NEWSLETTER OF THE

Minnesota Chapter of the American Fisheries Society

Year 1997 No. 2
May Issue

President's Message

Tim Goeman, MN Chapter AFS President
AFS - What Does It Provide for Me?

In my first president's column, I would like to revisit the age-old debate about what AFS provides for its members. We have all heard the question when a prospective member is approached about joining AFS, or when a member wonders aloud whether the annual dues are commensurate with the benefits.

If you attended the recent joint meeting with the Dakota Chapter, I'm sure you recognized the event as a very successful meeting. Consider for a moment how you benefitted by attending. Perhaps you presented some of your own work, providing a forum for feedback and evaluation from your peers. Given the extensive program, you were likely exposed to important fisheries issues that you were unaware of or uninformed of prior to the meeting. You probably gained insight regarding how a neighboring state is addressing a current fisheries topic. Perhaps you were even exposed to national, continental, or international issues you were unaware of previously. Hopefully, you renewed some old acquaintances and made some new friends--it's called networking, and you never know when it might come in handy.

Clearly, the Annual Chapter Meeting provides many benefits to everyone who attends. But this is only the beginning of membership benefits. AFS journals provide the best literature available for obtaining fisheries information on any topic you can think of. The AFS home office monitors federal legislation and regularly testifies representing sound science.

Editor: Paul Radomski
1601 Minnesota Drive Brainerd, MN 56401
phone: (218)828-2665
fax: (218)828-6022
e-mail: paul.radomski@dnr.state.mn.us

The Chapter publishes this newsletter four times a year (Jan., May, Sept., and Nov.). Deadlines for article submission are: April 15, Aug 15, Oct 15, and Dec 15.

INSIDE

Quote of the Issue

"We've been in bad shape ever since Columbus landed...But that's ok. You can't go back. We must live in this modern world and do what we can to keep it livable." Billy Frank, Jr., Northwest Indian Fisheries

Additionally, most chapters, including Minnesota, provide similar legislative testimony at the state or provincial level. AFS also provides a vehicle for recognizing deserving fisheries professionals for their contributions to fisheries science through a distinguished awards program. It is a gratifying experience to witness dedicated scientists like Dennis Schupp and Bob Strand be recognized for years of outstanding work. The list could go on, but I hope you get the idea.

I submit the proposition that we frequently lose perspective and ask the wrong question. We should not entertain the question 'What can AFS provide for me?', since the answers are many and obvious. The more appropriate philosophical question might be, 'How could I survive professionally without AFS?' I am convinced that personal professional development would suffer greatly in the absence of AFS.

At this point either you agree with my comments about AFS or you may be wondering "where are all these benefits he's raving about?" In my experience, AFS is similar to many other things in life--you get the most benefit when you become involved. If you wonder where all these benefits are, I have just identified a deficiency for you to address. That is, get involved in something, at some level of AFS. I guarantee you will

personally experience the benefits of AFS membership as you become involved.

Perhaps you would like some more specific direction about exactly what to do within AFS and how to get involved. Have I got a deal for you! One of the best places to start is at the Chapter level, and to focus on the Chapter activities identified for the coming year. Take note of the draft Annual Action Agenda published later in this newsletter. This plan lays out the activities the MN Chapter will take on in the coming year. The more members who are willing to work on these items, the more will be accomplished. If any particular item catches your eye, contact the person listed as responsible for making that happen. Additionally, you may be contacted to contribute to making some of these ideas develop into fruitful activity. In summary, get involved and start enjoying the benefits of AFS.

MN Chapter AFS Annual Action Agenda 1997-1998

Mission Statement: The Minnesota Chapter of the American Fisheries Society (AFS) supports the conservation of North America's fisheries and aquatic systems by promoting professional excellence in fisheries science, management, and education.

This action agenda represents the Chapter President's initiatives for his term. The following action items are based upon the MN Chapter Strategic Plan and the strategic plan is referenced parenthetically.

Item 1: Sponsor 1 or 2 continuing education workshops during the year (Goal A).
Responsibility: Mark Hove and Laurie Sovell, Continuing Ed Committee Co-Chairs

Item 2: Organize a low-cost annual meeting and publicize it extensively and aggressively (Strategy A.2).
Responsibility: Bruce Vondracek, President-elect, '98 Meeting Program Chair

Item 3: Develop and publicize a position paper on fish stocking (Strategy C.1).
Responsibility: Larry Kallemeyn, Issues Chair (Past-President)

Item 4: Investigate available options and develop recommendations for: a. Preparing chapter testimony at legislative hearings on fisheries-related bills (Strategy C.4), b. Preparing legislative briefing papers for all fisheries-related bills (Strategy C.4), c. Hiring a lobbyist (Goal D).
Responsibility: Tim Goeman, President, and Jeff Reed, Fisheries Information Network Committee Chair

Item 5: Encourage agency administrators to participate in Chapter activities. Specifically contact Roger Holmes, Commissioner Sando, and the commissioner's staff (Strategy C.5). Follow-up on delinquent MN Chapter members inviting them to rejoin. Contact delinquent parent society members inviting them to retain their affiliation with the MN Chapter, at least quarterly (Goal G).
Responsibility: Doug Kingsley, Membership Committee Chair

Item 6: Sponsor publication of an article highlighting AFS in a high-profile popular press outlet (Science, Discover, Natural History, etc) authored by an AFS member (Strategy C.6).
Responsibility: Tim Goeman, President and appointed ad hoc committee

Item 7: Publish this annual action agenda in the Chapter newsletter and on the Chapter homepage (Strategy F.2).
Responsibility: Tim Goeman, President, and Paul Radomski, Newsletter Editor

Item 8: Investigate the possibility of providing an AFS display at the MN State Fair (complete with free promotional items) in the education building (Strategy H.4).
Responsibility: Linda Braun, Public Awareness Committee Chair

Item 9: Plan and coordinate a "rivers, watersheds, and fisheries" workshop for NW Minnesota in 1998. Involve the MN Chapter in establishing objectives, targeting participants, planning contents and estimating costs (Goal D).
Responsibility: Paul Glander, Rivers and Streams Representative

Item 10: Request the DNR to consider a policy change regarding funding annual meeting expenses for DNR employees. Specifically, estimate the number of DNR employees who are parent society and MN Chapter members and project 1998 annual meeting costs for the DNR if eligible employees attended. Request the Fisheries Chief and Division Director to plan these costs as part of the Section or Division Training budget for 1998 (Goals A, B, G, H).
Responsibility: Tim Goeman, President

There are two ways to become a member: (1) fill out this form and send it in with seven dollars, or (2) join the American Fisheries Society and pay your Minnesota Chapter dues through them (the Chapter gets reimbursed).

1997 Dues Application

1997 Minnesota Chapter dues.....$7.00 _____

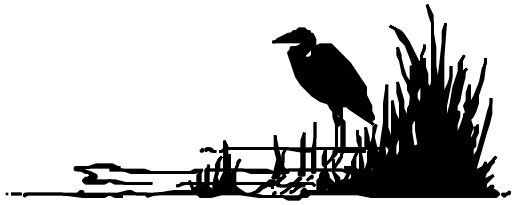
Total Enclosed..... _____

Send Check (pay to the order of: Minnesota Chapter AFS) and this form to:

Kevin Stauffer
DNR-Fisheries
2115 Birchmont Beach Rd NE
Bemidji, MN 56601

Name: _____
Address: _____
_____
_____
_____
Phone: _____
Fax: _____
e-mail: _____

Are you a member of AFS?_____ yes _____ no. Membership Number_____
(AFS membership number is located on your Fisheries mailing label)
Affiliation: _____
(DNR, Federal Government, Academic, Tribal, or Private)
Job Title: _____
Year Joined AFS: _____
Year Joined MN AFS: _____
Check if you are a Student: _____
Check if you don't want to be in the Chapter Directory: _____



Committee Reports

Awards Committee - by Bruce Vondracek
Several awards were presented at the recent Minnesota Chapter of the American Fisheries Society held jointly with the Dakota Chapter: Best Paper Award, the Award of Excellence, and three Special Recognition Awards.

The best paper award this year was presented to Carl Richards for his presentation of the paper titled The use of hydroacoustic data to classify lake trout habitat in Lake Superior. His coauthors are J. Bonde, K. Yin, G. Cholwek, and Don Schreiner. Carl is a Research Associate at the Natural Resources Research Institute in Duluth.

The Award of Excellence was a presented to Bob Strand for his long and distinguished contribution to Fisheries at the banquet held Thursday evening. Bob is a Regional Manager for the Minnesota Department of Natural Resources at Bemidji.

Special Recognition Awards were presented to three biologists currently working for the Minnesota Department of Natural Resources including Deserae Bushong, a Fisheries Specialist at the Lake City Area Office; Tracy Close, a Fisheries Biologist at the Duluth Area Office; and Jeffrey Reed, a Fisheries Biologist at the Glenwood Area Office.

I would also like to solicit nominations for the Chapter Award of Excellence and nominations for the Special Recognition Award. The purpose of the Award of Excellence is to recognize long-term excellence in the fisheries profession or outstanding performance in an activity that (preserves, promotes, or improves fish populations, fish habitat, or the field of fishery science) or that furthers the goals of the Minnesota Chapter of AFS. The Award of Excellence may be presented to any individual or group, regardless of their membership in AFS. The nomination should indicate how and why the nominee is worthy of the award. Describe the impact or significant contribution of the individual or group in one or two pages.

Special Recognition Awards are presented to acknowledge personal services contributed to the Chapter or a special project that advances the goals of the Chapter. Any Chapter member is eligible. A short statement (one to two paragraphs) describing the service to the Chapter should be provided.

Public Awareness Committee - by Linda Braun
My first task as the Public Awareness Chair is to check into promoting the AFS at the MN State Fair using the AFS display. There are two possible ways to exhibit at the fair. One is to house the display in the DNR building. The display would be mounted to a wall and be unmanned. The DNR fair committee will be discussing this request at their next meeting. This option would be free to AFS if approved. The other option is to rent space in the Education Building. I have sent in an application to the Fair Board and will hear back midsummer if approved. Booth space costs $31 per front foot for a 6'X8' area. This space has to be manned during the run of the Fair. Expenses to enter the fairgrounds are not included. AFS would not be allowed to sell items in the Education Building and giveaways have to be approved by the Fair Board. I'll keep everyone posted on this project.

I'm also looking for members who are interested in serving on the Public Awareness Committee. If you are interested, please call me at 612.625.1291. Thanks.

Division Technical Committees

A joint meeting will be held this summer. You will not want to miss this one.

Genetics Workshop and Joint Technical Committee Meetings

The North Central Division of the American Fisheries Society is sponsoring a Workshop on "Genetic Principles & Methods for Fisheries Managers" on Wednesday, July 30th 1997. The course will be taught by Drs. Anne Kapuscinski, Eric Hallerman, Loren Miller and Dave Philipp. The goal of the workshop is to provide fisheries managers with a general understanding of genetic principles and how to apply them to management situations.

In conjunction with the workshop, the Walleye, Centrarchid and Salmonid Technical Committees will be holding their mid-year meetings on Tuesday, July 29th. The workshop is available for all AFS members to attend, but preference will be given to NCD members if space becomes limiting.

Where:
LaCrosse, WI. Holiday Inn (608) 784-9500., $52/night. A block of rooms for Monday and Tuesday evenings have been reserved under the American Fisheries Society.

When:
Tech Committee Meetings Tuesday, July 29
Genetics Workshop Wednesday, July 30

Workshop Registration will cost approximately $30. For more information contact:

Doug Beard
(608) 267-9427
e-mail:
beardt@dnr.state.wi.us

1996 Mid-year Centrarchid Technical Committee Meeting by Mike McInerny

Members of the Centrarchid Technical Committee (CTC) met briefly on 8 December 1996 in Omaha, NE. Topics discussed included appointing a new chairperson and secretary, developing posters designed for educational purposes, determining effects of angling on centrarchid populations, and indexing gray literature among the North Central Division.

Steve Fischer (MO) replaced Melissa Drake as CTC chairperson, and Jake Allman (MO) replaced Doug Beard (WI) as secretary. The CTC thanked Melissa and Doug for their good work. We are still working on finding Chair-elects.

The CTC will investigate whether it should develop posters on *Lepomis* spp. and *Pomoxis* spp, similar to the one on walleye developed by the Walleye Technical Committee. The intended use of these posters is for education, and posters will contain information on distribution, biology, habitat, and management of the various species.

The CTC will be gathering information on the effects of angling on centrarchid populations. Presently, CTC representatives are being asked to find data on exploitation and angling effects on size structure of bluegills and crappies in their state or province. If data are adequate, the CTC will consolidate them and release a report of some kind.

Finally, the CTC, primarily Melissa Drake, is indexing gray literature on centarchids from each state and province in the NCD. When completed, this index will be available to anyone in the Division.

A summer CTC meeting will be held in La Crosse, WI on 29 July 1997. This meeting will be held in conjunction with the Walleye Technical Committee (WTC) and other technical committees. We as fisheries professionals need to learn more about centrarchids, how to sample them, and how to manage them. Therefore, we want those who are managing or researching centrarchids to attend the CTC meeting. This is an opportunity to share information on centrarchid management and research done here with those doing the same in neighboring states. Experiences found in the other states can be useful here in Minnesota.

If you are unable to attend the CTC meeting, but have some information to deliver or concerns that should be addressed, please give me a call.

1996 Mid-year Reservoir Technical Committee Meeting, Omaha, NE by Mike McInerny

Members of the Reservoir Technical Committee (RTC) met on 8 December 1996 in Omaha, Nebraska. The only topics discussed were the distribution of a reservoir fisheries workers booklet and the necessity of the RTC in the North Central Division (NCD).

For those interested, a booklet entitled NCD Reservoir Research and Researchers containing names and addresses of reservoir fisheries workers in the North Central Division and their current and past projects was compiled by Tracy Hill (SD). This booklet is available through the NCD.

The necessity of the RTC in the North Central Division was also discussed. Current interest in this committee has been low and we speculated on the reasons why. When I was appointed to represent the Minnesota Chapter, I did not expect much interest from Minnesota members because reservoir fisheries are relatively unimportant in this state. However, meeting attendees were somewhat surprised by the lack of interest from those states where their most important fisheries are in reservoirs. We speculated that several of the other technical committees already indirectly addressed reservoir-related issues, and that agencies who fund travel for only one or two employees would gain more by participating in one of the other committees rather than the RTC. Consequently, a motion was made to 'shelve' this committee until more urgent reservoir-specific issues arise. If you have any comments or concerns about the RTC or what topics this committee can address, please let me know.

Rivers and Streams Technical Committee

Spring Meeting April 1-2, 1997, Rock Island, IL, submitted by Henry Drewes

The annual spring meeting of the RSTC was attended by approximately 40 people from eight midwestern states and one Canadian province. The meeting

consisted of a combination of technical reports, state reports on river and stream issues, and discussion of future initiatives of the committee. A list of the technical presentations and their authors is listed below. Some of the interesting items from the state reports include: the state of Missouri teaming with their Department of Agriculture to promote river restoration programs; the state of Iowa examining ways to get fisheries biologists more involved in prioritizing lands for enrollment in CRP; and the state of Minnesota completing a cooperative Environmental Impact Study of Flood Control Impoundments (33 proposed new projects) in Northwestern Minnesota (findings: no significant effect on flood damage reduction; potential significant effects on water quality, stream habitat, stream fisheries, and recreation).

One of the most interesting studies presented was the *work in progress report* by Don Roseboom from Illinois. He is evaluating the effectiveness of upland water and sediment detention basins. His preliminary findings suggest that downstream of these structures there is no net reduction in sediment transport, and the magnitude of high and low flow events was increased. The new Farm Bill has some good features and some not so good. The good news is that riparian lands considered for enrollment do not have to meet the criteria for being highly erodible. This will give stream and watershed managers an additional tool for working with landowners to improve stream habitat.

The Ictalurid Symposium is scheduled for June 23-25, 1998. Approximately 80 papers have been submitted for inclusion in the program (there will be no second call for presenters). There will be a published proceedings from this conference. The NCD, RSTC has been asked to take a lead in helping plan a symposium on the impacts of sediment on stream fisheries. Potential topics for inclusion and research needs were discussed. The next meeting of the RSTC will be in Milwaukee in conjunction with the Midwest Fish and Wildlife Conference.

Technical presentations
"Watershed report cards and spawning shoal construction" Doug Clark, So.Ontario Chapter
"A century of stream changes in the Grand Prairie of Illinois" Larry Larimore, Illinois Chapter
"Adaptive environmental assessment model demonstration" Barry Johnson, USGS
"*Creation of a GIS database for stream fisheries management in Iowa"* Jeff Madejczyk, Iowa State University
"Fish and invertebrate responses to agriculture land use" Brian Nerbonne, Univ. of Minnesota
"Effectiveness of upland water and sediment detention basins" Don Roseboom, Illinois Chapter

Minutes of Chapter Meetings

Annual meeting and excom minutes will appear in the next newsletter.

Upcoming Events

May 15-16, 1997. 24th Annual Conference on Ecosystem Restoration and Creation. Tampa, Florida. Contact Frederick Webb (813.757.2104)

May 19-22, 1997. Modeling Complex Systems for Environmental Decision-Making. Fort Collins, Colorado. Contact Joyce Thompson 970.498.1774.

May 26-30, 1997: 45th Annual Meeting of the North American Benthological Society. Southwest Texas State University, San Marcos, Texas. Contact Tom Arsuffi 512.245.2284.

June 3-4, 1997. Pathogens and Diseases of Fish in Aquatic Ecosystems: Implications in Fisheries Management. Portland, Oregon. Contact Ray Brunson (360.753.9046).

June 26-July 2, 1997. 21st Annual Larval Fish Conference. University of Washington, Seattle. Richard Brodeur 206.526-4318.

July 29, 1997. AFS NC Division Technical Committee Meeting. Contact Mike McInerny 320.587.2717

August 11-14, 1997. 82nd Annual Meeting of the Ecological Society of America. Contact: www.sdsc.edu/~ESA

August 18-20, 1997. Wild Trout VI: Putting the Native Back in Wild Trout. Bozeman, Montana. Contact Robert Gresswell (541.750.7410).

August 24-28, 1997. The 127th Annual Meeting of the AFS. Monterey, California. Contact Paul Brouha, 301.897.8616.

December 3-6, 1997. North American Lake Management Society 1997 International Symposium. Contact Tom Conry 817.776.1441.

December 6-10, 1997. The 59th Midwest Fish and Wildlife Conference. Milwaukee, Wisconsin. Contact Robert Dumke 608.266.8170.

June 23-28, 1998. First International Ictalurid Symposium: Catfish 2000. Davenport, Iowa. Contact Steve Eder (eder@mail.conservation.state.mo.us).

Contributions: Letters and Commentary

To the Editor:
The following is a letter I wrote responding to a request by Second Vice President Christine Moffitt that recently appeared in Fisheries. I hope it motivates others to respond as well.

Stephen J. Boe
Rt 1, Box 204B
Laporte, MN 56461

3-26-97

Dr. Christine M. Moffitt
Dept. Of Fish and Wildlife Resources
University of Idaho
Moscow, Idaho 83844

Dear Dr. Moffitt:

I found it encouraging that the parent American Fisheries Society is taking a much closer look at the professional conduct of its members, as evidenced by your recent essay in Fisheries and also that Dan Schill. I think such discussion is long overdue. I found many positive points made by Dan Schill--I am in agreement with much of what he wrote.

There are some additional considerations I would like to add. Schill seemed to focus on the narrowly scientific aspects of ethics ("lying about data", "inaccuracy of testimony"). Ethics (really simple honesty) covers a lot more territory. Supervisors and administrators, those tasked with managing human resources, must be particularly careful (I believe it was Michael Novak who said the farther you move up in an organization, the more compromises that must be made with the corrupt aspects of it). What about a supervisor who is aware of dishonesty, but does nothing about it, even though it is within her/his power to do so? What about the supervisor who (for whatever reason) fabricates accusations against a subordinate, knowing that institutional procedures facilitate such conduct by not requiring accountability? Most institutions are set up to protect the status quo, not the accused.

I also had the impression from Schill's essay that "truth" and "falsehood" were relative, that there were no absolutes. That may be correct for scientific data sets, but there are many other instances where there clearly exists truth and falsehood, right and wrong, and we are kidding ourselves if we try to deny it. Moral relativism is the scourge of Western culture. Right and wrong is determined by the individual, by how much money, or power, or prestige you have--and look where it's brought us.

There are no easy solutions, but I think those proposed by Schill as alternatives to punitive action have merit. In particular, I think open discussion ("airing of differences") might be especially valuable. Unprofessional conduct often goes on because the perpetrators know their deeds will never be exposed. To be faced with the possibility of some public "splainin' to do" (for I Love Lucy fans) might be a deterrent.

Sincerely yours,
Stephen J. Boe
Rt 1, Box 204B
Laporte, MN 56461
218-224-2566

editor's note: the following letter from the Minnesota Department of Employee Relations provides good advise to those of us doing extensive fieldwork

RE: Review Gill Netting and Trapping Process
Subject: Work Methods

On August 13th I had the opportunity to observe the process of gill netting and trapping for the DNR Metro Division. The purpose was to identify risk factors that lead to discomfort, lost productivity and injuries. Recommendations will be included that will lead to improved safety, health, and productivity within your agency.

Risk Factors Observed
1. Repetitive trunk flexion was observed which can lead to low back discomfort, strain/sprain, or disc herniation injuries. Trunk flexed postures were noted while sitting with an unsupported back during operation of boat, measurement, weighing of fish, and documentation. Trunk flexed postures were also noted during the process of pulling in trap nets and while retrieving water in buckets from the lake, and while clubbing the fish.
2. There was a limited amount of working space

available due to amount of storage of equipment used in the boat. The employees were observed frequently stepping over (or in tubs of water) while moving about the boat. This lack of space leads to awkward postures and possible slip trip injuries. Slip/trip injuries could also be the result of the wet slippery surfaces.
3. Repetitive and awkward positioning of the upper extremities was observed which can lead to shoulder, elbow, hand and wrist injuries. Repetitive and awkward positioning was noted while untangling fish from netting, retrieving water from the lake in buckets, clubbing fish, and while setting and removing trap nets.

Current Controls
1. Safety controls are provided which may include: sunscreen, sunglasses, insect repellent, water jugs, hip and chest waders, and life preservers.
2. Appropriate sized gloves are provided for all employees
3. Employees are rotated to various lakes taking into consideration historic fish populations. This control attempts to disperse the amount of physical labor required in pulling both gill and trap nets.

Recommendations and Resources
1. Portable seating with back support should be supplied for both positions on the boat. This will allow the employees to user proper body mechanics decreasing the strain on the low back while operating the boat, performing paperwork activities, and while measuring and weighing fish. Awareness of proper body mechanics and the importance of using a neutral spine while retrieving water from the lake, and while clubbing fish would decrease the incidence of trunk flexion. For example; while retrieving water from the lake the body should be positioned (to avoid trunk rotation) so that it is facing the water, a knee can be used against the side of the boat for stabilization and two hands should be used while lifting water from the lake. Weight can be reduced by filling 5 gallon buckets 1/2 full (a 5 gallon pail of water weighs approx 40 lbs). While it may not be reasonable to use proper body mechanics all the time, improvements can be made. Training and education should be implemented on an annual basis. Training can be arranged through DOER at 215-1518.

2. Taking an occasional inventory of supplies on the boats can result in removal of unnecessary equipment or identification of items that need repair or service. Proper storage of equipment can lead to increased usable space. Discussing various equipment and storage options with co-workers from around the state is recommended. Slippery surfaces can be reduced by using abrasive coating products and or safety tread. Resource: Sure Stop Floor Safety/Contact Jon Dahl (612)571-1769.

3. Procedures for wearing gloves should be followed to avoid unnecessary cuts to the hand. A blade sharpening program should be instituted to avoid excessive force used while cutting. Education regarding neutral alignment of the shoulders, elbows, hands and wrists will increase awareness and reduce the incidence of awkward postures. For example; while retrieving trap nets the nets were lifted overhead to shake the fish toward the bottom, with repetition this can contribute to shoulder bursitis and tendonitis injuries. Lifting the nets no higher than chest level while keeping the hands close to the body can decrease stress placed on the shoulder significantly. The process of clubbing fish caused both trunk flexion and awkward positioning of the hands combined with force....an 18 foot boat would allow for additional space, therefore reducing awkward body postures.

4. Safety procedures should be followed regarding PPE and uniform all times. To ensure this light colored life preservers should be purchased for summer use. Neoprene chest waders should also be considered instead of rubber which will reduce weight and allow for increased comfort and mobility.
If you have any questions regarding this report please feel free to contact me at the number listed below.

Sincerely,
Kathleen M. Shear O.T.R.
Ergonomics Program Coordinator
Employee Insurance Division
(612)215-1518

The Value of Archives by Pat Rivers, John Casselman, and George Spangler

On a recent trip to Russia, scale samples were seen being discarded due to lack of storage space, space only allowing for the most recent five years to be kept. Similar events occurred this winter in Oregon. Certainly one need not look far to see archive samples being discarded or not receiving the type of care needed to preserve their utility. This article presents a special appeal to maintain preserved collections of the calcified structures of fish and invertebrates for future use. There are new technologies that can make great use of archived samples. First, new laboratory technologies, such as DNA polymerase chain reaction (PCR), allows for the use of DNA recovered from scale samples. This technique can determine genetic diversity before and after a stocking event and can determine the effects of stocking on the genetics of

fish. Second, analytical technologies have recently emerged for age interpretation of fish with incomplete growth histories. Data extraction and management systems and software such as CSAGES (Calcified Structure Age-Growth data Extraction Software), provide much more detailed and precise quantitative information to interpret age and growth history of fish from their calcified structures. Statistical advances also provide analysis of incomplete growth histories by means of the temporal signature technique. This technique makes information from older, "unageable" fish available. Finally, archival material allows scientists to gain information from past ecosystems. Increasingly important in an era of global environmental change, comparing growth rates and genetic variation between fish populations (past and present) allows for a better understanding of populations' fluctuations and effects of management actions. But perhaps the most important technology for saving archive material has yet to be developed. It is when these technologies are developed that the true value of the archives will be determined. We suggest that these reasons are sufficient for maintaining archival collections at a time when fiscal resources are increasingly limited.

Less is more at Mille Lacs by George Spangler

Minnesota (Star Tribune) - There is much to celebrate in the decision of Judge Michael Davis on the exercise of the Mille Lacs Band's hunting and fishing rights under terms of the treaty of 1837. The results should benefit the future of fishery management in Minnesota. Judge Davis has provided an opportunity for the adversarial relationship between state government and Native Americans to mature to a new level of respect, cooperation and mutual support for stewardship of natural resources. Commissioner of the Department of Natural Resources Ron Sando, and Don Wedll, commissioner of natural resources for the Mille Lacs Band, now have a court-sanctioned mandate to move forward toward effective fishery management on Lake Mille Lacs. Davis' refusal to grant sole management authority to the state is based directly on Article I, Section 8 of the U.S. Constitution. Surprisingly, the Davis decision guarantees that the Minnesota DNR will have a legitimate role in future management of the Mille Lacs resource. Having management responsibility vested both in the state and in the band is clearly preferable to the situation that occurred in Washington State after a federal court decision where fishery management authority reverted to the court when the state abdicated its responsibility to manage trout and salmon. Most important though, is assurance that management decisions can be received by Indians and non-Indians alike without the suspicion that has clouded the Wisconsin DNR's attempt to manage the treaty fishery in the ceded territories of Wisconsin. It is clearly in the interests of both management parties to work to preserve a high quality fishery for generations. The management protocol accepted by the court for Lake Mille Lacs represents the collective best judgment of resource managers for both the Mille Lacs Band and for the state of Minnesota. The inconvenience that the Minnesota DNR will experience in this arrangement is a small price to pay for the additional management expertise already provided by the Tribal governments. We should expect no less than a continuation of the long history of successful negotiation that the DNR has demonstrated with Indian bands in Ontario and border states.

The Davis decision provides an opportune moment for management of those Minnesota fisheries that are beginning to require reductions in the fishery exploitation rate. The Wisconsin experience provides an interesting comparison. Since the middle of the 1960s, the walleye fishery of northern Wisconsin has regularly exhibited signs of overfishing. Management targets have been set by the Wisconsin DNR at 35 percent of the adult fish stock, an exploitation rate viewed by many fishery scientists as too high to sustain a quality fishery. In some instances, even in the absence of a tribal fishery, the management target was being exceeded by an additional 10 to 15 percent.

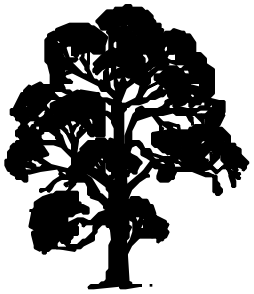
Until Wisconsin federal judges reaffirmed tribal access to fishery resources, state management regulations were not sufficient to prevent occasional overfishing by the recreational fishery. The court-mandated requirement for management within a safe harvest level has since resulted in significant reductions in the number of fish killed, even though the total catch has increased and the tribal fishery has been revitalized. From 1980 to 1989, estimated angler catch of walleye, including released fish, averaged 910,000 fish annually in Wisconsin. During 1990-94, the annual catch increased to an average of 1.2 million fish.

In Minnesota, an annual safe exploitation ceiling has

been estimated for Lake Mille Lacs at 24 percent of the adult stock. This is a reasonable management target considering natural mortality and the need to improve the quality (size and age structure) of the stock. Achieving this level will require a significant reduction in angling harvest, something unlikely to have occurred through bag limit regulation alone. The recent management recommendations for either a 15-inch minimum size limit, or for an exclusive slot limit of 16 to 20 inches will probably succeed in achieving the safe exploitation level, even allowing for a tribal harvest this year of approximately 40,000 pounds. Neither of these regulations would eliminate an active recreational fishery, even though a large number of fish will have to be released. The Davis opinion offers a further benefit for Minnesotans. By refusing to declare a fixed proportion of the stock for Indian use, our options remain open for adjustment of the Indian and non-Indian shares in accordance with mutually acceptable management goals and future needs. This uncertainty is unsettling to those who fear a great increase in Indian fishing, but the record in Wisconsin suggests that treaty fishing may not increase dramatically. There, the number of spearers has been relatively stable, averaging less than 400 annually over the past decade.

The final blessing in the decisions of Judge Davis, and before him, Judge Diana Murphy, is that all Minnesotans can be justly proud of honoring an agreement, entered in good faith over 150 years ago, to share in the abundance of natural resources that our state offers. Non-Indians can also be grateful that the Mille Lacs Band has not been granted reparation for the loss of access to these resources. Clearly, the state of Minnesota should think twice before appealing the Davis opinion. For more information on treaty rights to hunt, fish and gather in Minnesota and elsewhere in North America, readers are encouraged to examine the Web site (minus the hyphen) at http://www.fw.umn.edu/indigenous

-- George Spangler is professor of fisheries at the University of Minnesota. Published on April 6, 1997. Reprinted with permission.



Fisheries Information Network

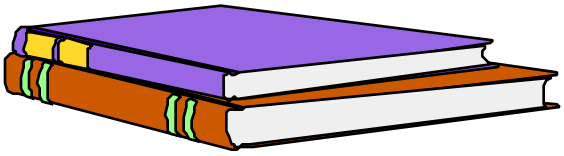
By Jeff Reed

By the time you are reading this we will hopefully know the outcome of the DNR's attempt at a license increase. As I write those in fisheries were very cautiously optimistic about the outcome. But as volatile as resource issues were this winter, anything could happen. I sincerely hope that each and everyone of you took the time to make some contacts in support of the increase. As a group we can not be effective unless each and everyone of us is active.

I recently read an article about how a small group of animal rights activists had succeeded in banning the use of live bait in parts of Europe. Anglers now must first humanely kill their bait, which are usually maggots, prior to placing them on the hook! Now maggots have feelings too!

Other than the license increase things have been fairly quiet on the political front. Some things to keep an eye on include a renewed, likely very vigorous, attempt at major flood control in the Red River Valley and legal maneuvering around aquatic plant management rules. I recently heard 7th District Congressman Colin Peterson talking about the lack of flood control projects in the RRV, he assured his constituents that this would be looked at very closely once the flood waters subsided (assuming they ever do!). According to Jed Anderson, DNR Region 1 Aquatic Management Specialist, the use of automated weed control devices is on the rise. "Weed Rollers" work by continually rolling over an area preventing the vegetation from growing. They can also create turbidity problems in areas with mucky or highly organic sediments. Because the devices can disrupt the lake bed the DNR's Division of Waters has asked to become involved, at this point they are very reluctant to do so.

If you hear of anything that could affect our fisheries and need attention please feel free to contact me. Jeff Reed 320.634.4574



Interesting Articles and Publications

Compass and Gyroscope: Integrating Science and Politics for the Environment. 1993. Kai N. Lee. Island Press. ISBN 1-55963-197-X. Dr. Lee, using his experience from the Northwest Power Planning Council and trying to rebuild the salmon of the Columbia Basin, provides advice on how humans can work together to solve environmental problems. Although I found the last part of the book difficult reading, Dr. Lee provides good advice for resource managers. Recommended reading.

On the Sex of Fish and the Gender of Scientists. 1994. Daniel Pauly. Chapman and Hall. ISBN 0-412-595400. This book is a collection of 27 of Pauly's essays. As Dr. Pitcher states in the foreword, "this is a book that no-one will know they need until they see it". This was great reading, written by a fisheries scientist I highly respect.

Evolution of Aquatic Angiosperm Reproductive Systems. 1996. C. Thomas Philbrick and Donald H. Les. BioScience 46(11):813-826. If you are interested in the asexual reproduction of aquatic plants, you should read this paper. Did you know that in Europe *Elodea canadensis*, which is an exotic in Europe, consists of only female plants?

Evaluating the Predictive Power of Regression Models. 1996. Yves T. Prairie. Can. J. Fish. Aquat. Sci. 53:490-492. Dr. Prairie describes the statistical meaning of the r^2 statistic, and he provides an understandable measure of the predictive utility of regression models.

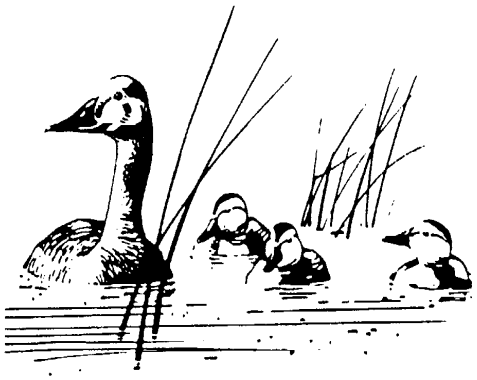
Bayesian Inference. 1996. Ecological Applications 6(4):1034-1104. If you are wondering if you should use Bayesian statistics, read the pros and cons of going down that dark road. If you are to believe Dr. Dennis, then you must choose between frequentist and Bayesian statistics. May the force be with you.

Creativity Corner: Solutions for Today and Tomorrow

Problem: Feel the need for more knowledge to maintain yourself as a valuable employee.

Solution: AFS and the Chapter have excellent courses. In addition, we are fortunate since in Minnesota we have the Institute for Sustainable Resource Management Education. The Institute works out of the University of Minnesota, and it's goal is to facilitate communication and information exchange. It produces an excellent calendar on information about continuing education offerings in forestry, fisheries, wildlife, biology, and other resource fields. Check their web site and see for yourself--to help yourself: www.frc.state.mn.us/collaborate/ISRME.htm. Or call 612.624.4986.

Submitted by: Paul Radomski



Editorial

editors note: *As a species are we capable of regulating or managing our own population? Aldo Leopold once contemplated "whether we will prove capable of regulating our own future human population density by some qualitative standard, or whether, like the grouse , we will automatically fill up the large biological niche which Columbus found for us, and which Mr. Edison and Mr. Ford, through 'management' of our human environment, are constantly making larger." I have taken the Section of Fisheries lake management plan form and altered it for a state human management form. Some may ask why bring up this taboo--the reason is that most fisheries management problems relate to the human population explosion dilemma. As a respected fisheries specialist in Brainerd says "fish management starts in the bedroom."*

The editor welcomes thoughtful comments. My addresses and phone numbers are on the front. People, especially bureaucrats, who only wish to harass may send their comments via e-mail to bulls_hit@oppressive.gov at the Joseph Stalin Institute of Caring, Petty Problems Division.

STATE MANAGEMENT PLAN

(Use reverse side and add additional sheets as needed)

Region	State	Number of People	Acreage	People per sq mile	Largest Urban Area
MW	Minnesota	4,657,800	79,548 sq miles	59	Twin Cities

Long Range Goal:

To maintain the human population between 1 and 4 million with the current spatial distribution, or up to 5 million with an urban concentration plan. Work with the people of Minnesota to improve the quality of life, alter nonsustainable habits, and make progress to a sustainable culture.

Operational Plan:

1. Restore a 400 square mile block to a native prairie ecosystem in the southwest
2. Restore 100 miles of channelized small river miles to their natural meandering ways
3. Initiate a program to reduce teen pregnancies; funded by a television viewing tax
4. Halt old growth forest cutting
5. Protect green spaces within cities and transform abandoned industrial areas into parks
6. Build an outdoor baseball stadium in Minneapolis
7. Promote emigration to warm climates
8. Outlaw power lawn mowers, personal watercraft and snowmobiles; finance 6 petroleum-based theme parks instead
9. Enact legislation that requires people to walk to the grocery store
10. Increase the number of hours children must go to school, and use an energy tax to improve education
11. Finance 6 mass transit systems to serve the Twin Cities and surrounding areas

Mid Range Objective:

Educate people on the concept of human carrying capacity and have open and wide ranging discussions on how lifestyle and consumption determine how many people the Earth and Minnesota can sustain

Potential Plan:

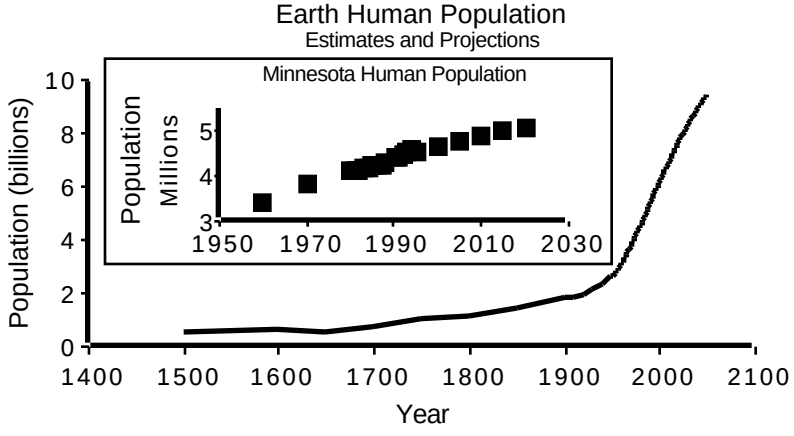
1. Determine how much land is needed to support the people of Minnesota without having to import energy and materials and export wastes ($1 m)
2. Study emigration and immigration patterns ($2 m)
3. Study China's population control efforts ($1 m)
4. Eliminate taxes or subsidies that contribute to non-humanized ecosystem alteration ($1 b)

Primary Species Management	Secondary Species Management	For Central Office Use Only	
Homo sapiens, corn, aspen, cattle, soybeans	wheat, nonnative grasses, chickens, deer, hogs, walleye, beets		
		Entry Date	**Year Resurvey**
State Supervisor's Signature	**Date**	**Stock Species-Size-Number per Acre Pr./Sec.**	
Regional Supervisor's Signature	**Date**	**Schedule**	**Year Beginning**

NARRATIVE:

(Historical perspectives and summaries)

Population Manipulation
[ ] YES [ ] NO Year



News from Around the World
Submitted by Gene Buck and others

Shark Limited Access. NMFS conducted a series of 11 public hearings along the Atlantic coast on an NMFS proposal (Dec. 27. 1996, Federal Register, p. 68202) to create a two-tiered (direct or incidental catch) permit and limited access system for 39 species of sharks in the Atlantic Ocean, Gulf of Mexico, and the Caribbean. NMFS determined this fishery to be severely overcapitalized and proposes to eliminate more than 2,300 of about 2,700 current permits in this fishery; only 134 fishermen regularly fish for and land sharks. [NOAA press releases]

LA Gillnet Regulations. On Jan 9, 1997, a Louisiana State District Judge Janice Clark upheld portions of state law banning the use of gillnets on weekends, but rejected measures that required commercial rod and reel applicants to have held gillnet licenses in 2 of the past 3 years. Commercial fishermen had requested Judge Clark to reconsider her May 1996 ruling upholding the gillnet limitation law. [Assoc Press]

Enron-PGE Merger Agreement. In early January 1997, a group of environmental and consumer groups (including American Rivers, Trout Unlimited, and the Natural Resources Defense Council) signed an agreement with Enron and Portland General Electric (PGE) to support the companies' merger plans in exchange for a commitment by the companies to spend $1 million per year for 10 years for habitat restoration on the Deschutes, Clackamas, and Sandy Rivers, where PGE hydropower dams are located.[Dow Jones News]

PACFISH. On Dec. 30, 1996, Bureau of Land Management (BLM) officials announced that PACFISH measures, providing additional protection for salmon habitat on 2.6 million acres of BLM lands in WA, OR, and ID by establishing buffer zones along rivers, would be extended until the Interior Columbia Basin Ecosystem Management Project is completed, probably late in 1997. PACFISH also is applicable to 13.2 million acres of U.S. Forest Service lands. [Assoc Press, Federal Register, Greenwire]

Hatchery Damage from Storms. On Jan. 3, 1997, U.S. Fish and Wildlife officials reported that at least 3 million chinook salmon and steelhead trout eggs, juveniles, and adults were killed when mud and silt from flooding waters damaged the Coleman National Fish Hatchery, near Anderson, CA. On Jan. 5, 1997, officials of the ID Dept. of Fish and Game reported that heavy snow collapsed a bridge supporting water supply lines to the Sandpoint Fish Hatchery, cutting off water and resulting in loss of about 1,500 pounds of westslope cutthroat trout as well as 19 endangered Kootenai River white sturgeon and an undetermined quantity of juvenile fall chinook salmon. [Assoc Press]

Synthetic Pyrethroid Pollutants. On Jan. 9, 1997, Scottish scientists reported in the New Scientist that extremely toxic new pesticides -- synthetic pyrethroids -- used in sheep dips are damaging British rivers by killing invertebrate fauna. [Reuters]

Fishery Enforcement - Indian Reservations. On Jan. 9, 1997, the 8th U.S. Circuit Court of Appeals upheld a lower court decision that a state can regulate fishing by non-indians on private lands on an indian reservation and along reservoirs that border a reservation. This decision was on appeal of a 1980 lawsuit by the Lower Brule Sioux Tribe against the state of South Dakota. [Assoc Press]

Walleye Violations. On Jan. 3, 1997, Erie County (OH) Court Judge Paul Lux sentenced an individual, convicted on Dec. 13, 1996, of illegally taking and possessing 230 pounds of walleye from Sandusky Bay, to 10 days in jail plus $860 in fines and restitution. On Jan. 7, 1997, a SD Circuit Court judge ordered two individuals, convicted of possessing 47 more walleyes each than the legal limit from the Missouri River on Sept. 29, 1996, to 96-120 days in jail plus fines of $2,350. Both individuals were fined additionally for damages to a motel room where they cleaned the fish. [Assoc Press]

Cancer and Nuclear Waste. In early January 1997, the British Medical Journal published a study by French scientists reporting that children who regularly played on beaches near a nuclear reprocessing plant at La Hague, France, had an increased risk of contracting leukemia. Those who ate seafood at least once a week or regularly visited the beaches also were more prone to the disease. [London Independent via Greenwire]

Steelhead Trout Recovery. On Jan. 16, 1997, ID Governor Phil Batt released an updated state strategy

for steelhead trout recovery to forestall Endangered Species Act listing. The state strategy involves improving habitat, isolating hatchery releases from wild steelhead production areas to avoid genetic deterioration, and addressing problems with wild fish harvesting in Columbia River downstream. The strategy also advocates progress toward a permanent drawdown of the John Day Pool. [Assoc Press]

John Day Drawdown. In early January 1997, Russel George (former manager of the Army Corps of Engineers Reservoir Control Center) completed a 9-page report for a group of 7 utilities and irrigators (the Tri-Cities-Hermiston Group), concluding that a proposed 80-foot drawdown of the John Day Pool to benefit salmon could threaten the Pacific Northwest's power supply and eliminate important flood control measures for the Portland, OR-Vancouver, WA area. The report forecast a $255 million loss in energy production, with higher electric rates and more power outages likely. The Army Corps of Engineers prepared a request for the release of FY1997 funds for further studies of the feasibility of drawing down the John Day Pool to minimum operation pool level to benefit salmon, after receiving a letter from NMFS justifying these further studies and suggesting that a deeper drawdown to natural river level should be considered. [Assoc Press, Northwest Power Planning Council "Congressional Update"]

Bull Trout. On Jan. 14, 1997, U.S. Fish and Wildlife Service officials announced that the federal government would not appeal the Nov. 13, 1996, ruling by U.S. District Judge Robert Jones, ordering the FWS to review whether bull trout should be protected under the Endangered Species Act. Under Judge Jones' ruling, a new finding on bull trout is to be issued by FWS by Mar. 13, 1997. [Assoc Press]

Whirling Disease. On Jan. 13, 1997, U.S. Fish and Wildlife Service officials announced that researchers at the Univ. of California-Davis have developed a DNA-based test to better (i.e., more sensitive and much earlier) detect the parasite responsible for whirling disease in trout. [Assoc Press]

Fenholloway River Fish Mutations. On Jan. 12, 1997, the St. Petersburg Times reported that researchers believe that a paper mill on Florida's Fenholloway River is the source of pollutants causing mutations discovered in the river's fish. The mill is reported to be spending more than $39 million on improvements to address cleanup concerns, including construction of a 15-mile pipeline to discharge treated waste at the river's mouth. [St. Petersburg Times and USA Today via Greenwire]

Fishing Trespass Appeal. In early January 1997, the New York State Court of Appeals heard arguments on a lower court decision wherein sport anglers have sought $2 million in damages and authorization to fish through private property on Oswego County's Salmon River. The lower court ruled that the private landowner cannot reserve fishing rights to himself nor prohibit fishermen from anchoring boats or wading into the River through private property since the river is navigable. [Assoc Press]

Proposed Shark Regulations. ON DEC. 19, 1996, NMFS ANNOUNCED new proposed regulations to better protect and rebuild Atlantic shark populations. The new regulations propose to reduce the annual commercial quota for large coastal sharks by 50%, prohibit directed commercial fishing for five species of sharks (basking, whale, sand tiger, bigeye sand tiger, and white sharks), reduce the sport catch of sharks, establish an annual commercial quota for small coastal sharks, establish a tag-and-release sport fishery for white shark, prohibit filleting of sharks at sea, and improve shark data collection. [Center for Marine Conservation press release, personal communication, NOAA press release]

Columbia Basin Ecosystem Report. On Dec. 18, 1996, a team of U.S. Forest Service/Bureau of Land Management scientists released their "Interior Columbia Basin Ecosystem Management Project" report, concluding that wild salmon populations inhabit less than 33% of their historic range, but that enough habitat remains to possibly rebuild healthy populations. In addition, the report concluded that habitat restoration and protection alone will not ensure healthy fish populations, but that the effects of dams, hatcheries, and fish harvest must be addressed. Wild salmon are doing best in areas with the fewest roads. [Assoc Press]

Canadian Salmon Fleet Restructuring. On Dec. 13, 1996, a report by the President of Memorial Univ. of St. Johns, Newfoundland was released, recommending that fishermen be given a stronger role in catch allocation decision-making, that sport fish license fees be increased, that recreational fishing be given a higher priority when fish stocks are low in abundance, that a long-term allocation policy be developed to give all sectors knowledge of future catch sharing, and that commercial fishermen should be fairly compensated if displaced by new salmon allocation rules. [Assoc Press]

Indiana Suspends Yellow Perch Fishing in Lake Michigan. On Dec. 19, 1996, Indiana Dept. of Natural Resources officials announced that Indiana would join Wisconsin to prohibit commercial fishing for and

reduce the sport harvest of yellow perch in Lake Michigan in 1997. The Lake Michigan perch population is reported to have decreased 80% since 1990. [Assoc Press]

Zebra Mussel Costs. On Jan. 22, 1997, Ohio Sea Grant researchers reported at the Michigan Sea Grant Conference that zebra mussel control costs in the Great Lakes area averaged $30 million annually from 1992 through 1994. [Assoc Press]

Michigan Fish Consumption Advisories. On Jan. 2, 1997, U.S. Environmental Protection Agency officials sent Michigan Governor John Engler a letter stating that the federal government will issue fish consumption advisories where state advisories are deemed inadequate. Federal officials are concerned with Michigan's intent to release annual fish-consumption guidelines with minimal or no restrictions on eating salmon from the Great Lakes, which may have elevated PCB contaminant levels. [Assoc Press]

Halibut Charterboat Regulation? On Feb. 4-8, 1997, meetings, the North Pacific Fishery Management Council is scheduled to discuss whether limits should be placed on the halibut charterboat sport fishery to limit its halibut catch. [Assoc Press]

Florida Keys National Marine Sanctuary. On Jan. 28, 1997, the FL state cabinet voted 7-0 to approve a joint state-federal management plan for the Florida Keys National Marine Sanctuary. The plan would ban fishing and restrict boating and diving in 10-14 sq. miles of the 2,800 sq. mile sanctuary -- about 0.5% of the area. However, the plan guarantees a review by the FL Marine Fisheries Commission of 19 proposed no-fishing areas before boats are excluded on July 1, 1997. The plan creates research teams to study coral problems, establishes regulations to limit reckless boating, and provides increased protection for seagrass beds. In addition to coral reef protection, the plan provides funding for cleaning up sewage pollution in Florida Bay and the Straits of Florida. [Assoc Press, Miami Herald via Greenwire]

Fishing License Plates. On Jan. 28, 1997, the FL State Cabinet approved a new specialty automobile license plate showing a largemouth bass and 'Go Fishing.' The fees from the purchase of this plate will go to the Game and Fresh Water Fish Commission for fishery management programs. [Assoc Press]

Yellow Perch Fishing in Lake Michigan. On Dec. 19, 1996, Indiana Dept. of Natural Resources officials announced that Indiana would join Michigan and Wisconsin to prohibit commercial fishing for and reduce the sport harvest of yellow perch in Lake Michigan, beginning Jan. 1, 1997. On Dec. 20, 1996, officials of the Illinois Dept. of Natural Resources announced that Illinois would also prohibit commercial fishing for yellow perch in Lake Michigan as well as reduce sport harvest of this species. The Lake Michigan perch population is reported to have decreased 80% since 1990. [Assoc Press]

Lead Sinker Pollution. On Dec. 17, 1996, U.S. District Judge Lynn Winmill ruled that two environmental groups (Idaho Sporting Congress; Land and Water Fund of the Rockies) could sue Computrol Inc. (Meridian, ID) for failure to file toxic release reports under the Community Right-To-Know Act for its lead sinker manufacturing operations. Computrol officials claim no lead is released and thus there was nothing to report. [Assoc Press]

Barton Springs Salamander Deaths. On Dec. 6, 1996, scientists discovered 12 dead Barton Springs salamanders in Zilker Park, Austin, TX. Save Our Springs Alliance filed a lawsuit in early November 1996 attempting to force the U.S. Dept. of the Interior to list the species as endangered, while U.S. Fish and Wildlife officials have criticized TX efforts to protect the salamander. [Greenwire]

San Juan River. On Dec. 6, 1996, the NM Game Commission heard public testimony seeking intervention in efforts to maintain a minimum 500 cubic feet per second flow below Navajo Dam on the San Juan River to protect rainbow and brown trout populations. The Bureau of Reclamation is experimenting with lower flows between November and February to study the effects of low water flows on 2 endangered fish species downstream. The Commission declined to take action. [Assoc Press]

NRDC Fisheries Report. On Feb. 11, 1997, the Natural Resources Defense Council released a report, "Hook, Line, and Sinking," claiming that overfishing, habitat loss, and waste are causing declines in species marketed as popular consumer seafood items, such as swordfish, red snapper, Atlantic cod, monkfish, lemon sole (winter flounder), and Gulf of Mexico shrimp. Atlantic sea scallops and black sea bass were also identified as at risk, with sturgeon identified as in danger of extinction. [Assoc Press, Reuters]

Power Plant Damage? On Feb. 6, 1997, state and federal regulators and the New England Power Co. announced an interim agreement on operation of the Brayton Point power plant in Somerset, MA. State officials were concerned that the plant's hot water discharge may have reduced some fish species in Mount Hope Bay by as much as 86%. The agreement calls for a 30% reduction in the amount of water

discharged by the plant as well as a 23% reduction in thermal output for two months (during the winter flounder spawning season) to allow for continued discussions. [Providence Journal-Bulletin via Greenwire]

San Juan River. On Feb. 5, 1997, environmental consultants reported to the San Juan Water Commission that endangered Colorado squawfish and razorback sucker might never recover in the San Juan River, NM, due to predation on their young by nonnative fish (brown trout and catfish) and because the river may be unsuitable for spawning. Regulation of water flow to benefit these endangered species had been contentious. [Assoc Press]

Michigan Fish Consumption Advisories. On Feb. 7, 1997, EPA officials announced that the EPA was reviewing what steps to take to "protect the health of the people of Michigan" after Michigan declined to issue a salmon advisory similar to other Great Lakes states relating to PCB contaminants. [Assoc Press, MI Dept. of Community Health press release]

Chesapeake Bay. On Feb. 27, 1997, the state of Virginia announced the launching of "Businesses for the Bay" whereby companies will be encouraged to set voluntary goals for reducing pollution beyond what is required by law in exchange for awards and favorable publicity when goals are achieved. The concept for "Businesses for the Bay" was developed by the Chesapeake Bay Program, a regional effort administered by the Environmental Protection Agency. [Assoc Press]

Swordfish Limited Access. On Feb. 26, 1997, NMFS is scheduled to publish proposed regulations in the Federal Register amending the Atlantic swordfish fishery management plan to establish a limited access program for the Atlantic swordfish fishery, with eligibility criteria based upon historical participation in the fishery. Limited entry permits would be transferable in restricted circumstances related to vessel replacement.

Logger Charged on Salmon Damage. On Feb. 13, 1997, an Oregon logger was indicted in Clatsop County Circuit Court on 3 felony charges of knowingly damaging 10 coho and chinook salmon redds and habitat when bulldozing a log jam on the north fork of the Nehalem River in November 1996 and later logging evergreens down to the tributary bank. The maximum sentence on each charge could be as much as 5 years in prison and a $100,000 fine. [Assoc Press]

Hatchery Coho Lawsuit. On Feb. 11, 1997, four Northwest Tribes (Yakama, Warm Springs, Umatilla, and Nez Perce) filed suit in U.S. District Court, asking Judge Malcolm Marsh to order state and federal agencies to release 2.8 million more hatchery-reared juvenile coho salmon in the Columbia River above Bonneville Dam this year. The Tribes accuse OR, WA, and the federal government of failing to comply with a 1988 Columbia River Fish Management Plan, which they interpret as requiring the release of 9 million coho above Bonneville Dam this year; current federal and state plans are to release 6 million coho above Bonneville Dam. On Feb. 20, 1997, U.S. District Judge Malcolm Marsh ordered the federal government and the states of OR and WA to devise a plan by Mar. 4 to release more hatchery-reared coho salmon into the Columbia River above Bonneville Dam. [Assoc Press, Seattle Daily Journal of Commerce via Greenwire]

Savannah River Trout. On Feb. 21, 1997, officials of the GA Dept. of Natural Resources announced that stocking of the Savannah River between Thurmond Dam and Augusta, GA, will begin on Mar. 7, 1997. The test stocking of 10,000 rainbow trout will determine the feasibility of maintaining a trout population in low oxygen waters below Thurmond Dam. Meanwhile, the Army Corps of Engineers is considering replacing Thurmond Dam turbines with vented models to increase dissolved oxygen levels below the Dam. [Assoc Press]

Salmon Fishing EIS. On Feb. 3, 1997, NMFS was scheduled to hold the first of four public hearings in the Pacific Northwest to better determine the scope of an environmental impact statement on the effects of fishing on threatened and endangered salmon. A decision on a lawsuit by the aluminum industry ordered such an EIS. [Assoc press]

Dam Removal Poll. In late January 1997, Idaho Consulting International conducted a telephone poll of 412 registered ID voters on whether one or more Lower Snake River dams should be removed to restore salmon and steelhead runs. While 49% supported dam removal, 47% opposed this action.[Assoc Press]

FLORIDA MAN PLEADS GUILTY TO CFC CONSPIRACY. MIAMI, Florida - Lewis M. Steinberg of Aventura, Florida, pleaded guilty on March 26 in U.S. District Court to one felony count of conspiring to violate the federal Clean Air Act. Steinberg, who is the president of Stonehill Trading Inc., admitted to being involved in the diversion of the ozone-depleting chloroflurocarbon (CFC) refrigerant R-12 into U.S. commerce. The R-12 had been imported into the United States on the condition that it would be shipped to other countries. Instead, the R-12

was sold domestically in violation of U.S. import quotas and without paying federal excise taxes. The importation of CFC refrigerants is banned in the United States. The release of CFCs into the air depletes the ozone layer. Depletion of the ozone layer leads to an increase in ultraviolet radiation at the Earth's surface which can lead to increased rates of cataracts and skin cancer in humans. Steinberg faces a maximum of five years of imprisonment and/or a maximum fine of $250,000. The case was investigated by EPA's Criminal Investigation Division, the U.S. Customs Service and the Internal Revenue Service.

IN STREAM: Three biologists say that in-stream restoration projects aren't working and won't save salmon, the Eugene OR Register Guard reports based on a paper to appear in the May journal of the American Fisheries Society (AFS). Forest Service biologist Jeff Dose, one of the authors, says that "fundamental change" is needed in logging, farming and grazing practices: "The first step in restoration has to be a cessation of those actions that are causing the problem." An AFS report says that OR Gov. John Kitzhaber's coho plan relies too much on voluntary landowner efforts and has "shaky" financial footing. The National Marine Fisheries Service must decide by April 25 on listing the coho.

OCEAN PLAN: The U.S. needs a comprehensive plan to protect the oceans, Rep. Sam Farr (D-CA) told the California and the World Ocean Conference held in San Diego CA this week. "The coast is being destroyed and we haven't done enough to stop it," Farr said. "As Americans, we still don't commit as much money to the ocean as we do to the atmosphere." Farr cited kelp forest "ghost towns," the loss of black sea bass, and the decimation of 11 species of abalone as evidence of coastal and ocean damage.

PRESSURE?: A federal judge ruled that the decision of Interior Secretary Bruce Babbitt to withdraw the proposed listing of the Barton Springs Salamander under the ESA was "arbitrary and capricious" and ordered Babbitt to make a new ruling on the listing within 30 days. A release from Save Our Springs, the plaintiff in the case, said that Judge Lucius Bunton found that it was improper for Babbitt to withdraw the listing based on a conservation agreement between the FWS and various TX state agencies. Bunton noted that "strong political pressure was applied" to Babbitt and "political lobbyists for the development community worked with political appointees of the Secretary."

FISH MASTER: According to AP writer Scott Sonner, Oregon environmentalists are asking US District Judge Marsh to order federal agencies to return the Columbia River to a colder, faster moving and more natural state by drawing reservoir levels down. The groups argue that the National Marine Fisheries Service, the Army Corps of Engineers and the Bureau of Reclamation are not doing enough to even stabilize the salmon populations at the present level of 2 percent of what they once were. Lorraine Bodi of American Rivers claims, "They call themselves the federal family. We call them the dysfunctional federal family."

DUPONT SWAMPED OUT?: AP reports that Secretary of Interior Bruce Babbitt inspected the site of a proposed Dupont titanium mine next door to the Okefenokee swamp and recommended that the project be scrapped. Babbitt said he would write a letter to the board of directors of Dupont recommending that the mine proposal be abandoned. Babbitt said, "I understand the imperatives of an industrial economy, but this is a common mineral located within a very uncommon swamp…This is not an appropriate neighbor for a national wildlife refuge."

TURTLE RECORDS: AP reports the 9th Circuit Court of Appeals broadened access to USFWS records in a ruling on a lawsuit brought by Friends of the North Coast Fork and the Oregon Natural Resources Council. In 1993 USFWS declined to list the western pond turtle under the ESA and refused to release the record of administrative proceedings unless the environmental groups paid for duplication fees. The government argued they were not obligated to provide the records since they were on file 100 miles away. The Court found that the groups had established a need for the documents and could not be turned down because the documents were available at distant reading rooms.

COHO LETTER: A letter send to Commerce Secretary William Daley from 18 Members of Congress asks that the Northern CA/Southern OR coho salmon be listed immediately under the ESA. The letter says that delaying the listing "may very well cost taxpayers more in recovery costs in the future." The letter urges that habitat protection standards must also be developed and implemented. The Members of Congress urged Secretary Daley to make coho recovery a top priority since "recovery…will be good for the environment, good for the fishing industry, and good for the economy."

SCIENTISTS QUESTION ESA IMPLEMENTATION: A group of nine eminent biologists released a report last week accusing the federal government of not "implementing the ESA in a scientifically sound manner," according to a press release from Defenders of Wildlife. The paper criticizes the Clinton administration's use of Habitat Conservation Plans (HCPs) stating, "HCPs have [the]

potential to become habitat giveaways that contribute to, rather than alleviate, threats to listed species and their habitats." The paper also suggests that the "no surprises" policy is "contrary to basic principles of sound science." A separate letter send to President Clinton by three authors of the report expresses additional concerns: "Despite its successes, effectiveness of the ESA has been hampered by an apparent reluctance of the federal government to enforce and properly implement the law."

IDAHO GRAZING: According to Greenwire, the Portland Oregonian reported that the granting of a 260,000 acre grazing allotment to Idaho ranchers by the BLM will face a strong court challenge from environmental groups. In denying a temporary restraining order to halt the lease, Judge Lynn Winmill said the groups have "unquestionably shown a likelihood that they'll eventually prevail on the merits of their claims." The Judge points to a BLM study showing "widespread and longstanding violations of the Clean Water Act."

SPECIES TREATY?: A joint press statement by the Canadian and the US Endangered Species Coalitions expresses concern for "a lack of substance" in a bilateral agreement for the protection of trans-border endangered species. The release says that lack of habitat protection in the proposed Canadian Endangered Species Protection Act and the bilateral accord "will download the responsibility of habitat protection solely to the US…While Canada gets a free ride, side stepping its responsibility to protect endangered species habitat." President Clinton and Canadian Prime Minister Chretisn were expected to sign the treaty.

WHO PAYS FOR LOGGING ROADS?: Greenwire reports that influential Democrats are questioning the Clinton Administration's decision to remove public subsidies for timber roads in national forests. Clinton's FY'98 budget calls for taxpayer savings of $55 million from logging companies footing the bill for their logging roads.

Cape Cod Fishermen Fined $4 Million Michael Tighe 03-Apr-1997 BOSTON (AP) -- In the largest fisheries fraud case in U.S. history, two Cape Cod brothers were fined $4.3 million and forever banned from federal waters for illegally catching depleted scallops and groundfish and then lying about it. "They violated practically every significant regulation we had on the books," Mitch MacDonald, an enforcement attorney with the National Oceanic and Atmospheric Administration, said Thursday.

Sorry Sucker: Fish Not on List Matthew Fordahl 02-Apr-1997 SAN DIEGO (AP) -- The Santa Ana sucker, a fat-lipped fish that vacuums scum from stream beds, is threatened with extinction but won't be listed as endangered because other species are in more jeopardy, the government said Wednesday. "It's our conclusion that we should propose it for listing," said Paul Barrett, a biologist with the U.S. Fish and Wildlife Service in Carlsbad. "But we have such a large workload that it's not the highest priority. When we close the books on those, we'll work on this one."

MADISON, Wis. (AP) -- Commercial and sport fishermen agree with the Wisconsin Natural Resources Board in reducing the allowable catch of yellow perch in Lake Michigan's Green Bay. The decision is meant to leave more fish to increase the population of the fish.

KENTUCKY: Smallmouth bass limits on a stream fishery. A 12-16 inch protective slot was implemented in 1993 on smallmouth. Results indicate a four-fold increase in the numbers within the slot and above the slot. Evaluation which includes a control section will continue for 2-3 years. [AFS, fish management section]

OKLAHOMA: Planting aquatics to improve fish habitat. The Oklahoma Fishery Research Lab recently placed aquatic vegetation test plots in Lake Arcadia. Six species of submergents were planted in water ranging from 18 inches to 3 feet. Cages were installed around plants. Plots will be monitored until spring. They have already tested the transplanting of water willow in Bell Cow Lake. The water willow is now being planted in shallow, sheltered coves. [AFS, fish management section]

MINNESOTA: Dr. David Tillman is the 1996-97 recipient of the Robert H. MacArthur Award. This award honors distinguished ecologists in the middle of extraordinary careers. [Ecological Society of America]

America Losing War Against Harmful Exotic Species

SEATTLE, Washington, Feb. 18'97 (ENS) - America is facing a widespread invasion of harmful exotic species, according to some of the nation's top scientists. Now they are appealing to the government for help to stop. A letter of petition to Vice President Al

Gore asking for a Presidential Commission to evaluate new strategies to prevent and manage invasions of harmful exotic species is being widely circulated in the American scientific community.

The tone of the scientists' letter is urgent. "The situation is deteriorating every day. We are losing the war against invasive exotic species, and their economic impacts are soaring." The letter and request for signatures was introduced at the annual conference of the American Association for the Advancement of Science in Seattle. The scientists hope to have hundreds of signatures by March when the petition will be mailed to the vice president.

The petition says, in part, "A rapidly spreading invasion of exotic plants and animals not only is destroying our nation's biological diversity but is costing the U.S. economy hundreds of millions of dollars annually. Biological invasions produce severe, often irreversible impacts on agriculture, recreation, and our natural resources. In some instances, they even have major human health consequences. The 21st century holds the clear threat of further devastating invasions unless a coordinated national effort is established."

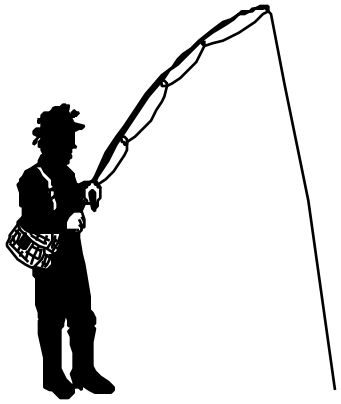
In 1993, 25 scientists drew the attention of the vice president to the problem of harmful exotic species, and the petition notes that he responded with interest in solving the problem. The government passed the National Invasive Species Act in 1996. But there are many problems with that law as the scientists' letter of petition explains. "Although the National Invasive Species Act of 1996 was an important step forward," the letter states, "the overall national effort to confront this crisis remains inadequate; it is primarily piecemeal, ad hoc, and reactive. For example, more that 20 federal agencies deal with invasive exotic species, but their policies and actions are uncoordinated and largely ineffective. There is not even a comprehensive data base on the problem. Innumerable state agencies and private organizations also operate in this arena, often entirely unaware of one another's problems and actions. Actions of various managers even inadvertently conflict with one another. Simply coordinating this effort would not only enhance its effectiveness but save millions of federal, state, and private dollars."

Since 1993, the scientists explain, biological invasions by pest and nuisance species from foreign nations, and from one part of the United States to another, have continued almost unabated:

* Recent studies reveal that San Francisco Bay is invaded by a new exotic species on the average of once every twelve weeks.
* At least 1.5 million acres in Florida have been invaded by nonindigenous plants, leading to a severe reduction in available native habitat.
* Foreign weeds are spreading on Bureau of Land Management lands at over 2,300 acres per day and on all western public lands at approximately 4,600 acres per day.
* Approximately 250 plant species meeting the Federal Noxious Weed Act's definition of a noxious weed remain unlisted and can still be legally imported into the U.S.
* In the Mississippi drainage basin, species richness is expected to decline by 50% within a decade because of zebra mussel spread.
* Exotic species invasion have contributed to the decline of 42% of U.S. endangered and threatened species.

The scientists suggest a center similar to the Centers for Disease Control and Prevention, a high-level government office like that of the Surgeon General, "that might serve as a bully pulpit on this issue," or a much-expanded and well-funded interagency task force.

The letter is signed by:
Don C. Schmitz, James T. Carlton, Daniel Simberloff, Robert. O. Lawton, Phyllis N. Windle, E.O. Wilson, Kenneth George Beck, Ii, Howard Singletary, Gary K. Meffe, C. Ronald Carroll, Harold Mooney, Peter Vitousek.



Cause For Great Lakes Trout Reproduction Failure - Researcher says toxic chemicals are 'smoking gun' in 30-year-old mystery

FOR MORE INFORMATION:
Richard Peterson, University of Wisconsin-Madison -- (608) 263-5453
Stephen Wittman, UW-Madison Sea Grant Institute -- (608) 263-5371
www.seagrant.wisc.edu/research/ResearchNews.html

SEATTLE - For 30 years, efforts to re-establish

reproducing populations of lake trout in four of the five Great Lakes have failed. Now a University of Wisconsin-Madison researcher thinks he knows why: toxic chemicals.

The levels of dioxin and related chemicals in Lake Ontario were high enough from 1945 to 1975 to have resulted in zero survival of lake trout sac fry, according to Richard E. Peterson, a toxicology professor at the UW-Madison School of Pharmacy.

Female fish accumulate dioxin-like chemicals in their bodies and transfer some of these toxins to their eggs, he said. At high enough concentrations, Peterson said these contaminants can cause all of the fish's offspring to die within three weeks of hatching. The highest concentrations of dioxins and similar toxic industrial contaminants generally are found in the Great Lakes' largest trout and salmon, especially in the long-lived lake trout.

Peterson's findings are based on more than a decade of laboratory research supported by the National Sea Grant College Program and recently completed studies in collaboration with Philip M. Cook of the U.S. Environmental Protection Agency (EPA).

"Our data suggest that dioxins and related chemicals may have contributed to the extinction of lake trout in Lake Ontario prior to 1960 and to the recruitment failure of stocked lake trout since then," Peterson announced at a national Sea Grant news briefing today in Seattle. "But the good news is that declining levels of these contaminants and signs of general ecosystem recovery suggest that significant recruitment of lake trout through natural reproduction may start occurring in Lake Ontario and the other Great Lakes in the near future."

Once the dominant species in the Great Lakes, native lake trout populations collapsed during the 1940s under the one-two punch of over-fishing and predation by parasitic sea lampreys. By the mid-1950s, the species was deemed extinct in all of the lakes except for a few isolated remnant populations in Lake Superior.

After the sea lamprey was brought under control in the 1960s, state and federal fishery managers began stocking the Great Lakes with an average of four million lake trout annually, and they banned commercial harvest of the fish except by tribal operations. Although the stocked fish reached sexual maturity and produced fertilized eggs, the recruitment of yearling lake trout into the population has been negligible in each of the Great Lakes except Superior, the uppermost and most pristine lake in the chain.

The reasons for this recruitment failure could include other environmental and biological factors, the UW-Madison researcher said, "but toxic contaminants are the closest we've got to a smoking gun so far."

Of all the species of Great Lakes fish Peterson tested, he found lake trout were the most sensitive to TCDD (2,3,7,8-tetrachlorodibenzo-p-dioxin), the most toxic form of dioxin. He discovered that TCDD levels in lake trout eggs as low as 30 parts per trillion (ppt) caused observable increases in sac fry mortality, and 100 percent mortality occurred at TCDD levels above 100 ppt. The sac fry die from an accumulation of excess fluid in the yolk sac (yolk sac edema) and around the heart (pericardial edema), obstructed blood flow (ischemia), hemorrhaging, and a deformed skull (craniofacial malformations) -- conditions resembling blue sac disease, a fatal disease usually seen in only a very small percentage of wild trout sac fry.

While contaminant levels have dropped dramatically over the last decade, lake trout and other sport fish in the Great Lakes C as well as those in most other U.S. lakes and rivers C still contain detectable levels of TCDD and related toxins, including various forms of PCDD (polychlorinated dibenzo-p-dioxin), PCDF (polychlorinated dibenzofuran) and PCB (polychlorinated biphenyl). Peterson's research shows that, in the early stages of life, fish are particularly vulnerable to the toxic effects of these chemicals, which he found act in an additive fashion.

A notable spin-off of Peterson's Sea Grant research was his determination, with EPA support, of TCDD Toxicity Equivalence Factors (TEFs) for individual dioxin-like chemicals, based on their ability to cause fish embryo mortality. TEF values permit an accurate evaluation of the cumulative risks to the early development of fish posed by low concentrations of dioxin-like chemicals in their eggs, he said, adding that the EPA is proposing to adopt the TEF approach to more precisely assess the risks these chemical pose to wild fish populations.

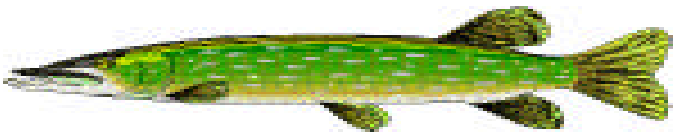
Peterson developed the TEF method as a way to convert the concentrations of several different dioxin-like chemicals found in Lake Ontario lake trout eggs to the equivalent concentration of TCDD. EPA's Cook then estimated the historical concentrations in the eggs based on the concentrations of these chemicals found in Lake Ontario bottom sediment cores covering the 1930 to
1987 period.

The EPA analysis showed that contamination of Lake Ontario by TCDD-like chemicals began in the 1930s

and peaked in the late 1960s. Sac fry hatched from the lake trout eggs collected from Lake Ontario, the last lake in the Great Lakes chain, continued to exhibit blue sac disease-like symptoms up to the middle 1980s, Peterson said.

While no blue sac symptoms were evident in fry hatched from Lake Ontario lake trout eggs in 1991, Peterson said that "even at sub-lethal levels, TCDD and similar chemical contaminants may be compromising the survival of swim-up fry in the environment." He noted that dioxins and PCBs have been identified as possible endocrine disrupters -- chemicals that alter the action of natural hormones and interfere with normal reproduction and development in animals -- the focus of Peterson's current Sea Grant research.

However, a hopeful sign was last year's declaration by the U.S.-Canadian Great Lakes Fishery Commission that self-sustaining lake trout populations had been restored to most waters of Lake Superior. As a result, lake trout from federal hatcheries are no longer being stocked in that lake.



Nature's Services Worth Trillions

SEATTLE, Washington, Feb. 17'97 (ENS) - The goods and services provided annually by natural ecosystems are worth many trillions of dollars in conventional economic terms, and the prosperity of all societies hinges upon safeguarding them, Stanford ecologist Gretchen Daily informed her scientific colleagues on Sunday.

Speaking at a symposium on ecosystem Services at the annual meeting of the American Association for the Advancement of Science (AAAS), Daily said, "Humanity came into being after most of these services had been in operation for hundreds of millions to billions of years. They are so fundamental as to make them both easy to take for granted and hard to imagine disrupting beyond repair, as human activity threatens to do today."

The session was organized by Daily, who is Bing Interdisciplinary Research Scientist in Stanford's Department of Biological Sciences, and AAAS President Jane Lubchenco. It drew together top ecologists and economists to discuss the urgent need for government and industry to incorporate these lifesupport values into policies and planning.

These services are the life support functions normally performed by ecosystems, such as purification of air and water; detoxification and recycling of wastes; generation and maintenance of soil fertility; pollination of crops and other plants; regulation of climate; and mitigation of weather extremes like flood or drought.

In the process, ecosystems also provide goods like seafood and timber, whose harvest and trade represent an important and familiar part of the human economy. And ecosystems support the vast diversity of life, the species that are sources of key ingredients of our agricultural, pharmaceutical and industrial enterprises.

Ecosystem services operate on such a grand scale and in such intricate and little-explored ways that most could not be replaced by technology, Daily said. "Ecosystem services are absolutely essential to civilization; they are priceless. Yet their lack of a price - they are typically not traded in economic markets - has contributed to a widespread lack of awareness of their very existence, and to a corresponding misimpression that the ecosystems that supply them lack value."

"Just as one cannot capture the full value of a human life in economic terms, it would be absurd to try to estimate the value of nature in strictly economic terms," Daily said. "But estimates of the lower-bound, marginal value of nature's goods and services - in the trillions of dollars - are critical to informing decision-makers."

Renowned Stanford ecologist Paul Ehrlich agreed, using this winter's disastrous mudslides in Washington and Oregon as a case in point. These mudslides were partly traceable to overharvesting of timber, which disrupted the natural flood controls that forests exercise over flows of water, Ehrlich said.

"The loss of nature's services is not some hypothetical future disaster, or something restricted to poverty-stricken regions of the world," said Ehrlich. "Interference with nature's services comes home to the rich in higher fish prices and loss of sport fisheries; loss of real estate values; higher risks from 'natural disasters' like floods, droughts and possibly other extreme weather events," he said.

When ecosystems are disrupted, affluent North Americans suffer outbreaks of agricultural pests; diseases such as Lyme disease and giardia; acidification and decline of precious forests; and rapid siltation of reservoirs, threatening the sustainability of irrigation and power generation.

"Expansion of the human enterprise is seriously damaging the natural systems that provide the services that underpin our economic security," Ehrlich warned. The damage is a product of population growth, increased consumption of resources per person, and the cultural, institutional and technical means through which each unit of consumption is supplied. "Yet a flood of lies and misinformation is being generated by anti-environmental forces that helps keep that fact from decision makers and from the general public," he said.

BROWNLASH "PREPOSTEROUS" EHRLICH SCOFFS

Ehrlich coined the term "brownlash" to describe the efforts of those trying to confuse the public about the findings of environmental science. Brownlashers, whose ideas are a backlash against the "green" findings of the scientific community, make for a wide variety of claims that he calls "preposterous." These include assertions that the ozone hole is a hoax, that concern about global warming is unwarranted, that there is no extinction crisis and, most outlandish of all, that continued human population growth can be supported for 7 billion years."

"Those claims are diametrically opposed to the scientific consensus," Ehrlich said.

"Those generating the brownlash are willing to risk nature's crucial services to continue on a business-as-usual course - a course that may be congenial to their personal financial interests. Nature's services are supplied free of charge by ecosystems, in which biodiversity - populations of plants, animals and microbes - are vital working parts. The trees, shrubs and herbs growing on a Washington State hillside, for example, not only help to control erosion and flooding, but they also are involved in maintaining the balance of gases in the atmosphere, cleaning the air and recycling wastes.

"That's why scientists are so concerned with the mass extinction of populations and species now under way," Ehrlich said. "A balance between human activities and safeguards for the natural systems that provide economic prosperity is essential to human health, happiness and survival."

Humanity is causing widespread losses of biodiversity through destruction and alteration of habitats, transporting organisms to new locations, and overharvesting living resources such as fishes, Ehrlich said. "Loss of biodiversity is the most irreversible of the kinds of damage *Homo sapiens* is inflicting on its environment."

Releasing enormous quantities of toxic substances, failing to conserve soils, overexploiting non-living resources such as groundwater, and modifying large-scale biophysical processes - especially altering climates, thinning the ozone shield and disrupting biogeochemical cycles - also add greatly to the assault that *Homo sapiens* is mounting on its own life-support systems, he said.

Humanity causes the extinction of at least one species and thousands of populations of other organisms every day, Ehrlich warned. At the same time humans are using up goods that crippled ecosystems will be unable to replenish, for example by causing the annual loss of some 25 billion tons of soil, and overpumping the southern part of the Ogallala aquifer at roughly 100 times its recharge rate.

"We are busily sawing off the limb on which we are perched - yet that is never mentioned in the brownlash literature that attempts to persuade people that environmental problems are relatively minor or nonexistent," Ehrlich said.

Ehrlich called Daily's new book, "a critically important effort. He hopes it will encourage decision makers to incorporate the value of nature's services into policy-making. "For instance, the Forest Service should include the costs of floods and mudslides in their calculations of fees for timber harvesting."

"But the dollar value clearly only sets a lower bound on the worth of the services. The value of our ability to feed ourselves or to avoid catastrophic floods cannot be fully expressed in monetary terms. What is the true cost of hundreds of millions of lives cut short or lived in utter misery?

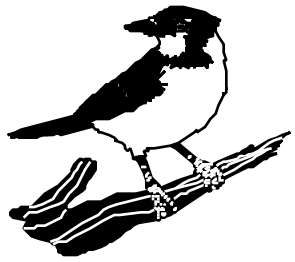
"Although many scientific uncertainties remain," Ehrlich continued, "more than enough is known to allow humanity to start developing and implementing steps to sustain its life-support systems and thus preserve civilization.

Ehrlich outlined measures that would help preserve those systems by reducing the scale of human activities:

* Foster the social and economic conditions that will bring an end to population growth "as quickly as is humanely possible" and begin a slow decline in human numbers.
* Make U.S. consumption sustainable, since we're the most overconsuming society, and the most culturally influential. "We must set an example for the rich, and simultaneously help the poor find ways to increase

necessary consumption."
* Wherever possible, develop and deploy more efficient, less environmentally damaging technologies.
* "Most important of all, more equitable social, economic and political arrangements should be sought to allow the implementation of these goals, "he said. "Everyone can help, first by learning how our life-support systems work, then by becoming politically involved and pushing leaders in the right direction, and always by fighting the racism, sexism, religious prejudice and gross economic inequity that make it so difficult to preserve and restore the natural services upon which humanity depends.

"To provide a reasonable chance of averting disaster, much more effort will be required of natural and social scientists to find paths to sustainability," Ehrlich concluded. "Scientists must also put more effort into countering the brownlash. It now threatens seriously to retard progress toward protecting nature's services and thus menaces our grandchildren and the future of our species."



Other Important AFS News

The Meritorious Service Award Committee is seeking nominations for this prestigious award. It recognizes unswerving loyalty and meritorious service to the Society over a long period of time. It is awarded for an exceptional commitment to the Society's programs, ideals, objectives and long-term goals. Nick C. Parker received the award in 1996 and Christine Moffitt in 1995.

If you would like to nominate someone, please contact me and I will fax you a copy of the form you should use. All nomination packages should be submitted to me by June 15, 1997

Thank you.
Carolyn A. Griswold,
U.S. Department of Commerce
NOAA/NMFS, Northeast Fisheries Science Center
28 Tarzwell Drive
Narragansett, RI 02882-1199
(401) 782-3273; fax (401) 782-3201;
Carolyn.Griswold@noaa.gov (Email)

EDITOR OF FISHERIES HAS A REQUEST
submitted by Kristin Merriman-Clark, AFS, 301.897.8616 ext 220, kclarke@fisheries.org

As editor of Fisheries, I look forward to covering your subunit activities in 1997. A big thank-you goes to those subunits that have sent me materials in the past year--I hope such articles in Fisheries have helped attract new members, raise funds, find volunteers, and recognize outstanding members.

I am looking for Sections interested in working with me to create special theme issues of Fisheries (pitch some ideas or pull together some symposium presentations for starters). In addition, features, essays, and Happenings (individual member news) contributions are always needed. Finally, we are always searching for fresh blood on the paper reviewer front--anyone interested in forwarding the fisheries profession through scientific publication should consider volunteering to review manuscripts to your magazine. The same goes for book reviewers, which are always appreciated and always published with a byline.

AFS WATER QUALITY SECTION
This section is developing a resolution on concentrated animal feeding operations. They hope to have a resolution to propose to members of the water quality section this summer. People interested should contact Ron Dent at dentr@mail.conservation.state.mo.us.

1997 MIDWEST FISH AND WILDLIFE CONFERENCE REQUEST FOR PLACE ON PROGRAM

The program committee for the 1997 Midwest Fish and Wildlife Conference announces the first call for papers, for it's meeting on December 7-10, 1997. To be considered for review and acceptance, all abstracts should be submitted by June 30th, 1997.

All abstracts must be submitted on electronic media, however one hardcopy should accompany the electronic version. No hardcopy only submissions will be accepted. Authors should use either IBM based MS Word, Word Perfect or ASCII formats. Abstracts can be mailed on a disk or sent as e-mail. The encryption scheme used should be identified for e-mail copies of abstracts. For more information on abstract format, please contact Doug Beard. The Fisheries Program is sponsoring the following symposia:

Effects of Riparian Land-Uses on Aquatic Ecosystems
If you would like to submit an abstract, or would like further information, please contact: John Lyons Wisconsin Department of Natural Resources, 1350 Femrite Drive, Monona, WI 53716-3736; Phone: (608) 221-6328, Fax: (608) 221-6353, E-MAIL: lyonsj@dnr.state.wi.us

Management of Sturgeon Populations
If you would like to submit an abstract or would like further information, please contact:
Tom Thuemler; WIDNR, Industrial Parkway, Box 16, Marinette, WI 54143; Phone (715) 732-5514, Fax (715) 732-5540, or Ron Bruch; WI DNR, 905 Bayshore Dr.., Oshkosh, WI 54903; Phone (414) 424-3059; Fax (414) 424-4404.

Strategies For Muskellunge Management
Submit abstracts to, or contact for more information: Terry Margenau, WI DNR, 810 West Maple St., Spooner, WI 54801, Phone: 715/635-4162; Fax: 715/635-4105, E-MAIL: marget@dnr.state.wi.us

The Decline Of Yellow Perch In Lake Michigan
Sponsored by UW-Milwaukee, Center for Great Lakes Studies. Before submitting an abstract, please contact: Fred Binkowski, University of WI-Milwaukee, Center For Great Lakes Studies, 600 E. Greenfield Ave., Milwaukee, WI 53204; Phone (414) 382-1700; Fax (414) 382-1705; E-MAIL: sturgeon@csd.Uwm.Edu

Incorporation Of Genetic Principles In Fisheries Management
Please submit abstracts or for more information please contact, : Marty Jennings, WI DNR, Box 309, HWY 70 W, Spooner, WI 54801; Phone (715)635-4160; Fax (715) 635-4105; E-MAIL:jennim@dnr.state.wi.us

Advances in Fisheries Management Technology
Please submit abstracts or for more information please contact : Doug Beard, Bureau of Fisheries and Habitat Protection, WI DNR, POB 7921, Madison, WI 53707; Phone (608) 267-9427; Fax (608) 267-7857; E-MAIL: beardt@dnr.state.wi.us

Management of Anadromous Salmonids in the Great Lakes: Ecological, Economic and Social Implications.
Please submit abstracts or for more information please contact: Donald R. Schreiner, Minnesota Department of Natural Resources, Lake Superior Area Fisheries, 5351 North Shore Drive, Duluth, MN 55804; Phone (218) 723-4785, Fax (218) 725-7738, E-MAIL: don.schreiner@dnr.state.mn.us.

Habitat Assessment in Lentic Ecosystems
Please submit abstracts or for more information please contact: Mike Bozek, WI Cooperative Fisheries Unit, UW-Stevens Point, College of Natural Resources, Stevens Point, WI 54481; Phone (715) 346-4023; E-MAIL: mbozek@uwsp.edu

ABSTRACT SUBMISSIONS: The diskette copy must be postmarked no later than 30 June, 1997 to be considered. All e-mail submissions must be received by midnight July 1, 1997 to be considered. You will be notified immediately upon receipt of your abstract. If you don't receive notification of receipt of abstract within 10 days, please contact the appropriate program chair. All abstract submittees will be notified by August 15, 1997 if they will be included in the program. Papers presented at the 1997 annual meeting of the American Fisheries Society in Monterrey, California will be given lower priority for inclusion in the program.

For more information, please contact
Doug Beard
Bureau of Fisheries and Habitat Protection
POB 7921
Madison, WI 53707
(608) 267-9427
E-MAIL: beardt@dnr.state.wi.us

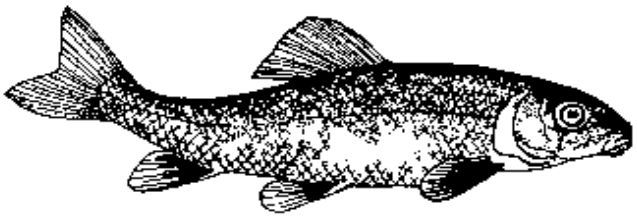
127th Annual Meeting of the American Fisheries Society

Monterey, California, August 24-28, 1997

Fisheries at Interfaces: Habitats, Disciplines, Cultures

You will have the opportunity to:
1. Network with your colleagues
2. Choose from 44 symposium (over 700 papers), 100 posters, and 325 contributed papers
3. Hear from today's scientific fisheries experts on the latest advances and research in the profession
4. Meet vendors to help you do your job better
5. Share knowledge, expertise, and views to effectively solve your challenges.

Look for the registration form in the June issue of Fisheries.



On the Underside
submitted by Charles Anderson, Mark Hove, Tracy Close

Ok, the story behind this... There's this nutball who digs things out of his back yard and sends the stuff he finds to the Smithsonian Institute, labeling them with scientific names, insisting that they are actual archeological finds. The really weird thing about these letters is that this guy really exists and does this in his spare time! Anyway... here's a letter from the Smithsonian Institute when this man sent them one of his 'major finds'.

Paleoanthropology Division
Smithsonian Institute
207 Pennsylvania Avenue
Washington, DC 20078

Dear Sir:

Thank you for your latest submission to the Institute, labeled "211-D, layer seven, next to the clothesline post. Hominid skull." We have given this specimen a careful and detailed examination, and regret to inform you that we disagree with your theory that it represents "conclusive proof of the presence of Early Man in Charleston County two million years ago." Rather, it appears that what you have found is the head of a Barbie doll, of the variety one of our staff, who has small children, believes to be the "Malibu Barbie". It is evident that you have given a great deal of thought to the analysis of this specimen, and you may be quite certain that those of us who are familiar with your prior work in the field were loathe to come to contradiction with your findings. However, we do feel that there are a number of physical attributes of the specimen which might have tipped you off to it's modern origin:

1. The material is molded plastic. Ancient hominid remains are typically fossilized bone.
2. The cranial capacity of the specimen is approximately 9 cubic centimeters, well below the threshold of even the earliest identified proto-hominids.
3. The dentition pattern evident on the "skull" is more consistent with the common domesticated dog than it is with the "ravenous man-eating Pliocene clams" you speculate roamed the wetlands during that time.

This latter finding is certainly one of the most intriguing hypotheses you have submitted in your history with this institution, but the evidence seems to weigh rather heavily against it. Without going into too much detail, let us say that:

A. The specimen looks like the head of a Barbie doll that a dog has chewed on.
B. Clams don't have teeth.

It is with feelings tinged with melancholy that we must deny your request to have the specimen carbon dated. This is partially due to the heavy load our lab must bear in its normal operation, and partly due to carbon dating's notorious inaccuracy in fossils of recent geologic record. To the best of our knowledge, no Barbie dolls were produced prior to 1956 AD, and carbon dating is likely to produce wildly inaccurate results.

Sadly, we must also deny your request that we approach the National Science Foundation's Phylogeny Department with the concept of assigning your specimen the scientific name "Australopithecus spiff-arino." Speaking personally, I, for one, fought tenaciously for the acceptance of your proposed taxonomy, but was ultimately voted down because the species name you selected was hyphenated, and didn't really sound like it might be Latin. However, we gladly accept your generous donation of this fascinating specimen to the museum. While it is undoubtedly not a hominid fossil, it is, nonetheless, yet another riveting example of the great body of work you seem to accumulate here so effortlessly. You should know that our Director has reserved a special shelf in his own office for the display of the specimens you have previously submitted to the Institution, and the entire staff speculates daily on what you will happen upon next in your digs at the site you have discovered in your back yard.

We eagerly anticipate your trip to our nation's capital that you proposed in your last letter, and several of us are pressing the Director to pay for it. We are particularly interested in hearing you expand on your theories surrounding the "trans-positating fillifitation of ferrous ions in a structural matrix" that makes the excellent juvenile Tyrannosaurus rex femur you recently discovered take on the deceptive appearance of a rusty 9-mm Sears Craftsman automotive crescent wrench.

Yours in Science,
Harvey Rowe
Curator, Antiquities

BELOW: The first letter is one MIT sends out, The second is one they got back.

Mr. John T. Mongan
123 Main Street
Smalltown, California 94123-4567

Dear John:

You've got the grades. You've certainly got the PSAT scores. And now you've got a letter from MIT. Maybe you're surprised. Most students would be. But you're not most students. And that's exactly why I urge you to consider carefully one of the most selective universities in America. The level of potential reflected in your performance is a powerful indicator that you might well be an excellent candidate for MIT. It certainly got my attention!

Engineering's not for you? No problem. It may surprise you to learn we offer more than 40 major fields of study, from architecture to brain and cognitive sciences, from economics (perhaps the best program in the country) to writing. What? Of course, you don't want to be bored. Who does? Life here is tough and demanding, but it's also fun. MIT students are imaginative and creative - inside and outside the classroom. You're interested in athletics? Great! MIT has more varsity teams - 39 - than almost any other university, and a tremendous intramural program so everybody can participate.

You think we're too expensive? Don't be too sure. We've got surprises for you there, too. Why not send the enclosed Information Request to find out more about this unique institution? Why not do it right now?

Sincerely,
Michael C. Benhke Director of Admissions
P.S. If you'd like a copy of a fun-filled, fact-filled brochure, "Insight," just check the appropriate box on the form.

Michael C. Behnke
MIT Director of Admissions
Office of Admissions, Room 3-108
Cambridge MA 02139-4307

Dear Michael:

You've got the reputation. You've certainly got the pomposity. And now you've got a letter from John Mongan. Maybe you're surprised. Most universities would be. But you're not most universities. And that's exactly why I urge you to carefully consider one of the most selective students in America, so selective that he will choose only one of the thousands of accredited universities in the country. The level of pomposity and lack of tact reflected in your letter is a powerful indicator that your august institution might well be a possibility for John Mongan's future education. It certainly got my attention!

Don't want Bio-Chem students? No problem. It may surprise you to learn that my interests cover over 400 fields of study, from semantics to limnology, from object-oriented programming (perhaps one of the youngest professionals in the country) to classical piano. What? Of course you don't want egotistical jerks. Who does? I am self indulgent and over confident, but I'm also amusing. John Mongan is funny and amusing - whether you're laughing with him or at him. You're interested in athletes? Great! John Mongan has played more sports - 47 - than almost any other student, including oddball favorites such as Orienteering.

You think I can pay for your school? Don't be too sure. I've got surprises for you there, too. Why not send a guaranteed admission and full scholarship to increase your chance of being selected by John Mongan? Why not do it right now?

Sincerely,
John Mongan
P.S. If you'd like a copy of a fun-filled, fact-filled brochure, "John Mongan: What a Guy!" just ask.

Ponderables

Did you ever stop to think and forget to start again?
Would a fly without wings be called a walk?
Can you be a closet claustrophic?
If a stealth bomber crashes in the forest, will it make a sound?
When it rains, why don't sheep shrink?
If a cop arrest a mime, do they tell her she has a right to remain silent?
Why is the word abbreviation so long?
If a book about failures doesn't sell, is it a success?
What do you do when you discover an endangered animal that eats only endangered plants?
Is it possible to be totally partial?
What's another word for thesaurus?
If its tourist season, why can't we shoot them?
Why do they call it a TV set when you only get one?
Do radioactive cats have 18 half-lives?
What was the best thing before sliced bread?

Agnatha - class of primitive jawless fish
Agnastic - a jawless fish who believes there is no way to prove or disapprove there is a God
Agnasty - an agnathid with an attitude
Agnastronaut - an agnathid in the final frontier
Agnathio Hall - agnathid talk show host

Minnesota Chapter Officers

President:
Tim Goeman
Minnesota DNR
1601 Minnesota Drive
Brainerd, MN 56401
218.828.2246; fax 218.828.6022
tim.goeman@dnr.state.mn.us

President-elect:
Bruce Vondracek
UM-Fish and Wildlife
200 Hodson Hall
1980 Folwell Avenue
St. Paul, MN 55108
612.624.3421; fax 612.625.5299
bcv@finsandfur.fw.umn.edu

Past President:
Larry Kallemeyn
3131 Hwy 53
International Falls, MN 56649
218.283.9821; fax 218.285.7407

Secretary-Treasurer:
Kevin Stauffer
Minnesota DNR
2115 Birchmont Beach Rd NE
Bemidji, MN 56601
218.755.3959

Committee Chairs:
Awards: Julie Gran 218.547.1683

Continuing Education: Mark Hove 612.624.0744 mh@fw.umn.edu and Laurie Sovell 612.624.3785

Long Range Planning: Tracy Close 218.723.4785 tracy.close@dnr.state.mn.us

Membership: Doug Kingsley 320.839.2656

Fisheries Information Network: Jeff Reed 320.634.4573

Newsletter: Paul Radomski 218.828.2665 paul.radomski@dnr.state.mn.us

Nominations: Melissa Drake 612.772.7966

Procedure Manual: Brad Parsons 612.634.4573

Public Awareness: Linda Braun 612.625.1291

Resolutions: Wayne Barstad 612.772.7900 wayne.barstad@dnr.state.mn.us

Rivers and Streams NCD rep: Paul Glander 218.847.1579

Students: Bill Ardren wra@fw.umn.edu

Excom Members:

Minnesota DNR:
Molly Negus
Minnesota DNR
5351 N. Shore Drive
Duluth, MN 55804
218.723.4785; fax 218.725.7738

Federal:
Ann Schneider
USFWS
1 Federal Bldg
Fort Snelling, MN 55111
612.725.3596; fax 612.725.3543
ann_schneider@mail.fws.gov

Academic:
Neal Mundahl
Winona State University
Dept of Biology
Winona, MN 55987
507.457.5695; fax 507.457.5681
nmundahl@vax2.winona.msus.edu

Open:
Roy Johannes
Minnesota DNR
500 Lafayette Rd
St. Paul, MN 55155-4012
612.296.2308

Internet and E-mail:

Minnesota Chapter of the AFS WWW page:
http://www.fw.umn.edu/mnafs

American Fisheries Society WWW page:
http://www.esd.ornl.gov/AFS

North Central Division of the AFS WWW page:
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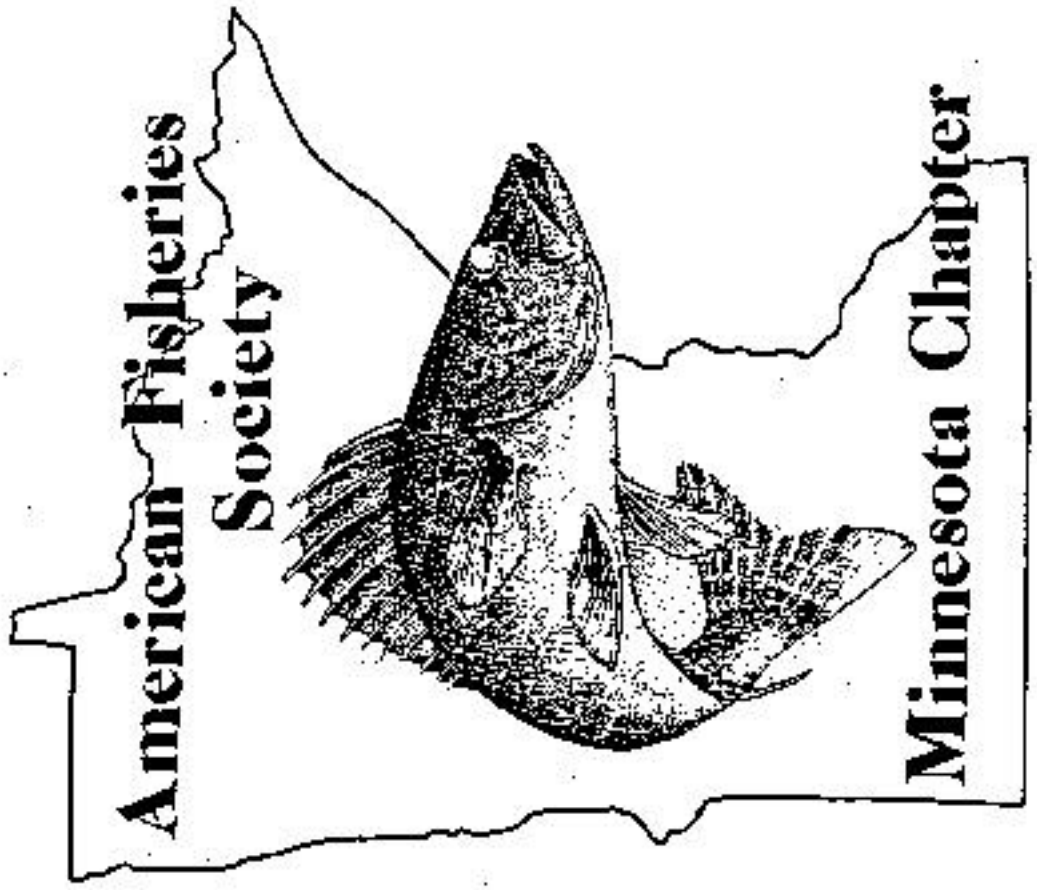

Minnesota Chapter AFS
1980 Folwell Avenue
St. Paul, MN 55108

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