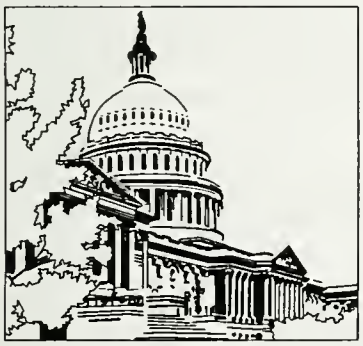
River Crossings

Volume 1 March/April 1992 Number 2

Interjurisdictional Rivers Bill Introduced

On February 5, 1992, Congressman Steve Gunderson (D/WI) introduced **H.R. 4169**, cited as the "**Cooperative Interjurisdictional Rivers Fisheries Resources Act of 1992.**" Congressman Wayne Owens (D/UT) joined Gunderson as an initial co-sponsor.



Since its introduction Joe Kolter (D/PA), William J. Jefferson (D/LA), Chester G. Atkins (D/MA), William H. Natcher (D/KY), Jerry F. Costello (D/IL), Jerry Huckaby (D/LA), Arthur Ravenel, Jr. (R/SC), and W.J. (Billy) Tauzin (D/LA) have also signed on as co-sponsors. However, numerous additional co-sponsors are needed.

The Bill has been referred to the House Merchant Marine and Fisheries Committee and from there to the SubCommittee on Fisheries and Wildlife Conservation and the Environment

Supporters of the Bill should contact their representatives, senators, members of the House Merchant Marine and Fisheries Committee and members of the House SubCommittee on Fisheries and Wildlife Conservation and the Environment requesting that they join Congressmen Gunderson and Owens in supporting this legislation. Potential co-sponsors can be directed to contact Brad Cameron, Washington, D.C. (202) 225-5506.

The following organizations have thus far endorsed **H.R. 4169**:

- International Association of Fish and Wildlife Agencies
- American Fisheries Society
- Izaak Walton League of America
- Sport Fishing Institute
- Trout Unlimited
- American Fishing Tackle Manufacturer's Association
- American Rivers Association
- Upper Mississippi River Conservation Committee
- Missouri River Natural Resources Committee

The **Cooperative Interjurisdictional Rivers Fisheries Resources Act of 1992 (H.R. 4169)** will establish a National Council which will identify 10 of America's interjurisdictional rivers with the greatest need of cooperative fisheries management. Of these 10, the Council will develop comprehensive fishery plans for the 5 highest priority interjurisdictional rivers. The Council will be composed of 13 members, 7 being State fish and wildlife agency directors representing the major drainage systems, and 6 being Federal agency representatives. The Secretary of the Interior (or his designee) will serve as Chairman.

H.R. 4169 also will provide for a pilot test of the Mississippi Interstate Cooperative Resource Agreement (MICRA) entered into by the 28 states of the Mississippi River Basin and the U.S. Fish and Wildlife Service in August 1991. The Tennessee Valley Authority and two Indian nations have since joined in the Agreement.

MICRA proposes to coordinate management of the Basin's interjurisdictional fisheries on an ecosystem basis. State fisheries managers in the Mississippi River Basin have already identified more than 90 major rivers and 80 riverine species which fall under interjurisdictional management. MICRA does not duplicate any existing organizational network.

This legislation is the result of extensive consultation between Congressman Gunderson, several national conservation organizations and MICRA proponents. River advocates are encouraged to contact their congressmen urging support of this important bill. Anyone needing additional information about **H.R. 4169** and how to support it can contact the MICRA office.

Highlights of President Bush's FY 93 Budget

The President's FY 93 budget contained the following items of interest to the Basin's rivers:

Conservation Reserve (CRP) - The CRP would receive $1.799 billion, a $59 million increase from FY 92.

Wetlands Reserve Program (WRP) - Created by the 1990 farm bill, the WRP got its first funding last year. In 1993 it would receive $160.9 million, a $114.5 million increase from FY 92.

Water Bank - This 20-year old program, also aimed at preserving wetlands, would receive $11.4 million, a $7 million cut from FY 92.

Endangered Species - FY 93 funding would be $41.7 million, up $6 million from FY 92. Proposed are status surveys of candidate species and conservation activities to prevent the need for listing species at a later date.

Upper Mississippi River - The Environmental Management Program would get $18.6 million.

Tennessee-Tombigbee Waterway - Ten million would be spent on wildlife mitigation in Alabama and Mississippi.

Missouri River - Environmental work on the Missouri would receive $5.6 million.

Source: Land Letter (The Newsletter for Natural Resource Professionals) vol 11, No. 5.

The McKnight Foundation Announces Five-Year $9 Million Mississippi River Program

On March 16, 1992 the McKnight Foundation, headquartered in Minneapolis, announced a five-year $9 million commitment to protect and restore the Mississippi River. The new program will award grants to stimulate local activities that protect specific areas along the river and to build local and national networks linking those with a stake in the river in collaborative efforts to protect it. The Foundation hopes its program will focus increased public attention on the Mississippi River and attract the resources of other individuals and organizations to restoring its health.

The McKnight Foundation's commitment to address environmental issues along the Mississippi River is tied to its primary mission, which is to expand opportunities for people who are poor or disadvantaged. Mike O'Keefe, executive vice president, explains "...Residents of endangered riverside areas frequently lack the resources to identify and stop threats to their portions of the river, whether the pollution originates in their own community or has it source many miles upstream..."

Dozens of agencies and groups relate to small stretches of the river, yet no single organization or network deals with the entire river. The Foundation will therefore also encourage

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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.

collaboration among people and organizations concerned with or affected by the health of the Mississippi. "The Foundation believes much can be accomplished if people work across state and other boundaries for the good of the entire river," Mr. O'Keefe continued.

The McKnight Mississippi River program has three components:

• Mississippi River Network Grants will create and strengthen networks of organizations active in protecting the river, particularly citizens' groups.

• Demonstration Projects, for which priorities will be announced later in 1992, will be intensive efforts developed and overseen by the Foundation to address specific environmental issues in selected 50- to 150-mile reaches of the river.

• General Grants, of up to $50,000, will support a range of innovative projects that protect and restore the health of the Mississippi and river communities in the ten states bordering the Mississippi.

In general the Foundation will consider requests to support projects focussing on:

• The Mississippi River and its banks;

• The floodplain of the Mississippi, including its delta; and/or

• Areas which use Mississippi River water to supply cities, factories, or agriculture.

Organizations located outside these areas must demonstrate that their project will directly affect the health of the Mississippi River.

The Foundation's priorities include environmental protection and restoration, problem solving, sharing resources with other funding groups, strengthening networks and collaborative efforts, and helping the poor and disadvantaged.

The Foundation **will not** consider **General Grant** requests for:

• Applied and basic research, scholarships, or publications;

• Environmental education efforts in primary and secondary schools, universities, or for the general public. Projects which include education of special audiences like farmers, owners of small businesses, teachers, or local government officials will be considered;

• Festivals, celebrations and similar activities;

• Conference expenses, except as arranged by the Foundation;

• Travel expenses, except as related to McKnight support of an organization;

• General operating support; and

• Land acquisition, endowments, or purchase of buildings or major equipment.

In addition to the Mississippi River component, the Foundation's environment program will address energy conservation and alternative energy sources in Minnesota. Details of that effort are still being developed and will be announced later.

Founded in 1953 and endowed by William L. and Maude L. McKnight, the Foundation has assets of approximately $1 Billion and paid grants totalling $46.6 million in 1991. Mr. McKnight was one of the founders of the 3M Company, although the Foundation is independent of that corporation.

Guidelines for the program of general grants are available from The McKnight Foundation, Suite 600, TCF Tower, 121 South Eighth Street, Minneapolis, MN 55402, telephone (612) 333-4220. Further information on the other two components of the program will be made available later this year. Daniel K. Ray is program officer for the environment.

The MICRA coordinator has been invited to participate in a McKnight sponsored "Upper Mississippi River Issues Workshop" to be held in Dubuque, IA on April 1-2.

Sturgeon/Paddlefish Workshop

The U.S. Fish & Wildlife Service sponsored a *Acipenser/Polyodon* Workshop in Atlanta on January 28-30. The purpose of the workshop was to discuss national paddlefish and sturgeon restoration objectives and activities and improve the efficiency and effectiveness of paddlefish and sturgeon culture techniques.

Most of the workshop was dedicated to information exchange between personnel from various federal and state fish hatcheries, research facilities, technology centers, and enhancement offices. Attendees addressed fisheries management objectives, activities, the latest state-of-the-art developments, current initiatives, problems, successes, and where we go from here.

Based on the various presentations, there is an obvious need for improved communications, both within and between agency and state researchers and resource managers working on these species.

The final day of the workshop was dedicated to a facilitated session entitled, *Sturgeon and Paddlefish Restoration -- What are our problems? What are our needs?* The objectives of the workshop were to (1) Identify and rank issues, (2) Discuss coordination funding strategies, and (3) Identify a core group to produce a guidance document.

The following were among the high ranking issues:

- Enhance coordination on development of hatchery drugs and chemicals.

- Establish state and agency roles and responsibilities for management and maintenance.

- Identify critical spawning and nursery habitats.

- Develop culture and rearing techniques for pallid sturgeon.

- Develop goals and objectives for pallid sturgeon restoration.

- Develop a GIS to better map and define critical areas.

- Improve coordination and information transfer.

- Gain public support for protecting paddlefish and sturgeon.

- Develop non-lethal spawning methods.

- Improve hatchery feeding and nutrition methods.

- Identify and characterize habitats of the Atlantic and shovelnose sturgeon.

- Establish a forum under which states and agencies can coordinate and operate.

The latter issue is of special interest to MICRA, because our group was mentioned repeatedly as the heir apparent to the role of coordinating efforts to protect and restore paddlefish and mid-continent sturgeon (shovelnose, pallid and lake) populations.

The MICRA Coordinator was asked to participate on a committee assigned to follow-up on the workshop and prepare a summary and recommendations. That Committee will meet in April 21-22 at the Waddell Mariculture Center in Bluffton, South Carolina.

States and agencies can expect to see a document coming out of that meeting sometime late this spring or summer.

Sturgeon Genetics Study

The Omaha Division of the U.S. Army Corps of Engineers is conducting a contract study to evaluate the genetic variation of *Scaphirhynchus spp.* in the Mississippi River Basin. This study is being coordinated with the efforts of the pallid sturgeon recovery team.

The goals of the study are to:

- Determine the degree of genetic divergence between pallid and shovelnose sturgeon.

- Identify genetically meaningful management units (stocks) of pallid and shovelnose sturgeon.

- Determine the extent of hybridization which is occurring.

The Corps is asking the assistance of the States, agencies and anyone else who has information on sturgeon to assist in identifying spawning runs and any preserved pallid sturgeon specimens. This information is necessary to identify locations where specimens can be sampled.

The contract requires collection of specimens from populations throughout the Basin. Populations targeted to date include:

- Missouri River
  - Above Fort Peck Dam
  - Below Fort Peck Dam
  - Below Oahe Dam
  - Below Platte River mouth
  - Below Kansas River mouth

- Mississippi River
  - Near Bellevue, IA
  - Near Cape Girardeau, MO

- Atchafalaya River
  - At Old River Control Structure

- Ohio River

- White River, Arkansas

- Yellowstone River
  - Below Intake, MT
  - At Tongue River mouth

- Alabama River

It is anticipated that 10-15 shovelnose sturgeon would be necessary from each identified population. Contract sponsors realize it will probably not be possible to come across any live pallids, however, if such an opportunity presents itself it would be important to obtain a tissue and/or blood sample.

Anyone who can provide information on sturgeon populations or can assist in collecting specimens should contact Mr. Mark Harberg, Environmental Resources Branch, Missouri River Division, U.S. Army Corps of Engineers, P.O. Box 103, Downtown Station, Omaha, NE 68101-0103, or call (402) 221-7270.

Longnose Darters Translocated

Lee Creek, located in far eastern Oklahoma will soon be impounded by a water supply reservoir for Fort Smith, Arkansas. Lee Creek is one of a few remaining free-flowing streams in Oklahoma which contain longnose darters.

Sixty-four darters were collected and stocked into Black Fork Creek, a stream within the historical range of the longnose darters and located about 60 miles south of Lee Creek. Eleven darters were also sent to the San Marcos National Fish Hatchery and Technology Center in Texas to begin a captive breeding program. Success of these relocation efforts will be monitored by future sampling.

Bad News for the Neosho Madtom

Recent surveys of the Spring River (MO, KS, and OK) for the Neosho Madtom, *Noturus placidus* indicate that this recently listed (threatened) fish may now be extirpated from this river.

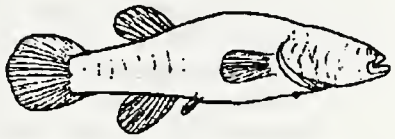
Although there has not been a systematic survey done on the Spring River in Missouri, Dr. Paul McKenzie (USFWS, Columbia Endangered Species Biologist) informs us that Dr. Bill Pflieger of the Missouri Department of Conservation looked for the species at two localities in the Spring River where the madtom was previously observed (summer 1991), and could not relocate it.

Service biologists in Fish & Wildlife Service Regions 2, 3, and 6 hope to initiate a water quality study on the Spring River to help determine why the species has apparently been extirpated. Biologists within MO, KS, and OK agree that there is a desperate need for cross-regional cooperation and coordination to further study and recover this species.

If apparent trends continue in the Neosho and Cottonwood Rivers in Kansas and Oklahoma, it may be necessary to downgrade the species from threatened to endangered.

Ozark Cavefish Refuge

The first unit of the Ozark Cavefish National Wildlife Refuge was acquired by the U.S. Fish & Wildlife Service in 1991. The area, located in Missouri, will be managed cooperatively by the Service and the State of Missouri.



An Ozark Cavefish Conference was held in Springfield, MO in mid November, 1991. The workshop's purpose was to promote information exchange and open discussion about ways to speed recovery of this federally threatened species. Over 100 people attended.

Protecting water quality is clearly the key to protecting and recovering cavefish populations. Despite the complexity of water movements in the cavefish's underground habitats, dye-tracing will likely be used to help delineate the recharge areas, thus identifying target areas for land protection efforts.

Along those lines, the U.S. Fish and Wildlife Service has awarded a $22,500 Director's Challenge Grant to the Service's Columbia, MO Field Office to implement the first year of a public outreach/private lands program for the Ozark cavefish. The award will be matched by the Missouri Department of Conservation, as a cooperating agency project.

The project will concentrate on landowner contacts within the watersheds of 12 cavefish caves in Missouri. Besides informing landowners of the existence of the species and its dependence on high quality ground and surface water within the watershed, the Fish & Wildlife Service and Department of Conservation hope to negotiate management agreements to avoid and correct water quality problems.

Costs Related To the Listing and Recovery of Endangered Species

Kent Keenlyne, Coordinator for the Missouri River Natural Resources Committee (MRNRC), was recently asked to provide cost estimates related to the listing and recovery of endangered species. At present, there are some 50 species (8 fish) on or along the Missouri River that are listed or under federal review categories.

Keenlyne's figures estimate status review costs ranging between $50-200K, depending the range of the species. Preparation of prelisting packages and final rules cost about $15K each, and the recovery plan another $20K. Total Fish & Wildlife Service costs, therefore, range from nearly $100-250K per species.

The draft pallid sturgeon recovery plan (excluding physical modification costs of structures) estimates a need for $20 million over a 10-year period.

Dick Taylor, Missouri River Division, Corps of Engineers, provided Keenlyne with estimated 1991 Corps expenditures of $724K for 14 species ($51.7K per species). He also estimated power revenue losses to avoid flooding tern and plovers nests as follows: $437K at Oahe Dam, $119K at Garrison Dam, $73K at Fort Randall Dam, and $71K at Gavins Point Dam.

Keenlyne estimated that, in ball park terms, federal agencies (other than the Fish & Wildlife Service) spend about $1 million annually on listed species on the Missouri River. Other interests (almost exclusively hydropower) forego about $250K annually in lost power production.

In summarizing, Keenlyne estimates that to complete the listing of the remaining 37 species, the Fish &

Wildlife Service would have to budget from $3.7-9.25 million over the next few years. If recovery cost per species is $10 million each, total recovery would exceed $500 million, plus any modification necessary to the system (i.e. bypasses, multiple release outlets, etc.).

Keenlyne concludes that the $0.5 billion for recovery could be better spent doing restoration work to avoid listing --- Amen!

The House Merchant Marine and Fisheries Committee plans hearings on the Endangered Species Act in late spring. Rep. Gerry Studds (D/MA) introduced a reauthorization bill (**H.R. 4045**) in November. Sen. Max Baucus (D/MT) is expected to offer similar Senate reauthorization legislation with hearings to follow.

In the meantime, the National Academy of Sciences has agreed to do a major study of the biological aspects of the Act as requested by House Speaker Foley (D/WA), Sen Hatfield (R/OR), and Studds.

Zebra Mussel Update

Since our first issue of "***River Crossings***", we have learned of numerous additional zebra mussel collections in the Basin. Four collections were made from the Chicago Sanitary and Ship Canal which links Lake Michigan with the Illinois River. Seventeen additional collections have been made from the Illinois River, 5 from the Upper Mississippi, 3 from the Ohio River, 1 from Kentucky Lake, and 1 from the Cumberland River. We understand from the American Fisheries Society that in December the zebra mussel was also collected from the upper Susquehanna River in New York, a tributary to Chesapeake Bay.

Most of these collections have been made by state agency biologists during normal sampling procedures. However, 5 Illinois River and the Kentucky Lake collections were reported by commercial mussel fishermen as attached to shells of the native threeridge mussel.

Don Schloesser [USFWS-Ann Arbor, (313) 994-3331], one of the top zebra mussel researchers in the country, presented a discussion of zebra mussel biology at a recent meeting of the Upper Mississippi River Conservation Committee. According to Dr. Schloesser, the major concerns with the spread of the mussel are with the clogging of water intakes (industrial, domestic, and marine), and the colonization on and consequent suffocation of native mussels. Some concern exists over the mussel's ability to disrupt food chains by their ability to filter the nutrients out of huge volumes of water.

Biologically, the concern for the welfare of native mussels seems to be of most immediate concern. According to Steve Ahlstedt (Tennessee Valley Authority, Muscle Shoals, AL) approximately 200 species of freshwater mussels have been described from the Basin.

Of these 125-135 species are extant, but some exist only as relict, non-reproducing populations. Presently, 32 of the 38 mussel species listed on the Federal Register as endangered or threatened are part of the Mississippi River fauna. Many of the listed mussel species, and probably their fish host(s), necessary in their reproductive life-cycle, were present only in free-flowing rivers and streams and have been unable to adapt to impoundment conditions. Thirteen species of the genus *Epioblasma*, originally reported from riffle and shoal habitats throughout the Basin, are now considered extinct.

If some experts are right, the zebra mussel could spell doom to numerous other species, as well as the $60+ million export business in this country that supports the Japanese cultured pearl industry.

No obvious fish impacts have been observed in the Great Lakes where the mussel has been established for several years. Initial concerns about impacts on walleye spawning success have not yet been documented, since the lakes have experienced excellent walleye recruitment the past two years. Catfish have been documented as feeding on the mussel, and drum, especially larger drum, are feeding heavily on zebra mussels. Commercial fishing nets have been colonized, but effects on fishing success have not been documented.

Schloesser indicated that diving ducks feed heavily on zebra mussels in parts of Europe, and have provided some measure of control, but no biological control is indicated yet in the United States. Chlorine injection appears to be the technology of choice for industry at the current time.

However, according to "Mussel Morsels", a publication of the Lake Ontario Zebra Mussel Coordination Office, other strategies are being evaluated. UV treatment has inhibited primary settlement, but some secondary colonization by translocators is occurring. Coating pipes with antifouling coatings such as silicon and zinc are showing success. Other control methods being tested include electrochemical, acoustics and pressurized flow. For more information on these potential control methods contact the Zebra Mussel Coordination Office (416) 832-7255.

Other Exotic Invertebrates in the Basin

In addition to the zebra mussel, two additional exotic invertebrates have been collected in the Basin's rivers, since 1988.

Mytilopsis leucophaeata, commonly called the dark falsemussel, is a euryhaline relative of the zebra mussel. It has been collected from the Mississippi, Ohio and Tennessee rivers and seems to have adapted to survival in freshwater. Initiation of spawning may require a saline pulse, so the organism has not become a nuisance. But scientists feel the organism may soon be able to develop reproductive capability in freshwater systems, and deserves watching.

Dozens of individuals of a euryhaline amphipod, *Corophium* sp. cf. *lacustre*, were collected at Tennessee River Mile 135 during the summers of 1988-1990. The tube-building amphipod, widely dispersed along the U.S. Gulf Coast, is recognized by its characteristic large, flattened antennae and dorsoventrally compressed body. Specimens have also been collected recently along the lower Mississippi and Arkansas rivers, and from a barge fleeting area in Kentucky Reservoir. Life history and ecological requirements of the amphipod in fresh water are unknown.

The exact origin of these exotic invertebrates is also not known. However, translocation by barge or other vessel from the Gulf Coastal area via the Tennessee-Tombigbee or from the Mississippi-Ohio waterways is a likely means of dispersal. Future detection of the species will help ascertain life history limitations on permanent establishment of both organisms in the Basin.

For further information contact: Dr. R. Don Estes, Tennessee Cooperative Fishery Research Unit, Tennessee Technological University, P.O. Box 5114, Cookeville, TN 38505, or call (615) 372-3094.

Invasion of the Ruffe

The ruffe, *Gymnocephalus cernuus*, like the zebra mussel, apparently invaded the Great Lakes through the dumping of ballast water from cargo ships of European origin, sometime during the last two decades.

The ruffe has become established in Lake Superior despite efforts to control it, and is apparently (with some success) invading the lake's Minnesota and Wisconsin tributaries (i.e. St. Louis, Amnicon, Brule, and Iron rivers).

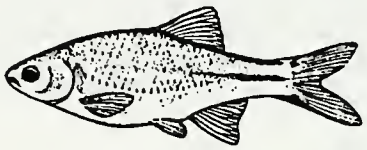
These are relatively small rivers that drain north to Lake Superior. However, they lie very close to the headwaters of the St. Croix, which in theory, could provide access for the ruffe to the entire Mississippi River drainage.

How successful the ruffe may be in invading the Mississippi River System is open to question.

Red Danger for Desert Fish

Nature Conservancy ran the subject article in their January/February 1992 issue referring to the red shiner, native of the Mississippi River Basin.

Apparently, the red shiner has successfully invaded numerous streams in the southwestern states, presumably through release from fishermen's bait



buckets. It is suspected of preying on young native fish and outhustling rivals for food and cover.

The red shiner's achilles heal may be its inability to withstand flash flooding. Biologists hope so, and the Bureau of Reclamation is cooperating by building fish barriers designed to create 3-6 foot waterfalls, which would spill the slow-swimming red shiner downstream during floods and then block their return upstream after floods.

Apparently, such a dam built last year and flooded once so far shows some promise.

Hydro Controversy on the Upper Mississippi

Paddlefish movement between dams on the Upper Mississippi has become a major issue at a proposed hydroelectric facility near LeClaire, Iowa.

The foremost environmental issue concerns a specially designed "trashrack", or fishway needed to direct downstream fish movements away from

the plant's turbines. Estimated cost of the fishway is $7-21 million.

Plant proponents argue that the recently changed law provides only for anadromous species (salmon). But Jody Millar, biologist for the U.S., Fish & Wildlife Service in Rock Island, says lake sturgeon, skipjack herring, American eel, and paddlefish all meet the criteria of the law.

Millar said walleye, channel catfish, and white bass may also need to move through dams for spawning, over-wintering and feeding. Plant officials strongly disagree with the Service position.

The ultimate decision on the fish migration issue may rest upon paddlefish. Only a few sites have been identified in the Upper Mississippi where paddlefish spawn, and the species needs to migrate though the dams to survive.

Ed Crouse, Chief of FERC's environmental review section says, the LeClaire project is the first major plant where this policy will be tried. As such, the outcome regarding the migration issue could have far-reaching consequences for future hydro-electric facilities across the nation.

Both Iowa and Illinois natural resources and conservation departments have opposed the plant without appropriate environmental safeguards. The Iowa Wildlife Federation and the Izaak Walton League also have passed resolutions opposing construction without environmental studies and fish safeguards.

According to an article in the Quad City Times (Jan. 12, 1992), environmentalists also have vowed a lawsuit if the plant is licensed without the safeguards recommended by the Fish & Wildlife Service.

Plant officials said the earliest date FERC could consider licensing the plant is in May.

USDA Announces Pilot Wetlands Reserve Program

On February 6th the Secretary of Agriculture Edward Madigan announced a pilot Wetlands Reserve Program (WRP) in eight states (CA, IA, LA, MN, MS, MO, NY, and NC). Producers in those states may enroll up to a total 50,000 acres in WRP during fiscal year 1992.

The WRP, funded at $46.4 million this year, was one of the landmark environmental steps in the 1990 Farm Bill. The Administration is asking to increase funding to $160.9 million for fiscal 1993, beginning October 1.

Under the WRP the U.S. Department of Agriculture's Agricultural Stabilization and Conservation Service can spend funds to purchase easements from eligible owners who agree to restore farmed and converted wetlands with some adjacent lands dependent upon wetlands.

The WRP's goal is to enroll one million acres by the end of 1995 through the purchase of permanent or long-term easements. Eligible landowners may offer their land to be enrolled in the WRP during a designated signup period this spring which will be announced later.

If the land offered is eligible, and the compensation requested is acceptable, cost-share assistance may be provided for rehabilitating the land under easement. Certain compatible uses of the land under easement will be permitted in exchange for continued maintenance of the land by the landowner and successors.

GAO Study Stirs Controversy on the Missouri River

A GAO report requested by Senator Kent Conrad (D/ND), and Congressman Byron Dorgan (D/ND), when the Corps of Engineers refused to change reservoir water release policy for upstream states, has come out in favor of recreation over navigation.

The two-year GAO study said that in 1944 the Corps estimated there would be 12 million tons of goods transported annually on the river. At commercial navigation's peak in 1977, only 3.3 million tons were shipped, in 1988, 2.2 million tons, and in 1990 only 1.4 million tons were shipped. The report also said the federal government never constructed irrigation projects, anticipated in 1944, that would have used the reservoirs' water to irrigate 2.2 million acres.

The GAO report states that Upper basin surveys reveal that the reservoirs supported visitor spending of about $65 million in 1988, compared with gross revenues for barge companies of about $17 million. The report also

disputed the Corps' claim that it cannot change priorities for managing dams along the river without an act of Congress.

In a lawsuit filed in the U.S. District Court for Montana (South Dakota v. Needham), the upstream states argue that the Flood Control Act of 1944 does not set up primary and secondary uses for projects. GAO agrees, "Our review did not reveal a statutory scheme for regarding project purposes authorized under various laws as primary or secondary....Thus, we see no appropriate basis for the Corps' view that it is statutorily precluded from considering the economic and other benefits of any authorized purpose in determining reservoir operating priorities."

However, under pressure from politicians in the lower states (IA, MO, KS, and NE), the GAO has agreed to take a rare second look at its findings. Less than 1 in 300 GAO reports get such attention.

Critics of the report contend that the analysis ignores several factors, including the value of inexpensive shipping of chemicals to farmers and of their grain to markets.

The lawsuit is due to come before the court this summer.

Biologists Onboard!

"Biologists Onboard" is an Upper Mississippi River program that was an indirect result of construction of a second lock at Lock and Dam 26 at Alton, IL. The voluntary effort was organized by the U.S. Fish & Wildlife Service, U.S. Environmental Protection Agency, and the American Waterways Operators.

In 1985, biologists thought of the idea when they gathered to discuss the environmental impacts of increased towboat traffic on the Upper Mississippi, and to generate ideas on what could be done by the federal government and the towing industry to reduce the damage.

State and federal biologists began riding with towboat operators on the Upper Mississippi in the summer of 1989. A videotape explaining the program has been distributed to towboat pilots.

The trips have three goals:

- Help pilots learn more about the river's natural resources and help biologists learn more about towboat work.

- Discuss ways a tow might better protect the environment and to evaluate those ideas.

- Obtain feedback on actions the towboat industry, U.S. Army Corps of Engineers and other agencies could take to safeguard the river's flora and fauna.

Biologists hope to develop a booklet or guide to environmentally sensitive areas such as fish spawning grounds and mussel beds that will help towboat pilots avoid damaging river life as they carry their cargo.

For more information on the "Biologists Onboard" Program contact: Jon Duyvejonck, Upper Mississippi River Conservation Committee, 4469 48th Ave., Court, Rock Island, IL 61201, (309) 793-5800.

Reauthorization of the White River Reservoir System

The White River dams (AR and MO) were originally authorized for flood control, power generation, and water supply. These include Beaver, Table Rock, Bull Shoals, Clearwater, Norfork, and Greers Ferry. Recreation values on most of the system now exceed flood control and power benefits.

According to the states, reservoir operation continues to impact fish, wildlife, and recreation values (including the mitigation coldwater fisheries). Operational changes necessary to alleviate these impacts are resisted by the Corps because fish and wildlife is not an authorized project purpose.

The States of MO and AR are initiating a cooperative effort with the Fish and Wildlife Service to gain reauthorization of the Project to include fish, wildlife and recreation as authorized project purposes.

This would give the Corps authority to regulate water levels to be compatible with recreational uses and values.

Mitigation Measures for Reservoir Sediment Buildup

The problem of sediment buildup behind dams, bed degradation below dams, and reservoir withdrawal of suspended solids is a universal problem basin-wide. Reservoir withdrawal of suspended solids from the water column especially plagues the free-flowing lower Missouri and lower Mississippi rivers, as well as the Gulf of Mexico.

Measures that could be taken to improve this situation would be welcomed by biologists and project managers alike. The December 1991 issue of *Hydro Review* carried an article entitled "Remedies for Sediment Buildup" by Dr. Krishan P. Singh and Dr. Ali Durgunoglu. The article summarized several methods of mitigating this problem. They include drawdown and flushing, density current flushing, venting sediments through undersluices, reservoir operation policy and design, siphoning, and dredging of sediments.

According to Drs. Singh and Durgunoglu:

- Reservoir drawdown and flushing can achieve a high sediment removal efficiency, but are only feasible if reservoir capacity is considerably less than mean annual inflow.

- Venting density currents through sluices is most effective (reducing entrapment by about 40%) for large sediment-laden inflows entering short reservoirs.

- Venting sediments through undersluices can vent up to 80% of the sediment entering a reservoir during

high flow periods. However, this is not an effective technique for reservoirs with a high ratio of reservoir capacity to inflow.

• Reservoir operation and design features (built-in or retrofitted) that maximize venting of sediments is very economical, but it may be difficult to change operation policy at existing reservoirs.

• Siphoning structures are quite economical to add to existing dams and reservoirs, but are most effective for only short distances from the dam.

• Dredging sediments is advantageous, but is quite costly, effects water quality, and creates the need for a disposal area.

Drs. Singh and Durgunoglu also reported that University of Arizona engineers had recently proposed the use of a controlled pipeline release system. They provided a schematic (Figure 1) of a reservoir including such a flushing pipe, as well as a check dam, and sluices.

They concluded that:

• The costs of incorporating sediment entrapment reduction measures in dam design can be justified by decreases in capital and present worth costs due to a smaller initial storage capacity and an absence of future dredging costs.

• Reservoirs with sediment entrapment reduction measures can be used beyond their design life. This factor is important in terms of preserving the interests of future generations.

• Reducing the amount of trapped sediment naturally permits more sediment to be flushed out with the flow. This situation can alleviate downstream bed degradation and the cave-in of banks.

• Reduced sedimentation in the reservoir improves reservoir water quality because less pollutants (absorbed on the surface of sediment particles) are retained.

• Sediment reduction can be economically achieved in the design of new dams and reservoirs as well as in retrofitting existing ones.

• When sediments are vented from the reservoir, water close to the reservoir bed, which is low in dissolved oxygen, is also vented. As a result, this water is replaced with water in the upper parts of the reservoir that has higher dissolved oxygen content. This water replacement greatly increases the volume for fish and recreation in the reservoir, and causes less recycling of nutrients.

Drs. Singh and Durgunoglu may be contacted at Illinois State Water Survey, Office of Surface Water Resources and Systems Analysis, 2204 Griffith Drive, Champaign, IL 61820-7495, (217) 333-0237.

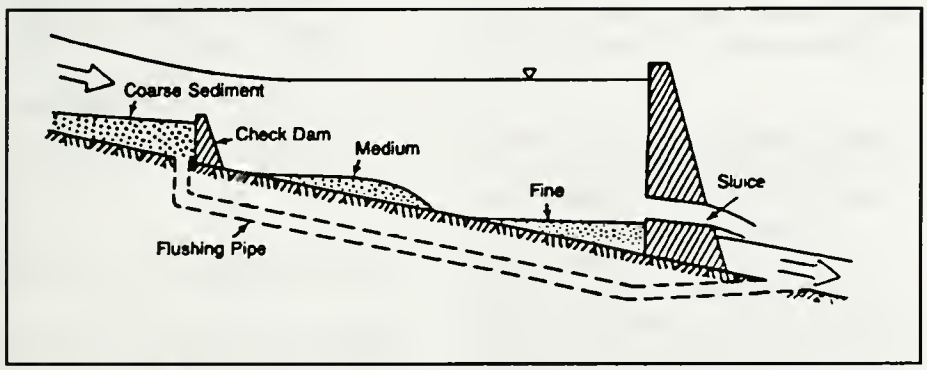


Figure 1. A schematic of a check dam, flushing pipe, and sluices used in a sediment entrapment reduction program for a reservoir.

The Project

"In the beginning was *The Project*. Then arose the Assumptions. And *The Project* was without form and the Assumptions were not valid. And the darkness was upon the faces of the Implementers.

'And they spoke unto their manager, saying, "It is a crock of !@?, and it stinketh."

'And the manager went to the 2nd level manager and he spoke unto him, saying, "It is a crock of excrement and no one may abide the odor thereof."

'And the 2nd level manager went to the 3rd level manager and he spoke unto him, saying, "It is a container of excrement and it is so strong that no one may abide before it."

'And the 3rd level manager went to the Headquarters Director and he spoke unto him saying, "It is a vessel of fertilizer and none may abide it's strength."

'And the Director went to the Divisional Vice President and he spoke unto him, saying, "It contains that which aids plant growth and it is very strong."

'And the Vice President went to the

Division President and he spoke unto him, saying, "It promoteth growth and it is very powerful."

'And the President went before the Executive Board and he spoke unto them, saying, "This powerful new project will promote the growth of the company."

'And the Executive Board looked upon The Project and saw that it was good."

-- Source Unknown

Mississippi River Symposium to be held at the Annual Meeting of the American Fisheries Society

Larry Hesse, Nebraska Game & Parks Commission has organized a major symposium (possibly two full days in length) on the rivers of the Mississippi River Basin to be held in conjunction with the Annual Meeting of the American Fisheries Society in Rapids City, South Dakota on September 13-17, 1992. Larry has organized the symposium to help stimulate the communication process between fisheries researchers and managers, basinwide.

The objectives of the symposium are:

- To organize a description of existing information on the geology, hydrology, morphology, native fish species, introduced fish species, standard methods used to survey fisheries, human impacts on the physical system, and the values associated with the riverine resource.

- To define existing or planned management that might be useful for fisheries management in other rivers within the basin.

- To identify minimal requirements for the restoration of important fish stocks and other aquatic resources.

Papers presented at the symposium will view each river discussed from an ecosystem perspective, and discuss their relative contribution as a tributary to the larger Mississippi River ecosystem. Whenever possible, emphasis will be placed on the impact of an altered hydrological cycle, sediment and organic matter dynamics, and relative loss of side-arm connectivity as factors in the changing environment for aquatic life in the River.

So far, papers will include discussion of the following rivers: Arkansas, Big Muddy, Illinois, Upper Mississippi, Wabash, Allegheny, Kansas, Platte, James, White (SD), Powder, Pigeon, Yazoo, Sabine, Kaskaskia, Wisconsin, Kanawha, Minnesota, White (AR), Kankakee, Yellowstone, Ohio, Embarrass, Iowa, Cedar, Little Wabash, St. Croix, Vermillion, and Missouri.

Citizen Monitoring

Water quality monitoring by students, sportsmen's groups, and citizens at large is becoming popular in many areas of the country.

One large river project of special note is being conducted by midwestern high school students, and being coordinated by Southern Illinois University at Edwardsville. What started out as a pilot Illinois Rivers Project involving 8 Illinois high schools in 1990 has grown to include 84 schools in a four state region and added the title "The Midwestern River Project" to its name.

With scientific literacy as the ultimate project goal, students from each participating school collect and analyze water samples from various test sites along the Illinois and Mississippi rivers. The project also includes study of river historical, social, and/or economic implications, thus involving students from classes across the curricular areas of science, social studies, and English. SOILED NET, a telecommunication network linking all of the participating schools with each other and the Project headquarters, provides a technological framework for many of the Project's activities.

Funding has come from a variety of sources. The Illinois State Board of Education funded the first 35 schools who joined the network. The U.S. Fish & Wildlife Service provide funds in January 1991 to train students from 13 schools in IA, MN, and WI. In April, 1991, 24 schools were added through funding from the Illinois Board of Higher Education Dwight D. Eisenhower Title II Program. The Illinois Department of Energy and Natural Resources, and Illinois Bell have both provided funding for production of the Project's student-authored publication, Meanderings.

Meanderings and the Project newsletter, the *River Watcher's Log*, provide the opportunity for students to have their work published. From study of the river and surrounding

communities, scientifically and otherwise, students produce reports, articles, essays, and creative writings. In 1991 The best of the written materials were compiled into four regional editions of Meanderings '91. Students are also invited to submit articles for publication in the newsletter. The *River Watchers' Log* keeps its subscribers updated on the latest project news, in addition to pertinent environmental information.

The Project held its *First Annual Illinois Rivers Project Student Congress* in 1991. Students from 30 high schools in IL gathered in Quincy to share ideas and experiences gained from the Project. Response was enthusiastic and plans are being made for next year's *Congress*.

Future plans include development of a formal "rivers Curriculum" in the areas of chemistry, biology, and geology/geography that will be applicable to any river in the world. A group of teachers/writers and content specialists gathered in August to draft the curriculum.

For additional information on the Project contact Dr. Robert A. Williams or Cindy Bidlack, Project Coordinator, The Illinois Rivers Project, Southern Illinois University, P.O. Box 1122, Edwardsville, IL, (618) 692-3788.

Other sources of information for individuals or groups who would like to find out more about volunteer monitoring include a newsletter called *The Volunteer Monitor*. For information contact: Elanor Ely, Editor, 1318 Masonic Avenue, San Francisco, CA 94117 (415) 255-8049.

Also, the Isaak Walton League produces a video called "A Guide to Water Quality Monitoring". For further information on that contact: The Isaak Walton League of America, 1401 Wilson Blvd., Level B, Arlington, VA 22209 (703) 528-1818.

Also, some state Departments of Natural Resources or Conservation have initiated public water quality monitoring programs.

River Related Contaminants Studies Underway at Cooperative Fish & Wildlife Research Units in the Basin

The U.S. Fish & wildlife Service has provide the following list of contaminants studies underway in the Basin and pertinent to interjurisdictional rivers. The State location of the Coop Unit where the study is being completed is noted by the appropriate State abbreviation at the end of each project title.

- Biological effects of contaminant transfer to larval fish from resuspended sediments - Upper Mississippi River - IA
- Water chemistry and fish community responses to episodic stream acidification - PA
- Demonstration mitigation of acidity in Pennsylvania streams, with studies of biological effects - PA
- Mitigation of surface waters acidified by precipitation in eastern Tennessee - TN
- Effects of watershed acidification on detrital processing, benthic community metabolism, and macroinvertebratres - WV
- The effects of supersaturation of dissolved gasses on the fishery of the Bighorn River downstream of Yellowtail Reservoir - MT
- Fly ash contaminant studies - NY
- Water quality in the Tennessee coal fields - TN
- Impacts of the coal industry on endangered aquatic organisms - TN
- Ecotoxicological studies at the Clinch River Steam Plant, VA - VA
- Toxicity of coal-related contaminants to early life stages of freshwater mussels - VA
- Effects of PCB's on reproduction of striped bass - NC
- An assessment of environmental contaminant threats associated with irrigation drainwater materials - MN
- Effects of toxicants on the predator/prey interactions of aquatic organisms - IA
- Biological effects of suspended sediments and associated contaminants on freshwater mussels - Upper Mississippi - IA
- Field Assessment of biomarkers in larval fish - IA
- Fate and effects of new generation chemicals and nonpoint pollution on aquatic resources - MO
- Avoidance of pulp mill effluent by sauger in Kentucky Lake - TN
- Effects of herbicides on sunfish reproductive behavior - TN
- Development of a procedure to determine the integrity of surface water quality in streams of coal producing regions - TN
- Effects of sewage treatment plant effluents on the molluscan fauna of the Clinch River, Virginia - VA

Anyone interested in obtaining additional information on any of these studies can contact the appropriate Coop Unit or Mr. Don Steffeck, U.S. Fish and Wildlife Service, 4401 North Fairfax Drive, Suite 330, Arlington, VA 22203, (703) 358-2148.

Warmwater Fisheries Symposium I

Copies of the Warmwater Fisheries Symposium, Technical Report RM-207, are still available upon request from

the Rocky Mountain Forest and Range Experiment Station. Copies can be obtained from Publication Distribution, Rocky Mountain Forest Service and Range Experiment Station, 3825 East Mulberry, Ft. Collins, CO 80524, or by calling (303) 498-1100.

CONGRESSIONAL ACTION ON BILLS PERTINENT TO THE MRDS

Interjurisdictional Rivers

Authorizes preparation of a national strategy for interjurisdictional rivers management, and tests the feasibility of the Mississippi Interstate Cooperative Resource Agreement (H.R. 4169). Sponsored by Gunderson (R/WI) and Owens (D/UT), as well as eight additional co-signers.

Wild and Scenic Rivers

Allegheny River (PA) Wild and Scenic River Bill passed Feb. 19 (S. 606).

Two hundred miles of eight Ouachita and Ozark national forest rivers designated as wild and scenic. S. 4183 passed in November. Companion House bill (**H.R. 4183**, Hammerschmidt R/AR) under review by Interior national parks panel.

Clean Water Act

Reauthorization bill circulating in draft form (S. 1081). No markup scheduled.

Irrigation/Drought

Bureau of Reclamation given leeway of 10 years to move water to protect fish and wildlife, Senate-passed compromise of **H.R. 355.**

Endangered Species

Reauthorization bill (H.R. 4045 - Studds (D/MA) introduced in November; late spring hearings planned. National Academy of Sciences study of bill's biological aspects underway.

Environmental Education

Authorizes a Morris K. Udall foundation and scholarships to fund students studying the environment. Senate passed **S. 2184,** a slightly different version than the earlier **S. 1176.** Companion house bill (**H.R. 4185**) introduced (Obey D/WI).

MEETING ANNOUNCEMENTS

Lower Mississippi River Coordination Group Meeting

The U.S. fish & Wildlife Service and the U.S. Army Corps of Engineers are jointly sponsoring a meeting April 21-22, 1992 in Vicksburg, MS to discuss the possibility of establishing a Lower Mississippi River coordination group similar to the Upper Mississippi River Conservation Committee (UMRCC), or other regional watershed management compacts.

Representatives from state fish and wildlife and water quality agencies (AR, KY, AL, MS, MO, and TN) are invited to attend. The meeting could have far-reaching implications for the future management of the lower river.

The UMRCC has played a key role in achieving more balanced management on the Upper Mississippi. Their initiatives and persistence were largely responsible for obtaining authorization and funding for the $288 million Environmental Management Program currently being implemented on the Upper Mississippi.

Mississippi River Research Consortium

The Mississippi River Research Consortium will hold its 24th Annual Meeting at the Holiday Inn in LaCrosse, Wisconsin on April 30 - May 1, 1992. The research consortium is an organization of Academic, State, Federal, and private researchers on the Mississippi River. The group meets

annually in LaCrosse and invites participation from researchers over the entire Mississippi River.

This year's session includes many papers generated from the Upper Mississippi's Environmental Management Program.

Session topics include: Sediments/Sedimentation, Weaver Bottoms, Fishery Studies, Biotic Communities, Water Quality, Mussels/Mollusks, Aquatic Plants, and Water Level/Velocity.

Copies of the Program and registration information can be obtained from Dr. Joe Wlosinski, 575 Lester Ave., Onalaska, WI 54650, (608) 783-7550.

American Fisheries Society Fisheries Administrator's Meeting

The spring Fisheries Administrator's Meeting will be held at the Ramada Inn (Market Street) in Wilmington, North Carolina on May 16-19. Early arrivers should contact Frank McBride (919) 733-3633 for information on fishing or other recreational opportunities. Hotel reservations can be made by calling (919) 799-1730.

First Annual MICRA Meeting

The First Annual MICRA Meeting will be held in conjunction with the spring AFS Fisheries Administrator's Meeting in Wilmington, North Carolina on May 16-19. A half day meeting is planned either before or after the Administrators meet. Details are being worked out. Agenda items will include discussion of task prioritization, pending legislation, funding, and other administrative matters. Hotel reservations can be made by calling (919) 799-1730.

Multi-Objectives Approach to Floodplain Management

This meeting is being sponsored by the Association of State Floodplain Managers (ASFM), and will be held in Grand Rapids, MI on May 17-22. The meeting will focus on Wetland Management; Wild, Scenic, and Natural River Management; Emergency Response; Watershed Management; Coastal Zone Management; and Soil Erosion and Sedimentation. For more information contact: ASFM, P.O. Box 2051, Madison, WI 53704-2051 or call (608) 266-1926.

UMRCC Mussel Symposium

A symposium entitled, "The Conservation and Management of Freshwater Mussels" is planned for October 12-14, 1992 at the Embassy Suites Hotel in St. Louis, Missouri. The symposium is being sponsored by the Upper Mississippi River Conservation Committee.

The symposium will focus on:

- *Regulations* - State, regional or system updates, management strategies for commercial and non-commercial spp., future trends and needs, sanctuaries, limitations on industry
- *Commercial Harvest* - Upper Mississippi River status, regional assessments of pressure, industry status, concerns and trends, international trade implications
- *Conservation* - culture, early life history, reintroduction, stocking, restoration, habitat requirements and management, habitat alteration, indices of populations, exotics update, endangered species recovery efforts, etc.
- *Sampling Methods and Data Management* - equipment and collection strategies, evaluation techniques, sampling designs, software applications
- *Environmental Awareness* - legislative needs, political processes, export taxes, resource rent, user fees

More information on the Symposium can be obtained from Kurt Welke, Wisconsin Department of Natural Resources (608) 326-0233 or Jon Duyvejonck, UMRCC Coordinator (309) 793-5800.