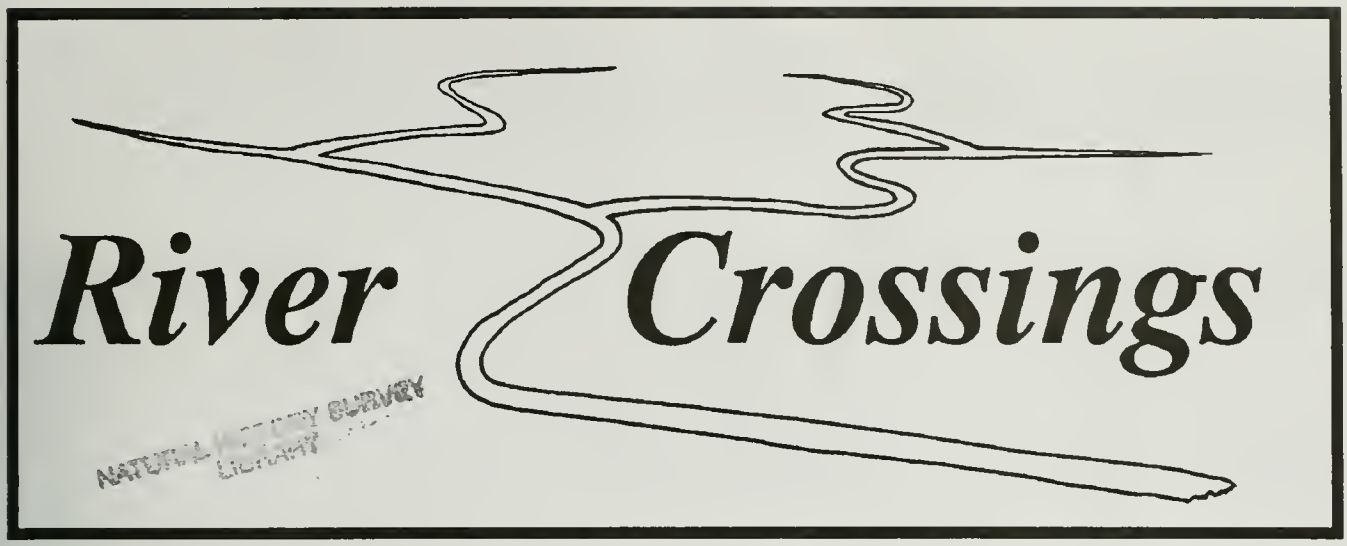


Volume 2 March/April 1993 Number 2

Watershed '93

Over 1000 people from all over the country gathered in Alexandria, VA on March 21-24 to discuss watershed management, past and present issues and activities; and to find potential solutions and actions to improve the country's watersheds. A paper describing MICRA's goals was prepared and presented by Jerry Rasmussen, MICRA Coordinator/ Executive Secretary.

Sub-group breakout sessions and wrap-up group discussions (which included a satellite hook-up with remote locations throughout the country) were held at the end of the four-day event. These discussions stressed the following points and actions needed to improve watershed protection and management:

- We must allow our watersheds room to "breathe". This comment made by Bill Frank, Jr., Chair, Northwest Indian Fisheries, Olympia, WA, essentially means that we must take a holistic approach to watershed management, setting realistic limits on land use, development, and growth which addresses watershed capabilities and attempts to balance development with environmental protection interests.

- We need to promote individual lifestyle changes which focus more on walking, bicycling, and mass transportation rather than on use of the traditional internal combustion engine.

- We must educate the public, especially the young, to the holistic nature of our environment and the importance and need for being good land stewards.

- We must promote the economics of good watershed management, and find ways to demonstrate that good watershed management will generate profits for landowners.

- We must establish and maintain good national leadership for watershed management.

- We must be flexible and promote techniques and methods which "work", whether they be bottoms up or top down approaches.

- We must promote and develop the "political will", at all levels of government, necessary to make the hard choices and decisions needed

INSIDE THIS ISSUE

to improve watershed management.

- We need to develop better methods and techniques of collecting and sharing information and scientific data.

- Private property rights must be respected, but private interests must recognize their public responsibilities to the maintenance of environmental quality.

- We must develop better mechanisms to coordinate watershed management.

- We must find new ways to address and promote "appropriate" land use.

- We need to encourage decision makers to visit our watersheds in order to learn more about them through "hands on" and "on site" experiences.

- Development projects must be evaluated for their long term impacts (longer than in the past).

- We should begin thinking in terms of identifying the human "carrying capacity" of our watersheds, and set limits on population growth.

- We must take actions to better control growth and urban sprawl.

- We must develop and set national goals for watershed management, with achievable milestones to mark progress.

- We should establish a 900 number for watershed coordination and information; the proceeds of which could be used to finance watershed protection projects and promotional activities.

- We need to make better use of existing programs (i.e. farm program, P.L. 566 program, etc.) to improve our watersheds.

- A national watershed forum is needed.

- We need a constitutional amendment which guarantees everyone the right to a clean environment.

River Crossings

Published by

Mississippi Interstate Cooperative Resource Agreement (MICRA)
608 East Cherry
Columbia, MO 65201

River Crossings is a mechanism for communication, information transfer, and coordination between agencies, groups and persons responsible for and/or interested in preserving and protecting the aquatic resources of the Mississippi River Drainage Basin through improved communication and management. Information provided by the newsletter, or opinions expressed in it by contributing authors are provided in the spirit of "open communication", and do not necessarily reflect the position of MICRA or any of its member States or Entities. Any comments related to "River Crossings" should be directed to the MICRA Chairman.

• We need to work to change our present culture from one which is based on materialism and consumerism to one which takes a more "spiritual" approach toward land use and protection.

• We must find ways to factor out agency and interagency "turf battles" which are currently preventing positive action.

• We must work to "re-invent" government in order to re-establish a public "faith" that government can and will make positive change.

Carol Browner, Administrator of the EPA, addressed the group at the closing session and assured conference attendees that the Clinton Administration is committed to improving environmental protection. She said that she, along with the Agriculture and Interior secretaries, are committed to improved coordination, sharing of information, and working together to improve government efficiency.

Jimmie Powell, Staff Member of the Senate Committee on Environment and Public Works, informed the group that a new Clean Water Act will likely be developed in this Congress. He predicted hearings in May, a draft bill by summer, and markup of the bill by fall.

He also told the group that a new constitutional amendment to guarantee the right to a clean environment is not needed because our legal system is already built into that principal through "common law" practices.

He also said that action on the Endangered Species Act is overdue. He went on to say that the Act needs to be restructured in order to promote advance work to protect species before they become endangered. He said that Carol Browner of the EPA and Bruce Babbit of Interior are both supportive of this concept.

He said that the Mining Law will be addressed by this Congress, and will likely be amended to provide for improved protection of natural resources.

Vice President Al Gore was invited to attend the conference, but was unable to due to other commitments. Instead he sent a written message (See the next section of this newsletter).

All in all the conference was very supportive of MICRA's established goals and objectives, and the concepts we are promoting.

A concept worthy of mention which was promoted by some conference attendees, especially those from the Chesapeake Bay area, was to identify themselves by their "environmental address".

The environmental address of the MICRA office is: *Hinkson Creek, tributary to Perche Creek, the Missouri River, the Mississippi River and the Gulf of Mexico.* Do you know your environmental address? If you don't, you probably should!

A Message From Vice President Al Gore

The following text was included in a letter sent to attendees of the "Watershed '93" conference held in Alexandria, VA on March 21-24:

"I commend all of you for your dedication to protecting our Nation's water resources. Great strides have been made in improving the health of the Nation's waters thanks to the efforts of many people around this country -- including many of you here today.

'However, as you all know, our waters are still in danger. Today's threats such as nonpoint source pollution and habitat degradation require new and creative solutions. With its holistic approach, watershed protection provides a means by which we can address and overcome the perils facing our waters.

'I realize that for many, watershed management represents a new way of thinking. This new approach will require major changes in your current methods of operation. Adopting this watershed protection approach will not always be easy and there will be obstacles to overcome. Rest assured that you will not be facing this challenge alone. As part of our economic stimulus package, President Clinton and I proposed $47 million for watershed protection efforts, including nonpoint source pollution controls and wetlands restoration.

'We are all keenly aware that our environmental efforts in the decade of the 90's must succeed. We must ensure that we leave to our children and grandchildren a healthy environment. Your attendance at this conference demonstrates that you are ready to take this challenge and make watershed protection work."

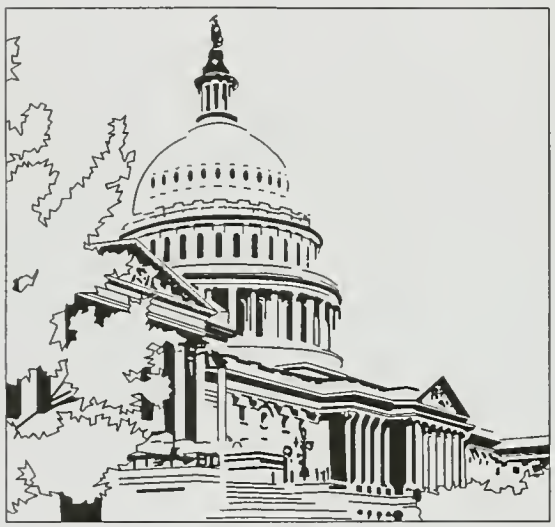
Legislative Perspectives on Watershed Management

The 58th North American Wildlife and Natural Resources Conference held a special session entitled "Watershed and Land Use and Fish Populations" on March 23 in Washington, D.C.

The panel of speakers included William Stelle of the House Merchant Marine and Fisheries Committee and Jeffery Peterson of the Senate Environment and Public Works Committee.

Peterson stated that the Senate will likely have a new Clean Water Act drafted by Spring, hold hearings this summer, and be ready for markup in the Fall. Stelle said that Congress will likely steer the Act toward the conservation of ecological health and provide a tremendous opportunity for the Fish and Wildlife Service and the States to provide meaningful input to the EPA.

Stelle said the forest conference which President Clinton conducts in early April in the Northwest bears watching because it will set the pace for the direction this Administration will likely take on watershed management.



Stelle also said that the next two months are very, very important for new program starts in the 103rd Congress. This is the Congress's reconciliation process, and generally a period when "what the White House wants, the White House gets!"

The next two months would therefore seem to be a critical period for contacting our Congressmen regarding gaining their support for the Interjurisdictional Rivers Bill.

Stelle also said that there will likely be a Department of the Environment Bill which, if passed, could produce significant restructuring of federal government agency roles, and elevate the Environmental Protection Agency to Cabinet level status.

Interjurisdictional Rivers Bill Update

The American Fisheries Society held a special legislative training session in Rockville, MD in late March. The purpose of the session was to provide members with training in legislative matters, and to develop members' talents in political lobbying techniques.

As part of the session, members teamed up and spent a day on Capitol Hill contacting various Congressmen to lobby for passage of the Interjurisdictional Rivers Bill, the Magnusson Act, and the Endangered Species Act.

The day on the "Hill" began with a Congressional Breakfast at the National Press Club to describe and promote the above mentioned legislation.

Ted Turner of Turner Broadcasting in Atlanta was the keynote speaker. Turner informed the group that he is willing to work with the AFS to develop educational programs on the plight of the nation's fisheries. We anticipate that at least one of these programs would address issues facing our rivers and their fishery resources.

Jerry Rasmussen, MICRA Coordinator/Executive Secretary, presented a summary of the Interjurisdictional Rivers Bill and MICRA.

At an afternoon meeting with Congressman Steve Gunderson (WI) the group was assured that the 1993 version of the Interjurisdictional Rivers Bill would be introduced as soon as Congress tackles the overall budget (hopefully within the next few days).

Nine of the fourteen Congressmen who signed on in support of the 1992 version of the Bill won re-election last fall. These include Jefferson (LA), Natcher (KY), Costello (IL), Ravenel (SC), Tauzin (LA), Peterson (MN), Baker (LA), Bereuter (NE), and McCrery (LA). It is hoped that all of these Congressman will support the bill again this year, but each should be contacted again by MICRA members from their respective states.

MICRA members are also urged to make contacts with all of their respective Congressmen to gain additional support for the bill.

The language of the bill remains largely the same as in 1992, except that Alaskan rivers will be excluded from the National Strategy, and a clause has been added to ensure that management responsibilities of effected states are not superseded by the National Strategy.

National Biological Survey and the Endangered Species Act?

Interior Secretary Bruce Babbitt has recently appointed Thomas E. Lovejoy, Smithsonian Institution Assistant Secretary for External Affairs, to be his scientific advisor. Babbitt reportedly asked Lovejoy to design a new science agency within

Interior to be called the National Biological Survey.

That new agency would combine the research functions of existing Interior Department agencies (Fish and Wildlife Service, Bureau of Land Management, Bureau of Reclamation, and National Park Service) under one new coordinated scientific function.

Babbitt would model the new agency after the U.S. Geological Survey founded in 1879 through cooperation of the Smithsonian and the National Academy of Sciences.

A primary task of the new agency would be to complete a kind of national biological map that Babbitt hopes will be a new more-active approach to dealing with endangered species. The secretary has said he wants to take a more comprehensive, ecosystem-based approach to preserving diversity rather than the single-species approach that has been used in the past.

The ecosystem mapping envisioned by Babbitt would serve as a kind of early warning system, allowing government to determine plant and animal species that could be heading for trouble and to take steps to protect habitat without serious economic dislocation.

Babbitt said the new biological survey "could be the best insurance policy against environmental and economic train wrecks." He said, "We need to step back and look at the entire ecosystem and ask, 'Is it possible to intervene before the crisis?'"

Such an approach, he said, might avoid "the downward spiral of listing, and then the long, contentious legal process that is triggered when the Endangered Species Act takes hold."

The theory is that both conservation and business interests can be better served by negotiated settlements that plan the future of an entire ecosystem before any individual species is endangered. There is more leeway for compromise, according this view, than when an ecosystem is severely degraded and options for protecting threatened species shrink.

Babbit said, "We're going to have to manage the Endangered Species Act pro-actively by anticipating the problem, while we still have the flexibility to manage it.

Source: New York Times (2-16-93) and Washington Post (3-14-93)

MICRA Funding

Kansas joined Illinois, Montana, and Minnesota in February by supporting MICRA through contribution of $1500 in annual dues.

Dues are used to pay for various MICRA activities such as meeting expenses, the newsletter, etc.

MICRA Paddlefish/Sturgeon Committee

The Paddlefish/Sturgeon Committee met in Columbia in February to begin drafting their Strategic Plan. States and Entities represented included TX, LA, AR, MO, KS, IA, NE, SD, MT, and FWS.

larval paddlefish

In a one-day session the group agreed to 7 major goals, 13 objectives, and 35 tasks. Goals include the following:

- Identify and prioritize issues of concern in the Mississippi River Basin for coordinated research that supports cooperative paddlefish and sturgeon management.

- Facilitate communication and coordination among entities responsible for paddlefish and sturgeon resource management in the Mississippi River Basin.

- Develop an information management program based on standardized methods for collecting and reporting paddlefish and sturgeon resources data, basin-wide.

larval sturgeon

- Identify and coordinate paddlefish and sturgeon research, management and recovery programs to address species and habitat concerns from an ecosystem perspective.

- Preserve, protect and restore paddlefish and sturgeon habitats basin-wide.

- Develop compatible regulations and policies for paddlefish and sturgeon to achieve interstate consensus on their conservation and management.

- Increase the public awareness and appreciation of the ecological and economic importance of paddlefish and sturgeon species and of the environmental and human-related impacts that threaten their welfare and continued existence.

The Committee's goals were developed to be consistent with MICRA's overall goals. They hope to complete a review draft of their Plan in April, gain Steering Committee approval in May, and begin implementation by summer.

Middle Mississippi River MICRA Project

MICRA will sponsor a meeting between Illinois, Missouri, Fish and Wildlife Service, and Corps of Engineers biologists and hydrologists in Collinsville, IL on April 9th to discuss fisheries management options for the Middle Mississippi River.

The Middle Mississippi is defined as the reach between the Mississippi's confluence with the Missouri River on the north and the Ohio River on the south.

For the past several years the St. Louis District Army Corps of Engineers (SLD) has been investigating new environmentally sensitive alternatives to maintenance of the Middle Mississippi River navigation channel.

One of the most common structures used to maintain a navigation channel in this reach is channel training dikes; most often constructed in series and referred to as dike fields. River biologists have often been critical of these structures because the aquatic habitat between the dikes quickly becomes covered with sediment and is lost.

Since 1972, SLD hydrologists have been experimenting with different types of dike modifications in an attempt to eliminate or reduce sedimentation between the dikes and thus enhance aquatic habitat. The general theory was that if notches were placed in the dikes, flow through the notch would keep suspended particles from settling out. In practice, scour holes, bars, small chutes and side channels have been formed that provide increased habitat diversity.
Biological studies indicate that diversity of macroinvertebrates was greater on notched dikes. This was true to a lesser degree for fish.

SLD hydrologists have also been experimenting with new ways to protect shoreline revetments. In the past, graded stone << A >> consisting of rocks up to 400 pounds in size was used. Some revetments are now being constructed using graded stone << C >> which includes rocks up to 5,000 pounds in size. The larger stone provides significantly more crevices and substrate variability than the smaller stone. Fisheries studies completed in 1982 and 1983 showed a significantly higher proportion of fish (by weight) from the large stone revetment.

Another modification to standard revetment techniques has been to move the revetment riverward, away from and parallel to the bank line. This eliminated the need to clear shoreline vegetation and has also proven more economical. A subsequent improvement in this off-bankline revetment design has been the creation of openings in the revetment. These opening have provided side channel-like environments between the revetment and the shoreline. Recent fisheries studies by the Illinois Department of Conservation show that off bankline revetments may support twice as many fish as conventional revetment.

The latest development in "environmentally sensitive" river control are "bendway weirs". These are submerged rock structures placed in the navigation channel on river bends characterized by high water velocities and narrow widths. Traditional revetment placed on the outside bend of a river meander made the channel more narrow and swift, a condition unfavorable both to navigation and aquatic life. Bendway weirs appear to offer a solution that will benefit both navigation and aquatic resources.

In 1990, 13 bendway weirs were installed at Dogtooth Bend, located approximately 160 miles south of St. Louis. A total of 220,000 tons of rock was used to build the 13 weirs at a cost of $1 million. Alignment of the weirs was critical to their success, so a satellite global positioning system was used to pin-point their location on the bend. Since the weirs are located in the navigation channel, a minimum of 15 feet of clearance was allowed between the weir top and any passing barges.

It is anticipated that the weirs will provide desirable substrate for invertebrate populations and forage fish. This, in turn, should attract larger fish such as the channel

striped bass

catfish, flathead catfish, striped bass, and sturgeon. Another major benefit of the weirs is that they will help isolate the "point bars" formed on the inside bends from land access by predators and humans. These point bars are critical for nesting of species such as the endangered Least Tern.

flathead catfish

Ongoing monitoring of the biological and hydraulic parameters of these weirs should substantiate these predictions. A major problem still facing fishery biologists is how to effectively sample deep, swift water. Typically, such river bends are very "hostile" to sampling procedures. Another unknown is what effect tow passage will have.

If any of our "*River Crossings*" readers have any suggestions on safe

and effective methods of sampling these habitats, we'd appreciate hearing from you.

The MICRA-sponsored group meeting in Collinsville on April 9th hopes to reach consensus on Middle Mississippi River fisheries management goals and needs, and to make recommendations for further application of the SLD's recently developed hydraulic techniques to improve fishery habitat.

For more information on the channel maintenance work being done by the St. Louis District please contact Mr. Claude Strausser, Chief Potamology Section, Hydrologic and Hydraulics Branch, U.S. Army Engineer District, 1222 Spruce St., St. Louis, Missouri 63103-2833

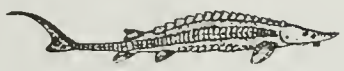
Pallid Sturgeon Genetics Update

Some 15,000 to 20,000 sturgeon hatched last year and held over winter at the Blind Pony State Fish Hatchery near Sweet Springs, MO may soon be destroyed because they are hybrid rather than true pallid sturgeon. The Pallid Sturgeon

pallid sturgeon

Recovery Team has recommended that stocking not occur at this time because of the questionable genetics of the Blind Pony fish.

The proposed stocking plan was to widely disperse sturgeon juveniles in the Missouri and Mississippi rivers in Missouri, and possibly off-river reservoirs. The Recovery Team feels there is sufficiently reasonable doubt that one or more of the broodstock at Blind Pony was a pallid sturgeon X shovelnose sturgeon hybrid. The team maintains that stocking would be an irreversible action and not one that must be taken at this time to recover the species.



shovelnose sturgeon

Dr. Donald Morizott, under contract with the U.S. Army Corps of Engineers, conducted DNA testing on shovelnose and pallid sturgeon, attempting to identify species-specific polymorphisms for use in evaluation of the "purity" of the Blind Pony Hatchery sturgeons using allozyme analysis. Dr. Morizott concluded that the Blind Pony sturgeons may be pure pallids, but he could not assemble evidence to strongly support that conclusion.

Because the DNA studies are still underway, only morphological criteria are currently available to assess potential hybridization. A more extensive and detailed allozyme study with more localities and more sampled tissues will be required before conclusive evidence for genetic differentiation between the two species can be assembled. Dr. Morizott had only a small sample of fish and poor quality of samples with which to work.

Morphological characteristics of the Blind Pony pallid sturgeon progeny leave further doubt as to the broodstock's purity. As the juvenile pallid sturgeon grew some individuals began taking on characteristics of shovelnose sturgeon, others pallid sturgeon, while the majority took on characteristics of both species. Sturgeon juveniles may not show all the adult characteristics, but their appearance left further doubt as to their parentage.

The Recovery Team has recommended that Blind Pony retain up to 100 juveniles from each of the two lots until next summer, and eventually cut back to 20-30 each to serve as future broodstock, should DNA analysis planned for completion later this year prove them to be pure pallid sturgeon. The surplus juveniles will likely be offered for research and outreach as soon as possible. One research option might be to transfer juveniles to hatchery ponds where survivability under less costly holding conditions could be measured. If there is still a surplus, the remainder will likely be destroyed in a humane manner to free up hatchery space and eliminate further holding costs.

The Recovery Team feels that although the full recovery potential of last year's propagation activities could not be met with reintroduction, the propagation effort contributed enormously to recovery of the species. It was shown for the first time that pallid sturgeon can be spawned and reared in hatcheries. Feeding and density trials on the progeny also expanded our knowledge of rearing requirements and needs. Specimens were and can continue to be provided to aquariums for public viewing. Specimens were collected and are being drawn by a larval fish artist for a descriptive key of developing sturgeon. And ongoing studies are being conducted on tag retention in juveniles. Hybrid females were also shown to be fertile when known hybrids were spawned with pallid sturgeon males.

Despite the disappointing conclusion of last year's effort, the Recovery Team recommends that Missouri again attempt to spawn pallid sturgeon this year. It will be crucial to build on the successes of last year's spawning activities and continue to refine spawning techniques, develop broodstock, and research rearing requirements. Jerry Hamilton, Blind Pony Hatchery Manager, is highly regarded by the Team for his sturgeon spawning expertise and

personal attention to rearing. The Team is hopeful that he and the Missouri Department of Conservation can continue to assist recovery efforts.

The Team is also recommending Herb Bollig at Gavins Point National Fish Hatchery in South Dakota spawn pallid sturgeon this spring. Production targets have been proposed by the Team and recently sent to participating hatcheries. Stocking is again not proposed. If this propagation is successful, the progeny would be dedicated for research, outreach, or broodstock, with surplus fish disposed of humanely within 60 days of hatching.

Water Quality Criteria for Fisheries and Aquatic Life

Traditional water quality standards at both state and national levels have almost always been set to reflect only the needs for human drinking water and water contact sports, with little recognition given to the ecological needs of aquatic organisms.

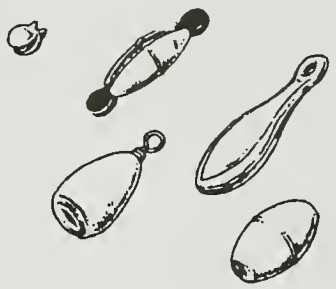
Amy Leaberry, a biologist with the EPA's Ecological Risk Assessment Branch, Office of Science and Technology in Washington, D.C. recently contacted the MICRA Coordinator regarding a project she is working on which may help change water quality regulations to reflect broader ecological needs.

Ms. Leaberry informed the Coordinator that she is in the process of developing new federal water quality criteria for fish and other aquatic organisms. After listening to the presentation on MICRA at the Watershed '93 conference, she felt that MICRA may provide the "natural" mechanism to coordinate state input from the entire Mississippi River Basin.

She agreed to submit further information on her project, and we plan to publish it in the next issue of "*River Crossings*". This seems to be a tremendous opportunity for MICRA to provide significant input to this national process, and then to work to apply these guidelines to our respective states.

Are Lead Sinkers Poisoning Birds?

Mounting evidence suggests that lead fishing sinkers may be inadvertently poisoning waterfowl. Recent studies have confirmed that at least two northern-breeding species, the common loon and the trumpeter swan, are ingesting the sinkers and dying of lead poisoning.



It is very likely that species other than the loon and swan are also vulnerable. "Our view is this is the tip of the iceberg," said Bruce Manheim, a Washington-based attorney for the Environmental Defense Fund. "In the last couple of months, a Mississippi Sandhill Crane that had been released on a Mississippi reserve was found to have died after ingesting a lead sinker."

In Michigan, studies of dead loons at a research center near Lansing found that, between 1988 and 1992, 40% of the loons had died from lead intoxication. Similar studies at Tufts University in New England reported that 52% of dead adult loons there had died of lead poisoning after ingesting lead sinkers.

One reason for Manheim's concern is the very different feeding patterns of the birds dying of lead intoxication. Loons consume fish, while trumpeter swans forage around the bottom for food. The crane, meanwhile, feeds frequently on shores, beaches and rocky areas surrounding rivers and lakes. All of the birds, perhaps in different ways, ingested sinkers.

In response, the Environmental Defense Fund, along with the Federation of Fly Fishers, the North American Loon Fund, and the Trumpeter Swan Society are seeking a ban on lead sinkers in national parks and refuges in the 16 states where loons and trumpeter swans live.

Environmental groups have also asked the Environmental Protection Agency to require that lead sinkers carry warnings of their potential hazard. Although more than 1.6 million pounds of lead sinkers are sold in the United States each year, alternatives are available.

Non-toxic sinkers made of tin and brass are on the market that cost generally 20 to 30% more than traditional lead sinkers. Bismuth sinkers are widely used in Britain, where the poisoning of Mute Swans led to a ban on the sale, import and use of lead sinkers in 1987. Bismuth has a density closer to lead than the other materials. However, bismuth sinkers are not yet widely available here.

The North American Loon Fund, Environmental Defense Fund, and Trumpeter Swan Society conducted a special panel discussion on the subject on March 22nd at the 58th North American Wildlife and Natural Resources Conference in Washington, D.C. Some predict a national ban on the use of lead sinkers in the not too distant future.

Source: Cincinnati Enquirer (1-21-93)

Iowa DNR Report Will Document Loss of Bass Habitat

John Pitlo and fellow Iowa DNR biologists have completed a seven year largemouth bass study on the Upper Mississippi River. The DNR caught more than 35,000 bass from 1985 through 1992 in an effort to establish a baseline of information for this important game fish.

Until this study was completed there was no single study that documented mortality and growth conditions sufficient to make well informed management decisions.

Final editing is now being completed, but the preliminary results appear to confirm fisheries biologists fears that critical components of bass habitat are disappearing. Sedimentation is causing spawning, rearing, and over wintering areas to diminish.

Pitlo indicated that in one 18 mile section of river near Bellevue, there were only three over wintering locations found for bass. According to DNR technician Maurice Anderson, who also worked on the study, bass need 4-6 feet of water out of any current. Such conditions are found primarily in backwater locations. Main channel locations with high velocities cause bass to expend too much energy to survive until spring.

The study also found that bass populations have declined 60% in some locations studied. Reasons for this decline have not yet been positively identified. Results of this study, may produce recommendations for changes in fishing seasons, bag limits, etc.

Contact: John Pitlo, Iowa Department of Natural Resources, RR 3, box 160, Bellevue, IA (319) 872-4976

National Audubon Society Missouri River Project

According to an article in the Omaha World Herald (2-18-93), the National Audubon Society has initiated a project to help restore sections of the Missouri River to the magnificent fish and wildlife haven it once was.

The Audubon Society plans to sponsor a multi-state Missouri River Education Project beginning this year, the 150th anniversary of John James Audubon's trip up the river to sketch and write about its natural values.

Ron Klataske, the Society's Regional Vice President, said that the project will feature public workshops in Nebraska, Iowa and other states through which the river flows; field trips; magazine articles and probably a videotape. States will be asked to designate "Missouri River Adventure" observances.

The goal, Klataske said, is to help agencies make the Missouri River a better wildlife corridor and haven for fish. The Society plans to educate the public about the river and its past, and then work with agencies such as the U.S. Fish and Wildlife Service and the Papio Natural Resources District on projects up and down the Missouri River.

Federal records indicate that about 522,000 acres of wetland along the Missouri in Nebraska, Iowa, Kansas, and Missouri have disappeared since people began changing the river. Agencies hope to restore 3-10% of the lost habitat.

"A lot of interest can be focused on the river by looking at what it is now, what could be restored, and what the river was like 150 years ago when John James Audubon was here," Klataske said. He said the Society effort will continue beyond the year.

USFWS Large River Initiative

The U.S. Fish and Wildlife Service (Service) will officially kick off its Large River Initiative with programs on the Missouri, the Lower Mississippi, and the Yukon rivers in

October 1993.

The goal of the Service's "New Beginnings" Program on the Missouri River is to "Facilitate; in cooperation with interested governmental, Tribal and private parties; the promotion of all of the diverse Missouri River uses, while ultimately achieving recovery of the Missouri River Ecosystem's natural resource values and environmental health, for the benefit of Basin residents, consistent with existing resource uses".

The New Beginnings Partnership involves all interested entities in the Basin. The Service emphasizes that "...the Program is not designed as a means to change current Missouri River resource uses. Navigation, flood control, municipal and industrial water supply, irrigation, recreation, and many other ongoing resource uses are legitimate and vital to Basin residents."

The Service believes "...that Missouri River resource users can live in relative harmony, if communications are improved, and all Partners begin looking for ways to improve their activities without inadvertently impacting other users. The Service believes that improvements in the System's biological productivity and recreational value can be made which are complementary to existing and future navigation, flood control and water supply needs; the reverse is likely also true. We simply need to do a better job of working together to achieve shared objectives."

Through partnership activities, the Service believe that mechanisms can be found to restore many of the River's natural functions which over the eons created and sustained this great System. The Service believes that these natural functions are compatible with existing and future developmental River uses.

Program objectives include the following:

- Facilitate establishment and coordination of an operational Missouri River environmental management, research, restoration and enhancement program involving Federal, State, Tribal and local governments, and public interest groups.

- Coordinate the preparation, facilitation and implementation of a comprehensive action plan for the management, restoration and enhancement of fish, wildlife and related environmental and recreational resources within the Missouri River Ecosystem in concert with existing and future navigation, flood control and water supply needs.

- Develop and implement plans for providing fish and wildlife resource-based recreational opportunities for the people of the Missouri River Ecosystem.

- Establish a functional outreach program to involve and exchange information with the public concerning problems, opportunities and resource management and restoration needs in the Missouri River Ecosystem.

The overall Missouri River effort will be led by the Service's Region 6 (Denver), with the Service's Region 3 (Minneapolis) cooperating.

The lower Mississippi effort will be led by the Service's Region 4 (Atlanta), and will include funding for some activities of the Lower Mississippi River Conservation Committee (LMRCC) headquartered in Vicksburg, MS. Many of the LMRCC goals and objectives are similar to those promoted on the Upper Mississippi for the past 50 years by the Upper Mississippi River Conservation Committee (UMRCC).

In future years the Service hopes to initiate similar programs on the Ohio, and Connecticut rivers.

Contact: Kent Keenlyne, Region 6 Coordinator, Pierre, SD (605) 224-8693, Jerry Rasmussen, Region 3 Large River Coordinator, (319) 876-1911, or Doug Fruge, Region 4 Coordinator, (601) 875-9387.

The Mississippi River Project

The subject water quality monitoring project is being supported by the Clorox Company, U.S. Soil Conservation Service, Mote Marine Laboratory, U.S. Environmental Protection

Agency, and U.S. Army Corps of Engineers. According to the project brochure, distributed at the Watershed '93 conference, this is a major event in observance of the "*Year of the Gulf of Mexico*".

The brochure states that "... there is a 3,000 to 4,000 mi^2 area near the mouth of the Mississippi River where oxygen is depleted. Scientists believe that this "dead zone" is caused by an overabundance of nutrients and other substances

entering the Gulf from the Mississippi River. These pollutants enter the Mississippi from the 30 different states which comprise the 'Mississippi Watershed'.

'While industries can be held accountable for what they do, the single biggest threat to health of our waterbodies comes from non-point sources. Rains can carry pollutants from our streets and yards to our streams, rivers, and ultimately, the Gulf of Mexico. Things we dump or spill into our yards and waterways, the over-use and mis-use of pesticides and fertilizers, leaking septic tanks, or the incorrect disposal of commonly used products like oil or transmission fluid all add to the problem.

'... The Mississippi River Project is designed to increase public awareness about the relationships between our bodies of water - how pollution can move from Montana or New York to the Gulf of Mexico and how that should be of concern to all Americans. More than a communications effort, this project will link groups with a common interest in protecting our waterbodies, through education and coordinated action."

The Project's Goals are stated as follows:

- Focus public attention on the relationship between feeder rivers, the Mississippi and the health of the Gulf of Mexico.

- Provide a platform for education on what individuals can do to make a difference.

- Include as many groups as possible with "enhancement" and collateral projects.

"The Project will develop and provide curriculum to selected schools along the Mississippi River. Taught by the Soil Conservation Service, these materials will address the relationships between waterbodies, the impact of pollutants on the marine environment and what individuals can do to make a difference.

'On May 12, 1993 1,000 students in ten states along the Mississippi River will conduct a real water quality test. They will test for phosphates and nitrates. Soil Conservation Service personnel will conduct a field test as well. Samples will be sent to Mote Marine Laboratory in Sarasota, Florida for laboratory analysis. A report will be made available which will survey the project results."

A curriculum is being written by scientists and educators in conjunction with a number of state and federal agencies. This material is designed to generally educate individuals - not to advocate a particular tactic or initiative. Master copies of this curriculum will be available for duplication.

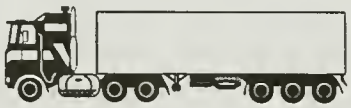
For further information contact: Honey Rand, Project Coordinator, or Heather Henry, Communications Assistant (813) 388-4441 or write to "Mississippi River Project", c/o Mote Marine Laboratory, 1600 Thompson Parkway, Sarasota, FL 34236

Barges, Economics, and the Environment

There is no doubt that barge traffic plays a major role in our national economy. However, a recent independent study conducted by economists at the University of Iowa and Iowa State University has cast some doubt on the magnitude of that impact and its relative importance to the State of Iowa.

The above mentioned study entitled, "Transportation and Iowa's Economic Future", evaluated the economics of barge traffic for that state in light of impending costs which society may have to incur to rehabilitate or reconstruct an ageing system of locks and dams on the Upper Mississippi River. The following summarizes some of the information presented:

- Commodities shipped by barge must first be transported by truck or



rail, often by both either directly or via an elevator, from their point of production (typically farms) to a barge port. In some cases a significant portion of the journey from grain elevators to New Orleans

is made by rail before the transfer to a barge takes place. It may be cost-effective, particularly in western Iowa, to ship by rail to a barge port as far away as St. Louis.

- Barges provide the least expensive means of shipping bulk commodities long distances to areas in the continental United States served by the inland waterways, given the current finance and pricing structure. Iowa's agricultural sector benefits through the lower costs facilitated by river navigation in the shipment of grain and dry ammonium phosphate fertilizer.

- Cost differences between barge service and rail service between Iowa and the Gulf of Mexico vary depending on the point of origin within the state. These cost differences also vary with barge rates, which fluctuate quite

substantially. During times of relatively low barge rates, barge service in eastern Iowa may cost inland Waterways as much as ten cents per bushel less than rail service.

- Generally speaking, a truck-barge combination is the cost-effective transportation alternative from the eastern one third of Iowa to the Port of New Orleans. The remainder of Iowa shifts among modal combinations, depending on the particular location and the prevailing barge rate.

- "Unit" trains of up to 75 cars also are competitive for shippers in a limited number of Iowa locations.

- Barge service is a much less important mode for the nonagricultural part of Iowa's economy. Less than a fifth of the state's manufacturers feel that their access to a waterway is good enough to constitute a workable solution for shipping final or even most intermediate products.

- Longer en route travel time is by far the least positive aspect of barge service. Essentially no manufactured goods travel on barges for any portion of their journey to purchasers.

- Inland waterways require ongoing expenditures for operations and maintenance (O&M) and investments to rehabilitate facilities or expand their capacity. Significant rehabilitation costs will soon be required for many of the Mississippi River's 50+ year old locks and dams.

- Some feel that upper Mississippi River locks and dams need to be lengthened to serve longer barge tows, thereby more adequately serving what they expect to be steadily increasing demand.

- The Water Resources Development Act of 1986 provided that half of future investments in the inland waterway system, whether to expand capacity or rehabilitate facilities, must be funded by the Inland Waterway Trust Fund. The other half of the costs are to be defrayed through general funds.

- The Inland Waterway Trust Fund is financed by a tax on diesel fuel paid by waterway users (implemented at six cents per gallon in 1981). This tax is gradually increasing. At its 1990 level, the tax generated revenues of $62.8 million. The rate is scheduled to escalate to 20 cents per gallon by 1995, when annual revenues should grow to approximately $100 million annually.

- The Inland Waterway Trust Fund cannot be used to finance any of the system's operating costs. Use of these funds is restricted to financing half of future capital expenditures and major rehabilitations. Also any new projects on the Upper Mississippi River must compete for funds with projects elsewhere on the inland waterway system.

- In 1990, the U.S. Army Corps of Engineers spent $82.4 million to meet routine operating and maintenance needs on the Upper Mississippi (U.S. Congress Congressional Budget Office 1992). Routine needs include periodic dredging of channels and repair of locks, dams, and other structures. They also include costs associated with the routine operation of locks and dams.

- The Corps is currently proposing a series of comparatively major lock and dam rehabilitation projects on the Upper Mississippi. In FY 92 $19.4 million is programmed for this purpose, total cost is estimated at over $71 million over a number of years. With federal match, about $200 million will be available each year for reinvestment in the entire 11,000 mile waterway system.

- Most of the existing Upper Mississippi River locks are 600 feet long, thereby limiting the number o 1200 foot long barge tows that can be accommodated in a single lockage. If locks were rebuilt with chambers 1200 feet long, the capacity of each lock would be greatly increased.

- Small-scale capacity improvements would cost about $10 to $20 million per facility, however,increasing lock length to 1200 feet would cost about $380 million per lock.

- None of the Upper Mississippi River locks and dams had a traffic volume in 1987 even approaching capacity. Most carried about 50 to 70 percent of capacity, however, traffic volumes vary greatly from season to season. There are only about seven weeks of the year when even three quarters of the Upper Mississippi River system's 1 million ton capacity is reached.

- The Corps of Engineers is currently engaged in a study of inland waterway investment needs. Their projections imply significant traffic growth on the Upper Mississippi River over the next few decades. In general, the unconstrained traffic forecast for 2020 is about twice that of 1990 for locks and dams on the Upper Mississippi River. According to the Corps forecast, these large increases in traffic would lead to significant delays at each lock as barges wait to pass through, unless capacity were increased. The Corps modeled the effect of these delays by diverting traffic to other modes when delay cost would exceed the cost savings afforded by waterways. The resulting traffic is about 30 to 60 percent higher than current traffic levels, in contrast to the doubling that was forecast in the absence of capacity constraints. However, delays for the traffic that remain on the waterways would be significant because traffic levels would be close

to the actual capacity of the locks.

- Actual delays in 1987 ranged up to six hours at Lock 22, but generally delays were fairly short. In contrast, the forecast for 2020 shows very long delays at some locks, and up to eight days at Lock 22. If larger capacity locks were in place by 2020, delays would be very small and the amount of traffic that could be handled would be higher.

- If there were no financial constraints, the Corps has estimated that a comprehensive program of improvements to upgrade the entire Upper Mississippi system would cost $4.8 billion in 1991 dollars. This program would involve large-scale capacity investments at nine Upper Mississippi River locks, along with three other large-scale capacity investments and a series of small-scale capacity and rehabilitation investments elsewhere on the system. The current financing mechanism will be incapable of generating anything close to $4.8 billion.

- If large-scale capacity improvements on the Upper Mississippi River are to be considered, major increases in revenues must be secured. Either users must pay significantly higher charges, or the structure of the financing approach must be revised such that a larger portion of the costs would be borne by the federal general fund.

- One approach examined by the Corps of Engineers to increase revenues is to steadily increase the diesel fuel tax by one cent per gallon annually starting in 1996. A one cent per gallon tax increase each year from the 1995 level of 20¢ would lead to a tax rate of 45¢ per gallon by 2020. The effect of this 25¢ increase would be to increase by about three cents the cost of shipping a bushel of corn from Iowa to New Orleans.

- Serious choices must be made regarding how locks and dams should be maintained and financed. The principles underlying good practices in financing are independent of the scale of investment undertaken; the rates needed are, of course, greatly affected by the scale of investment.

- Our analysis leads us to conclude that minor capacity enhancements may very well be called for, but doubling the size of upper Mississippi River locks would be unwise. This conclusion is supported by several considerations.

- If users of transportation are not asked to pay the full cost of that use, their demand will be artificially high. Only when full-cost pricing is established can an accurate measurement of demand be made. Users of inland waterways pay none of the operation and maintenance (O&M) costs associated with locks and dams. Through the diesel fuel tax, these users are paying half of the capital costs of new investments and only about eight percent of the total costs of the system (U.S. Congress Congressional Budget Office 1992). Thus, a much greater portion of the overall costs of providing navigation on the Upper Mississippi River rests with taxpayers generally rather than with actual users of the locks and dams.

- It is significant that even with a major subsidy, the cost of shipping grain from Iowa elevators to New Orleans is only marginally cheaper by barge than by rail in the eastern part of the state. Rail often is a less costly mode of transportation in western Iowa. If subsidies to users of inland waterways were removed and user fees were raised to cover all costs, it is unlikely that current demand levels would continue. It is much less likely that demand would approach levels that justify consideration of major capacity improvements. In short, major improvements are very unlikely to be efficient investments of public capital.

- The Corps has forecast a doubling of grain shipments, assuming that the capacity to make these shipments will exist. While it is sensible to look ahead and anticipate future transportation infrastructure needs, it is not prudent to make costly investments when great uncertainty enshrouds the forecasts that govern the economic feasibility of these investments. The main source of this uncertainty is whether demand for Iowa grain by foreign nations will double. Foreign policy considerations, agricultural technology advances in other nations, and other unpredictable factors are bound to affect this demand. Additionally, alternative domestic uses for Iowa grain will influence how much is shipped down the Mississippi River bound for foreign markets. Technology is advancing very quickly in such areas as alternative fuels, food products, and plastics. In short, it is difficult to say with certainty that Iowa farmers will want to double their shipments of grain down the Mississippi River.

- It may not be justifiable to expand capacity when that capacity is needed only during limited periods of time. One alternative is peak-period pricing. By assigning higher prices for the use of locks during periods of historically heavy demand, some of this demand can be shifted to periods when the demand is less. The effect is to improve the overall utilization of facilities and to reduce the need for costly expansions.

- The current practice of substantially undercharging users of inland waterways amounts to a subsidy from taxpayers to the farmers whose returns (net of transportation costs to New Orleans) are bolstered. In a sense, then, the underpricing of these waterways is as much related to agricultural policy as it is to transportation policy. To the extent that this is the case, direct support subsidies to farmers are likely to be more cost-effective than massive public expenditures on locks and dams.

- If barge operators were asked to pay higher user charges to defray more fully the costs of services they consume, what would happen to the costs of shipping grain to New Orleans? In the long run, barge rates would increase, though not necessarily by the same level as user charges. The effect would be to make rail service relatively more competitive in markets where cost advantages previously favored barges. Whether railroad companies would choose to raise rates and thereby improve profit margins or hold rates down to increase market shares is unclear. Most likely, some increases in shipping costs would face farmers in affected markets. The magnitudes of these cost increases, however, probably would not be great.

- Even with the subsidies barge operators now enjoy, rail service out of the state is often the lowest cost choice from points in central and western Iowa (depending on fluctuations in barge rates).

- With sizable rail-to-barge transfer facilities in locations such as St. Louis (downstream from the locks and dams), the lowest cost alternative to the Gulf of Mexico from Iowa could well prove to be rail for the first part of the journey and barge for the remainder.

- Users of locks and dams on the Mississippi River should pay the costs of the services they consume. There is, however, a "public good" argument for some level of general fund support to operate dams on the river. In addition to facilitating navigation, these dams contribute to economic and quality-of-life enhancements, and it would be difficult to establish a functioning market to charge those who benefit from such enhancements. Benefits generated by the dams include preservation of wildlife habitats, flood control, and recreational opportunities. Because the benefits of dams accrue to many people and because a market is not feasible, public funding is a logical source of support. The portion of total costs of the dams to be defrayed through general funds could be determined through an assessment of the relative magnitudes of benefits to waterway users and to the general public.

- Iowa's interest in the Mississippi River derives from the fact that an important part of the state's commodities have markets in other nations. The costs of reaching these markets are a critical factor in making Iowa's commodities competitive. As federal taxpayers, Iowans also wish to see the government make investments that are efficient.

- In the case of large-scale capacity enhancements of locks and dams on the Mississippi River, the large costs and uncertain demand argue against advocating these investments at the present time. Iowa should endorse a prudent, flexible policy that would match the supply of transportation on inland waterways with reasonable demand expectations.

- Such a policy should include the following elements: (1) a commitment to the maintenance of existing locks and dams on the upper Mississippi River, (2) investments should be made that are low cost and that ensure continued operation of the waterway (i.e. adoption of measures to increase the efficiency of locks and dams, including administrative or pricing mechanisms to shift demand from peak periods to other times), (3) development of transportation alternatives to New Orleans as demand materializes, the state should promote better coordination of rail routes from Iowa to the lower Mississippi River and New Orleans. These three elements would help ensure cost-effective transportation of Iowa commodities to foreign markets. They also would avoid sizable public expenditures on expanded facilities that are not justified.

- Keeping the costs of inland waterways in step with the benefits they produce is, in the end, the surest way for these important facilities to strengthen Iowa's long-term economic prospects.

This study provides some rather interesting ideas that may provide an opportunity for transportation and environmental advocates to develop solutions which both interests could support in achieving harmony on the Upper Mississippi and other inland waterways.

Certainly, no one is seriously interested in dismantling our nation's locks and dam system or in allowing the system to deteriorate. However, most natural resource managers are concerned about unconstrained expansion of navigation capacity, and the resultant impacts on our river ecosystems.

Perhaps if navigation and environmental interests seriously tried they could reach consensus on system by system navigation capacities which would be economically feasible, which would meet transportation needs and which would preserve riverine environmental integrity.

Both interests could save a lot of resources and time by pulling together through compromise and consensus for a common solution, and then supporting one another in obtaining funding for reasonable improvements.

Source: Forkenbrock, D.J., Foster, N. ., and Crum, M. R. 19 . Transportation and Iowa's Economic Future. Public Policy Center, The University of Iowa, Iowa City, IA 52242.

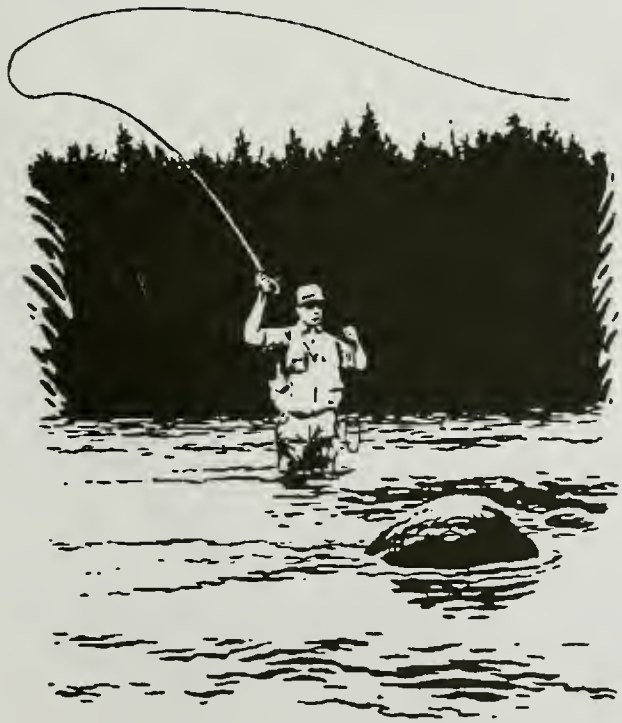
Restoring Salmon Habitat and Jobs

The Pacific Rivers Council proposes a Strategic Watershed Restoration Initiative that would restore vital riverine ecosystems and prevent extinctions while providing family-wage jobs regionwide. The Council suggests that the Project would help sustain healthy forests and species, maintain soil and plant productivity, good water quality and quantity, recreational values, tourism and quality of life.

The Strategic Watershed Restoration Initiative is a two-step program: (1) Protect the remaining salmon refuges by protecting old growth trees and the riparian areas that border these streams. (2) Secure or "storm-proof" the refuges by fixing the most serious road problems and landslide areas, where major rainstorms can wash massive amounts of sediments into streams. This work includes removing roads, improving drainage and eliminating stream crossings.

The Council estimates it will cost about $157 million to storm-proof the 137 westside watersheds, creating between 7,000 and 11,000 jobs. Most of these jobs would be located in rural areas hard hit by the forest stalemate.

The Council says work shouldn't end there. A systematic reduction in the number and mileage of roads on federal forest land is necessary to minimize their detrimental impacts on rivers and salmon runs. Riparian areas must be stabilized, reforested and protected. At the same time the Council defends against pseudo-restoration proposals such as salvage logging--"they are just timber sales under a different name".



According to the Council paying for these projects will not require a big increase in federal spending. They believe between $25 and $50 million can be redirected from other forest programs where they say it has been wasted or not used. The Council believes that in the long run, a permanent forest restoration account needs to be established that provides for repairing past damage.

Source: The Eugene, Oregon Register Guard (2-26-93).

Field Guide to Freshwater Mussels of the Midwest

The Illinois Natural History Survey has just published a first-of-its-kind field guide to freshwater mussels of the Midwest. Written by Survey investigators Kevin S. Cummings and Christine A. Mayer, this 194 page, hardcover book will help amateurs and professionals alike in identifying species, many of which look remarkably similar.

A color photograph of the shell of each species helps ensure quick identification. The front section of the book includes information on the biology, economic importance, and conservation of freshwater mussels, which are one of the most endangered groups of animals in North America.

Surveys conducted over the past few decades have documented significant declines in mussel populations because of over harvesting, competition from exotic species such as the zebra mussel, water pollution, and other factors.

The bulk of the book consists of species accounts for each of about 75 native mussels. The text of each account includes a description of key characteristics of the mussel and the habitat in which it is normally found; each account also contains, in addition to a color photograph, a range map showing the geographic

distribution of the species.

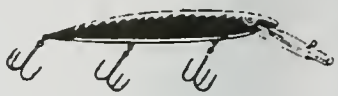
Field Guide to Freshwater Mussels of the Midwest is being sold to the public for $15.

Contact: Distribution Center, Illinois Natural History Survey, 607 East Peabody Drive, Champaign, Illinois 61820 (or call 217-333-6880) or for additional information contact John Ballenot in the Publications Office at 217-244-2115.

Reader Survey

We are pleased with the tremendous response we are receiving from our "Mandatory Reader's Survey" circulated with the last issue of "*River Crossings*". As usual March was a month of meetings and travel, so we haven't had time to summarize comments and make adjustments to our circulation. We will try to do that for the next issue.

Many good comments have been received, and we plan to adapt as many suggestions as possible to make our newsletter as "reader friendly" as we can within the limitations of our resources. Some subtle changes have already been made to the format of this issue.



Congressional Action Pertinent to Mississippi River Basin Rivers

Biodiversity

H.R. 305 (Poner, R-Ill.) Establishes a national policy for biological diversity conservation.

Flood Insurance

H.R. 156 (Deutsch. D-Fla.) Requires flood insurance claim payments to include 75 percent of cost of elevating buildings so they will remain eligible for insurance.

Government Reorganization

H.R.109 (Boehlert, R-N.Y.) Elevates the Environmental Protection Agency to cabinet status.

Land Conservation

H.R. 428 (Walker, R-Pa.) Excludes value of land with permanent conservation easement from estate taxes.

Military Lands

H.R.202 (Jacobs, D-Ind.) Requires the Defense Department to protect natural areas on military bases that are being closed.

Mining

H.R.194 (Hefley, R-Colo.) Withdraws Fort Carson, Colo. from mineral development.

H.R. 322 (Rahall, D-W.Va.) Provides for major mining law reform.

H.R. 363 (Smith,D-Iowa) Requires the Interior Department to develop a program to preserve and replace top soil at surface mining projects.

Water and Wetlands

H.R.340 (Schaefer, R-Colo.) Clarifies waiver of immunity from Clean Water Act regulations at federal facilities.

H.R. 350 (Edwards, D-Calif.) A wetlands reform bill favored by environmentalists that aims to speed up permit processing and offers incentives to private landowners to preserve wetlands.

Wilderness.

H.R. 195 (Hefley, R-Colo.) A wilderness proposal, similar to the bill the Senate passed last Congress. It sets aside 600,000 acres of BLM and Forest Service land.

Source: Land Letter, Vol. 12, No. 2,3 (1-20-93)

FIRST CLASS MAIL

U.S. Department of the Interior
Fish and Wildlife Service
Fish and Wildlife Enhancement
Columbia Field Office
608 East Cherry Street
Columbia, Missouri 65201

Official Business
Penalty for Private Use, $300

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
INT-423