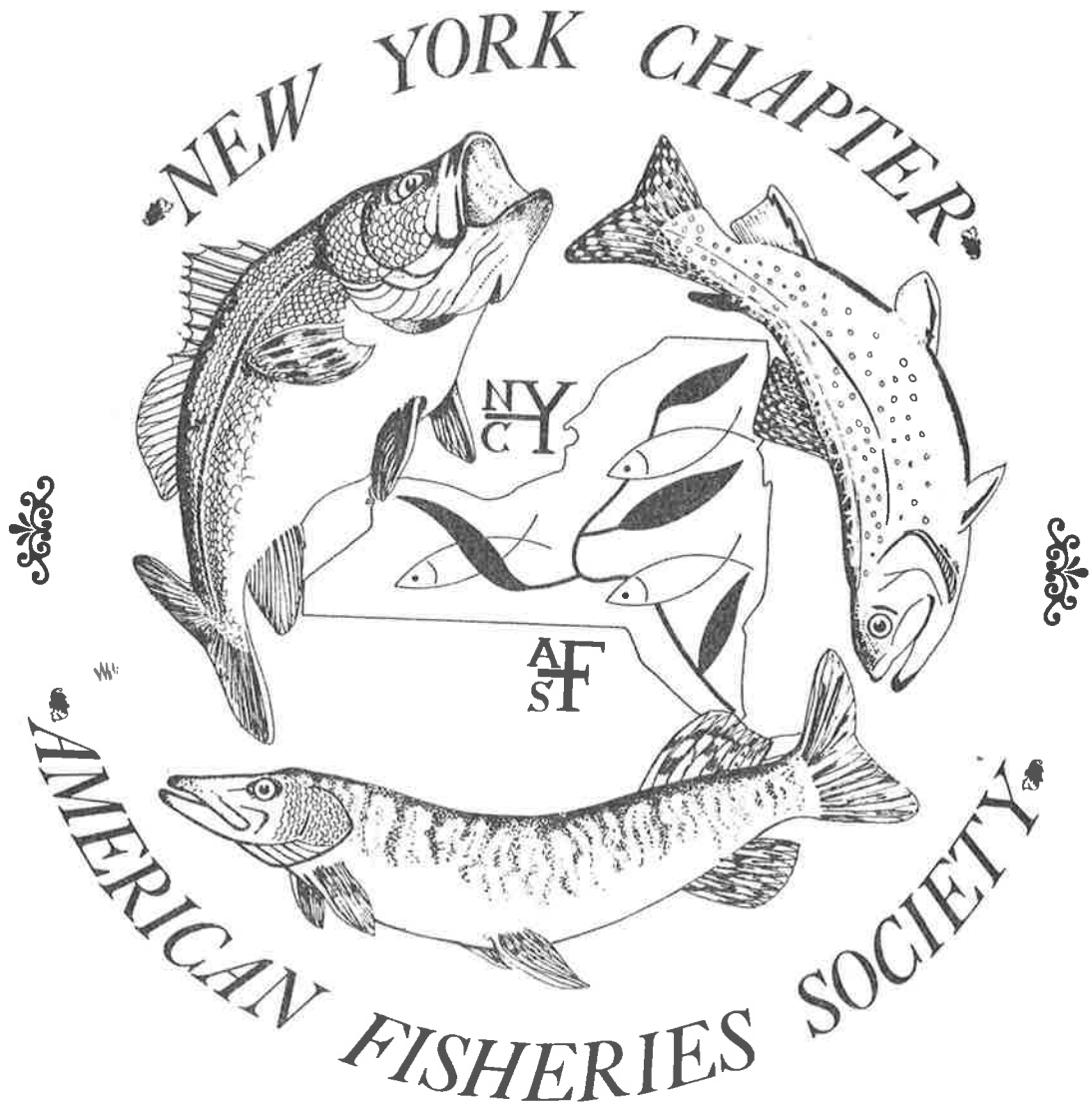
Example 4

*oops!  
Abstract*



ABSTRACTS  
1987 ANNUAL MEETING  
NEW YORK CHAPTER - AMERICAN FISHERIES SOCIETY

30 - 31 JANUARY 1987  
THE BEECHES  
ROME, NEW YORK



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FISH ASSEMBLAGES IN THE DRAINAGES OF NEW YORK.

Robert A. Daniels, Ph.D.

New York State Museum, Albany

Drainage patterns dictate fish distribution. The observed fish assemblage is the result of the climatological, geological and hydrological history of the drainage, the heterogeneity of the available habitat, random factors and the interactions occurring among the fishes present. New York, with its six major drainages, holds a diverse fish fauna. There are over 150 species of freshwater or diadromous fishes reported from the state. Over half of these species are found in three or more drainages and 30% of the species are found in only one drainage. So the assemblages among the drainages tend to be similar, differences swamped by the ubiquity of just a few species. But assemblages do differ among the drainages; it is the rare-species component that distinguishes each system.

In an area, such as the northeast, another factor becomes important. Man has altered many of the systems and has become the single greatest feature affecting fish assemblage structure and distribution. Despite this, assemblages in certain systems have remained fairly stable over the last 5-7 decades (e.g. Schoharie Creek); others (e.g. Allegheny River system) have changed markedly. Often these changes result from the loss of rarer species.

In this review I focus on the differences existing among the drainages and emphasize the rarer species associated with each. I argue that each system must be treated as a unit in order to insure that the high diversity currently found in New York continues.

RESTORATION OF AMERICAN SHAD TO THE SUSQUEHANNA RIVER.

Richard A. St. Pierre

Susquehanna River Coordinator, USFWS

Harrisburg, PA

Bann & Williams

Fishery resource agencies from New York, Pennsylvania and Maryland are working cooperatively with the U.S. Fish and Wildlife Service and four private utility companies to restore American shad to historically important spawning and nursery areas above hydroelectric dams in the Susquehanna River. A trap and lift at Conowingo Dam, MD is used each year to collect prespawn adult shad for transport above all dams to the river at Harrisburg, PA. Additionally, thousands of adults are seined from the Hudson River and transplanted into the north branch Susquehanna. With financial support from the utilities, the PA Fish Commission operates a hatchery on a major Susquehanna tributary. In addition to reseeding nursery waters with spawners and cultured juveniles, numerous research efforts are underway to improve survival of downstream migrant shad past hydroprojects. These include studies of movement, timing and behavior using hydroacoustics, radio-telemetry and attraction/repulsion devices in project forebays. Since all hatchery fish are chemically marked, analysis of autumn collections of outmigrating shad indicate the relative contribution of natural production versus hatchery rearing.

Shad returns to Conowingo Dam have grown dramatically in recent years from an average annual 127 fish per year in the trap throughout the 1970's to a record 5,200 shad in 1986. With most of these fish successfully hauled upstream last year, the addition of 5,000 Hudson adults and a record 16 million shad fry produced at the hatchery, we anticipate continued growth of the stock returning to spawn in the Susquehanna River. Success in this demonstration phase of the restoration program should result in construction of permanent fish passage facilities at all dams capable of eventually supporting an annual run of 2 million shad.

10 yrs to prove restoration can work

1830's re established  
1900's 4 lower dams

1904 York Haven diet not 50%  
1910 Idellwood  
5 has fishery

Conowingo 1928

1932 Safe Harbor

Sus R. fish move left dam  
Hudson R. 4 have lower dams

6000 Hudson Ri to Benwick

53 turbines

PE - 2 more from 1986

16 mil fry 18 day fry

FISH ILLUSTRATIONS OF THE 1926 - 1939 WATERSHED SURVEY  
IN NEW YORK STATE.

Carl J. George, Robert A. Daniels, Ph.D. and Timothy J. Sinnott  
Union College, Schenectady; New York State Museum, Albany; and  
NYSDEC, Albany

In 1926, the New York State Legislature appropriated funds to initiate biological surveys of the watersheds of New York. The biological surveys conducted between 1926 and 1939 were probably the most comprehensive inventories of aquatic resources ever conducted in the United States over so large an area in so short a time. One product of the surveys was a series of fish portraits of especially fine quality. The collection, largely the work of Ellen Edmonson and Hugh Crisp, is comprised of 139 color paintings and one black and white drawing that depict 127 freshwater fishes that inhabit the major river systems of New York. This material is a legacy and resource important to fisheries biologists, other natural historians and natural history illustrators. While the beauty of the paintings is sufficient alone to insure their value, the true significance of the paintings lies in the accurate coloring and anatomical detail. Most of the paintings were published in the annual reports of the Biological Survey, and photographs of the paintings of the more popular game fish have appeared in various Bureau of Fisheries publications; however 32 of the paintings have never been published. New York State is currently contemplating the production of a series of prints, thus making this valuable resource available to the public.

LABORATORY CULTURE TECHNIQUES FOR SIX FRESHWATER MACROINVERTEBRATES.

W. S. Ewell, J. W. Gorsuch, R. J. O'Boyle, and K. A. Robillard  
Eastman Kodak Company, Rochester

Laboratory culture techniques are described for six freshwater macroinvertebrates: the segmented worm, *Lumbriculus variegatus*; the water flea, *Daphnia magna*; the pillbug, *Asellus intermedius*; the sideswimmer, *Gammarus fasciatus*; the snail, *Helisoma trivolvis*; and the flatworm, *Dugesia dorotocephala*. Topics covered include supply water, feeding regimes, rearing tank design, physical requirements for reproduction, and ways to maintain genetic diversity within each colony. Documentation conforming to Good Laboratory Practice Standards, colony histories, and taxonomic verification of the laboratory strains are also discussed. Each of the organisms can be used in acute and chronic aquatic effects testing. Appropriate combinations of these organisms will satisfy three of the five freshwater invertebrate requirements established by the United States Environmental Protection Agency for deriving national water quality criteria.

PRELIMINARY RESULTS OF CHEMICAL AND BIOLOGICAL SURVEYS OF 830  
WATERS WITHIN THE ADIRONDACK ECOLOGICAL ZONE.

David C. Nettles  
Adirondack Lakes Survey Corp., Raybrook

In 1984 the Adirondack Lakes Survey Corporation initiated an intensive survey of waters located in three major watersheds in the Adirondack Ecological Zone. This effort continued through 1985 and resulted in biological, chemical and physical surveys of 830 randomly selected waters.

The waters ranged in size from 0.3 to 287.0 hectares and represented a total of 13176.2 hectares of waters with complete surveys. Twenty-seven percent of the 830 waters sampled were located at elevations above 600 meters.

A total of 830 waters were examined for detailed water chemistry and samples from each ponded water were analyzed for 21 different parameters. Air equilibrated pH ranged from 4.0 to 8.8. Twenty-seven percent of the waters were found to have a pH less than 5.0, 19 % of the waters had a pH from 5.0 to 6.0 and 54 % had a pH greater than 6.0. Acid Neutralizing Capacity (ANC) ranged from -102.4 to 1743.7 ueq/l; however, 85 % of the waters sampled had an ANC equal to or less than 200 ueq/l.

Intensive netting efforts were conducted on 830 waters. Fish were collected in 598 or 72 % of the waters sampled. Twenty-eight percent (332 waters) were found without fish.

Selected data gathered during the 1984 and 1985 field seasons are summarized in this poster, but have not been treated statistically. A complete analysis of the data will occur following the completion of the project.

RESOURCE PARTITIONING IN A STREAM FISH COMMUNITY.

Antonios Pappantoniou, Joseph W. Rachlin and Barbara E. Warkentine  
Herbert H. Lehman College (CUNY), Bronx

A study of the feeding structure of a discrete pool fish community revealed that the three congeneric centrarchids, *Lepomis auritus*, *L. macrochirus*, and *L. gibbosus* had no significant dietary overlap or similarity, and were apparently not in direct competition for the available food resources of the stream. Significant dietary overlap and similarity was found between *L. auritus* and *Semotilus corporalis*, between *L. macrochirus* and *Micropterus salmoides*, and between *L. gibbosus* and *Exoglossum maxillingua*.

Significant dietary overlap and similarity was also found among the bottom feeding *Catostomus commersoni*, *Rhinichthys atratulus*, and *Etheostoma olmstedii*. However, stomach content analysis indicated sufficient diet diversity in all of these fish to allow for the avoidance of competition, in the face of reduced food resources, through the mechanism of preferential prey switching.

ASPECTS OF THE ECOLOGY OF THE TESSELLATED DARTER IN A HUDSON RIVER  
TIDAL FRESHWATER MARSH.

Robert E. Schmidt and Maria Duryea  
Simon's Rock College, Great Barrington, MA

The feeding habits of tessellated darters (*Etheostoma olmstedii* *atromaculatum*) were examined in Tivoli North Bay, Hudson River National Estuarine Sanctuary during July and August, 1986. The most significant food items were Chironomidae larvae, Cladocera, and Copepoda with a variety of invertebrates of lesser importance. The relative importance of the three major food items changed with increasing size of darters such that midges (Chironomidae) became more significant as darters grew.

Darters inhabiting the tidal marsh were almost all young of the year. Older individuals may be inhabiting the main Hudson estuary during the summer. This possible movement of darters out of the marsh as they mature represents an export of biomass from the marshes to the main Hudson estuary.

LIVING LAKES AQUATIC LIMING AND FISH RESTORATION DEMONSTRATION PROGRAM.

Douglas L. Britt  
International Science & Technology, Inc.  
Reston, VA

The acidification of lakes and streams directly affects the management of sport and commercial fisheries. Acidification is not a new phenomenon and its implications for resource managers have been recognized in some parts of the world for decades. The causes of surface water acidification are complex. Among other factors, watershed topography and geochemistry, certain vegetation types, biological productivity, precipitation chemistry and amounts, climate, and industrial/residential atmospheric and aqueous discharges all may contribute to the process.


Now, however, water resources and fisheries managers may obtain the needed technical and financial assistance from a newly formed organization, Living Lakes, Inc. to renovate acid surface waters, and to restore or protect ecologically, recreationally, or commercially important fisheries. Financed largely by donations from public utilities and coal companies, Living Lakes, Inc. is the largest privately sponsored aquatic resources management program in North America.

Fifteen ponds were treated with a slurried calcite in 1986. The calcite (96%  $\text{CaCO}_3$ , 1.5%  $\text{MgCO}_3$ ) was applied by helicopter in a slurry of 60-70% solids. Water chemistry measurements prior to calcite addition were used as inputs to a dose calculation model (DeAcid). Concentration of calcite applied to the lakes ranged from 11.2 to 16.3 mg/l. A post treatment monitoring program consisting of three annual sampling periods were initiated. All samples were collected in duplicate and analyzed for the following parameters: pH, ANC, DOC, Conductivity, total dissolved Al, Ca, Cd, Fe, Mn, Pb, total N, total P,  $\text{SO}_4$ , and  $\text{NO}_3$ . An annual fish survey was initiated prior to calcite addition to determine the presence or absence of target fish species. Fish surveys will be conducted on an annual basis to determine the success of the program.



JUVENILE SMELT (*Osmerus mordax*) DIET IN LAKE ONTARIO.  
Timothy Urban, Sharook Madon, and Stephen Brandt  
SUNY College of Environmental Science and Forestry, Syracuse

Seasonal and diel changes in the diet of juvenile smelt caught in bottom trawls in southeastern Lake Ontario were examined. Young-of-the-year smelt first appeared in bottom trawls in August. At this time zooplankton were the major food items. In October, when the smelt were larger, *Mysis relicta* appeared in the diet but only during the day. When present, *Mysis* accounted for 94% of the diet on a dry-weight basis. During the night, *Gammarus fasciatus* and *Pontoporeia hoyi* contributed the most (>80%) to the diet. Although always present in the stomachs, zooplankton appeared to be important dietary items only during the early morning and evening hours. Cyclopoids, primarily *Diacyclops thomasi*, were the major zooplanktons consumed although in some stomachs *Daphnia retrocurva* was also quite abundant. Seasonal and diel changes in the average size of individual zooplankton taxa were observed. However, actual size-selective predation was not strongly indicated. Diet suggests juvenile smelt may compete with adult alewife (*Alosa pseudoharengus*) in the Great Lakes.



INITIAL IMPACT OF AN EXPERIMENTAL ARTIFICIAL REEF IN LAKE ERIE NEAR  
BUFFALO NEW YORK ON THE FISH COMMUNITY IN THE AREA.

Denise A. Cattarin, James R. Spotila, Charles Merckel, Robert E. Ratajczak, Jr.,  
John Keinath, Debra Barnard Keinath, Cynthia Vernale, and Gary McDannell  
SUNY College at Buffalo

We constructed an experimental artificial reef in Lake Erie 1300 m off Buffalo Harbor. In an ongoing study we are comparing the fish populations on the artificial reef with those on a natural reef and control site. The artificial reef is 200 x 50 ft and is up to 12 ft high. It is composed of concrete slabs (10 x 20 x 1 ft) and was built during September, 1986 at a cost of \$43,000. A pre-reef gill netting study during 1985 and 1986 indicated that the natural reef supported a diverse community of warm-water fishes, especially smallmouth bass (*Micropterus dolomieu*), rockbass (*Ambloplites rupestris*), and yellow perch (*Perca flavescens*). An occasional walleye (*Stizostedion vitreum*) and salmonid were also collected. The control site and artificial reef site provided few fish. These results were supported by SCUBA observations.

After construction of the reef, gill netting in October and November, 1986 produced a variety of fish on the new reef. These included walleye, muskellunge (*Esox masquinongy*), perch and other species. Divers reported the presence of smallmouth bass. Our divers found the reef covered with a layer of silt, apparently the result of the construction activity. We will study sedimentation rates on the reef in 1987. The use of this small artificial reef by sports fish suggests that construction of a major artificial reef in the vicinity of Buffalo will lead to an increase in sports fishing opportunities and an increase in local economy.

THE NEW YORK FISHERIES DATABASE.  
Richard J. Preall and Timothy J. Sinnot  
NYSDEC, Albany

In April 1984, the Biological Survey Unit was formed with assigned task of developing a computer database from the 60 years of paper files that made up the Bureau of Fisheries Watershed Files. The watershed files consisted of more than 426 inches of reports in 38 file drawers. The voluminous nature of the files made it impossible to accomplish complex searches of the data, such as identifying all the waters in the state with a given fish species, or with a given set of physical or chemical parameters. The database, "Model 204", produced by Computer Corporation of America was selected, procedures developed, staff hired, and data encoding began in March 1985. In February 1986, the first data was entered into the computer. Currently, about 35% of the watershed data in the state is on-line in the DBMS. A friendly, menu-driven system encompassing eight of the most frequently used application programs has been developed for routine recurring data searches by non-technical personnel. However, the strength of the database is the capability to conduct complex ad hoc queries of the data that are available. Work is continuing with the goal of having all of the watershed data on line by September, 1988.

EVALUATION OF THE EFFECTS OF FRY STOCKING AND LENGTH LIMITS ON THE  
WALLEYE FISHERY OF ONEIDA LAKE BY USE OF A COMPUTER MODEL.

Russell W. Brown  
Cornell University, Ithaca

A study was made to evaluate the long-term effects of fry stocking and length limits on adult walleye biomass and recreational fishery harvest rates in Oneida Lake. A computer simulation model was constructed based on functional relationships to estimate walleye population dynamics occurring in the lake. Twenty-year simulations were conducted to estimate the long-term effects of management actions on the walleye populations. The model predicted significantly different ( $p < 0.05$ ) walleye standing stocks and angler harvest (numbers and weight) as a result of stocking zero versus 300-million fry. Angler harvest (numbers and weight) was highest and walleye standing stock was lowest when a minimum length limit of 12-inches was in effect, as opposed to an 18-inch limit.

A MICROCOMPUTER BASED ENVIRONMENTAL DATA BASE MANAGEMENT SYSTEM.

Rostyslaw Caryk  
Beak Consultants Inc., Akron

A microcomputer DBMS set up for managing the data base for an EIS program done at the Somerset Power Station on Lake Ontario is demonstrated. The system is set up for easy use by people with minimal computer experience through the use of menus and structured prompts, producing preprogrammed reports or ad hoc queries. The system uses PC/FOCUS as the data base manager and the PC version of BASE SAS and SAS STAT for advanced statistical analysis.

## SKIN TUMORS IN WALLEYES FROM ONEIDA LAKE, NEW YORK.

Paul R. Bowser, Ph.D. and Gregory A. Wooster  
Cornell University, Ithaca

A number of skin tumors have been reported for walleyes from Oneida Lake, New York. These include lymphocystis (not a true neoplasm), dermal sarcoma, discrete epidermal hyperplasia and diffuse epidermal hyperplasia. This report will describe our preliminary findings of tumor prevalence with regard to time of year, water temperature, size of fish and host response. Examination of 1038 walleyes captured from Oneida Lake with trapnets, gillnets, and trawls revealed the following:

- a) tumor prevalence was high in the spring, low during the summer and high in the fall;
- b) prevalence of tumors decreased as water temperature increased;
- c) no tumors were observed on fish less than 250 mm total length; above 250 mm prevalence of tumors increased with size; and
- d) host reaction to tumors was least developed in the fall and most developed in the spring and summer.

## CULTURE OF FATHEAD MINNOWS IN THE LABORATORY

Stephen W. Duda, Joseph K. Buttner, Ph.D, and William S. Ewell  
SUNY College at Brockport and Eastman Kodak Co., Rochester

The fathead minnow (*Pimephales promelas*) is commonly used in toxicological studies. Although techniques to culture the minnow in ponds are well documented, techniques for its culture in the laboratory are less well known. Fathead minnows have been maintained through 2 generations under controlled environmental conditions (20-25 C; 16h light; 8h dark) in the Wet Laboratory at SUNY Brockport. Fish are cultured in recirculated systems; 2 units for adult fish (segregated by sex), 1-2 units for subadult fish and juveniles, and 1-2 units for breeding fish. Each unit consists of a 8x2x1 ft trough and a 2.6 cu ft biological filter composed of 1-3 in gravel and crushed oyster shells. Water flows by gravity from the trough to the biofilter and is returned to the trough at a rate of 3-8 gal/min by a submersible pump. The recirculated systems require less maintenance (5-10 min/day/unit) and promoted better survival and growth than static units. Consistent reproduction is usually obtained within 7 days after 4 males and 8 females are introduced to a breeding unit. Hormonal injection (10 IU Human Chorionic Gonadotropin, intracoelomically) promoted earlier spawning and increased egg deposition. Feeding studies using *Artemia*, 3 different prepared feeds, and controls (no food) were run with <24-hr old fry and terminated after 30 days. Best survival (>86%) and growth were obtained with *Artemia*; survival with prepared foods was poor (<20%). There was no apparent benefit from combining *Artemia* and prepared feeds. Techniques used to spawn and rear fathead minnow in the lab may be applied to other species.

EFFECT OF THE SMALL BOAT HARBOR MARINA ON THE FISHERY OF  
BUFFALO HARBOR, LAKE ERIE.

Robert E. Ratajczak, Jr., Denise A. Cattarin, David Adrian, Kurt Bogenreider,  
Charles Merckel, Scott Pickard, Cynthia Vernale, and James R. Spotila  
SUNY College at Buffalo

The Small Boat Harbor and related South Area are the only sizeable shallow water embayments on Lake Erie in Erie County, New York. These areas support a diverse warmwater fish community containing many important sports fish. In 1986 we sampled these areas in spring and summer with gill nets and electroshocking techniques. Both of these areas had 19 species of fish. The South Area had 8 species of sports fish while the marina area had 10 species. Fishes of particular importance included muskellunge (*Esox masquinongy*), northern pike (*Esox lucius*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), pumpkinseed (*Lepomis gibbosus*), rock bass (*Ambloplites rupestris*), and yellow perch (*Perca flavescens*). Both areas were spawning grounds for muskellunge and northern pike. Walleye (*Stizostedion vitreum*) are occasionally present but do not appear to spawn here.

The overall fish community structure in the Small Boat Harbor has not been adversely affected by the activities associated with the construction and operation of the marina. It is essentially the same species and similar numbers as are present in the more open South Area. The Small Boat Harbor could be further improved as a fish habitat by improving water circulation from the outer harbor through the breakwall and by restoring spawning grounds and nursery grounds along the shoreline.

ACOUSTIC ASSESSMENT OF FISH ABUNDANCE IN SMALL LAKES; EFFECTS OF FISH  
AND ZOOPLANKTON DENSITIES.

Philip A. Unger, Stephen B. Brandt, Ph. D. and Gregory Yogis  
SUNY College at Oswego and SUNY College of Environmental Science  
and Forestry, Syracuse

Acoustic assessment of fish abundances were conducted in 9 lakes of the Adirondack region (New York) and northern Wisconsin during summer and fall, 1985. Lakes ranged in size from 5 to 87 ha and in maximum depth from 7 to 25 m. Our objectives were to evaluate hydroacoustic procedures for small-lake studies and to identify potential sources of error and variance in abundance estimates. Acoustic estimates of fish abundance varied greatly with season. During summer, when the lakes were thermally stratified, fish aggregated in the thermocline and were thus in deep water and off the bottom. After fall turnover, the fish either migrated to shallow water or moved toward the bottom. Therefore, summer was more suitable than fall for acoustic assessment of fish stocks. Time of day also affected acoustic measurement. Fish were more dispersed at night than during day, and thus sampling variance was lower at night. Also, fish were generally off the bottom at night. Strong plankton scattering layers were often present at night during summer but generally not after fall turnover. These scattering layers often interfered with efforts to measure fish abundance, particularly when the planktonic dipteran, *Chaoborus*, was abundant. We conclude that acoustic techniques can be used effectively for assessments of fish stocks in small lakes, but that temporal variations in the distributions of fish and plankton greatly affect data reliability and statistical validity.

## WAS 1986 A BAD YEAR FOR ADIRONDACK HEADWATER STREAMS?

Howard A. Simonin and Paul Van Valkenburg  
NYSDEC, Rome Field Station, Rome

The water chemistry of six adirondack headwater streams has been monitored during the ice-free months since 1983. The monitoring is part of an effort to document the effects of changes in acidic deposition levels on our aquatic resources. Alkalinity, conductivity, pH, and color were measured each year over a range of flow conditions. Values were then plotted and compared to previous years data. Headwater streams respond quickly to changes in deposition levels, and water chemistry changes are directly correlated with changes in stream flow.

During the summer of 1986, the Big Moose region of New York received higher than average amounts of precipitation. This increased precipitation resulted in increased levels of sulfur deposition over the same period. This increased precipitation and sulfur deposition were reflected in the water chemistry of the the study streams. Stream flow remained high throughout the summer of 1986, and the stream water was more acidic than in previous years. The highest measured pH during 1986 was a full pH unit lower than previous years in several of the study streams. Streams which in past years became acceptable brook trout habitat during the summer low-flow months, remained acidic throughout the summer of 1986.

## BLACK RIVER SALMON FISHERY CREEL SURVEY REPORT 1982 - 1985.

W. H. Gordon, R. D. McCullough, and D. E. Richardson  
NYSDEC, Watertown

Fishing effort on the Black River during fall salmon runs increased steadily from 1982 through 1985. During the fall of 1985, the river provided an estimated 25,108 angler days of recreation. Catch rates along with numbers of salmon harvested have also increased over the four year period due to increases in angler effort and numbers of fish available. The largest salmon harvest of 20,661 fish was recorded in 1984. Anglers using snatching techniques fished slightly more days and had significantly higher catch rates than anglers using traditional techniques. The number of anglers utilizing the Black River fishery from outside the Jefferson County area has increased with approximately 70% of the anglers in 1984 and 1985 included in this group.

RELATIONSHIPS OF FLUCTUATIONS IN ABUNDANCE AND DISTRIBUTION OF  
NORTH-EASTERN FISH STOCKS TO CHANGES IN MARINE CLIMATE.

Peter M. J. Woodhead  
SUNY College at Stony Brook

Using commercial fishery catch statistics from the last half century, it is shown that large changes in annual catch which have occurred, appear related to changes in sea temperature. Data analysis suggests that for some fishes of the New York Bight changes in marine climate (temperature) may account for as much as half of the variability in the annual catches of the trawler fleet.

ECONOMIC VALUES ASSOCIATED WITH CHARTER AND PARTY BOAT  
ANGLERS ON LONG ISLAND.

James R. Kahn, Ph.D.  
SUNY College at Binghamton

This paper examines the economic value of charter and party boat fishing on Long Island, by utilizing data collected from intercept surveys. Two types of value estimates are computed. These are total expenditures and consumers' surplus. Consumers' surplus is the value obtained by recreational anglers in excess of the costs of producing the activity. The consumers' surplus is calculated by employing travel cost demand function methodologies.

SIZE AND AGE COMPOSITION OF THE OPEN BOAT RECREATIONAL FISHERY FOR  
SUMMER FLOUNDER, *Paralichthys dentatus*, IN GREAT SOUTH BAY, LONG ISLAND,  
NEW YORK.

R. E. Casteneda and K. R. BuBois  
NYSDEC, Stony Brook

Summer flounder, *Paralichthys dentatus*, were measured aboard open charter boats in Long Island's Great South Bay during 1985 and 1986. Anglers and crew cooperated in allowing us to measure all fish caught, and take scale samples from both "keeper" and short summer flounder. Seasonal mean catch per angler hour was .57 and 1.10 for 1985 and 1986, respectively; while "keeper" (14 in or greater) CPUE was .30 and .21, respectively. Catch per effort varied widely but showed no overall decrease throughout the season. Percent length frequency was calculated and age was read from the scale samples on 567 fish. Preliminary age readings indicate that 1+, 2+, 3+, 4+ and 5+ age summer flounder make up 7.4, 73.1, 17.1, 2.3 and 0.2 percent of the catch respectively, with almost no 3+ or older from mid August on. Starting with the first week in August, 1+ fish (17-28 cm) are taken. Length frequencies indicate an extremely sharp decline in numbers of fish available to the sport fishery after they reach 14 in (356 mm). This is comparable to results shown by Poole in 1958-59, though more pronounced. These data indicate a heavily exploited population and a fishery strongly dependent on each year class having good spawning success.

MOVEMENTS AND GROWTH OF YEARLING STRIPED BASS IN THE MARINE DISTRICT  
OF NEW YORK AND THE POTENTIAL VALIDATION OF HUDSON RIVER  
YOUNG-OF-THE-YEAR INDICES.

Byron H. Young  
NYSDEC, Stony Brook

Data from a seine survey designed to capture yearling and older striped bass in New York's Marine District are used to validate the Hudson River young-of-the-year striped bass indices. Preliminary analyses of the data are encouraging. Seine data suggest that yearling striped bass move into the marine waters in the early spring and by early to mid summer can be found in the south shore coastal waters of Long Island. These data also demonstrate that occasionally young-of-the-year striped bass leave the Hudson estuary. Growth rates for the yearling fish indicate a slow steady rate through mid July and then an accelerated rate through late August. Size and age structure of the striped bass captured suggest that the in-shore waters around western Long Island are a nursery area for striped bass.

SHELLFISH SANITATION IN NEW YORK.

James Redman  
NYSDEC, Stony Brook

Since at least 1900, New York State has conducted sanitary examinations of shellfish lands to determine their public health safety for the harvesting of shellfish for use as food. Initially, this work was done, cooperatively, by the New York State Conservation Commission and the New York State Department of Health. Later, the examinations became the responsibility of the Conservation Department and, from 1969 to the present, the Department of Environmental Conservation (DEC).

New York State Law requires DEC to periodically examine all shellfish lands in the Marine District. The Marine District is defined in law as the Hudson River south of the Tappan Zee Bridge, all tidal waters of the state, and the Atlantic Ocean within three miles of the coastline. The District contains over 1,000,000 acres of shellfish lands. Following an examination, DEC is required to designate shellfish lands as Certified (safe for the harvesting of shellfish for use as food) or Uncertified (potentially unsafe for the harvesting of shellfish for use as food).

Criteria and standards which certified shellfish lands must meet are established by the National Shellfish Sanitation Program (NSSP). This is an organization comprised of the regulatory agencies of all shellfish producing states and the shellfish industry. It is administrated by the U.S. Food and Drug Administration.

The goals of the NSSP are to protect the public health and to provide uniform procedures for states to examine shellfish lands.

Currently, approximately 200,000 acres of shellfish lands in New York State are designated as uncertified because of bacterial contamination. Sources of the contamination have been identified as antiquated sewage treatment plants, boat toilet wastewater discharges, and stormwater run-off.

DEC licenses all persons who harvest shellfish for commercial purposes and all wholesale shellfish dealers. DEC has an inspection program for dealers to monitor their compliance with shellfish sanitation rules.

## OYSTER CULTURE AND NEW YORK'S OYSTER INDUSTRY.

Robert E. Malouf, Ph.D.  
SUNY College at Stony Brook

The oyster industry of New York has declined over the past half century from the state's dominant shellfishery to near extinction in 1986. The causes for this decline include environmental changes in part caused; by the increasing population of Long Island; by inlet modifications and dredging generally leading to increased salinities; by catastrophic disease outbreaks (MSX in particular); and by poor management of oyster growing grounds. Even a cursory view of the oyster's life cycle show the opportunity for manipulating that cycle in culture. Current oyster culture practises on Long Island include the use of hatcheries and intensive nursery systems. Recent research emphasis at SUNY Stony Brook has been place: 1) on documenting and improving hatchery operations; 2) on studies of the behavior of selected predators (mud crabs and lady crabs) in an effort to control their impact on cultured bivalves; and 3) studies of feeding and growth of oysters in Long Island Sound. Among other findings, studies of a commercial oyster hatchery suggest that problems in maintaining accurate accounting of the number of animals being held at each stage of the culture process (hatchery through harvest) can result in serious planning and marketing difficulties. On-going studies of predation (being directed now by Dr. Peter Lawton) suggest that substrate plays an important part in the activity of crabs and that it may be possible to use the crabs' predators (e.g. toad fish) to control their activity and thereby limiting their impact on cultured shellfish. Studies of oyster growth in L.I. Sound showed that growth was greatest among animals cultured within 1 m of the surface and that phytoplankton abundance, not total particulates, determined oyster growth.

## ASSIGNMENT OF DISSOLVED OXYGEN MINIMA AND UN-IONIZED AMONIA MAXIMA FOR FISH CULTURE.

Richard W. Soderberg, Ph.D.  
Mansfield University, Mansfield, PA

Depletion of dissolved oxygen (DO) and accumulation of un-ionized amonia ( $\text{NH}_3$ ) are the two most important factors determining the production capacity in flowing-water fish culture. A review of the effects of hypoxia on fish is presented, along with recommendations for assignment of minimum DO tensions that result in a satisfactory compromise between fish quality and quantity. The reported chronic effects of  $\text{NH}_3$  on fish are reviewed and the process of assignment of a maximum allowable level is discussed.



THE ROLE OF INSTITUTIONS OF HIGHER EDUCATION IN A  
DEVELOPING AQUACULTURE INDUSTRY.

William D. Youngs, Ph.D.  
Cornell University, Ithaca

Current consumer awareness of the nutritional benefits of fish will lead to an increase of fish products in the diet of the average US person. This increase consumer demand will likely stimulate an increase in aquaculture since most major natural fisheries are presently over-harvested. The role academic institutions could play in a developing aquaculture industry is in the areas of teaching, extension and research.

Although specific material will be dependent upon species and method of culture, there will be a need for programs teaching aquaculture at both the technical and graduate levels. The need for people trained in the daily operation of aquaculture facilities and hatchery management exists and could be satisfied by developing programs at technical colleges. There is an apparent need for academic-clinical training leading to degrees in health management. Less apparent, but equally needed are personnel trained in fish nutrition, water quality management, engineering, business management and marketing as they apply to aquaculture.

The role for extension will be a critical one during the development phase of aquaculture and will continue to be necessary in a maturing industry. Training opportunities providing background information on aquaculture to county agents will be necessary; a demand will be created for specialists in a number of areas such as water quality, engineering, marketing and biology, to provide on site guidance and advice. As research in aquaculture develops, there will be information produced which will be provided to the aquaculturists through the extension network.

Research projects will in large measure be dictated by the specific types of aquaculture undertaken and may in turn lead to the development of certain types of aquaculture. Opportunities for additional work in genetics, fish nutrition as related to broodstock, water quality, processing and marketing, and system optimization and control are general areas for research which could apply to any specific aquaculture.

J. Hasse - Reg 4



NEW YORK CHAPTER — AMERICAN FISHERIES SOCIETY

February 10, 1987

Mr. Robert A. Boice  
R.D. #2  
Archer Road  
Watertown, NY 13601


Dear Bob:

I wish to thank you for your comments on the public perceptions and perspectives on chemical contaminants and human health presented at our annual meeting. Your thoughts were to the point, well taken, and provide a good basis for agency thought and action.

If I may impose on you, I would appreciate a copy or written summary of your comments so that I may appropriately consider them in the development of a Department program plan for contaminant surveillance of fish and wildlife. I am organizing the plan at the present time and your comments would be very helpful.

Again, on behalf of the New York Chapter of the American Fisheries Society, thanks, Bob, for helping to make our panel a success.

Sincerely,

  
Lawrence C. Skinner

cc: R. Lange  
J. Hasse ✓  
A. Kahnle  
D. Miller



NEW YORK CHAPTER — AMERICAN FISHERIES SOCIETY

February 10, 1987

Dr. Helen Daly  
Psychology Department  
SUNY @ Oswego  
Oswego, New York

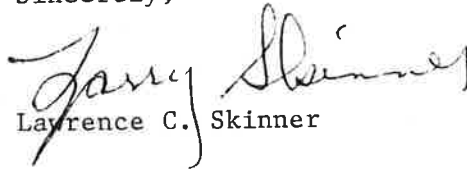
Dear Dr. Daly:

I wish to thank you for your discussion of rat learning as it is affected by ingestion of Lake Ontario fish which was presented at our annual meeting. This appears to be a new avenue of research of potentially significant benefit to the health community and for providing understanding of the impacts of xenobiotics in our diet.

As per our discussion, we in the Department of Environmental Conservation are interested in assisting your efforts. A meeting to discuss the potential approaches would be beneficial.

Again, on behalf of the New York Chapter of the American Fisheries Society, thank you for an enlightening discussion.

Sincerely,

  
Lawrence C. Skinner

cc: R. Lange  
J. Hasse  
A. Kahnle



NEW YORK CHAPTER — AMERICAN FISHERIES SOCIETY

February 10, 1987

Dr. David Hertzler  
Psychology Department  
SUNY @ Oswego  
Oswego, New York

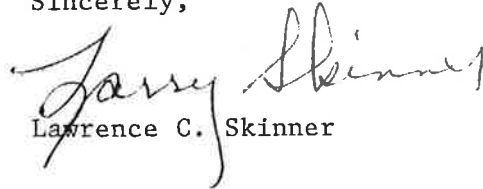
Dear Dr. Hertzler:

I wish to thank you for your discussion of rat learning as it is affected by ingestion of Lake Ontario fish which was presented at our annual meeting. This appears to be a new avenue of research of potentially significant benefit to the health community and for providing understanding of the impacts of xenobiotics in our diet.

As per our discussion, we in the Department of Environmental Conservation are interested in assisting your efforts. A meeting to discuss the potential approaches would be beneficial.

Again, on behalf of the New York Chapter of the American Fisheries Society, thank you for an enlightening discussion.

Sincerely,

  
Lawrence C. Skinner

cc: R. Lange  
J. Hasse  
A. Kahnle



NEW YORK CHAPTER — AMERICAN FISHERIES SOCIETY

February 10, 1987

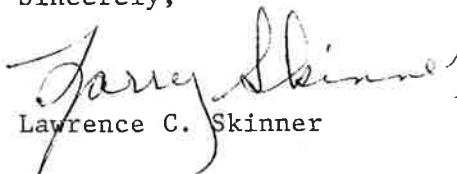
Dr. Anthony Grey  
New York State Department  
of Health  
Bureau of Toxic Substances  
Assessment  
Empire State Plaza  
Corning Tower  
Albany, New York 12237

Dear Tony:

I thank you for your review of Health Department procedures for development of advisories for fish and wildlife which you presented at our annual meeting. Your discussion provided the necessary background for helping to understand the integration health research with practical elements, e.g. contaminants, with which we deal everyday.

Thanks, Tony, for helping to make our meeting a success.

Sincerely,

  
Lawrence C. Skinner

cc: R. Lange  
J. Hasse  
A. Kahnle  
N. Kim



NEW YORK CHAPTER — AMERICAN FISHERIES SOCIETY

February 10, 1987

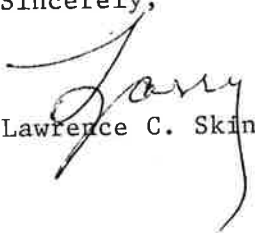
Dr. Edward G. Horn  
NYS Department of Environmental  
Conservation  
Bureau of Environmental Protection  
Room 530  
50 Wolf Road  
Albany, New York 12233-4756

Dear Ed:

Thanks for doing a superb job of organizing and presenting comments on the issue of contaminants and natural resources management at our annual meeting, especially since you had such little prior notice. Your remarks were cogent and relevant to the issue. I received a number of favorable remarks from an appreciative audience.

On behalf of the New York Chapter of the American Fisheries Society,  
Thanks Ed.

Sincerely,

  
Lawrence C. Skinner

cc: G. Barnhart  
R. Lange  
J. Hasse  
A. Kahnle



NEW YORK CHAPTER — AMERICAN FISHERIES SOCIETY

February 10, 1987

Dr. Harold Humphrey  
Science Liaison Coordinator  
Department of Public Health  
3500 N. Logan  
P.O. Box 30035  
Lansing, Michigan 48909

Dear Dr. Humphrey:

I have received many favorable comments about your review of the current state of knowledge of PCB impacts on humans via fish consumption. It certainly was most informative and thought provoking. I thank you for your knowledge and for coming from Michigan to New York to share this information at our annual meeting.

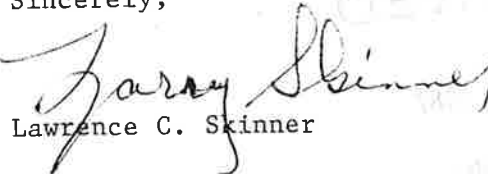
An Indonesian graduate student at the State University of New York at Brockport has requested materials which formed the basis for your discussion. Please forward this information to:

Joutje A. Koapaha  
11 High View Circle  
Brockport, New York 14420

As per our discussion regarding financing, please forward your receipts to me for reimbursement of expenses. Jack Hasse, our Secretary-Treasurer, will issue you a check for same.

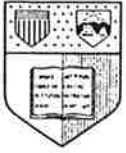
Again, on behalf of the New York Chapter of the American Fishery Society, thank you for a most enlightening discussion.

Sincerely,

  
Lawrence C. Skinner

cc: R. Lange  
J. Hasse  
A. Kahnle  
J. Koapaha

RECEIVED FEB 18 1987



New York State College of Agriculture and Life Sciences  
a Statutory College of the State University  
Cornell University

Department of Natural Resources  
Fernow Hall, Ithaca, N. Y. 14853-0188

Fishery Science  
Forest Science  
Wildlife Science  
Natural Resources  
Resource Policy  
and Planning  
Aquatic Science

February 16, 1987

MEMO TO: M. Duttweiler, D. Van Ryn, J. Lassoie

FROM: Barbara A. Knuth *B.A. Knuth*

RE: Meeting Minutes, NYAFS Ad Hoc Committee on the  
Status of Women and Minorities in Natural  
Resources

At our 13 February 1987 meeting, several needs and associated actions were identified. We decided the initial foci of this group will be 1.) to encourage involvement from The Wildlife Society and Society of American Foresters Chapters in New York, and 2.) to compile a cursory assessment of the status of women in natural resources in education and employment.

Actions we will take include:

- 1.) Knuth will contact TWS National Office for statistics available regarding women's participation in wildlife-oriented education in New York.
- 2.) Van Ryn will contact SAF for similar information.
- 3.) Knuth will contact C. Moffitt, AFS Membership Concerns Committee, to determine the extent of activities taken by AFS Parent Society paralleling the efforts of this group.
- 4.) Duttweiler will seek out employment statistics for women in natural resource professions from appropriate civil service offices.
- 5.) Van Ryn will make initial contact with NYTWS to inform them of our general intentions.



6.) Knuth will draft letter, incorporating these statistics and any "national" directives available from SAF, TWS, AFS, to ask for support, recognition, volunteers from NYTWS and NYSAF chapters. Draft will be circulated for comments before it is sent out. Those with a copy of national directives should share with Knuth.

Future activities discussed included 1.) a more comprehensive survey of the entire employment situation focusing not only on state agencies, 2.) a survey of women and minorities who begin in natural resource education but do not seek natural resource employment, and 3.) eventually proposing actions for the three societies to take to address any issues identified in the cursory and more comprehensive surveys.

BAK/lo

cc: Bob Lange ✓



New York State College of Agriculture and Life Sciences  
a Statutory College of the State University  
Cornell University

Department of Natural Resources  
Fernow Hall, Ithaca, N. Y. 14853-0188

*Referred to Chapter Envir. Concerns  
Committee*

*Jack Hasse*

Fishery Science  
Forest Science  
Wildlife Science  
Natural Resources  
Resource Policy  
and Planning  
Aquatic Science

February 17, 1987

MEMO TO: Presidents, American Fisheries Society Chapters  
FROM: Barbara A. Knuth, Chair, AFS Environmental  
Concerns Committee  
RE: Environmental Issues of Society and Membership  
Concern

*Barbara A. Knuth*

The Environmental Concerns Committee of the American Fisheries Society traditionally canvasses all subunits of the Society for nominations of issues of Society and membership concern. We solicit and encourage nomination of issues for which the Society should develop position statements. Person(s) nominating issues should be willing to lead the development of the position statement, however, the ECC will assist in finding a core group to aid in developing the statements. People with issues which they would like to see addressed by AFS/ECC should write to me or call and leave a message by March 4, 1987.

Society positions have been or are being developed on the following issues:

- Human Population Growth and Technology - Fisheries 4(2)
- Nonpoint Source Pollution - Fisheries 4(2)
- Sedimentation - Fisheries 4(2)
- Cumulative Effects of Small Modifications to Habitat - Fisheries 4(2)
- Effects of Toxic Substances in Surface Waters - Fisheries 4(5)
- Acidic Precipitation - Fisheries 5(6)
- Coping with Point Source Discharges - Fisheries 5(6)
- Effects of River and Streamflow Alteration on Fishery Resources - Fisheries 7(2)
- Protection of Threatened and Endangered Aquatic Species - Fisheries
- Beverage Container Legislation - Fisheries 9(3)
- Construction and Operation of Oil and Gas Pipelines - Fisheries 9(3)
- Effects of Surface Mining on Aquatic Resources in North America - Fisheries 8(6)

Strategies for Stream Riparian Area Management -  
Fisheries 10(4)  
Introductions of Aquatic Species - Fisheries 11(2)  
Tidal Power Development - Fisheries 11(4)  
Outer Continental Shelf Oil and Gas Development  
Cumulative Effects of Small Hydroelectric Facilities  
Water Quality Criteria for Fish  
Abandoned Mineland Reclamation  
Gas Supersaturation

We will list your submitted ideas and present them to the  
AFS Excom for prioritization at the Mid-term meeting  
March 6-7. Please return your suggestions to me by  
4 March, 1987. Thank you.

Barbara A. Knuth, Chair  
Fernow Hall  
Department of Natural Resources  
Cornell University  
Ithaca, NY 14853  
607-255-2822

BAK/10



*American Fisheries Society*

SHELBY D. GERKING  
President 1986-1987

CARL R. SULLIVAN  
Executive Director

PAUL BROUHA  
Deputy Director

TO: AFS Chapter Presidents

FROM: Carl Sullivan and Paul Brouha

SUBJECT: Effects of Proposed Transfer of \$25 million from the Wallop/Breaux Trust Fund to the Fish and Wildlife Service's resource management budget

We include a news release and a projection of what each state stands to lose in FY'88 if \$25 million is transferred from the Wallop/Breaux Trust Fund to assist basic operation of the Fish and Wildlife Service.

Please bring these facts to the attention of the news media in your area. You might make the release more specific by pointing out the effect in your state(s) (what projects might be at risk). Also please note that the boating interests are totally opposed to this transfer proposal and that they too wish to see this well-accepted user fee dedicated for the specific benefit of anglers and boaters.

CS&PB/sb  
Enclosures

**INTERIOR FY'88 BUDGET PROPOSAL CALLS FOR  
\$25 MILLION TRANSFER OF WALLOP/BREAUX FUNDS**

Washington, D.C. (January 5) -- The Department of the Interior's FY'88 budget proposal, calls for a "one-time" transfer of \$25 million from the Wallop/Breaux Trust Fund to the Fish and Wildlife Service's resource management budget. Proceeds from the Wallop/Breaux account, according to Interior estimates, will total \$174 million in 1988. Interior would disperse only \$149 million to the states.

The American League of Anglers and Boaters (ALAB) and the American Fisheries Society (AFS) believe Interior's projection is high, but supports disbursement of the full amount available to states for programs to restore, enhance and manage sport fishery resources. The availability of Wallop/Breaux Funds (which must be matched with state money) has had a significant positive impact on the protection and improvement of fishing and boating opportunities in the United States. State level actions to raise new matching funds through licensing programs have given even greater impact to the program.

The Fish and Wildlife Service already receives a percentage of total Wallop/Breaux funds to cover administrative costs. The proposed \$25 million transfer in FY'88 would go into the Fish and Wildlife Service's basic operating account for general "program responsibilities related to wildlife and fisheries." This transfer violates the basic user fee principle ALAB and AFS supports: the boaters and fishermen who agreed to contribute to the fund through excise taxes on fishing tackle and motorboat fuel taxes should be the direct beneficiaries.

The Wallop/Breaux Fund is designed to provide money to the 50 states for specific projects enhancing boating and fishing opportunities -- improving access to lakes and rivers and improving the fishery resource -- not to balance the federal budget. This turns a well-accepted fishing program into a hidden tax.

The Wallop/Breaux amendments to the Dingell/Johnson Fund legislation in 1984 resulted in significant increases in the level of funding. Monies collected rose from \$39 million in FY1984 to \$141 million in FY1986. The program survived strong attempts mounted in 1985 to remove a large portion of the newly-allocated monies.

Although the Administration expresses support for the continuation of the Wallop/Breaux program, AFS and ALAB are concerned about the future of Wallop/Breaux and similar recreation programs if transfers such as the one proposed are allowed to occur.

	TOTAL
ALABAMA	422,338
ALASKA	1,250,000
ARIZONA	544,342
ARKANSAS	420,468
CALIFORNIA	1,250,000
COLORADO	617,972
CONNECTICUT	250,000
DELAWARE	250,000
FLORIDA	557,960
GEORGIA	504,010
HAWAII	250,000
IDAHO	435,097
ILLINOIS	566,727
INDIANA	398,373
IOWA	366,544
KANSAS	365,345
KENTUCKY	398,747
LOUISIANA	410,903
MAINE	250,000
MARYLAND	250,000
MASSACHUSETTS	250,000
MICHIGAN	915,985
MINNESOTA	919,361
MISSISSIPPI	350,864
MISSOURI	637,595
MONTANA	561,757
NEBRASKA	319,490
NEVADA	391,927
NEW HAMPSHIRE	250,000
NEW JERSEY	250,000
NEW MEXICO	451,418
NEW YORK	617,855
NORTH CAROLINA	361,642
NORTH DAKOTA	273,558
OHIO	667,648
OKLAHOMA	483,244
OREGON	585,220
PENNSYLVANIA	601,330
RHODE ISLAND	250,000
SOUTH CAROLINA	285,382
SOUTH DAKOTA	296,443
TENNESSEE	464,765
TEXAS	1,250,000
UTAH	416,415
VERMONT	250,000
VIRGINIA	377,072
WASHINGTON	573,453
WEST VIRGINIA	250,000
WISCONSIN	885,755
WYOMING	386,327
PUERTO RICO	250,000
GUAM	83,333
VIRGIN ISLANDS	83,333
AMERICAN SAMOA	83,333
MARIANA ISLANDS	83,333
DISTRICT OF COLUMBIA	83,333



**NEW YORK CHAPTER — AMERICAN FISHERIES SOCIETY**  
Bureau of Fisheries, Room 518, 50 Wolf Road, Albany, New York 12233

Mr. Charles F. Thoits, III  
State of New Hampshire  
Fish and Game Department  
34 Bridge Street  
Concord, NH 03301

Dear Charlie:

It is my pleasure to announce the following committee appointments for the New York Chapter of the American Fisheries Society:

<u>Committee</u>	<u>Chairman</u>
Program:	Tim Sinnott ✓
Resolutions:	Ray Tuttle
Environmental Concerns:	Doug Sheppard
Membership:	Frank Panek
Nominating:	Mike Duttweiler
Audit/Finance:	Larry Skinner ✓
1986 Workshop:	Paul McKeown ✓
Newsletter:	Leslie Kusek ✓
New Initiatives:	to be filled

In addition to these standing committees, two ad hoc committees have been appointed:

Status of Women and Minorities:	Barbara Knuth
Presentation Standards:	Jim Haynes

I'm looking forward to seeing you again at the Northeastern Division meeting in May.

Sincerely,

Robert E. Lange  
President  
New York Chapter AFS

ag

cc: Frank Panek  
Jack Haase



NEW YORK CHAPTER — AMERICAN FISHERIES SOCIETY

To: All NY American Fisheries Society Committee Chairpersons

From: John J. Hasse *Jack*

Subject: Tax Exemption

We have obtained a state tax exemption certificate. If you will be making purchases for NYAFS supplies and will not have the bill sent directly to me, please call me with the vendor's name and address so I may issue the vendor the necessary paper for tax exemption.

Thanks for your cooperation in this matter.

cc: Bob Lange  
Frank Panek  
Mike Duttweiler  
Larry Skinner  
Paul McKeown  
Tim Sinnott  
Ray Tuttle  
Leslie Kusek  
Jim Haynes  
Barbara Knuth





NEW YORK CHAPTER — AMERICAN FISHERIES SOCIETY

July 3, 1987

Mr. Joseph Gorsuch  
132 Wyndham Road  
Rochester, New York 14612

Dear Joe:

Enclosed is the NYAFS Directory for 1987-88 that is basically ready for the printer.

Thanks for your help on this.

Cordially,

Jack Hasse,  
Secretary/Treasurer

JH:dal  
cc: Bob Lange

Forestry Education --SUNY-ESE

1985 Enrollments:	<u>%male</u>	<u>%female</u>	<u>Total no.</u>
undergraduate	76.5	23.5	498
master	69.5	30.5	164
doctoral	79.8	20.2	<u>89</u>
Total	75.4%	25.6%	751

SAF Membership Statistics - New York

By Gender

Female	73	11.06%
Male	587	88.94%

By Salary Range                      Males and Females                      Females Only

none reported	29.39%	36.99%
Under 10K	18.45%	41.30%
10-14+K	10.94%	17.39%
15-19+K	14.81%	19.57%
20-24+K	12.02%	10.87%
25-29+K	13.09%	8.70%
30-34+K	10.09%	0%
35+K	20.60%	2.17%

CIVIL SERVICE EMPLOYMENT - NEW YORK

<u>Position Type</u>	<u>NYDEC Total</u>	<u>1979 Female</u>	<u>% Female</u>	<u>Minority</u>	<u>% Minority</u>
Officers & Administrators	185	5	2.7	1	0.5
Professionals	1021	57	5.6	33	3.2
Technicians	528	29	5.5	11	2.1
Protective Svcs	419	15	3.6	10	2.4
Para-profess.	26	10	38.5	2	7.7
TOTALS	2179	116	5.3	57	2.6

<u>Position Type</u>	<u>NYDEC Total</u>	<u>1982 Female</u>	<u>% Female</u>	<u>Minority</u>	<u>% Minority</u>
Officers & Administrators	158	10	6.3	2	1.3
Professionals	1235	113	9.1	40	3.2
Technicians	599	32	5.3	14	2.3
Protective Svcs	364	8	2.2	14	3.8
Para-profess.	24	14	58.3	1	4.2
TOTALS	2380	117	7.4	71	3.0

<u>Position Type</u>	<u>NYDEC Total</u>	<u>1982 Female</u>	<u>NEW HIRES % Female</u>	<u>Minority</u>	<u>% Minority</u>
Officers & Administrators	4	3	75.0	0	0.0
Professionals	41	7	17.1	6	14.6
Technicians	17	2	11.8	1	5.9
Protective Svcs	11	0	0.0	0	0.0
Para-profess.	1	1	100.0	0	0.0
TOTALS	74	13	17.6	7	9.5

**NORTH AMERICAN  
WILDLIFE ENROLLMENT OF  
WOMEN AND ETHNIC MINORITIES  
FALL 1983**

**Two Supplemental Tables to the Report  
"Wildlife Student Enrollment In 1983"  
Wildlife Society Bulletin 14(1):in press  
1986 by H.E. Hodgdon**

Not for publication without  
written approval of The Wildlife Society,  
5410 Grosvenor Lane, Bethesda,  
Maryland 20814

© The Wildlife Society 1985

Table 1. Student enrollment in wildlife, fisheries, and combined fisheries/wildlife options at North American colleges and universities by sex and degree, fall term 1983.

Option	Degree	No. enrolled		Total	% Women
		Men	Women		
<b>Wildlife</b>					
	Bachelor's	3,328	1,527	4,765	32.0
	Master's	631	291	922	31.6
	Doctoral	243	53	296	17.9
	Total	4,112	1,871	5,983	31.3
<b>Fisheries</b>					
	Bachelor's	869	180	1,049	17.2
	Master's	347	95	442	21.5
	Doctoral	141	31	172	18.0
	Total	1,357	306	1,663	18.4
<b>Combined</b>					
	Bachelor's	579	171	750	22.8
	Master's	8	9	17	52.9
	Doctoral	7	1	8	12.5
	Total	594	181	775	23.4
<b>Total</b>					
	Bachelor's	4,686	1,878	6,564	28.6
	Master's	986	395	1,381	28.6
	Doctoral	391	85	476	17.9
	Total	6,063	2,358	8,421	28.0

Table 2. Sex and ethnic background of students enrolled in wildlife (74 schools) and fisheries (51 schools) by degree, fall term, 1983.

Enrollment by ethnic background	Bachelor's degree			Master's degree			Doctoral degree			Total enrollment						
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total				
	N	N	N	N	N	N	N	N	N	N	N	N				
<b>Wildlife</b>																
Caucasian	2,849	1,359	4,208	95.8	557	259	816	92.7	202	49	251	90.9	3,608	1,667	5,275	95.1
Black	14	7	21	0.5	9	4	13	1.5	2	0	2	0.7	25	11	36	0.6
Hispanic	52	18	70	1.6	3	1	4	0.5	1	0	1	0.4	56	19	75	1.4
American Indian	12	6	18	0.4	1	2	3	0.3	0	1	1	0.4	13	9	22	0.4
Oriental	19	13	32	0.7	2	2	4	0.5	0	0	0	0.0	21	15	36	0.6
Aleut/Eskimo	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
Foreign National	25	17	42	1.0	29	11	40	4.5	19	2	21	7.6	73	30	103	1.9
<b>Total Wildlife</b>	<b>2,971</b>	<b>1,420</b>	<b>4,391</b>	<b>100.0</b>	<b>601</b>	<b>279</b>	<b>880</b>	<b>100.0</b>	<b>224</b>	<b>52</b>	<b>276</b>	<b>100.0</b>	<b>3,796</b>	<b>1,751</b>	<b>5,547</b>	<b>100.0</b>
<b>Fisheries</b>																
Caucasian	723	150	873	95.1	295	85	380	90.9	110	29	139	86.3	1,128	264	1,392	93.0
Black	1	0	1	0.1	4	2	6	1.4	4	0	4	2.5	9	2	11	0.7
Hispanic	13	1	14	1.5	6	0	6	1.4	2	0	2	1.2	21	1	22	1.5
American Indian	5	2	7	0.8	3	0	3	0.7	1	0	1	0.6	9	2	11	0.7
Oriental	11	3	14	1.5	3	2	5	1.2	0	1	1	0.6	14	6	20	1.3
Aleut/Eskimo	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0	0	0	0	0.0
Foreign National	7	2	9	1.0	16	2	18	4.3	12	2	14	8.7	35	6	41	2.7
<b>Total Fisheries</b>	<b>760</b>	<b>158</b>	<b>918</b>	<b>100.0</b>	<b>327</b>	<b>91</b>	<b>418</b>	<b>99.9</b>	<b>129</b>	<b>32</b>	<b>161</b>	<b>99.9</b>	<b>1,216</b>	<b>281</b>	<b>1,497</b>	<b>99.9</b>



**RECEIVED**

**AUG 13 1987**

**NYS Dept. Environmental Conservation  
REGION 6 - UTICA  
REGIONAL ENGINEER**



RECEIVED

AUG 13 1987

NYS Dept. Environmental Conservation  
RECEIVED  
REGIONAL ENGINEER

Jack Klasse

34 Gretel Terrace  
Ballston Lake, NY 12019  
October 7, 1987

The Honorable Walter D. Broadnax  
President, Civil Service Commission  
New York State Department of Civil Service  
Building #1, State Campus  
Albany, New York 12239

Dear Commissioner Broadnax:

The New York Chapter of the American Fisheries Society wishes to express strong opposition to the proposed reclassification of existing Division Director titles to the non-competitive title Environmental Program Director III. If approved, this proposal will seriously undermine the national reputation of the Department for top-rate professionalism in the management of New York's abundant natural resources.

The American Fisheries Society, with 8,500 members, is the world's oldest and largest scientific group dedicated to the conservation of renewable aquatic resources. The Society, of which the New York Chapter is a major subunit, promotes the **scientific** management of aquatic resources. Scientific management requires that its practitioners are properly trained in appropriate scientific disciplines and committed to the scientific process as the foundation for resource management. This is true at every echelon of natural resource managers and particularly so for Division Directors, who set the standards for subordinate staff.

The competitive status of Division Directors has enabled them to retain a commitment to scientific management. They frequently function as the conscience of the Department of Environmental Conservation because their outlooks transcend political agendas. This is not a liability to state government and the people it represents, but a major asset.

Non-competitive appointees to Environmental Program Director III positions could conceivably be highly qualified, thoroughly competent and well motivated individuals. However, political accountability would necessarily be a vital element of their outlook and this would inherently compromise their ability to engage in scientific management. This would eventually erode the professionalism of subordinate staff and ultimately lead to the replacement of scientific resource management in New York with a system guided by partisan politics. The natural resources of the state and the people who depend upon them would be ill-served by such a transition.

On behalf of the more than 300 members of the New York Chapter of the American Fisheries Society, I urge rejection of the proposed change in the classification of Division Directors.

Sincerely,



Robert E. Lange  
President, New York Chapter  
American Fisheries Society

cc: Honorable Maurice D. Hinchey  
Honorable Hugh T. Farley  
Commissioner Thomas C. Jorling

REL:lmc

bcc: Frank Panek  
( Jack Hasse  
Leslie Kusek  
Angelo Incerpi  
Carl Sullivan  
Robert Inslerman  
Ken Wich



NEW YORK CHAPTER — AMERICAN FISHERIES SOCIETY

MEMORANDUM

October 23, 1987

**TO:** NYCAFS Executive Committee (Distribution Below)

**FROM:** Bob Lange

**RE:** Executive Committee Meeting

There will be a meeting of the New York Chapter AFS Executive Committee on November 19, 1987, in Room 630 of the DEC office at 50 Wolf Road, Albany, from 10:30 a.m. to 2:30 p.m. I had originally hoped that the fall meeting could be accomplished with a conference call, but several issues have arisen that will require more lengthy deliberation.

Most notable of these issues is a proposal for the parent society to increase its dues by several dollars, then rebate the increase to the chapters. This looks like a windfall for the Chapter on the surface, but the underlying agenda is to draw the chapters more tightly to the bosom of the parent society, with obvious implications for chapter membership practices. This item was tabled at the recent parent society EXCOM meeting, but will be back on the agenda at the next meeting in March. We need to discuss this issue carefully and adopt a strong Chapter position.

This meeting will be especially important for final planning for the Annual Meeting, so please make every effort to attend. If you absolutely cannot, please send me a written summary of your committee activities prior to the meeting.



President

Distribution:

Frank Panek:	President-Elect, Membership Committee
Jack Hasse:	Secretary-Treasurer
Leslie Kusek:	Newsletter Editor
Tim Sinnott:	Program Committee
Ray Tuttle:	Resolutions Committee
Doug Sheppard:	Environmental Consensus Committee
Larry Skinner:	Audit/Finance Committee
Mike Duttweiler:	Nominating Committee
Paul McKeown:	1986 Workshop Committee
Barbara Knuth:	Status of Women and Minorities Committee
Jim Haynes:	Presentation Standards Committee
Gary Neuderfer:	Professional Development Initiatives Committee

cc: Angelo Incerpi

REL:lmc

NEW YORK COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT  
DEPARTMENT OF NATURAL RESOURCES  
FERNOW HALL, CORNELL UNIVERSITY  
ITHACA, N. Y. 14853

*Cooperating Agencies:*

CORNELL UNIVERSITY  
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
WILDLIFE MANAGEMENT INSTITUTE  
U.S. FISH AND WILDLIFE SERVICE

18 September 1987

Mr. Carl Sullivan  
Executive Director  
American Fisheries Society  
Bethesda, MD 02814

Dear Sully,

I have resigned my recently elected position as President-Elect of the Northeastern Division of American Fisheries Society. While I was gratified by the outcome of the election, it was clearly not in my own best interest nor that of the Division membership to serve for two years on the American Fisheries Society Executive Committee and in the Division while geographically located over a thousand miles away. In addition, my new job responsibilities will require my full effort for at least those two years. Most of my Northeastern Division colleagues with whom I have spoken concur with this decision and even those who would have supported my continuing in the position had no reservations about endorsing the alternate candidate. Your position on this matter was apparently different and regrettable.

While I support and respect the tremendous amount of time and effort you expend in behalf of American Fisheries Society and its members, influencing the selection of Division officers seems unnecessary. We never discussed your motives for encouraging me to serve out the term. The nomination process in the Northeastern Division has been a healthy one in which two viable candidates, either one of which could serve ably, are presented to the membership by the nominating committee with the endorsement of the Division Executive Committee. If this process, or that in other Divisions; results in individuals being selected who differ in opinion with various members of the American Fisheries Society staff or Executive Committee, so be it. Professionals should be able to disagree and carry out their responsibilities. A diversity of opinions and backgrounds has produced the high quality society that is the American Fisheries Society. Attempting to stem that diversity and create a "one party" system is wrong.

I look forward to future activities and responsibilities with American Fisheries Society from my new position at the University of Wyoming.

Sincerely,

Steven P. Gloss  
Assistant Leader  
Fisheries

SPG:cmh

*file*

34 Gretel Terrace  
Ballston Lake, NY 12019  
October 7, 1987

The Honorable Walter D. Broadnax  
President, Civil Service Commission  
New York State Department of Civil Service  
Building #1, State Campus  
Albany, New York 12239

Dear Commissioner Broadnax:

The New York Chapter of the American Fisheries Society wishes to express strong opposition to the proposed reclassification of existing Division Director titles to the non-competitive title Environmental Program Director III. If approved, this proposal will seriously undermine the national reputation of the Department for top-rate professionalism in the management of New York's abundant natural resources.

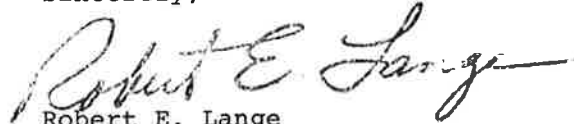
The American Fisheries Society, with 8,500 members, is the world's oldest and largest scientific group dedicated to the conservation of renewable aquatic resources. The Society, of which the New York Chapter is a major subunit, promotes the **scientific** management of aquatic resources. Scientific management requires that its practitioners are properly trained in appropriate scientific disciplines and committed to the scientific process as the foundation for resource management. This is true at every echelon of natural resource managers and particularly so for Division Directors, who set the standards for subordinate staff.

The competitive status of Division Directors has enabled them to retain a commitment to scientific management. They frequently function as the conscience of the Department of Environmental Conservation because their outlooks transcend political agendas. This is not a liability to state government and the people it represents, but a major asset.

Non-competitive appointees to Environmental Program Director III positions could conceivably be highly qualified, thoroughly competent and well motivated individuals. However, political accountability would necessarily be a vital element of their outlook and this would inherently compromise their ability to engage in scientific management. This would eventually erode the professionalism of subordinate staff and ultimately lead to the replacement of scientific resource management in New York with a system guided by partisan politics. The natural resources of the state and the people who depend upon them would be ill-served by such a transition.

On behalf of the more than 300 members of the New York Chapter of the American Fisheries Society, I urge rejection of the proposed change in the classification of Division Directors.

Sincerely,



Robert E. Lange  
President, New York Chapter  
American Fisheries Society

cc: Honorable Maurice D. Hinchey  
Honorable Hugh T. Farley  
Commissioner Thomas C. Jorling

REL:lmc

bcc: Frank Panek  
Jack Hasse  
Leslie Kusek  
Angelo Incerpi  
Carl Sullivan  
Robert Inslerman  
Ken Wich





*American Fisheries Society*

STANLEY A. MOBERLY  
President 1987-1988

CARL R. SULLIVAN  
Executive Director

PAUL BROUHA  
Deputy Director

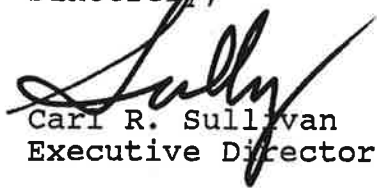
October 15, 1987

Mr. Robert Lange, President  
AFS New York Chapter  
34 Gretel Terrace  
Ballston Lake, NY 12019

Dear Bob:

I commend you for your straight forward letter to Commissioner Broadnax. It is the kind of involvement which is not only appropriate for our Society, but reflects favorably on the professionalism of the chapter members. I hope it bears fruit.

Sincerely,



Carl R. Sullivan  
Executive Director

CRS/twb

cc: Angelo Incerpi



STATE OF NEW YORK  
CIVIL SERVICE COMMISSION  
THE W. AVERELL HARRIMAN  
STATE OFFICE BUILDING CAMPUS  
ALBANY, NEW YORK 12239

WALTER D. BROADNAX, PRESIDENT  
JOSEPHINE L. GAMBINO  
ROBERT J. RIORDAN

JOHN M. KEEFE, DIRECTOR  
OF OPERATIONS AND  
ADMINISTRATION

October 16, 1987

Mr. Robert E. Lange  
President  
New York Chapter - American  
Fisheries Society  
34 Gretel Terrace  
Ballston Lake, New York 12019

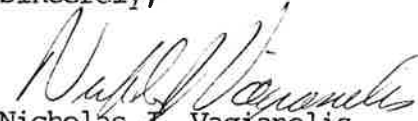
Dear Mr. Lange:

Commissioner Broadnax has forwarded to me your letter of October 7, 1987 in regard to the proposal of the Department of Environmental Conservation for the establishment of Environmental Program Director III positions in the non-competitive class. Your letter has been made part of the Commission's file.

This matter is scheduled to be considered by the Commission at its meeting on October 20, 1987.

If you have any questions in regard to this matter, please feel free to call me at 457-2575.

Sincerely,

  
Nicholas J. Vagianelis  
Coordinator of Civil Service  
Commission Operations

cc: Comr. Gambino  
Comr. Riordan

# **BROCKPORT**

State University of New York  
College at Brockport  
Brockport, New York 14420  
Department of Biological Sciences  
(716) 395-2193

To: Bob Lange, President NYCAFS JML  
From: Presentation Standards Committee (J.M. Haynes)  
Re: Final report and recommendations for improving  
audiovisual and presentation techniques at chapter  
meetings  
Date: October 17, 1987

Prompted by increasing complaints about presentation quality at recent chapter meetings, you gave the Committee three charges:

1. Critique technical presentations at recent chapter meetings from the standpoint of audiovisual effectiveness.
2. Develop instructional materials on effective presentation techniques for distribution to Chapter members.
3. Develop presentation standards for adoption by program chairpersons for future Chapter meetings.

Rather than form a committee to begin the proposed process from scratch, I have assembled appropriate materials created by previous AFS program chairpersons and others to assist presenters in creating quality audiovisual materials and technical presentations. These materials have been known to presenters for years; the major problem has always been getting people to spend the time and effort necessary to create a high quality presentation. There is only one way to ensure compliance with the guidelines proposed below: publicize the guidelines widely, give a copy to each author each year, insist in acceptance letters that the guidelines be followed, ban overhead projectors and have session moderators preview and reject any unintelligible slides at the Annual Meeting. Initially this will require very hard-nosed moderators to preview all presentations, but after word spreads that the Chapter means business spot checks should be sufficient.

BUREAU OF  
FISHERIES  
RECEIVED

OCT 22 1987

GRANT DIVISION  
SECTION

Enclosed are guidelines on how to go about preparing quality visual aids and how to prepare and present stimulating oral and poster presentations. Two documents with more detailed information are provided as appendices: "Effective Lecture Slides, Kodak Pamphlet S-22 (two different editions; despite some overlap in content each has uniquely useful information) and "Poster Design and Preparation Guidelines" by Jim Rice, NC State University. Also provided are sample letters to presenters (provided by Bruce Shupp) that should be modified appropriately and used by Program and Session Chairs to inform presenters of the "rules".

EXCOM should recognize that there will be benefits and costs associated with rigid enforcement of the proposed standards. While the quality of papers will improve we risk alienating some Chapter members. Also, if the Chapter insists on the highest presentation standards, then we must provide the highest quality facilities, including variable light level controls (i.e., complete darkening capability), appropriate microphones, podia and light pointers, large projection screens and rooms with high ceilings, no posts, good acoustics and multiple entry ways.

This has been an interesting assignment to me from the Chapter. I trust the document that follows will be of some use to Chapter members in the future. The report is divided into three sections that respond to items 1-3 listed above.

CRITIQUE OF TECHNICAL PRESENTATIONS AT RECENT CHAPTER MEETINGS: AUDIOVISUAL EFFECTIVENESS

A. Facility Problems

1. Low ceilings require small projection screens and produce poor visibility.
2. Posts and background light promote poor visibility and dim slides.
3. Single entry-ways create noise that disturbs speakers and the audience.

Solution: higher ceilings, no posts, less background light, multiple entry-ways; not possible at current meeting site - must find new meeting location.

B. Audiovisual Technique Problems

1. Use of overhead projectors vs. 2x2 slides: interrupts rhythm of speaker, images often not visible to audience, temptation for speakers to use photocopied print text and tables vs. properly enlarged and scaled graphics.
2. Direct photographic reproduction of printed text and tables on slides: virtually always illegible to audience and presents too much information to be absorbed by audience.
3. Graphics composed of black lines on light background: eye strain for audience.
4. "Snapshot" photographs: too much clutter in visual field and too dim in room light.

Solutions: permit 2x2 slides only; use only simplified, enlarged text and drawings for graphics; take well-conceived photographs in anticipation of ultimate presentations.

*Respond  
negatively*



*American Fisheries Society*

STANLEY A. MOBERLY  
President 1987-1988

CARL R. SULLIVAN  
Executive Director

PAUL BROUHA  
Deputy Director

November 2, 1987

Mr. Robert Lange  
34 Gretel Terrace  
Ballston Lake, NY 12019

Dear Bob:

Attached for your information and study is a January 1987 Resolution of Support for the Arizona and New Mexico Chapters of AFS signed by the Arizona Game and Fish Department, the New Mexico Game and Fish Department, and the Regional Director of the U.S. Fish and Wildlife Service.

It's a very commendable idea which merits consideration by every chapter within AFS. My purpose in writing you is to ask that you consider appointing a chapter committee to explore the value of and opportunity for a similar initiative in your chapter area. The Central Office will assist in any way that you feel will be helpful. Whether or not you elect to proceed, I would value your comments.

Sincerely,

Carl R. Sullivan  
Executive Director

CRS/twb  
Enclosure

cc: AFS Officers  
AFS Division Officers