NEWSLETTER OF THE

Minnesota Chapter of the American Fisheries Society

Year 1996 No. 4
November Issue

President's Message

Larry Kallemeyn, FROM THE NATION'S ICEBOX. Another field season has come and gone, all too rapidly. Yesterday I checked out the last of my seasonal employees and wished them well in their future endeavors. One is off to graduate school, another back to finish writing his masters thesis, and the other two to search for jobs in the anemic job market that currently exists in our profession. Their quest is going to be extremely difficult given the present political climate regarding cutbacks in government services.

The survey of Chapter members and non-members that Tracy Close worked so diligently on has provided us with some concrete suggestions on items and issues that will need to be addressed to get more of our co-workers involved in our activities. One of the items we're already starting to work on is getting stronger support from the major employers of fisheries personnel to support the involvement of their employees in the American Fisheries Society and in particular, the Minnesota Chapter.

Nearly 60% of the survey respondents indicated they would get more actively involved in Chapter activities if the Chapter was more actively involved in educating the public about fisheries issues. While the Chapter has had some success dealing with this issue, there is undoubtedly a lot more we could and should be doing. One means of increasing our involvement would be to provide our members with assistance and materials that would facilitate their involvement with fishery issues at the local level. Another thing the Chapter could do is develop a list of Chapter members that would be available to speak on issues that involve their field of expertise. Unquestionably, there are lots of things we can do, we just need to recognize that as an organization made up of volunteers it all comes back to each of us as individuals how much will get done.

As far as upcoming meetings, I would like to encourage those of you who are not going to be able to attend the annual meeting of the North Central Division that is being held in conjunction with the Midwest Fish and Wildlife Conference in Omaha in December to contact me if you have an issue you think should be addressed. I am hoping that many of you are planning on attending our joint meeting with the Dakota Chapter that is going to be held in Fargo in February. They are planning one of their typical above average socials that you will not want to miss.

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Quote of the Issue

"the optimist says the glass is half full, the pessimist says the glass is half empty, the realists asks 'how many people are thirsty?'" On an envelop sent by WORLDWATCH Institute. Their books, such as the State of the World series, should be required reading for civic leaders.

Special Election Summary Quote: "Bad politicians are sent to Washington by good people who don't vote." William E. Simon

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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.

Committee Reports

Continuing Education Committee - by Mark Hove and Deserae Bushong
Upcoming Continuing Education Workshop - Use of Global Positioning Systems (GPS) & Geographic Information Systems (GIS) in Fisheries Management

As announced in the last newsletter the Continuing Education Committee is offering a course on GPS/GIS technology. This technology is used in natural resource management to rapidly and accurately provide location information and is becoming more commonplace in our profession. In addition, the state of Minnesota recently signed a contract to provide a real-time DGPS service for statewide coverage which can be used by a broad range of GPS receivers. The course will be taught by Corvallis MicroTechnology, Inc., a group recommended by the AFS Parent Society and has been approved for 0.7 CEU's. The course will be held on March 19, 1997 at Wilder Forest, Marine on the St. Croix, Minnesota. (Note we've changed the location to Wilder Forest.) Eighteen spaces are available in the course and they will be filled on a first come, first serve basis. To register for this course please use the registration form included in this newsletter. The course will be held at the Wilder Forest, Marine on the St. Croix.

For more information please contact Mark Hove, MN AFS Continuing Education Co-Chair at (612) 624-3019, via e-mail at mh@.fw.umn.edu, or at Dept. Fisheries & Wildlife-UMN, 1980 Folwell Ave., St. Paul, MN 55108.

Membership Committee - by Doug Kingsley
There are <u>two</u> ways become a member:
(1) fill out a Minnesota Chapter membership form and send to Henry VanOffelen, chapter secretary-treasurer, with seven dollars (the form is in the back of this newsletter), or (2) join the American Fisheries Society and pay your Minnesota Chapter dues through them (the chapter gets reimbursed). To join the parent society call me for a form. If anyone has problems with their membership status or has a name or address correction, please contact me.

Resolutions Committee - by Wayne Barstad
The Resolutions Committee is desperately seeking resolute individuals to throw themselves into the fray. Alright, Chapter members, anything bugging you? Got any burning questions that need to be resolved? Anything the Chapter can do? Now is the time to formalize your thoughts on issues that have bouncing around in your heads. A resolution is a statement of opinion or determination that you would like the Chapter to adopt. It is a way for you to be directly involved in the life and direction of the Chapter. In addition, it's really easy.

Consider the following resolution (inspired by a careful reading of the September issue of "Fisheries"):
Whereas: Fish are not as popular as dinosaurs, and
Whereas: Much attention has been focused on worldwide losses of terrestrial biodiversity while the situation in freshwaters has tended to be something of an afterthought, and
Whereas: Education comes in many forms;
Be it resolved: That members of the Chapter spend more time talking teleost at the dinner table.

See how easy that is? Now, Wayne Barstad, as chair of the Resolutions Committee, can crank these puppies out faster than you can shake a fly rod. And, he'd like to show to the membership that he's done something with his time during the past year. But the point is, resolutions provide an opportunity for you to make **your voice** heard. So, let's hear those opinions. All resolutions will be considered by the Resolutions Committee prior to the Annual Meeting. Those determined to be significantly better than the example above will be presented to the Excom and then to the membership at the annual business meeting.

Send your resolutions to me. My address is Minnesota Dept. Of Natural Resources, Ecological Services Section, 1200 Warner Road, Saint Paul, 55106. My e-mail address is wayne.barstad@dnr.state.mn.us.

Division Technical Committees

Esocid Technical Committee
submitted by Dave Clapp
A workshop on the introductory, maintenance, and restoration stocking of esocids was held July 24-25, 1996, in LaCrosse, Wisconsin, as part of the summer meeting of the Esocid Technical Committee of the North Central Division, American Fisheries Society. The workshop was intended to bring together esocid managers and researchers from throughout the Midwest, to discuss the major goals and objectives of esocid management, stocking strategies employed by state and provincial agencies to meet these goals, and considerations and constraints in implementing these strategies. Twenty-four people attended the workshop.

The workshop began with seven presentations describing general aspects of esocid management and stocking programs in 13 midwestern states and provinces. These presentations focused on goals and objectives of each management program, stocking strategies (including stocking rates, periodicity, size of fish at stocking, rearing history, criteria for receiving waters, and other considerations), and program limitations. These general presentations were followed by presentations concerning special topics in esocid management, including genetics, and a roundtable discussion addressing "the appropriate role of stocking in esocid management." While there was some consensus within the group concerning the appropriate use of esocids in artificial systems, and concerning situations in which stocking was unnecessary, there was much debate about the question of supplemental stocking -- when it is appropriate and how many fish are necessary. Government fish production programs were initiated with the idea of stocking large numbers of fish. However, based on the presentations at this workshop, there seems to be good evidence that in many cases relatively few, "high-quality" fish can carry a fishery for many years. There seemed to be some consensus within the group that we need to reexamine our standards in some cases -- that, for example, a slower growing natural fish might in some cases be just as appealing as a larger hatchery-produced fish. Similarly, we might do more to promote northern pike fishing in areas where pike are the dominant native esocid.

A published summary of the workshop will be available sometime this winter. The Esocid Technical Committee will also be sponsoring a symposium at the 1997 Midwest Fish and Wildlife Conference. If you would like additional information, please contact:

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or

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Minutes of Chapter Meetings

EXCOM Meeting Minutes - DRAFT
Executive Committee Meeting; October 10, 1996; Brainerd, Minnesota.
Call To Order - The meeting was called to order by President Larry Kallemeyn at 10:00 a.m.

Guest Speaker -
Larry introduced Ron Payer to talk about the budget situation that the DNR Section of Fisheries faces in the next biennium. Ron presented the facts of the DNR's budget situation and what will happen during the next two years if a license increase is not granted. Some discussion followed regarding what role AFS could play in helping the section in its efforts to make the public aware of the situation. Several possibilities were discussed with the conclusion that members should , at a minimum, contact their legislators about the need for a fee increase following the November election.

Review Of Minutes - Henry VanOffelen
The spring EXCOM minutes had been published in the last newsletter. No changes or additions were presented. Minutes were approved.

President's Report - Larry Kallemeyn
Larry attended the annual meeting in Dearborn. There was quite a bit of discussion about a "Use of Fish" position statement. The biodiversity position statement was passed. The MN AFS display board was completed and available for use at events. The MN AFS brochure was not finished. Numerous items on the action agenda have been completed this year. The one area lacking action was that we have not had any news releases. Anyone with news release ideas need to put them together. Bob Carline had sent Larry a list of 25 members who have not yet renewed their parent society membership. Larry will these names to EXCOM members to make contact with these delinquent members to see if they will continue their membership. The NCD travel grant was discussed. After some discussion, it was decided to match the NCD grant for a MN AFS student who wants to attend the Midwest.

Treasurer's Report - Henry VanOffelen
The current checking balance was just over $2,000. The CD has rolled over again and currently is at $10, 600. It was moved and seconded to approve the treasurer's report. Motion carried.

1997 Chapter Meeting Plans - Tim Goeman
Some details of the joint meeting with the Dakota chapter were presented in the last newsletter. A theme

for the meeting and a keynote speaker are still needed. The meeting will be held at the Fargo Holiday Inn. Less expensive lodging is readily available nearby. The cost for breaks, lunch, and the banquet will probably be $35. The EXCOM meeting will probably need to be held Tuesday evening before the meeting. Meeting details forthcoming in the November newsletter.

Committee Reports

Awards - Bruce Vondracek - absent
No report.

Public Awareness - Steve Quinn
Steve briefly reviewed the OWAA conference and mentioned that he had received some positive feedback on the event. The Florida chapter may host an event at next year's OWAA meeting. The MN AFS display poster is available for use. The chapter brochure is not yet complete. There has not been any input/recommendations for a new chapter video.

Continuing Education - Mark Hove
A GIS course is planned for next spring. The cost will be $170. Look for an announcement in the November newsletter.

Ethical Guidelines:
Larry had talked with Denny Anderson and little action has been taken on developing a set of ethical guidelines for chapter members. The parent society may be developing similar guidelines.

Nominations: Mark Cook absent
No report

Procedural Manual: Brad Parsons absent
No report

Resolutions: Wayne Barstad
No resolutions were submitted.

Rivers and Streams: Paul Glander absent
No report

Students:

Finance: Henry VanOffelen
No report. Suggest no need for this position.

Long Range Planning - Tracy Close

Membership - Jeff Reed
Doug Kingsley will be taking over as membership chair next year.

Newsletter - Paul Radomski
The November newsletter will be published as soon as contributions are received.

OLD BUSINESS

Membership/Non-Participation Survey - Tracy Close
There was much discussion of the results of the membership survey and how the results could be used to increase participation in MN AFS. It was recommended that Larry and Tracy schedule a meeting with Jack Skrypek to discuss the survey results that seem to suggest that more employer incentives would increase interest/participation in the chapter.

Abstracts - Bruce Vondracek absent
Nothing to report.

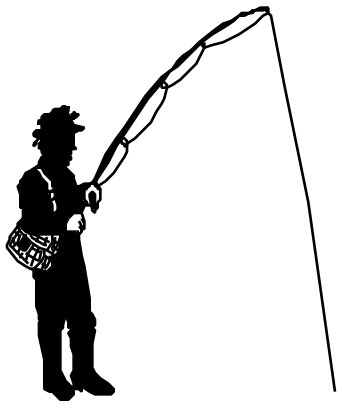
INFORMATION ITEMS

Academic - Bruce Vondracek absent
Nothing to report

DNR - Tom Jones
Ron Payer covered DNR information.

Federal - Larry Kallemeyn
The NBS is now part of the Biological Research Division of the U.S.G.S. There may be a big philosophical problem with this change. The U.S.G.S. view of research is to produce results for others to make decision with while NBS folks are used to doing research and directly recommending management actions.

Other - Brian Borkholder
Nothing to report.



Upcoming Events

November 13-16: 16th Annual Meeting of the North American Lake Management Society. People, Lakes and Land: Puzzling Relationships. Radisson South, Minneapolis, Minnesota. Contact Steve Heiskary, PCA, 612.296.7217. This symposium will address important developments in lake and watershed management through a full array of sessions, workshops, and exhibitors.

December 8-11: Annual Meeting of the AFS North Central Division. Omaha, Nebraska. Contact Darrell Feit 402.332.3901.

January 7-9, 1997: Wisconsin Chapter of the American Fisheries Society Annual Meeting. Pioneer Inn Convention Center, Oshkosh, Wisconsin. Contact Tim Ehlinger 414.229.4358.

February 10-14, 1997: American Society of Limnology and Oceanography, Aquatic Sciences Meeting. Sante Fe, New Mexico. Contact Jonathon Cole 914.677.5343, or Susan Weiler 509.527.5948.

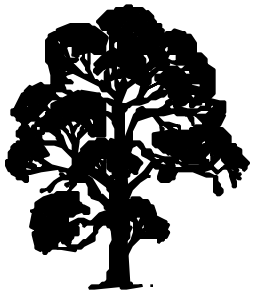
February 25-27, 1997: Minnesota Chapter of the American Fisheries Society Annual Meeting. Holiday Inn, Fargo, North Dakota. This is a joint meeting with the Dakota Chapters. Contact Tim Goeman 218.828.2246 (see details below).

March 21-23, 1997: First International Symposium on the Biology and Management of the Eurasian Ruffe. Sheraton Inn, Ann Arbor, Michigan. Contact Jeff Gunderson 218.726.8715.

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.

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



Contributions: Letters and Commentary

The Obvious
by Edwin (Phil) Pister, California-Nevada Chapter of the AFS, member

As a state agency fishery biologist (now retired) who spent nearly 40 years in "the trenches" of environmental battles within the American Southwest, it has long been clear to me that the tide of forces working against environmental interests is now so huge and overwhelming that conservationists must band together to save whatever we can in the way of species and their habitats. This problem is exacerbated not only by burgeoning worldwide human populations (remember that the United States is now the world's third most populous nation), but also by our high level of consumption within the Western nations and the entirely reasonable efforts by citizens of third world countries to achieve a standard of living comparable to ours. Anyone who might doubt the urgency of the situation need only review the natural resource dependent firms listed in the stock market reports of any major newspaper to get some idea of the economic forces working against an ecologically sustainable society.

It only makes sense, then, that anyone with some perception of the problem should enter into some type of conservation effort. In many respects, the problem breaks down into a matter of moral responsibility and values, an issue better discussed (and surely better understood) by philosophers than biologists.

In order to gain better insight into the overall problem, I have worked with Dr. Jack Weir, a philosophy professor from Morehead State University in Kentucky, in organizing sessions in environmental ethics at the last two meetings of the Society of Conservation Biology, in 1995 at Colorado State University in Fort Collins, and in 1996 in Providence, Rhode Island. To provide some insight into the papers presented there, I am enclosing selected abstracts from these two meetings.

Conservation and professional responsibilities in biological conservation are assuming a more important

role within professional societies. Not only is the Society of Conservation Biology deeply involved in these matters (as one might expect), but also the heretofore unconcerned American Society of Ichthyologists and Herpetologists. A very successful conservation biology session was held at the society's 1990 meeting in New York, providing enough reason to hold another at the 1996 meeting held in New Orleans. In order not to interfere with the regularly scheduled paper sessions, we structured a noontime workshop with sufficient space for 50. We were elated when 135 deeply interested members showed up, with others being turned away for lack of space.

There is an old saying that even the most unconcerned mind can ultimately grasp the obvious. Perhaps that is the case here. Nothing would be a worse legacy for us to leave future generations than a very complete set of literature references concerned with details relating to extinct species.

Select Abstracts:

1. J. Baird Callicott. Do deconstruction and sociobiology undermine the Leopold Land Ethic?

Recent deconstructive developments in ecology (doubts about the existence of unified communities and ecosystems, the diversity-stability hypothesis, and a natural homeostasis or "balance of nature"; and an emphasis on "chaos", "perturbation", and directionless change in living nature) and the advent of sociobiology (selfish genes) may seem to undermine the scientific foundations of environmental ethics, especially the Leopold land ethic. A reassessment of the Leopold land ethic in light of these developments (and vise versa) indicates that the land ethic is still a viable environmental ethic, if judiciously updated and revised.

2. Ronnie Z. Hawkins. Seeing ourselves within ecosystems, reconstructing our social reality, seeking our golden mean.

While anthropocentric arguments for preserving biological diversity may appear to have the pragmatic advantage at present, a justification for the anthropocentric assumption appears lacking from the perspective of evolutionary biology. To update Aristotle's inquiry into "the function of man," how might we come to see ourselves amid the spectrum of evolved lifeforms, living appropriately as intelligent primates within ecosystems of which we are not conquerors but rather, a la Leopold, "plain members and citizens"? Nonanthropocentric approaches to environmental ethics, including deep ecology, some ecofeminist views, and J. Baird Callicott's earlier writings, have made contributions but, I will maintain, none have yet succeeded in integrating biology and philosophy to the extent required for providing a satisfactory answer to this question. In view of the current extinction crisis's roots in "the human usurpation of the land surface" of the planet (Soule), genuine rectification of our environmental problems will require a new search for an Aristotelian "golden mean" with respect to our diets, our level of material consumption, and our (global) population size. The assumptions, traditions, and institutions of human social reality must be reconstructed within all cultures if we are to respond appropriately.

3. Bryan G. Norton. Human arrogance: which antidote?

Most of the work in environmental ethics to date has been based on the simple logical error--the fallacy of false alternatives. Reacting to Lynn White, Jr.'s charge that Western Culture has damaged its environment because it is too anthropocentric, philosophers have assumed that the only antidote to anthropocentrism is a positive, realist theory of intrinsic value in nature. In fact, White's charge can be understood simply as the claim that Western Culture exhibits arrogance toward nature--a failure that can be addressed as a problem of human consciousness, without appeal to independent value in nature. A better approach is to argue that environmental problems are actually problems of scale--that peoples of Western Culture have failed to limit the scope of their impacts on nature because they have not recognized the scalar limits inherent in adapting to life within a complex, dynamic system. An alternative to nonanthropocentric environmental evaluation is proposed: human individuals and societies must limit their depredations of nature in order to balance short-term, consumptive values with equally important commitments to the survival of human communities. The task of environmental ethics is therefore best understood as providing a non-arrogant, but human-centered, theory of moral value to accompany an adaptive approach to environmental and resource management.

4. William Aiken. Too many people?: issues arising from Rio and Cairo.

After briefly examining the arguments involved in the debates over "whether", and if so "why", the world is overpopulated, I consider and assess the dominant "development" strategy, proposed at Cairo, to attain human population stabilization in the developing world. I review some of the environmental

implications and problems with this strategy. Then I argue that an adequate, environmentally sensitive population strategy requires that those in affluent, high-consumption societies both drastically de-develop toward long term sustainability and subsidize sustainable development of other poorer societies. In addition to pragmatic arguments, I offer moral reasons to support these claims.

5. Ned Hettinger and Bill Throop. Can ecocentric ethics withstand chaos in ecology?

In the last twenty years many ecologists have moved away from an equilibrium and stability paradigm of natural systems towards models emphasizing disequilibria and chaotic dynamics. This shift potentially undermines a traditional ecocentric ethics which values ecosystems for their supposed balance, stability and harmony. We use the case of the elimination and reintroduction of wolves in the Yellowstone ecosystem to illustrate this shift and the problems it raises for some ecocentric ethics. We then develop an alternative basis for ecocentric ethics and policy that avoids these problems by appealing to the intrinsic value of wild nature. We defend wildness value against some common objections and show how it coheres with our intuitions about the preservation and restoration of ecosystems.

6. Holmes Rolston, III. Winning and losing in environmental ethics.

Socrates claimed that "no evil can come to a good man." In environmental ethics, will humans lose when they do the right by way of care for nature--animals, wildflowers, endangered species, old-growth forests? Humans ought to forgo certain opportunities and developments for the sake of nature, but when humans do so act, we have been corrected from a misperception about where the good lies and how to value it. No one loses who ends with more wisdom gained and more value conserved in the world in which he or she resides. The losers become winners, a classical ethical paradox now rediscovered in environmental ethics.

7. Jack Weir. Poverty, development, and sustainability: the hidden moral argument.

In this paper, I analyze the conceptual and moral interrelationships between poverty, development, and sustainability. A hidden assumption is what is meant by "poverty." The arguments for development and "sustainable development" assume that "poverty" means "non-Western" or "non-developed." In light of my analysis, I argue that development can never be sustainable; or, restated, that "sustainable development" cannot achieve the Western standards that the developing nations desire. If my analysis is correct, "sustainable development" is a self-contradictory notion. It is a disguised euphemism for Westernization.

Textbooks on fish population dynamics
By Chris Hartleb, Assistant Professor of Biology, University of Wisconsin - Stevens Point

This message is a follow-up to my request for a fish population dynamics text. I received many messages that asked for the results of my inquiry. First, I want to thank those people that provided the names of texts that are still in print. Second, I am posting the names of the texts in the order that they were recommended (1 = most recommended and so on). And now the results:

1. Quantitative Fisheries Stock Assessment: Choice, Dynamics, & Uncertainty by R. Hilborn & C.J. Walters, 1992, ISBN: 0-412-02271-0, Chapman & Hall.

2. Fisheries Biology, Assessment & Management by M. King, 1995, ISBN: 0-85238-223-5, Fishing News Books.

3. Fisheries Biology: A Study in Population Biology by D.H. Cushing, 1981, ISBN: 0-299-08110-9 University of Wisconsin Press.

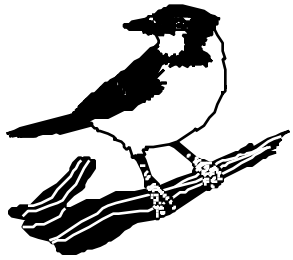
4. On the Dynamics of Exploited Fish Populations by R.J.H. Beverton and S.J. Holt, 1993, ISBN: 0-412-54960-3, American Fisheries Society.

5. Principles of Fishery Science, by W.H. Everhart and W.D. Youngs, 1981. Cornell University Press.

6. Computation & Interpretation of Biological Statistics of Fish Populations by W.E. Ricker, 1975, ISBN:0-662-01440-5. No longer published, or available. You may be able to get photocopies, but I have found them to be expensive (>$80 US) and hard to get!

7. Fish Population Dynamics by Gulland (ed.). 1988. John Wiley and Sons.

Chapters from various texts were suggested, including: Fisheries Ecology by Pitcher & Hart (Croom Helm), Fisheries Techniques, Methods for Fish Biology, and Fish Stock Assessment (Gulland). Any additional suggestions are welcome. It seems obvious that a "new" text is much needed in Fish Population Dynamics.



Fisheries Information Network

By Jeff Reed

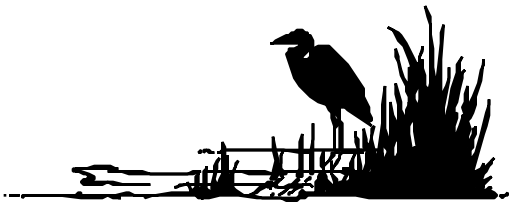
The Fisheries Action Network underwent a small change at the 1996 business meeting in Dearborn, MI. The new name, Fisheries Information Network, is more representative of the network's function (besides who could resist such a great acronym!). With that in mind I'll try to provide you with some fisheries related information.

Conservation Reserve Program

With recent rule announcement regarding the Conservation Reserve Program, any of you who share an office with wildlife folks probably got an earful of groaning. After several years of fierce fighting for the continued funding of the CRP and an apparent victory when the last version of the Farm Bill was signed, many wildlife interests were sorely disappointed when the U.S. Department Agriculture announced the new criteria for CRP enrollment. With stricter erodibility standards, much of the grasslands currently enrolled in the Great Plains will no longer be eligible for the program. It is anticipated that a great deal of the money spent on the CRP will shift from Midwestern states to those in the northeast and southeast. While our wildlife counterparts may be disappointed, the higher erodibility standards mean riparian areas and associated waterways will likely be the big winners. Although there is by no means enough funding to protect all of our waterways, this is a good start!

Teaming with Wildlife

When I was growing up a good friend of mine had large marsh that he had spent tens of thousands of dollars developing into a first-class waterfowl area. Each spring thousands of tundra swans would migrate through the area in late March and stop by for a week or two. By May the area swarmed with shorebirds. With the arrival of the swans came the arrival of members of the local birding club, and although anyone asking to watch the birds was allowed to, very few left the marsh without a lecture on funding for wildlife and paying their fair share. For years hunters and fisherman have the sole funding source for many fish and wildlife management programs. And while the focus has been mainly for fish and game production, many non-game species have benefitted from these programs. Now, under a proposal from the International Association of Fish and Wildlife Agencies, user groups that don't traditionally help pay for wildlife of fisheries programs will start to pay their "fair share". An excise tax (based on the manufacturers' cost) on outdoor equipment (birding books, binoculars, tents, etc..) will be the income source for this program. There are currently over 1,200 outdoor organizations or manufacturers that have publicly voiced support for the program. The IAFAWA estimates that as much as $350 million could be raised with a 1 - 5% tax.



Other Important News

Student Travel Grant Program -- Students Take Note!

The North Central Division once again allocated $1400 to support the Student Travel Grant Program. The purpose of the program is to provide funding to facilitate student travel to the annual NCD meeting held in conjunction with the Midwest Fish and Wildlife Conference. The program is designed to assist

students who might not otherwise be able to attend the meeting.

The North Central Division will fund 14 grants--one grant per chapter. One hundred dollars is provided per each selected student. Minnesota students should send a letter (or the application found in the back of this newsletter) to Larry Kallemeyn, president of the Minnesota Chapter, which includes: your name, addresses, school, degree, a short description of current studies or research, reasons why you wish to attend this meeting (e.g. paper presentation, sub-unit business, applicable technical papers to your work), and reasons why monetary assistance is needed.

Deformed Frogs -- What is Going On?, By David Hoppe, UMN-Morris, from an article in the Minnesota Herpetological Society newsletter, August 1996.
Several people are looking into the deformed frog situation; they include: Dr. McKinnell, UMN-St. Paul, Dr. Carlson, Augustana College, Judy Helgen and Mark Gernes, PCA, and myself.

My research is addressing questions such as where are deformed frogs found, in what frequencies, in which species, and what kind of defects. The main finding I can report now is that the problem is not confined to Leopard Frogs, *Rana pipiens*. I have found limb deformities this summer in 5 species of anurans in addition to Leopard Frogs: American Toads, *Bufo americanus*, Mink Frogs, *Rana septentrionalis*, Wood Frogs, *Rana sylvatica*, Spring Peepers, *Pseudacris crucifer*, and Gray Treefrogs, *Hyla versicolor*. In all five species, the deformities have been in newly-metamorphosed juveniles.

My sample sizes for Wood Frog, Spring Peeper are not yet large enough to analyze, but I have recorded data on 100-600 individuals each from separate populations of Leopard Frogs, American Toads, and Mink Frogs, and see a strong correlation between occurrence of limb deformities and aquatic habits of the species. The highest frequency of defects (about 45%) and widest array of gross limb defects in my collections was in a population of Mink Frogs from north-central Minnesota. This is perhaps the most aquatic MN species, as Mink Frogs overwinter and breed in the water, their tadpoles spend 1-2 years as aquatic larvae, and adults stay in or close to water much of the summer. The Leopard Frog is more semi-aquatic, as the tadpoles usually metamorphose in a couple months and the adults range considerably from water during the summer; limb defects were found in about 10% of juvenile Leopard Frogs in the same population above. The more highly terrestrial American Toads, which spend even less time as tadpoles and overwinter on land, had a limb defect frequency of only about 3%. These basic biological observations support the hypothesis that something in the water is causing the defects, but as yet we have no data as to what that "something" might be.

Regardless of the cause, the abundance and distribution of deformed frogs has become disturbing. Deformed frogs can be found across the state. We have found as low as 1% and as high as 60% deformities, and have heard of even higher frequencies. We have found defects at randomly selected sites in areas where deformed frogs had not been reported before. The array of defects includes extra limbs (as high as 9 legged frogs), missing limbs (2 and 3-legged frogs), malpositioned limbs, malformed limbs, split limbs, stump limbs, club feet, missing feet, and occasional eye defects.

Both the media and the scientific community have made the important point of amphibians being "miners' canaries".

Deformed frog reports can be sent to Judy Helgen, PCA, 520 Lafayette Rd, St. Paul, MN 55155, (612)296-7240.

Shoreline Protection Video Available
An award-winning video focusing on practices that can be easily adopted in shoreland to protect water quality. It is a 15-minute video produced by the Minnesota Arrowhead Water Quality Team and Parthe Productions. It highlights the importance of filter strips, septic system maintenance, BMPs, and working together as a shoreline community. It costs $20. To purchase call the Lake County Soil and Water Conservation District at (218)834-6638.

Two-Prop Outboard another Step in Motor Technology, By Bill Schulz, AP.
You know something's different about this outboard motor. It just takes a couple of minutes to figure out what it is. The answer: two props. They counter-rotate on what appears to be a single shaft, with the forward prop spinning counterclockwise and the aft one going clockwise. "What it means is the boat lifts quickly onto plane," said spokesman Mike Walker, a spokesman for Yamaha and its Pro V Max 150. "Bow rise is minimal. Because you're on plane and level sooner, your ride is safer." The aft propeller is 13 inches in diameter, one inch smaller than the forward. "That engine, with its two propellers, gives 60% more propeller blade area" than a conventional motor with a single, larger prop, Walker said. Tests using identical rigged boats and the same drivers showed a 3- to 5-mph improvement in speed.

The counter-rotating propellers negate the torque, which tends to make a single-prop motor shove its boat in a circle. "With the counter-rotation, once you get up on plane, you can steer with your fingertips. You don't need hydraulic steering" to keep the boat safely and comfortably under control, Walker said.

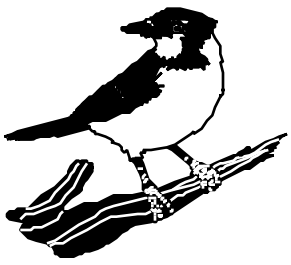
The idea of counter-rotating propellers is not new. It's been used on aircraft for decades. Volvo came out with a stern drive for boats using the concept about a decade ago, and Mercury introduced one in the early '90s. But it is a first for an outboard motor, and industry observers feel there will be a market for it.

The Two-Stroke Motor, from an article by the Bluewater Network, www.earthisland.org.
Pollution from two-stroke motors - outboards, personal watercraft, and jet boats - amounts to the equivalent of fifteen Exxon Valdez spills annually. This equals 1,000,000,000 pounds of gas and oil, and represents as much hydrocarbon pollution as that created by all the automobiles in the United States. Worldwide, two-strokes produce 3,000,000,000 pounds of hydrocarbon emissions per year. Recent studies at the University of Stockholm have demonstrated that the biological effects of exhaust from two-stroke engines are "a serious threat to the marine environment."

Who is Bluewater Network? Bluewater is a coalition of scientists, marine industry experts, and concerned individuals with a shared commitment to the health of the planet's water resources. Bluewater's members include fishers, sailors, kayakers, canoers, swimmers, surfers, windsurfers, divers, rafters, and other marine enthusiasts who wish to protect our water ecosystems from pollution. Bluewater was founded by marine activist and sailor, Dr. Russell Long, who became aware of the damage caused by two-stroke engines through his work with fishers in South India. His studies revealed that the two-stroke is destroying traditional fishing life in the Third World by bringing about tremendous pollution and associated ecosystem devastation.

While the effects of this pollution are largely unseen, the spent oil and gas from pleasure boats floats on the surface microlayer of bays, lakes, rivers, and seas, which are the sites for reproduction and sensitive early-stage development of most fish species. These areas are the base of the food chain for fish eggs, larvae, algae, crab lobster, shrimp, and plankton. Research demonstrates that chromosomal damage, malformations, stunted growth and high mortality rates of fish and larvae occur at extremely low levels of surface layer hydrocarbon pollution, levels which may already exist in many US water bodies. Scientists have determined that a polluted microlayer "has the potential to poison much of the complex food web, including fish, crustaceans, whales, and seabirds" (Mele 1994).

What is the two-stroke motor? The two-stroke motor is used in most outboards and personal watercraft (e.g., jet skis). It has an extremely inefficient design, and lacks a catalytic converter, fuel injection, electronic ignition, or any of the other devices currently used to reduce emissions in automobiles. As a result, twenty-five percent of gasoline and oil used by two-stroke marine motors is leaked directly into the water. The EPA estimates that from 1997 to the year 2025, these motors will create 20,000,000,000 pounds of hydrocarbon pollution in the US alone. Bluewater's plan to address marine pollution. Bluewater's goal is to eliminate the damaging pollution from two-stroke motors. Bluewater is promoting less harmful propulsion alternatives such as 4-stroke, inboard/sterndrive, electric, catalytic converters, and other higher efficiency motor options.



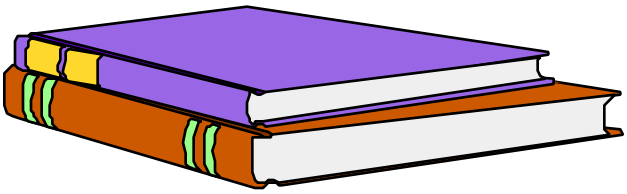
Hunting and Fishing Survey

The USFWS sponsored a study which surveyed the opinions of adult Americans on outdoor recreation. The study found that 95% of Americans approve of legal fishing, and a similar percentage agrees that fishing should continue to be a legal activity (editors note: what has this world come to that such a question is now necessary). About 27% and 9% of the population are anglers and hunters, respectively. The primary reasons for fishing are relaxation (33%), to be with family and friends (25%), sport (18%), food (13%), close to nature (7%), and to catch large fish (3%).

Twenty-seven percent rated their state fish and wildlife agency as excellent in providing good fishing opportunities, 46% said their state agency was good, and 18% said fair.

On angler ethics, 40% of the general public agreed that a lot of anglers violate fishing laws. Among active anglers, 42% agreed that a lot of fisherman violate fishing laws. Common violations cited by this group were fishing over creel limits, catching undersized fish, fishing without a license, drinking alcohol, catching fish out of season, and fishing in restricted areas.

Copies of the study, Factors Related to Hunting and Fishing Participation in the United States, may be obtained by contacting Mark Duda, Responsive Management, (540)432-1888.



Interesting Articles and Publications

Land Protection Options: a handbook for Minnesota landowners. 1996. The Nature Conservancy. 78 pages. A well put together guide on options available to citizens wishing to protecting open space. And it is Free! Call B.J. Farley, DNR MCBS at (612)296-8217 for a copy.

Stock Assessment: Quantitative Methods and Applications for Small-Scale Fisheries. 1996. D.J. Gustafson and S.B. Saila, editors. CRC Press. ISBN 1-56670-151-1. An early chapter in this book is the use of size-based methods of stock assessment--heavy on the math--but a thorough review of the common methods. The book devotes chapters to age determination, acoustics, and time series analysis.

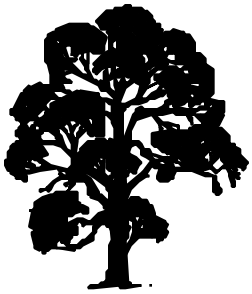
Forum-Perspectives on Ecosystem Management. 1996. Ecological Applications: Volume 6, Number 3. Twenty papers dealing with the term 'ecosystem management'. Many different views of what it means and how to save the earth and ourselves.

The Trophic Cascade in Lakes. 1993. S.R. Carpenter and J.F. Kitchell, editors. Cambridge University Press. ISBN 0-521-43145-X. If you want to understand lake ecosystems better you should read this book.

Walleye and Northern Pike: Boost or Bane to Northwest Fisheries? 1996. Thomas McMahon and David Bennett. Fisheries 21(8):6-13. The authors urge caution on stocking walleye outside their native range. They discuss "bucket biologist's" illegal introductions--this problem needs more attention!

Beyond the Gloom and Doom: Ecology of the Future. Judy Meyer. 1996. Bulletin of the Ecological Society of America, Volume 77, No. 4. She describes the accomplishments of the subversive science called ecology. She states that the solutions necessary for our species to survive will come from the intersection of ecology and engineering, economics, and ethics.

Protecting Lakeside Communities: Ethics and Aesthetics. 1996. Lowell L. Klessig. Proceedings of the Five Regional Citizen Education Workshops on Lake Management 1994-1995. The North American Lake Management Society. Dr. Klessig outlines primary social goals and concludes that lake ecosystems and human communities are protected when one of our most cherished values--individual freedom--is willingly controlled.



News from Around the World
Submitted by Gene Buck, Senior Analyst, Congressional Research Service, Library of Congress, Washington, DC 20540-7450

Diseased Fish Destroyed. On Aug. 19, 1996, Michigan Dept. of Natural Resources officials announced that 245,000 Kamloops rainbow trout, obtained from a Montana hatchery as eggs, would be destroyed after learning that federal officials had detected parasites in fish at the Montana hatchery that were not present in the Great Lakes basin. [Assoc Press]

Chernobyl Carp Appear Undamaged. On Sept. 2, 1996, Univ. of Georgia researchers announced that results of studies on carp in ponds near the Chernobyl nuclear disaster site will be published in the October 1996 issue of Eco-Toxicology, showing no evidence in genetic damage resulting in changes in appearance. However, blood analysis gave evidence of aneuploidy -- extra DNA not contributing to the genetic character of the fish. [London Telegraph via Greenwire]

Clyde River Dam Removal. On Aug. 28, 1996, Citizens Utilities workers began three days of blasting on the Newport 11 diversion dam and adjoining buttress wall, on the Clyde River in Vermont. The dam is to be totally removed and stream flow restored by Oct. 1 in time for Atlantic salmon spawning. [Assoc Press]

Lake Pend Oreille Level. On Aug. 20, 1996, the Army Corps of Engineers announced that it would keep the level of Lake Pend Oreille, ID, four feet higher than normal to improve kokanee spawning and survival during a 3-year test. [Assoc Press]

Native Fishing in Lake Michigan. On Aug. 16, 1996, U.S. District Judge Richard Enslen ruled that the Grand Traverse Band of Ottawa and Chippewa Indians may license one fisher to take salmon commercially in Grand Traverse Bay, Lake Michigan, waters. This agreement is only for a specific limited area of the Bay and only for Aug. 1 through Oct. 15, 1996; the tribes and state/federal government officials were directed to work out an agreement for fishing after 1996. [Assoc Press]

Canadian Sea Lamprey Funding Restored. On Aug. 7, 1996, Canada's Minister of Fisheries Fred Mifflin announced that Canada will provide C$5.145 million for the Great Lakes Sea Lamprey Control Program for the 1996-97 and 1997-98 fiscal years. This Program is conducted by the U.S.-Canada Great Lakes Fishery Commission. [Canadian govt. press release]

Tui Chub in Diamond Lake. On Sept. 20-21, 1996, the Oregon Fish and Wildlife Commission will meet to consider alternatives for eradicating introduced tui chub in Diamond Lake. Costs may exceed $1 million if rotenone is used and an environmental impact statement is required. [Assoc Press]

Florida Net Ban. On Oct. 7, 1996, the FL Marine Fisheries Commission passed a 90-day emergency rule prohibiting use of nets exceeding 500 sq. feet to catch mullet. This rule attempts to restrict the use of plastic tarpaulin and other innovative gear allegedly developed to circumvent the intent of the 1995 FL net ban. This emergency rule will be submitted to FL Governor Chiles and his Cabinet for consideration on Nov. 7. [Miami Herald via Greenwire]

Salmon River Floatboat and Snake River Jet Boat Regulations. On Sept. 11, 1996, the U.S. Forest Service released a new plan for managing floatboats, banning jet boats for 7 three-day periods each summer along portions of the Snake River in Hells Canyon National Recreation Area. [Assoc Press]

Norwegian Atlantic Salmon Farm Escapees. On Oct. 1, 1996, the New York Times reported that Norwegian researchers have discovered that more than 25% of spawning Atlantic salmon in Norwegian waters are escapees from fish farms. Concern is growing that aquaculture escapees threaten wild salmon populations. [NY Times via Greenwire]

Lake Michigan Commercial Perch Fishery. On Sept. 25, 1996, the Wisconsin Natural Resources Board voted to close its Lake Michigan waters to commercial yellow perch fishing this year, after few juvenile perch were found in gillnet surveys. [Assoc Press]

Menominee Fishing Rights. On Sept. 17, 1996, U.S. District Court Judge Barbara Crabb ruled that the Menominee tribe of Wisconsin gave up its

off-reservation hunting and fishing rights on 8-10 million acres of public land in treaties of 1831 and 1848 when the tribe ceded those lands to the federal government. On Sept. 23, 1996, the Menominee tribe announced that it will file a motion asking Judge Crabb to reconsider her ruling. [Assoc Press]

Zebra Mussel Costs. On Sept. 16, 1996, a Columbus (OH) Dispatch story reported on a study completed by an Ohio State agricultural economist and the Director of the National Zebra Mussel Information Clearinghouse that estimated zebra mussel control costs in the United States and Canada totalled about $300 million between 1989 and 1995, and have stabilized at about $30 million per year currently in the Great Lakes. [Assoc Press]

PCBs in Fish. In the Sept. 12, 1996 issue of the New England Journal of Medicine, psychologists reported that children exposed to PCBs before birth (mothers had elevated PCB levels from eating PCB-tainted fish from Lake Michigan) had trouble reading when they reached school age. [Wash. Post, Wall Street J., and NY Times via Greenwire]

Colorado Piranhas. On Sept. 2 and 5, 1996, two piranhas were caught by anglers from different waters in the upper Colorado River drainage in Colorado. Biologists are concerned that aquarium pets have been released, but believe waters are too cold to support a sustainable population of these fish. [Assoc Press]

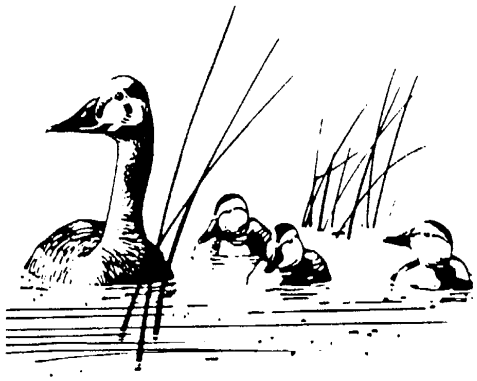
Water Pollution from Grazing Cattle. On Sept. 30, 1996, U.S. District Judge Ancer Haggerty granted summary judgment in a lawsuit brought against the U.S. Forest Service by the Oregon Natural Desert Assoc., Oregon Natural Resources Council, Pacific Rivers Council, Portland Audubon Society, and Trout Unlimited, and required the Forest Service, before issuing grazing permits, to obtain state assurance that grazing will not pollute streams and rivers. Environmental groups sought to require livestock producers to comply with state Clean Water Act standards. [Assoc Press]

Gulf of Mexico Dead Zone. On Aug. 12-13, 1996, winds forced oxygen-depleted water from the Gulf of Mexico's dead zone off the mouth of the Mississippi River close to shore causing a "jubilee" along about 20 miles of Louisiana coastline, east of the mouth of Bayou Lafourche. This condition causes shrimp, crabs, and finfish to crowd close to shore to escape the low-oxygen water and can be easily caught in large quantities. [Assoc Press]

Louisiana Gillnet Ban. On Aug. 7, 1996, U.S. District Judge Thomas Porteous deferred action on a class-action suit by the Louisiana Seafood Management Council to overturn a state ban on gillnet use, until state courts finish consideration of appeals on the issue. [New Orleans Times-Picayune via Greenwire]

Sport Fishing Protests. In early August, 1996, People for the Ethical Treatment of Animals (PETA) demonstrators protested at a bass-fishing tournament in Birmingham, AL. On Aug. 19, 1996, PETA demonstrators protested at the Mid-Atlantic $500,000 fishing tournament in Cape May, NJ, claiming that fishing tortures fish, promotes consumption of sometimes-contaminated food, and teaches children disrespect for animals.[Assoc Press]

Washington State Draft Salmon and Steelhead Trout Policy. On Sept. 27, 1996, WA Dept. of Fish and Game officials announced that they have asked the American Fisheries Society to form an independent scientific panel to review and critique the state's draft salmon and steelhead trout policy, "21st Century Wild." [Assoc Press]



On the Underside
submitted by Charles Anderson

RULES FOR RESEARCH:
In theory, there is no difference between theory and practice, but in practice there is a great deal of difference.

UNNAMED LAW:
If it happens, it must be possible.

FINAGLE'S LAWS:
1. If an experiment works, something has gone wrong.
2.1 No matter what result is anticipated, there is always someone willing to fake it.
2.2 No matter what the result, there is always someone eager to misinterpret it.
2.3 No matter what happens, there is always someone who believes it happened according to his pet theory.
3. In any collection of data, the figure most obviously correct, beyond all need of checking, is the mistake.
4. Once a job is fouled up, anything done to improve it only makes it worse.

FINAGLE'S CREED:
Science is Truth; don't be misled by facts.

THE FINAGLE FACTOR--Sometimes called the SWAG(Scientific Wild-Assed Guess Constant):
That quantity which, when multiplied by, divided by, added to, or subtracted from the answer which you got, yields the answer you should have gotten. Items such as 'Finagle's Constant' and the more subtle 'Bougerre Factor' are loosely grouped, in mathematics, under constant variables, or, if you prefer, variable constants. Finagle's Constant, a multiplier of the zero-order term, may be characterized as changing the universe to fit the equation. The Bougerre (pronounced 'bugger') Factor is characterized as changing the equation to fit the universe. It is also known as the 'Soothing Factor'; mathematically similar to the damping factor, it has the characteristic of dropping the subject under discussion to zero importance. A combination of the two, the Diddle Coefficient, is characterized as changing things so that universe and equation appear to fit without requiring a change in either.

FINAGLE'S COROLLARYS:
On a seasonally adjusted basis, there are only six months in a year. If mathematically you end up with the wrong answer, try multiplying by the page number.

IGGY'S RULE OF SCIENTIFIC ADVANCES:
All scientific discoveries are first recorded on napkins or tablecloths. Engineering advances are drawn inside matchbook covers. Keep supplies of them handy at all times.

RULES OF THE LAB:
1. When you don't know what you're doing, do it neatly.
2. Experiments must be reproduceable, they should fail the same way each time.
3. First draw your curves, then plot your data.
4. Experience is directly proportional to equipment ruined.
5. A record of data is essential, it shows you were working.
6. To study a subject best, understand it thoroughly before you start.
7. To do a lab really well, have your report done well in advance.
8. If you can't get the answer in the usual manner, start at the answer and derive the question.
9. If that doesn't work, start at both ends and try to find a common middle.
10. In case of doubt, make it sound convincing.
11. Do not believe in miracles---rely on them.
12. Team work is essential. It allows you to blame someone else.
13. All unmarked beakers contain fast-acting, extremely toxic poisons.
14. Any delicate and expensive piece of glassware will break before any use can be made of it (Law of Spontaneous Fission).

RULE OF ACCURACY:
When working toward the solution of a problem, it always helps if you know the answer.

RULE OF FAILURE
If at first you don't succeed, destroy all evidence that you have tried.

RULE OF REASON:
If nobody uses it, there's a reason.

ARNOLD'S LAWS OF DOCUMENTATION:
1. If it should exist, it doesn't.
2. If it does exist, it's out of date.
3. Only useless documentation transcends the first two laws.

Documentation is like sex: when it is good, it is very, very good, and when it is bad it's still better than nothing.

THE TEN COMMANDMENTS OF STATISTICAL INFERENCE:
1. Thou shalt not hunt statistical inference with a shotgun.

2. Thou shalt not enter the valley of the methods of inference without an experimental design.
3. Thou shalt not make statistical inference in the absence of a model.
4. Thou shalt honor the assumptions of thy model.
5. Thy shalt not adulterate thy model to obtain significant results.
6. Thy shalt not covet thy colleagues' data.
7. Thy shalt not bear false witness against thy control group.
8. Thou shalt not worship the 0.05 significance level.
9. Thy shalt not apply large sample approximation in vain.
10. Thou shalt not infer causal relationships from statistical significance.

FETT'S LAW:
Never replicate a successful experiment.

WEINER'S LAW OF LIBRARIES:
There are no answers, only cross references.

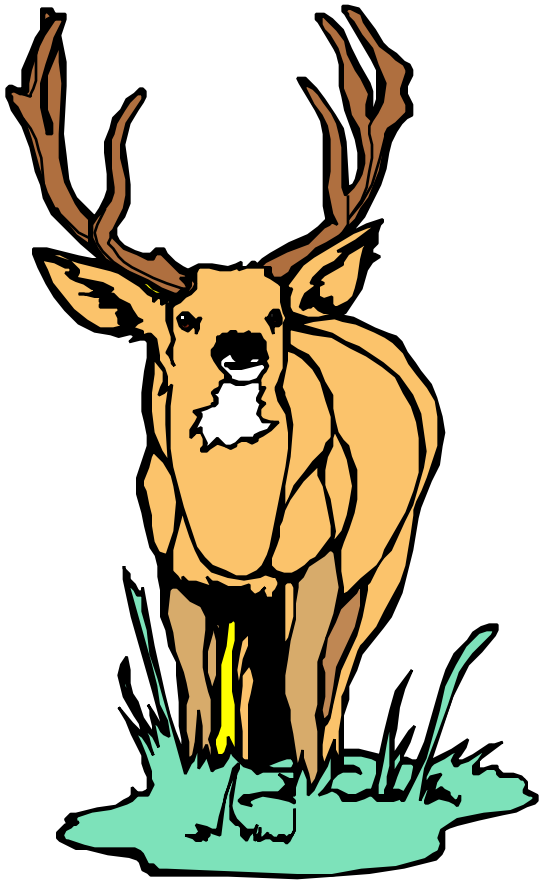
MURPHY'S LAW OF RESEARCH:
Enough research will tend to support your theory.

WYSZOWSKI'S LAWS:
1. No experiment is reproducible
2. Anything can be made to work if you fiddle with it long enough.

WETHERN'S LAW:
Assumption is the mother of all screw-ups.

HINTS ON WRITE-UPS:
1. In any collection of data, the figures that most closely confirm the theory are wrong.
2. No one you ask for help will see the mistakes either.
3. Any nagging intruder who stops by with unsought advice will see them immediately.
4. If an experiment works, you must be using the wrong equipment.
5. An experiment may be considered successful if no more than half the data must be discarded to agree with the theory.
6. No experiment is ever a complete failure. It can serve as a bad example.
7. Always leave room, when writing a report, to add an explanation if it doesn't work (Rule of the Way Out).

LAST WORDS:
Raw data is like raw sewage, it requires some processing before it can be spread around. The opposite is true of theories.
A little inaccuracy sometimes saves tons of explanation.
Always draw your curves, then plot the data.
An ounce of application is worth a ton of abstraction.
An ounce of emotion is equal to a ton of facts.
Always proofread carefully to see if you any words out.
Dangerous exercise: Jumping to conclusions.
Discoveries are made by not following instructions.
Discovery: A couple of months in the laboratory can frequently save a couple of hours in the library.
A final opinion on the scientific method: play with it until--
1) you break it
2) it breaks you
3) you figure it out
4) your mom/boss/TA/Prof catches you
5) you discover something more interesting to play with.



FIRST AND ONLY CALL FOR PAPERS AND POSTERS

The Annual Meeting will be held February 25-27, 1997, in Fargo, North Dakota. Abstracts for poster and paper sessions are herewithin invited.

They should be sent to: Tim Goeman, DNR, 1601 Minnesota Drive, Brainerd, MN 56401; tim.goeman@dnr.state.mn.us

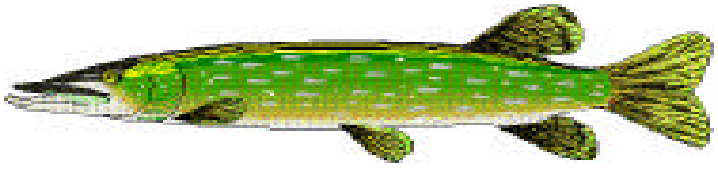
Deadline for receipt of abstracts is December 13, 1996.

Abstracts should be submitted electronically, either mailed on floppy disk or sent via e-mail.

Abstracts, including the author and title lines, are to be no more than 250 words. They can be submitted on a 3.5" floppy disk (preferably formated for DOS), or by electronic mail to Tim Goeman. They must be submitted in ASCII, WORD, or WORDPERFECT format. Include at the top of the file the following information: author to contact, institution, mailing address, phone numbers, e-mail address, who will present paper and if a student or not, and preference for oral or poster presentation.

Persons submitting abstracts will be notified by Tim Goeman of their receipt. And additional information will follow.

People with questions on abstract submission should contact Tim Goeman at (218)828-2246.



NOMINATIONS FOR 1997 MN-AFS CHAPTER OFFICERS

To All MN-AFS Members:

Please use this form to nominate candidates for the following 1997 chapter offices: ***President-elect*** (this year preference will be given to those who have employment affiliation with Federal, Academia, and Open categories), ***Secretary/Treasurer*** (any affiliation), ***Executive Committee Members-at-large*** (candidates can be nominated from each of the four employment affiliation groups -- Academic, Federal, DNR, and Open).

Please contact your nominees to assure that the information you provide is correct, and sign your name at the bottom of the form. Attach additional pages if needed. This form must be signed and nominations received at the address on the back of this form by December 13, 1996.

Chapter office:
Candidates name:
Affiliation:
Telephone number:
Number years in AFS parent society:
Reasons for nomination:

Chapter office:
Candidates name:
Affiliation:
Telephone number:
Number years in AFS parent society:
Reasons for nomination:

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Number years in AFS parent society:
Reasons for nomination:

Chapter office:
Candidates name:
Affiliation:
Telephone number:
Number years in AFS parent society:
Reasons for nomination:

I have contacted the nominees listed above:__________________
(your signature)

Mark Cook, Fisheries Research
Minnesota Department of Natural Resources
2114 Bemidji Avenue
Bemidji, MN 56601

1997 Annual Meeting Announcement

When: February 25-27, 1997
Where: Fargo, North Dakota

Tentative Schedule:

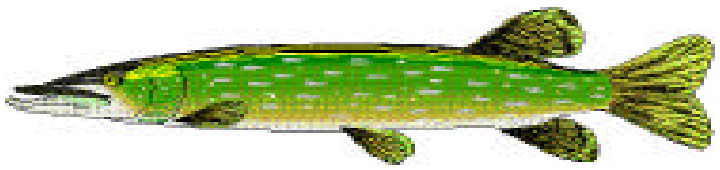
February 25, 1997 - Tuesday
1. Dakota Continuing Education Workshop - Scientific Writing: Minnesota Chapter members can contact Walt Duffy for more information (605.688.4782)
2. Registration and Social
   5:00 - 9:00 pm at Country Suites, Fargo (3 blocks from the Holiday Inn)
   kegs, smoked fish, food, for about $5 per person

(below: note changes from last newsletter)

February 26, 1997 - Wednesday
Holiday Inn, Fargo
8:00 - noon: Registration
8:00 - 12:00: Papers
12:00: Luncheon
1:00 - 3:00: Papers
3:00 - 4:30: Business meetings
5:30 - 7:00: Poolside social - cash bar
7:00 - 9:00: Banquet and Awards

February 27, 1997 - Thursday
Holiday Inn, Fargo
8:00 - noon: Papers
12:00: lunch on your own
1:00 - ?: Papers

About $35 will cover all breaks, 1 noon lunch, and the Wednesday night banquet. Lodging reservations can be made at the Holiday Inn ($64/double/night), the Holiday Express ($49/double/night) which is 1/2 block from the Holiday Inn, the Comfort Inn West ($40) which is 3 blocks from the Holiday Inn, or the Super8 ($37) which is 5 blocks from the Holiday Inn. Call Tim Goeman at 218.828.2246 if you have any questions.



The American Fisheries Society, Minnesota Chapter
Continuing Education Committee is sponsoring the following workshop:

Use of Global Positioning Systems (GPS) & Geographic Information Systems (GIS) in Fisheries Management

instructed by
Corvallis MicroTechnology, Incorporated
Covallis, Oregon

8:00 a.m. - 5:00 p.m., Wednesday, March 19, 1997
Wilder Forest Conference Center, Marine on St. Croix, Minnesota

Workshop Topics

Mission Planning
Location/Time, Terrain Simulation, Satellite Configuration

PreProcessing
Job Setup, Feature Lists, Data Collection Parameters

GIS Conversion to Various Mapping Systems
Mapping systems to be reviewed: ESRI Shapefile, AutoCad DXF, ArcInfo

Field Data Collection
Procedure for collecting Point, Line, and Area features

Post Processing
Differential Correction, Data Quality Analysis, Multiple Job Management

GPS Concepts
C/A Code, Real-time DGPS, Carrier Phase

Cost:
$170/person - instruction and materials

Background on Corvallis MicroTechnology, Inc. (CMT)
CMT is experienced in conducting “hands on” GPS/GIS training, combining GPS theory with practical GPS/GIS data collection exercises in the field. CMT will present its End-User Level I Seminar that provides practical understanding of GPS/GIS data collection, processing, analysis, and applications. CMT has provided GPS/GIS training for over 3 years throughout the U.S. and Canada to thousands of professionals from numerous private and public organizations.

Continuing Education Committee Course: Use of GPS and GIS in Fisheries Management

WHEN: 8:00 a.m. - 5:00 p.m., Wednesday, March 19, 1997

WHERE: Wilder Forest Conference Center, Marine on St. Croix, Minnesota

COST: $170, includes instruction fee and materials, lunch and snack at Wilder

ADVANCED REGISTRATION IS REQUIRED: Space is limited, so the seminar will be filled on a first come, first serve basis. Please register early and prepayment is apppreciated by not required. If paying through your office MN DNR employees must pay for the course out of their discretionary budget. For more information contact Mark Hove at (612)624-3019.

LODGING RECOMMENDATIONS: Participants are responsible for their own lodging if they need it. Three motels are located within 15 miles of Wilder. The least expensive is the Super8, Stillwater, at $42/single, $52/double.

Registration Form

Please register me for the Use of GPS and GIS in Fisheries Management Course.

Name:_____
Organization:_____
Address:_____
_____

Phone:_____

Registration Fee: $170

Total Amount Enclosed:_____(make checks payable to MN AFS)

Registration must be received before February 19, 1997

Send registration form and payment to:
Deserae Bushong, MN AFS Cont. Ed. Co-chair
DNR-Fisheries
1801 S. Oak St
Lake City, MN 55401

1996 Minnesota Chapter Application

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

Send newsletter to _____Home or _____Work address?
Are you a member of AFS?_____ yes _____ no. Membership Number_____
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Provide a short description of current studies or research, and reasons why you wish to attend the annual NCD meeting:

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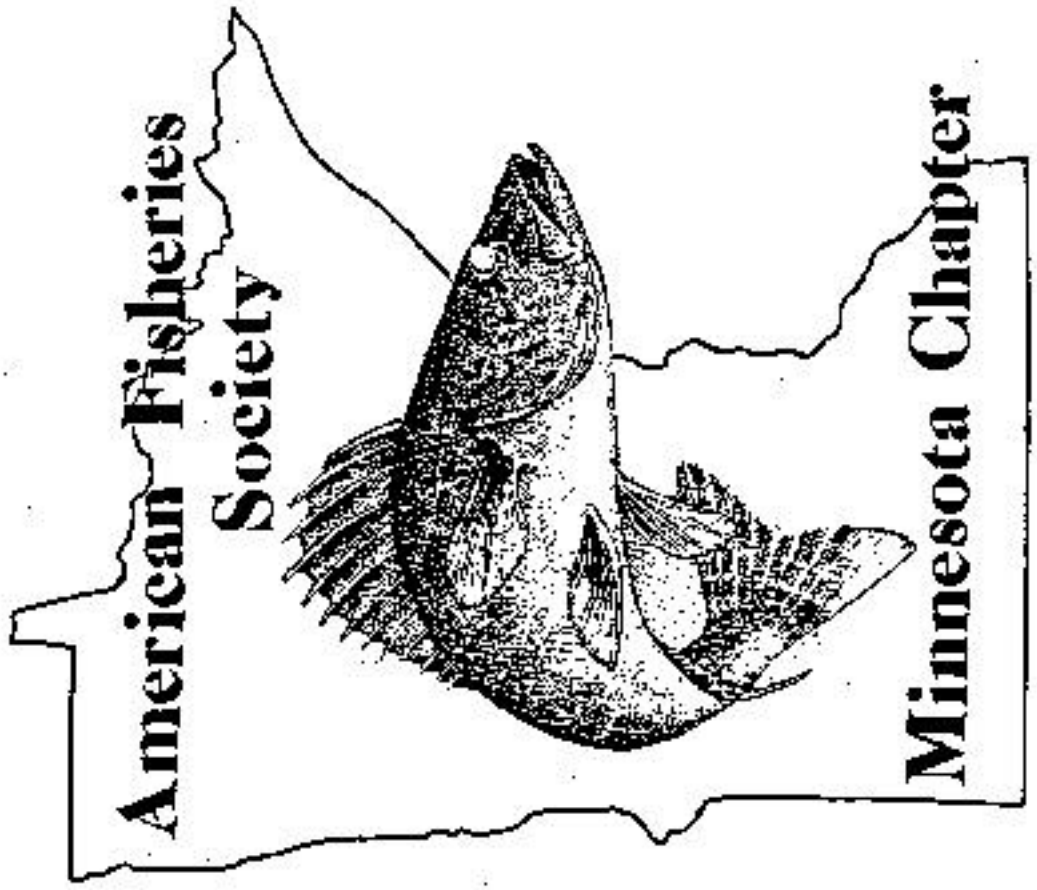

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