River Crossings

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Black Carp Petition

The U.S. Fish & Wildlife Service (FWS), in response to a 2/24/00 petition filed by the Mississippi Interstate Cooperative Resource Association (MICRA), plans to publish in the Federal Register a 60-day request for public comment (RFPC) on the biology and economics of the use of black carp in the U.S. Information gathered from the RFPC will be used by the FWS in determining whether the black carp should be listed as a species of injurious wildlife.

Such a listing would make it illegal for anyone to import, possess or transport black carp in the U.S. without a valid federal permit. It would also allow federal agents to confiscate and destroy any illegally held stocks.

River Crossings readers are urged to watch for publication of this RFPC, and to submit comments on this issue. Readers are referred to the March/April issue (Vol. 9, No. 2) of *River Crossings* for details on the threat that the black carp poses to native freshwater mussel species if it escapes from captivity and establishes itself in the wild.

Mussel and Sturgeon in Jeopardy

The U.S. Fish & Wildlife Service (FWS) on 5/15/00 released the long-awaited Biological Opinion (Opinion) on the effects of continued operation and maintenance of the Upper Mississippi River (UMR) 9 ft. navigation channel on 7 threatened and endangered species (i.e. Indiana bat, decurrent false aster, least tern, Higgins' eye pearly mussel, winged mapleleaf mussel, bald eagle, and pallid sturgeon). Among these 7 species FWS biologists determined that the continued existence of the Higgins' eye pearly mussel and the pallid sturgeon would be jeopardized by continued operation and maintenance of the navigation project.

Freshwater mussel covered with a heavy infestation of zebra mussels.

Higgins' eye pearly mussel - The Opinion said that the problem for the Higgins' eye mussel is not commercial barge transportation, per se, but the zebra mussels that barges carry. "Continued operation and maintenance of the 9-Foot Channel Project will facilitate upstream transport of zebra mussels by large vessels using navigation locks, thereby continuing to replenish zebra mussels in the UMR and encompassing all UMR mainstem Higgins' eye Essential Habitat Areas. Continued operation and maintenance of the 9-Foot Channel Project also facilitates maintenance of existing populations of zebra mussels in navigation pools and lock chambers, which are more hospitable for zebra mussels than unimpounded riverine conditions." The Opinion further states that because of the project's existence, large-scale commercial barge transportation on the UMR is possible, and therefore there is continuous, large-scale transport and replenishment of zebra mussels in the UMR upstream of the Illinois River. "While recreational boats may transport zebra mussels on the UMR, commercial barge transportation is the predominant upstream carrier. Barges have larger submerged surface areas than recreational craft for mussel attachment; they remain for long periods in the water (exposure and attachment time); they travel long distances within the UMR, from below Lock and Dam 26 to the head of navigation in Minneapolis, Minnesota; and they travel

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within and downstream of the Illinois River, a constant source of zebra mussels from Lake Michigan to the UMR. Furthermore, the proposed project provides ideal habitat for zebra mussel colonization..."

"Zebra mussels affect native freshwater mussels like Higgins' eye by competing for food and by attaching to native mussels in such large numbers that infested mussels cannot travel or burrow (see photo on front page). When infested by many zebra mussels, native mussels cannot open their shells to respire, feed, burrow, or move, nor can they close their shells for protection. Zebra mussels can build up on native mussels in such numbers that waves and currents can dislodge native mussels from the substrate. Any of these impacts or combination of impacts can lead to the death of the infested mussel; if enough adults die, reproduction and recruitment may be limited to the point that the mussel population and community cannot be maintained."

As part of the their Opinion FWS biologists are required to recommend reasonable and prudent alternatives for the project that: (1) can be implemented in a manner consistent with the intended purpose of the action; (2) can be implemented consistent with the scope of the action agency's legal authority and jurisdiction; (3) are economically and technologically feasible; and (4) would avoid the likelihood of jeopardizing the continued existence of the listed species or resulting in the destruction or adverse modification of critical habitat. As such the Opinion states that "...it is necessary to (1) establish, reestablish, or augment Higgins' eye populations in areas currently uninfested by zebra mussels, (2) prevent zebra mussel infestation above Lock and Dam 3 and into the Lower Wisconsin River, and (3) reverse current zebra mussel population trends in the UMR, especially downstream of Lock and Dam 3 to the confluence of the Illinois River. Thus a Reasonable and Prudent Alternative (RPA) is for the Corps to (1) develop a Higgins' Eye Pearlymussel Relocation Action Plan (HEPRAP) and (2) to conduct a reconnaissance study to control zebra mussels in the UMR.

The HEPRAP would include evaluation of relocation methods, including (1) relocation of adult and juvenile Higgins' eye from existing populations; (2) hatchery (in situ) propagation and (3) rearing where juveniles, release of glochidia-laden host fish, and monitoring is conducted to determine the effectiveness of the relocation program .

A zebra mussel reconnaissance study would determine the necessary measures, projected costs, and likelihood of success in controlling zebra mussels in the UMR. Based on findings, the Corps would pursue, the appropriate project planning and steps within their purview, and the FWS would seek the assistance of other agencies in pursuing recommended actions outside of the Corp's purview. If the zebra mussel control program is feasible, monitoring to determine program effectiveness would be included. If zebra mussel control is not feasible, or feasible actions under the purview of the Corps are not implemented within two years of their identification, the Corps would immediately reinitiate consultation with the FWS under Section 7 of the Endangered Species Act to develop an alternative RPA to avoid jeopardy. Also, because this Opinion found jeopardy, the Corps is required to notify the FWS of its final decision on implementation of the RPA.

Pallid Sturgeon - Regarding the pallid sturgeon the Opinion states that "...populations are declining throughout the range of the species. Although spawning is known to occur, there is little evidence of successful reproduction and no indication of recent recruitment. Upper Missouri River populations are reproductively isolated and aging. Hybridization appears to be prevalent throughout much of the species' range. The Atchafalaya River population has a diverse age structure, but is also hybridizing with shovelnose sturgeon and is reproductively isolated from the remainder of the species' range."

"The Middle Mississippi River (MMR) is

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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.

important to the survival and recovery of pallid sturgeon for a number of reasons. The MMR represents a significant portion of 1 of 6 designated recovery priority management areas identified in the FWS Pallid Sturgeon Recovery Plan (1993). It is 1 of 3 areas in which we believe some natural reproduction may be occurring and it is believed to be an important juvenile rearing area. Furthermore, it is 1 of only 2 areas where we have evidence of reproduction in recent years. The MMR is approximately 5% of the pallid sturgeon's total current range of approximately 3500 miles. However, it represents approximately 10% of the range that is believed to have suitable habitat (e.g., somewhat unaffected by impoundments on the Upper Missouri River)."

Readers should note that biologists recently (August 1999) found evidence of successful pallid sturgeon reproduction on the Missouri River, and use by larval sturgeon of a habitat rehabilitation site on the *Big Muddy National Fish and Wildlife Refuge* (See *River Crossings*, Vol. 9, No. 2, *"If You Build It, They Will Come"*).

The Opinion states further that the MMR represents an important genetic conduit between the Lower Missouri River and the Lower Mississippi River. Impacts to the MMR influence pallid sturgeon populations in both of these river sections (i.e., the area of impact to pallid sturgeon is much greater than just the MMR). Changes in the MMR are likely to affect the population viability in the Lower Missouri River and the Lower Mississippi River, and thus, influence the likelihood of survival and recovery of the entire Lower Missouri River-MMR-Lower Mississippi River population. In other words, the effects of the project compromise not only the persistence of the MMR pallid population but also the viability of pallid populations in the Lower Missouri and Lower Mississippi Rivers.

The Opinion further states that the proposed project "...will continue to disrupt and alter dynamic natural river processes (e.g., channel meandering, erosion, deposition), leaving little opportunity for the reestablishment of important aquatic habitats. The most evident effect is the continued loss and degradation of existing aquatic habitat which reduces pallid sturgeon spawning substrate, larval and juvenile rearing habitat and seasonal refugia. This loss of habitat will likely lead to further reductions in the productivity of pallid sturgeon and increased incidences of hybridization with shovelnose sturgeon. Furthermore, the disruption and alteration of dynamic river processes also inhibits the creation and reestablishment of aquatic habitats which are important to pallid sturgeon. This effect will not only lead to further reductions in pallid sturgeon productivity, but also will prevent the increases in productivity that are necessary to ensure the continued survival and recovery of the species."

Pallid sturgeon brood stock being collected on the Upper Missouri River for spawning and hatchery production.

In addition to these two primary effects, the Opinion states that continued operation and maintenance will result in a series of secondary effects:

- Reductions in suspended sediment transport;
- Reductions in the quantity, quality and availability of the natural forage base;
- Continued disruption of migration routes; and
- Transference and homogenization of contaminants.

The Opinion goes on to state that, "Reduction in suspended sediment transport is a factor in increased predation, competition with other species, and reducing the foraging capability of pallid sturgeon. Similarly, operation and maintenance activities will reduce the quantity, quality and availability of the natural forage base of pallid sturgeon. While past operation and maintenance activities have reduced this important resource, continuation of these activities will prevent its recovery. Migration routes will continue to be potentially blocked by locks and dams, which affects reproductive success. Lastly, operation and maintenance activities will contribute to the transference and homogenization of contaminants in the UMR, which may reduce fish health and impair reproduction. As a result of the above, it is likely that the MMR will become so homogenized that pallid sturgeon are likely to be extirpated from this area and/or hybridization will become so prevalent that genetic swamping will occur."

The Opinion states that these effects will have the greatest influence on the MMR, but will also substantially impact pallid sturgeon populations in both the Lower Missouri River and the Lower Mississippi River, affecting the core of the pallid sturgeon's contiguous range, and hence, appreciably reducing the likelihood of both survival and recovery of the species. To "...avoid jeopardizing the continued existence of pallid sturgeon, it is necessary to (1) prevent further reductions in the total amount of habitat and (2) provide for the reestablishment of pallid sturgeon spawning, rearing, and refugia habitat to compensate for the curtailment of the dynamic processes that create and maintain such habitat. To achieve this, while continuing operation and maintenance of the 9-Foot Channel, it is necessary to: (1) implement a concurrent habitat restoration program with the goal of restoring habitat quality, quantity, and diversity so that the benefits of the dynamic natural river processes are restored, and, (2) conduct a comprehensive pallid sturgeon habitat study to better characterize spawning habitat and seasonal and various life stage use in the MMR to facilitate habitat restoration."

The pallid sturgeon RPA thus requires the Corps to (1) conduct a MMR pallid sturgeon habitat study, (2) facilitate development of a pallid sturgeon conservation and restoration plan, (3) implement a long-term MMR aquatic habitat restoration program that will mitigate future adverse effects of operation and maintenance of the 9-Foot Channel Project, and (4) begin short-term implementation of MMR aquatic habitat restoration measures that may reasonably be expected to benefit pallid sturgeon during the interim period between issuance of the biological opinion and implementation of component #3 (e.g. restoration of side channels, wingdam notching, chevron dike construction, etc.).

The recommended MMR pallid sturgeon habitat study would identify habitat variables and related factors that are limiting population growth and distribution. Such studies would (1) help to better establish the connection between specific impacts of operation and maintenance of the 9-Foot Channel (and mitigatory actions needed on the part of the Corps to offset these impacts)

and actual loss of sturgeon habitat, and (2) serve to help focus implementation efforts of the pallid sturgeon conservation and restoration plan.

The MMR pallid sturgeon conservation and restoration plan would focus on mitigation of the adverse impacts of operation and maintenance of the 9-Foot Channel project occurring after the baseline year. The plan would include, but be not limited to: (a) a habitat restoration plan for each river compartment (or reach), identifying and prioritizing distinct river compartments throughout the MMR, and describing restoration needs for each compartment; and (b) a population and habitat restoration monitoring plan to monitor the effect of habitat restoration on sturgeon population reproduction, growth and survival and on the status and trends of habitat quality, quantity and diversity.

The long-term MMR aquatic habitat restoration program would mitigate future adverse effects of operation and maintenance of the 9-Foot Channel Project on pallid sturgeon habitat. Long-term habitat restoration work would continue until such time as additional work is no longer warranted (due to the cumulative beneficial impacts of all pallid sturgeon conservation and restoration work completed in the MMR through implementation of the conservation and restoration plan) as determined in the Plan.

Short-term aquatic habitat restoration measures would include side channel restoration, wing dam notching, and chevron dike construction, while habitat studies are underway and while the Plan is finalized and implemented. "Habitat restoration and enhancement measures critical to restoring habitat quantity, quality and diversity in the MMR include restoring gravel and sand bars, side channels, floodplain connectivity, woody debris, and the riparian corridor, as well as modification of river training structures".

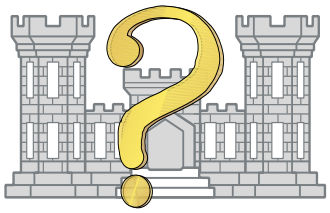
Because this biological opinion has found jeopardy, the Corps is required to notify the FWS of its final decision on implementation of the RPA's. Copies of the Opinion can be downloaded as .pdf files at the FWS Web Site at: http://midwest.fws.gov. For additional information on the Opinion contact: Gerald Bade, U.S. Fish and Wildlife Service, Rock Island Field Office, 4469-48th Avenue Court, Rock Island, IL 61201, (309) 793-5800 or gerald_bade @fws.gov

Corps' Economics Scandal Broadens

A second economist for the U.S. Army Corps of Engineers has come forward telling Congress that he was ordered to alter a key finding to ensure that a study of Mississippi River barge traffic would justify spending up to $1 billion for lock improvements.

Richard Manguno's sworn statement to Senate investigators supports the allegations of a colleague (Donald Sweeney) whose formal whistleblower complaint whipped the Corps into a frenzy earlier in the year. Economist Sweeney filed his complaint in February (See March/April issue of *River Crossings*), and since then the Army's inspector general and two congressional committees have opened investigations into the Corps' handling of a 7-year, $55 million Upper Mississippi River navigation study. Additionally, the National Academy of Sciences is examining the study at the request of Army Secretary Louis Caldera.

At issue is whether senior Corps officials tried to skew the study to justify a major expenditure in order to accommodate large barge operators who want to facilitate grain



movement from the Twin Cities to New Orleans. Environmental groups contend that the plan to expand up to five locks on the Mississippi and two on the Illinois would damage the rivers' ecosystems.

Manguno's affidavit focuses attention on the role of Col. James Mudd, the Corps' district commander in Rock Island, IL. Manguno accused Mudd of dictating the findings of the economic team Manguno headed after Sweeney was replaced two years ago. Mudd, who oversees the navigation study, denied the allegation in his own affidavit. In a recent interview, he said that Sweeney was replaced as head of the team because Sweeney frequently missed deadlines. Sweeney says he was removed after he refused to change his conclusion that river traffic would not increase enough to warrant major improvements in the system of locks and dams.

In his affidavit, Manguno, a 23-year Corps employee, accused Mudd of directing him in May 1999 to change a key economic assumption in the study. In his affidavit, Mudd acknowledged telling Manguno to use a methodology "developed in discussions among myself and other members of the staff." But, he said, "I did not . . . ask anyone to skew or falsify any economic data or assumption."

Meanwhile, on 12/9/99 the private, Washington, D.C. based, Northeast-Midwest Institute (NMI), hired three prominent economists from *Yale University*, *Washington University*, and the *University of Illinois* to evaluate the Corps' study. The NMI was formed by members of Congress in the mid-1970s as a nonprofit, nonpartisan environmental and economic research organization for Midwestern and Northeastern states.

The 30-page NMI sponsored report found that the "Corps' study does not justify construction of the proposed project in the near future," and that the it overlooked available data, used outdated information and made methodological errors. The economists criticized the Corps for ignoring uses of Midwest grain other than for exports from New Orleans, and disregarding how the work could affect the environment, economics and transportation. They said further that the figure the Corps used to figure out changes in the demand for barge traffic "seems at best to be arbitrary, and at worst possibly chosen to justify the project."

NMI said it chose the three economists as acknowledged experts in the field of transportation and navigation and as having no ties to either the river industry or to environmental groups that have expressed concerns about the expansion. Steven Berry of *Yale University* said, "My belief is that large expenditures of public money should be justified by a clear understanding of costs and benefits, and the research that we have seen does not justify the expenditure." Charles Leven, professor emeritus of economics at *Washington University*, added: "What I saw doesn't justify expanding one lock." In some instances, Leven said, the Corps' work appears so unscientifically based that "it raises suspicions" that Corps officials were seeking to achieve results that would help justify the expansion. The third professor who took part in the study, Geoffrey Hewings of the *University of Illinois*, was traveling abroad when press interviews were being made.

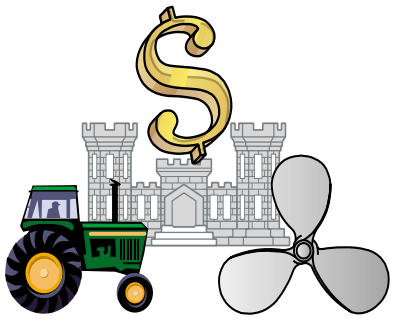
Washington University's Leven, who joined the school's faculty in 1965, has been writing on regional economic development for 40 years and served as a consultant to the *National Water Commission* under President Richard Nixon. At *Washington University*, he also served on the committee for the dissertation of Donald Sweeney, the original whistleblower, but Leven said he has not spoken to Sweeney about this matter.

Meanwhile, a St. Louis-based industry group, the *Midwest Area River Coalition 2000* (MARC 2000), criticized the NMI economists' report as "filled with factual errors, omissions and caveats rendering its conclusions meaningless as an aid to public-policy decision-making." A report prepared by economists hired by MARC 2000 said the expansions are critically needed and should begin immediately. Chris Brescia, president of MARC 2000, said the NMI economists neglect the impact on 400,000 jobs, including 90,000 in manufacturing, that depend on river transportation, and the impact on American competitiveness "if we are unable to capitalize on expected export growth markets." But the NMI economists responded that they were not evaluating the river's problems but simply examining the Corps' work to see if it was sound. They found it lacking.

For example Leven said, the Corps made little serious effort to examine the key area of the likely future demand for grain export. "And what attempt they did make," he said, "was not scientifically based and was methodologically flawed." The three economists made a related finding, with Leven saying: "It raises the suspicion that maybe they pushed the number lower and lower to get the project justified." What the Corps should do, Leven said, is provide its economists "the resources they need to go out and do a good empirical study on how demand (for goods shipped on the river) would vary with the price." He said that would allow for a cost-benefit analysis answering the question of whether spending money to alter the navigational system would pay off in terms of increased sales. Berry said the Corps also needs to make a better effort to understand the relations among the future demand for grain, the U.S. role in international trade, product costs and the use of river transportation.

Sen. Christopher "Kit" Bond (R/MO), who supports the Corps' efforts on the Mississippi, downplayed the NMI report saying that in any projection of developments in future decades, there will be "as many projections as there are economists."

Grain interests have backed the expansion, saying it is needed to keep the United States competitive in international markets. Environmental groups have said the work would damage habitat and is unnecessary because the demand could be met by scheduling barge traffic just as airplanes are at airports.



Corps spokesman Ron Fournier said the Corps will read the NMI findings and debate whether they should be incorporated into Corps' recommendations. He noted, however, that a lack of time and money may prevent some of the work the economists' suggested. Fournier added that the projects would be spread over 50 years, not the "near future." Preliminary Corps recommendations should be to Congress in July, with public meetings set for fall, Fournier said.

However, Carl Zichella of the *Sierra Club's* Madison, WI office said the Corps should set the study aside until various congressional, Army and independent reviews are complete. "These are people who have arguably wasted $57 million of taxpayers' money on a study that lacks credibility with independent economists," Zichella said. "How are they being allowed to work on this project? That's a true scandal."

Meanwhile, in March the Army secretary ordered changes in Corps management meant to bolster civilian control, but members of Congress, who like to steer public works projects to their districts, quickly moved to block the proposed management changes (See the following article).

For additional information on this issue see *River Crossings*, Vol. 9, No. 2 or visit the *Environmental Defense* web site where most original documents are downloadable as .pdf files: http://www.edf.org/programs/ecosystems/mississippi/

Sources: Greg Gordon, *Washington Bureau, Minneapolis-St. Paul Star Tribune*, 5/4/00; Philip Dine, *St. Louis Post-Dispatch Washington Bureau*, 5/18/00, and Perry Beeman, *Des Moines Register*, 5/18/00

Senators Seek To Block COE Reform

Republican senators are pushing to send a blunt legislative message to the executive branch: *"Thou shalt not touch the Army Corps of Engineers"*. An obscure rider tacked on to a farm budget bill in mid May would build a congressional wall of protection around the Corps, blocking all future efforts to reform management practices that have been under attack by environmentalists, taxpayer advocates and senior Clinton Administration officials.

On the heels of a short-lived administration attempt at reform, the amendment would ensure that the Corps remains exactly the way it is. The language reads: "None of the funds made available in this or any other Act may be used to restructure, reorganize, abolish, transfer, consolidate or otherwise alter or modify the organizational or management oversight structure; existing delegations; or functions or activities applicable to the Army Corps of Engineers."

The senators behind the rider, which was passed by the Senate Appropriations Committee, are the committee's chairman, Ted Stevens (R/AK), and Pete V. Domenici (R/NM), chairman of the Energy and Water Subcommittee. Aides to Domenici – who steered $14 million worth of Corps projects to New Mexico last year, said he and Stevens are unhappy with Army Secretary Louis Caldera's recent "management reforms" designed to bring the Corps under civilian control. "They want the Army Corps to stay the way it is," Domenici spokesman Chris Gallegos said of the senators. "They want it to be accountable to Congress. They don't want it to shift so much to the administration."

The Corps is an executive branch agency based in the Pentagon and run by military officers who nominally report to civilian officials. In recent months, it has faced charges that top generals manipulated data on a major study of the Mississippi and Illinois rivers and planned a "Project Growth Initiative" to expand the Corps' budget without the knowledge of civilian administrators (See the March/April issue of *River Crossings* Vol. 9, No. 2 for details).

When Caldera announced his reforms on 3/31/00, saying they were intended to reaffirm civilian control, Stevens and two other GOP committee chairmen wrote a letter urging Defense Secretary William S. Cohen to suspend them. The Corps has always enjoyed a close relationship with Congress, which regularly initiates and funds dozens of Corps-run water projects in members' districts. The reforms were withdrawn just a week after Caldera announced them, even though Cohen had "strongly endorsed" them. At the time, Stevens, Armed Services Committee Chairman John W. Warner (R/VA) and Environment and Public Works Committee Chairman Robert C. Smith (R/NH) suggested that they wanted more time to review the reforms, and Caldera said he expected to work with them on his proposals, though they had made their skepticism clear.

Meanwhile, the Army has called the new Senate proposal "unwarranted and unproductive." "We are deeply concerned about the effect this provision would have on the authority and responsibility of the executive branch . . . to manage the Corps," the statement said. To become law the rider would have to pass the full Senate, the House and avoid a veto by President Clinton, who in the past has vetoed appropriations bills because of amendments he opposed.

Aides to the senators say they are concerned that the administration is trying to "politicize" the Corps. In the last year, for example, they say civilian officials have intervened in studies of dam removal options on the Snake River and water management changes on the Missouri River, and in a $7.8 billion restoration plan for the Florida Everglades. In all three cases, the administration altered the Corps' recommendations to reflect environmental concerns.

Corps critics say that is what civilian officials are supposed to do. And they say the Domenici-Stevens rider would block more than Caldera's civilian control effort: It would block any attempt to "alter or modify" any Corps "function or activity." "It's an incredibly sweeping proposal," a White House official said. "It would block any meaningful reforms, and pave the way for projects that gouge taxpayers and the environment."

At hearings before the Senate Committee on Environment and Public Works Subcommittee on Transportation and Infrastructure during the week of 5/19, a coalition of national conservation groups urged Congress to dramatically reform the Corps by requiring independent review, modern estimates of benefits and costs, and adequate mitigation for Corps levees and dams that harm rivers and wildlife. The coalition also opposed the Domenici-Stevens rider and urged Congress to restore civilian control of the Corps. Scott Faber testifying on behalf of *American Rivers, Coast Alliance, Earthjustice Legal Defense Fund, Environmental Defense, Friends of the Earth, Mississippi River Basin Alliance* and the *Sierra Club* said, "Because Corps benefit-costs studies are often inaccurate, project benefits should be twice as great as project costs". "Many projects are built to serve the needs of a handful of special interests, and the Corps frequently treats such local cost-sharing partners – rather than the American people – as their clients," he said.

Also, in a letter to Senator Domenici, seven New Mexico conservation groups urged him to withdraw the rider, saying. "The absence of civilian oversight has permitted some Corps officials – anxious to increase agency spending by 50 percent – to approve projects with few benefits and unacceptably high environmental costs." A*migos Bravos, Defenders of Wildlife, Forest Guardians, Rio Grande/Rio Bravo Basin Coalition, Rio Grande Restoration, Southwest Environmental Center*, and the *Texas Center for Policy Studies* signed the letter.

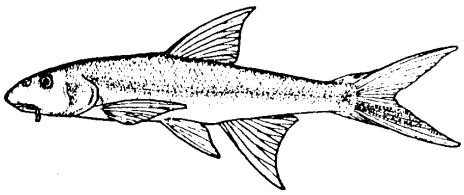
Then on the lighter side of the issue, Al Kamen, *Washington Post* Staff Writer, offered a prayer for the Corps in the 5/1/00 issue of the *Post*. According to Karmen, the prayer written by Lt. Col. Tim Carlson, Chaplain of the Corps, at the direction of Lt. Gen. Joe Ballard, Chief of Engineers, was formally adopted on 9/1/99. The prayer calls on God, "the engineer of all eternity," who is "holding the plumb line of the cosmos in Your gracious hand," to bless the members of the Corps. It goes like this: "As we perform our varied tasks, guide us in making rough places smooth, crooked places straight, and our environment safer. May our minds be keen, our calculations accurate, our myriad projects successful, and our faith in You unending. Enable our topographers to be precise, and our stewards of resources to be steadfast."

Kamen noted that not one word was mentioned about a behind-the-scenes campaign to increase the agency's civil works budget by 50%, allegations of cooked books, or making sure civilians never get control of the place!!

Source: Michael Grunwald, *Washington Post*, 5/13/00; American Rivers, *River Currents*, 5/19/00; *American Rivers Press Release*, 5/17/00; and Al Kamen, *Washington Post*, 5/1/00

Missouri River Chub Catch

Missouri biologists on 4/7/00, sampling with seines and an experimental trawl in the lower Missouri River off of Pelican Island (near river mile 15), collected a record number of chubs. In four 350-meter trawl hauls, 573 speckled chubs (*Macrhybopsis aestivalis*), 400 sturgeon chubs (*Macrhybopsis gelida*), and 26 sicklefin chubs (*Macrhybopsis meeki*) were collected. Sturgeon and sicklefin chubs are listed as protected species in Missouri and as candidates for the federal list of threatened and endangered wildlife.



"sturgeon chub"

The 400 sturgeon chubs collected in the trawl (and several more in the seine) represent, by far, the largest recorded collection of this species in Missouri. Most of the sturgeon chubs were probably yearlings; the largest individual was 64 mm long. By contrast, more adult than yearling sicklefin chubs were captured. The largest sicklefin chub was 75 mm long.

Pelican Island supports unusually diverse, and what may be ideal habitat for *Macrhybopsis* chubs. The island occurs on an inside bend of the river and is about 6 miles long. The most significant feature of the upper part of the island is the associated shoal, which has a coarse gravel substrate and some cobble-sized material. Water velocity remains sufficiently high to keep the gravel free of excessive silt. Inside bends and associated shoals have been shown to be critical habitat for *Macrhybopsis* chubs in the Mississippi River.

The highest numbers of *Macrhybopsis* chubs were found over clean gravel substrate, approximately 65 meters off shore

in water averaging 1.1 m deep. Water velocity was 0.48 m/s at the surface and 0.28 m/s at the bottom. Specific conductivity was 675 Fs/cm; secchi disk visibility was 23 cm, and the water temperature was 13.4ºC. The number of chubs noticeably decreased in depths greater than 2.0 m. Yearling sturgeon and sicklefin chubs were collected near shore by seine in water less than 0.75 m deep. No adults were collected by seine. Interestingly, fewer yearling sturgeon and sicklefin chubs were collected near shore than during a January sampling effort at this site. Apparently, the chubs (especially the adults) moved off-shore since January.

It is not known why *Macrhybopsis* chubs were so abundant at this site and in a relatively narrow range of water depths. Typically, juvenile and adult sturgeon and sicklefin chubs are captured in 1-3 m of water; the yearlings in shallower and adults in deeper water. In this sample, yearlings, sub-adults, and adults were mixed together in water 1-2 m deep. It was assumed that the chubs were in a pre-spawn habitat, but no specimens encountered appeared to be gravid.

The experimental trawl used in this survey was a modification of the standard slingshot-balloon trawl used for the federally funded Upper Mississippi River Environmental Management Program. It is designed to capture small, benthic fishes such as big river chubs and young-of-the-year (YOY) of larger species. It has effectively captured YOY sturgeons, paddlefish, and catfishes in addition to small, off-shore fishes like chubs and stonecats. In 1998, the first documented YOY pallid sturgeon was collected from the wild using this technique.

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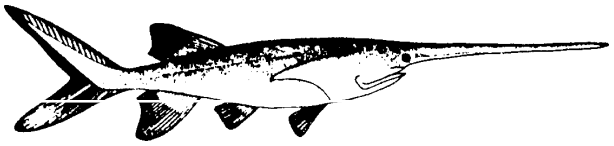
Paddlefish and the Caviar Market

Marie Maltese, U.S. Fish and Wildlife Service (FWS), informed MICRA's Paddlefish/Sturgeon Committee members at their 4/17-18/00 meeting in St. Louis that in 1999 paddlefish eggs had begun showing up in packages of imported caviar. Maltese said further that so far in 2000 one-fifth of the caviar imported into the U.S. is out of compliance with CITES regulations (i.e. paddlefish eggs are being mislabeled as sturgeon caviar).

Maltese said that permits for export of paddlefish eggs are in compliance, but eggs coming back into the U.S. are not, so obviously something is amiss, and a black market must exist. CITES is an international agreement which controls the import and export of threatened and endangered species and their parts.

Then on 5/10/00 Joanne Grady of the FWS Fisheries Resources Office in Columbia, MO learned from an east coast caviar dealer that he is paying $55-60/lb for paddlefish roe in the Midwest. The dealer described himself as a repackager with a valid CITES import permit. He said further that he has been buying paddlefish roe in 20-30,000 lb lots, and that he can sell 400-500 lbs/month. He also said that he has a good market for 10-14 lb. paddlefish bullets (i.e. meat without the head, tail & guts) at local restaurants. He said further that he smokes up to 500 lb of paddlefish/week.



"paddlefish"

Bill Reeves, MICRA Chairman, said that paddlefish are a valid exploitable commercial commodity in most states. He estimated that it takes about 30,000 lbs of paddlefish (assuming an average of 1-3 pounds of eggs for an average 15-20 lb. fish) to come up with the amount of caviar the dealer is looking for. Reeves said further that based on what he sees in Tennessee, this is more than what wild paddlefish populations can reasonably support. Tennessee has a 32 in. length limit and restricted season, but has been unsuccessful in limiting fishing effort.

Reeves predicts that within the next 2 years Tennessee will have very few paddlefish over 32 inches long remaining in their most prolific populations. All the old, mature fish will be gone and we will be left with the youngest spawners at best, Reeves said. However, he continued, Tennessee will be better off than those states with no restrictions.

Meanwhile, MICRA has just finished the first five years of a basinwide paddlefish tagging and stock assessment survey. Twenty-two states, the FWS, and the USGS/ Biological Resources Division have been participating in the effort. To date over 1.2 million hatchery-reared paddlefish and over 9,100 wild paddlefish have been tagged and released as part of the study. Over 980 of these fish have been recaptured; 366 of those were wild fish and 614 were hatchery released fish.

The study is just beginning to crack the mysteries of paddlefish movements, stocks, and distribution. Of special note is the fact that paddlefish relative weights seem to be decreasing, and that some have speculated that this may be caused by expanding populations of the introduced Asian bighead carp which competes with the paddlefish for food (See articles on the the Asian carp invasion in the November/December issue of *River Crossings*). Loss of significant numbers of paddlefish to the caviar market now raises new concerns.

The MICRA paddlefish study and MICRA itself was, in part, organized out of concern for the welfare of paddlefish, when in the late 1980's the species was petitioned for listing on the Federal List of Threatened and Endangered Wildlife. These new revelations will certainly be topics of discussion at the next MICRA Paddlefish/Sturgeon Committee meeting to be held in St. Louis in August.

Most Endangered Rivers

Freshwater fish and other species native to North America's rivers are vanishing as fast as tropical rainforest species, *American Rivers* (AR) said on 4/14/00 in releasing its 15th annual *Most Endangered River*s report.

With the Snake and Missouri rivers topping the list, AR said, dams, levees, and stabilized riverbanks have destroyed river habitat and are contributing to the extinction of native fish and wildlife. Spotlighting the diminishing numbers and potential extinction of scores of fish, amphibians, snails, mussels, and other native freshwater and certain sea-run species, the AR report said that critical river, wetland, and floodplain habitat for these species has been degraded or destroyed – and continues to be threatened – by dams, levees, and stabilized riverbanks that fundamentally change the shapes and natural flows of rivers and water quality.

The list includes 10 rivers where fish, mussels, crawfish and other aquatic species are threatened by engineers' efforts "to make rivers more useful". Dams had an

impact on four of the top five rivers on this year's list.

The entire list of the 13 Most Endangered Rivers include (in order): Lower Snake River (WA), Missouri River (MT, ND, SD, NE, IA, KS, MO), Ventura River (CA), Copper River (AK), Tri-State River Basins (GA, AL, FL),

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Coal River (WV), Rio Grande (CO, NM, TX, and Chihuahua and Coahuila, Mexico), Mississippi & White Rivers (MN, WI, IL, IA, MO, KY, TN, AR, MS, LA), North Fork Feather River (CA), Clear Creek (TX), Green River (CO, UT), Presumpscot River (ME), and the Clark Fork (MT).

The Snake's designation was based on four dams built in the 1970s that have brought salmon runs to the brink of extinction. The group called on the Clinton Administration in March to breach four dams on the river to help salmon runs. The breaching debate is "rapidly becoming the most contentious environmental issue of the new century," and the AR announcement took the controversy "to a new level". David Tuft, spokesman for the *National Hydropower Association* in Washington, D.C., faulted AR for oversimplifying the issue. "This is a complicated, difficult problem that's facing the region," he said.

Meanwhile, the plight of three species along the Missouri River prompted AR and another group, *Environmental Defense*, to announce in March plans to sue the U.S. Army Corps of Engineers over dam operations and channelization. The species are two endangered shorebirds, the least tern and piping plover, and the pallid sturgeon. In recent weeks the Corps of Engineers delayed implementation of its new river management plan, citing concerns about endangered species. The plan for controlling flows in the 2,500-mile waterway was to have taken effect in April, but has been postponed until the fall. Paul Johnston, a Corps spokesman in Omaha, said the agency will consult with the U.S. Fish and Wildlife Service (FWS) on restoring endangered species. The FWS has expressed concern that the Missouri River management proposal would put the endangered species in jeopardy of extinction. FWS biologists said the key problem has been the Corps' leveling of flows, eliminating high water during the spring and supplementing naturally reduced flows each summer.

The Mississippi River is back on the Most Endangered Rivers list after avoiding it for three years. The listing can be attributed to a proposal to enlarge locks at navigation dams north of St. Louis. The Copper River in Alaska was added to the list this year because of a recently approved logging road that would cross the largest wetland in North America . Mountaintop removal coal mining is jeopardizing the Coal River in West Virginia. And fish in Utah's Green River are being threatened by dams.

"America's native fish are homeless in most parts of the country," said Rebecca Wodder, AR's president. "We have straightened the curves, blocked the flows and hardened the banks of thousands of miles of waterways, wiping out habitat and making it difficult for our nation's rivers to support native fish and wildlife," she added.

More information can be found on the AR web site at www. amrivers.org.

Libby Quaid, *AP/Duluth News-Tribune*, 4/10 and 4/12/00; Traci Watson, *USA Today*, 3/10 and 4/10/00; Bill Lambrecht, *St. Louis Post-Dispatch*, 4/10/00; Joel Connelly, *Seattle Post-Intelligencer,* 4/10/00; Charles Seabrook, *Atlanta Journal-Constitution*, 4/10/00; Ken Ward Jr., *Charleston [WV] Gazette*, 4/10/00; Clair Johnson, *Billings Gazette*, 4/10/00; Roger O'Neil, "*NBC Nightly News*," 3/9/00; Hughes, *AP/Salt Lake Tribune*, 3/10/00; *Greenwire*, The Environmental News Daily, 4/10/00

Helping Rivers Run Free

Over 3,800 dams block Wisconsin's rivers and streams – some having stood for more than 150 years. Once a leader in developing waterways for mechanical and hydropower energy, Wisconsin now leads the country in restoring rivers through selective dam removal. In the past 40 years, Wisconsin has removed more than 70 dams ranging from 2 to 60 feet high. These dam removals have taken place across the state, from large cities like Milwaukee to unincorporated rural communities.
The *River Alliance of Wisconsin* (Alliance), the state's only nongovernmental organization dedicated entirely to river protection, advocates for the removal of old, unsafe, and uneconomical dams. The Alliance began advocating the benefits of selective dam removal in 1996, and the group's work immediately attracted national attention as a model for dealing with deteriorating dams.
According to Stephanie Lindloff, Small

RIVER ALLIANCE OF WISCONSIN

Dams Program Manager for the Alliance, dam removal is a convergence of ecological, economic, engineering, and societal issues. But the primary factor in many dam removal decisions is the economic reality of maintaining an old, obsolete dam. In Wisconsin, on average, dam repair costs 2-5 times more than dam removal. "lt's an all-too-rare situation where economics are definitely in favor of doing the right thing for the environment," says Sara Johnson, now director of national volunteer operations for *Trout Unlimited*.

But community support for dam removal is equally critical. Small communities often have strong nostalgic and aesthetic attachments to their local dams and millponds. Because a dam has "always been there" the idea of removing it may seem radical at first.

The essence of the Alliance's Small Dam Program is to educate communities and to promote dialogue about dam removal options. The educational process involves discussions of water quality, wildlife habitat, biodiversity, land-use practices, and green space preservation or development. It also entails describing the financial and legal realities of owning and maintaining an old dam. Conservation and citizen organizations, as well as local officials and other interested groups, commonly invite the Alliance into their community as they grapple with the repair or removal decision for a particular dam.

Informational meetings are held, including a slide show with before-and-after images, accompanied by facts about the option of removal. Site-specific information is woven

into the presentation, and the majority of time is reserved for a question and answer session, allowing Alliance staff to address the community's concerns. The Alliance also produces fact sheets regarding dam removal in general, as well as specific statistics about the dams and rivers in communities facing upcoming decisions.

Many people envision the actual act of dam removal as a cloud of explosives and flying debris, but in most cases the reality is somewhat less dramatic. In Wisconsin, dams are typically removed using a combination of hydraulic hammers, backhoes, and bulldozers. Explosives are occasionally used when parts of a structure are especially difficult to break up or access. Dam removals are usually carried out by private, locally based contracting firms, as it is illegal for citizens to remove or repair dams themselves. Various riverbank and riverbed restoration efforts follow, where citizens are able to play a larger role in the process. It is critically important that the community is kept up to date about the plans and progress of a local dam's removal; the entire process can be a fascinating and valuable learning experience.

Perhaps the most crucial part of the removal process is reconnecting the community to their river. In order for these river restorations to be sustainable, we must honor a community's history and consider their concerns about changing the appearance of the landscape. Both before and after a dam's removal, it's important to involve citizens in deciding what the "new land" will become – whether that's a maintained park, wildlife habitat, or something else. Some communities choose to install interpretive displays that recognize the historical and cultural importance of their former dam and impoundment.

The Alliance has developed a *Citizens' Guide to Restoring Rivers Through Dam Removal*, summarizing the variety of issues that need to be considered in reviewing dam removal versus repair (i.e., environmental, economic, engineering, and societal issues) and is designed for concerned citizens, citizen groups, dam owners, and local officials. It includes sections on: researching a dam of concern; tools to use when pursuing a dam removal; developing a strategy for increasing discussion and consideration of dam removal locally; restoration work after a dam removal; and a list of available resources.

A companion video tape providing before-and-after footage of dam removals across thc country is being produced collaboratively by the Alliance, *Trout Unlimited National*, *American Rivers*, and the *Kennebec Coalition*, with financial assistance from the National Park Service and the *Mississippi Interstate Cooperative Resource Association* (MICRA).

Lindloff says, dam removal is quite possibly the most significant river restoration opportunity of our time. It's true that these structures once served a purpose. But many smaller dams have fallen into serious disrepair and are now safety hazards. Dams are also ecologically devastating. Todd Ambs, executive director of the Alliance, acknowledges that, "Dam removal is not appropriate in all situations, but for many of these rivers dam removal is the single most important thing we can do to restore the health of the waterway. Today we know that a healthy river is not just the heart of a healthy ecosystem; it is also the heart of a healthy community."

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Wetland Size and Amphibians

A recent article in *Conservation Biology* [14:414-419 (2000)] by Snodgras, et.al. investigated the relationships between wetland size and wetland hydroperiod, wetland size and species richness, and wetland size and species occurrence. These relationships are of interest because the U. S. Army Corps of Engineers currently uses primarily wetland size in determining wetland regulations, and the authors wanted to test if this was an adequate measure to use.

Wetland size is used as the primary factor in crafting regulations because of four implied assumptions:

- small wetlands are typically ephemeral (i.e. they have short annual hydroperiods);
- small wetlands are ephemeral so they support few species;
- the species supported by small wetlands are also found in larger wetlands; and
- populations of organisms associated with individual wetlands are independent.

Past research by Semlitsch and Bodie [*Conservation Biology* 12:1129-1133 (1998)] focused on the fourth assumption showing that loss of wetlands smaller than 1.2 hectares could impact the population dynamics of amphibians. Snodgrass et al. (2000), on the other hand, concentrated their research on the first three assumptions by studying 86 wetlands at the Savannah River Site of the U. S. Department of Energy.

In terms of the first three assumptions, the researchers' results showed the following:

- Little relationship was found between wetland size and hydroperiod (defined as the length of time that a wetland holds water throughout the year). Large wetlands were always permanent, but some small wetlands were permanent as well.
- No relationship was found between wetland size and amphibian species richness. However, wetland hydroperiod and amphibian species richness were related – in general, wetlands with longer hydroperiods had greater numbers of species.
- Occurrence of amphibian species was randomly distributed in terms of wetland size, but a pattern between species occurrence and hydroperiod was evident.
- Some species were more common in wetlands with short hydroperiods (i.e. marbled salamander), and other species were more common in wetlands with a longer hydroperiod (i.e. lesser siren).

Based on these results, the implied assumptions about wetland size used by the Corps in developing their regulations, and listed above, are not valid and consequently, Corps regulations based on these assumptions may not be effective. Instead of concentrating on preserving wetlands that are a certain size or larger, regulations should focus on ensuring that wetlands with a variety of hydroperiods are conserved. In this way, species that depend on ephemeral wetlands will also be protected. If regulations continue to focus on size alone, small wetlands should also be conserved because these more commonly have shorter hydroperiods (and thus would better protect species that depend on ephemeral wetlands).

The authors also recommend that wetland connectedness be used as a criteria in designing wetland regulations, given the research of Semlitsch and Bodie (1998). Future research needs include outlining feasible techniques for measuring hydroperiod and connectedness.

Sources: *Conservation Biology* 12:1129-1133 (1998); and 14:414-419 (2000)

Fishable Waters Act

Sen. Christopher "Kit" Bond (R/MO) in mid April proposed the "Fishable Waters Act", designed to reduce water pollution and improve fishing in the nation's rivers, streams and lakes. Bond introduced the "legislation calling for voluntary programs, state-federal partnerships and $350 million in federal spending to help cure one of the most troubling and widespread forms of water pollution: runoff of fertilizers and farm chemicals."

With his announcement, Bond pointed out that the nation's 2 million farmers need the money and other incentives from his bill if their practices are to change, and that farmers cannot be expected to provide additional environmental benefits to the rest of the nation's 270 million people without assistance.

American Rivers lawyer, Scott Faber, said that while the bill addresses a major threat to waterways it could undermine a state's ability to set pollution control standards. He's also expressed concern that wording in the bill could exempt large feedlots from existing water quality controls. A spokesman for Bond said the bill was designed as a starting point for negotiations, and that we should be able to overcome these concerns.

Sources: *St. Louis Post-Dispatch*, 4/13/00; American Rivers, *River Currents*, 4/16/00

Miscellaneous River Issues

Rio Grande Restoration - Environmental groups laid out plans for restoring the Rio Grande in mid April. It was declared the 7th most endangered river in America this year by *American Rivers*. Restoring the Rio Grande to a more natural state is necessary, but would be costly, according to more than two dozen environmental groups. The groups are asking Congress to provide major funding for river restoration and for local city officials to develop specific river-protection plans as they consider how to draw drinking water from the river. The groups also called on the federal Bureau of Reclamation to restore natural flow patterns in the river and to buy water rights that could be set aside to keep water in the river. Sources: *Albuquerque Journal*, 4/12/00; American Rivers, *River Currents*, 4/16/00

Rio Grande Silvery Minnow - To avoid an immediate showdown with environmental groups over how to sustain the Rio Grande silvery minnow, an endangered species, the federal government has agreed to give a judge at least three weeks notice before allowing the Rio Grande to go dry this summer. Lawyers for the government informed U.S. Judge James Parker that "they shouldn't be forced to respond to the environmental groups' request for a court order to force the U.S. Bureau of Reclamation and the U.S. Army Corps of Engineers to release enough water to keep the Rio Grande silvery minnow alive." Instead, the judge can now take extra time to hold a hearing on whether to force the federal agencies to release water from the river system dams. The U.S. Fish and Wildlife Service had designated a 160-mile stretch of Rio Grande downstream from Cochiti Lake as habitat for the minnow, a designation that environmentalists say means the Corps cannot allow the river to run dry, killing the minnows. Sources: *Santa Fe New Mexican*, 4/25/00; and American Rivers, *River Currents*, 4/28/00

Niobrara Scenic River Boundaries - A federal appeals court panel in mid April overturned a lower court ruling and ordered the National Park Service to redraw the boundaries of the Niobrara National Scenic River in Nebraska. The 8th U.S. Circuit Court of Appeals determined that the Park Service used the wrong standard in setting boundaries along the 76-mile stretch of river that was designated by Congress in 1991. Instead of looking to protect "outstandingly remarkable values, as determined by the National Wild and Scenic Rivers Act, the Park Service instead selected land based on "significant" and "important" values-meaning that the agency could include more land than was necessary to protect the river's outstandingly remarkable values." Source: *Omaha World Herald*, 4/12/00; American Rivers, *River Currents*, D.C., 4/16/00

Hudson and Housatonic rivers - *General Electric* is being asked by environmental and religious groups to report how much it has spent on environmental cleanup of the Hudson and Housatonic rivers as compared to public relations projects. Asking *General Electric* stockholders to vote to reveal the figure, the groups asked the company to reveal how much it has spent on actual cleanup, as opposed to lobbying and public relations projects to improve its image. The company says it has met every state and federal requirement on the Hudson, and reports regularly to the state and federal agencies on their cleanup work and research. Sources: *Associated Press*, 4/25/00; and American Rivers, *River Currents*, 4/28/00

Maine Dams - The *Great Northern Paper Company* will stop operating six dams on northern Maine waterways later this year, resulting in dramatic changes in water levels. The company has announced it will not operate its dams at Nesowadnehunk, Harrington, Loon and Penobscot lakes along with Dole and Long ponds, located in remote areas of northwestern Maine. The dams had historically been operated to keep water levels lower in the spring and higher in the summer. Fishermen are concerned about the effect on their favorite fishing holes. The company is choosing to stop operation of the dams, rather than pay the estimated $1.8 million relicensing cost, though it has not decided whether to sell or abandon the dams. Sources: *Bangor Daily News*, 4/26/00; and American Rivers, *RiverCurrents*, 4/28/00

Missouri River Chubs - The *Montana Rivers Coalition* has given formal notice that it will sue the U.S. Fish and Wildlife Service (FWS) to force the agency to decide whether the sicklefin and sturgeon chubs should be added to the federal endangered species list. Both fish, native to the Missouri River, are endangered by pending federal legislation that would transfer ownership of the Intake Diversion Dam on the lower Yellowstone River from the federal government to four irrigation districts. The legislation could allow the transfer without requiring the dam to be repaired, causing the endangered fish and others to be sucked down the irrigation canal. If the fish were listed, the agencies would have to take their needs into account in river operations, he said. And the chubs may have different needs than the existing listed species, meaning potential differences in operations for the river. This move comes as the U.S. Army, Corps of Engineers is

revising the Missouri River Master Manual, its guidebook for managing dams and flows on that river. Recently the agency put their effort on hold while they consult with the FWS concerning the impact of river management on endangered species. Sources: *Omaha World-Herald*, 4/24/00; and American Rivers, *RiverCurrents*, 4/28/00

White River, Indiana Law Suit - The US EPA and the state of Indiana have each sued the *Guide Corp.* and *Crown Environmental Group Inc.*, claiming that the companies are responsible for the largest fish kill in the history of the state of Indiana. One hundred seventeen tons of fish were killed along the White River this winter due to alleged overuse of chemicals by the companies, despite their knowledge of the potential for harm. The companies also filed inaccurate logs concerning use of the chemicals. The suits seek tens of millions of dollars in penalties, and "one of the state lawsuit's opening paragraphs suggests *Guide's* choice to treat heavily-contaminated wastewaters set into a motion a predictable reaction of events leading to the massive fish kill in the White River, which was completely preventable." Indiana Gov. Frank O'Bannon is now planning a restocking program for the river. Sources: *Indianapolis Star*, 4/28/00; and American Rivers, *RiverCurrents*, 4/28/00

Reverse Drainage Wetland Creation - A reclaimed farm field in Chesapeake, VA, is now wet enough to be considered a nontidal wetland and is "teeming with wildlife." The effort is part of the *Virginia Wetlands Restoration Trust Fund*, a joint project set up by the *Nature Conservancy* and the U.S. Army Corps of Engineers in 1995. Reclaiming the farm field in Chesapeake changes "100 years of landuse history" by creating a forested wetland to protect black bears, foxes, migratory songbirds and frogs. The *Nature Conservancy* hired *Davis Environmental Consultants Inc.* to fill in ditches that drained water off the property for agriculture. Rainwater now stays on the land longer, keeping it moist and muddy for wildlife habitat. So far, the trust has purchased 1,500 acres. And with $2 million left in the fund, it is considering several other acquisitions. Sources Scott Harper, *Norfolk Virginian-Pilot*, 3/14/00; and *Greenwire*, The Environmental News Daily, 3/20/00

Fertilizer Tank Concerns - Authorities across the country are taking a look at fertilizer tanks for faulty welds that could lead to spills after a series of tank ruptures in Ohio. Five tanks, all from the same manufacturer, have ruptured within a few months, prompting Ohio officials to alert inspectors in other states of problems with the welding. The most serious rupture, on 1/8/00 in Cincinnati, resulted in a million-gallon spill near the Ohio River. All of the tanks were produced by *Carolyn Equipment Co.*, also known as *Nationwide Tanks Inc.* Sources: Charley Gillespie, *AP/Indianapolis Star*, 5/1/00; and *Greenwire*, The Environmental News Daily, 5/4/00

West Virginia Lawsuit Upheld - A federal judge rejected on 5/1/00 a motion to dismiss a lawsuit against West Virginia regulators that accuses them of failing to study potential damage to streams before issuing mining permits. U.S. District Judge Robert C. Chambers turned down the state's request, ruling that citizen groups have the right to challenge a pattern of permitting by the state Division of Environmental Protection (DEP). State lawyers argued each permit should first be individually appealed before the state Surface Mine Board. Chambers said such a requirement "would be an insurmountable obstacle to access to a federal judicial forum." The *Ohio Valley Environmental Coalition* and the *Hominy Creek Watershed Preservation Association* sued the DEP in January, alleging the agency does not follow federal and state laws requiring cumulative hydrologic impact assessments (CHIAs), before new permits are issued. The suit lists 23 permits the group says were approved without proper CHIAs. Sources: Ken Ward Jr., *Charleston [WV] Gazette*, 5/3/00; and *Greenwire*, The Environmental News Daily, 4/18/00

Coal River WV - After West Virginia environmental inspectors in March halted construction on a Coal River dam, the U.S. Army Corps of Engineers is lobbying for the project to proceed. *Elk Run Coal Co.*, a subsidiary of *A.T. Massey Coal Co.*, wants to build the dam for an additional water supply. The State Division of Environmental Protection halted the project after finding the company had begun construction on the dam without obtaining a dredge-and-fill permit. The Corps issued an after-the-fact" authorization to proceed, but the U.S. Fish and Wildlife Service (FWS) says the plan violates federal water protection rules. The group *American Rivers* recently ranked the river as the 6th most endangered river in the country. Jeffrey Towner, FWS, recommended that the dam be removed because of threats to fish spawning and habitat, and he called the unauthorized construction "the latest in a long series of insults to the Coal River watershed". Sources: Ken Ward Jr., *Charleston [WV] Gazette*, 4/17/00; and *Greenwire*, The Environmental News Daily, 3/6/00

PA State Senator Jailed for Pollution - State Senator William Slocum was sentenced to one month in jail, five months of home detention and fined $15,000 for allowing more than 3.5 million gallons of untreated sewage sludge to be dumped into Brokenstraw Creek, a popular Warren County fishing stream. U.S. District Judge Sean J. McLaughlin handed down the sentence on 5/9/00 saying Slocum "played environmental Russian roulette with the health of a stream and potentially the health of the people who lived beside it," while he was responsible for the operations of the Youngsville sewage treatment plant from 1983 to 1995. McLaughlin also ordered the first-term Republican to serve seven months of probation. Although the maximum sentence that could have been imposed was six years in prison and a fine of $600,000, the legislator seemed shocked by the jail sentence. Steve MacNett, counsel for the Republican Caucus in the state Senate, attended the sentencing hearing and said afterward that Slocum could still run for office, despite the conviction and jail term. Democrats in the state Senate had pressed for Slocum's resignation and censure earlier this year but were rebuffed by the Republican majority, which said it wanted to wait until after the sentencing to decide what action to take, if any. The indictment and Department of Environmental Protection inspection documents show repeated discharges of untreated sewage into Brokenstraw Creek during the time Slocum was plant operator and borough manager. He was repeatedly told to stop the discharges, which produced a "sludge blanket" along the banks of the creek for hundreds of yards. Source: Don Hopey, *Post-Gazette in PA*, 5/10/00

Horsepasture River - The *American Canoe Association* and the *American Whitewater Association* have sued the owners of property along the Horsepasture River in North Carolina to guarantee public access and avoid a third straight summer of paddlers being ticketed and fined for using the river. The organizations have filed suit against *L.B.M. Industries*, a rock quarry operator with property adjacent to the river. The company claims that since it owns the land on either side of the river, that it owns the waterway as well, and has blocked

public access to that section. The organizations claim that the company violated federal and state law by not allowing access to public waterways. The company plans to vigorously fight the suit. Sources: *Morning Star*, 5/8/00; and American Rivers, *River Currents*, 5/12/00

Little Miami River - Fish in the Little Miami River, a national scenic waterway in Ohio, are at risk, since up to 70% of the river's water comes from sewage treatment plants. A study by the Ohio Environmental Protection Agency says the Little Miami River is often "so full of the by-products of drugs that pass through human systems that its fish are mutating," as revealed by *University of Cincinnati* research. Too much treated sewage and farm runoff in the water is resulting in fish suffering from stunted fins, open sores and sexual defects. Increased development in the watershed and continued pollution continue to threaten watershed health. Sources: *Dayton Daily News*, 5/9/00; and American Rivers, *River Currents*, 5/12/00

Muskingum River Mussel Kill - Ohio wildlife officials want the U.S. Army Corps of Engineers to shell out $258,507 to compensate for smothering thousands of freshwater mussels in the Muskingum River. It's the largest wildlife damage claim filed in Ohio in recent memory and the first claim anyone can remember the Division of Wildlife filing against the federal government, said Joan Weiser, a state assistant attorney general who has represented wildlife officials for 16 years. A contractor hired by the Corps dumped dredge spoil – riverbed mud and muck – in the Muskingum River in October 1998, killing as many as 50,000 mussels, including several endangered species, according to a claim filed in February by Attorney General Betty D. Montgomery on behalf of the Wildlife Division. The contractor was dredging the Devola Lock chamber, part of the lock and dam system along the Muskingum River and the first lock upstream from the Muskingum's confluence with the Ohio River at Marietta. The spoil covered more than 650 feet of the riverbed in an area widely known among aquatic biologists, said Tom Watters, senior research associate for the Ohio Biological Survey. "In terms of number and diversity, it's the very best in the state," Watters said. "Immediately below the dam, the substrate is beautiful. It's all sand and gravel, and mussels are everywhere." "I was shocked," he said of the mussel bed's destruction. "The idea that nobody knew that bed was there . . . there have been numerous reports published. The idea that they would throw the spoil back on top of this mussel bed was unbelievable." Watters surveyed the area in 1993 and found 42 mussels for each square meter of riverbed. About 20% were state or federal endangered species. Watters surveyed the area again after the dredging. He had to guess at how many were killed, he said, because the muck at the bottom of the river was too thick. "We're not talking a couple of inches," he said. "We're talking several feet." Although mussels spend their lives mostly buried in the sandy bottoms of rivers, they need to take in oxygen from moving water. "They would have been buried, literally smothered." The Corps had little to say about the claim. "The Corps takes all issues concerning endangered species very seriously," Corps spokeswoman Kathy Rea said. "We are currently investigating, to see if there is any merit to the claim." Documents filed with the claim said the Corps had a dredging permit from the Ohio Environmental Protection Agency. As part of that permit, the Corps had said it would avoid damage "to any wetlands or mussel beds." A dredging inspector employed by the Corps was on the dredge and decided where to dump the spoil, the documents said. The Corps has not said why it did not dump the spoil on the riverbank, as it has in past years, Weiser said. "We're not aware of a justification. We don't believe there is justification," she said. Ohio has been more protective of its native mussels in recent years because many species are threatened with extinction. Of the 80 types of mussels once found in Ohio, 5 are extinct and 11 no longer are found in the state. Source: Randall Edwards, *The Columbus Dispatch*, 3/24/00

Virginia Riparian Protections - Virginia farmers will be offered more than $90 million during the next 15 years to plant trees and grasses on environmentally sensitive lands along the Chesapeake Bay and other waterways. Gov. Jim Gilmore signed an agreement on 3/8/00 with the U.S. Department of Agriculture that authorizes the Conservation Reserve Enhancement Program, whose goal is to idle 35,000 acres. The project dwarfs a current federal conservation plan that has spent a little more than $2 million during the past 14 years in Virginia to take 45,446 acres out of production. The new agreement will free money to encourage farmers to plant trees, sow grass cover crops and restore wetlands along rivers and streams to control polluted runoff from farmland. Such practices should keep more than 50,000 tons of sediment out of Virginia's waterways a year, said David Brickley, director of the Virginia Department of Conservation and Recreation, which will administer the project. The measures also will reduce nitrogen pollution in streams and rivers by 650,000 pounds/year and prevent more than 98,000 pounds of phosphorus from reaching waterways, where it causes harmful algae blooms. The program is seen as a major boost for Virginia's efforts to restore the Chesapeake Bay, which is being polluted in part by nitrogen and phosphorus reaching the estuary from farmland fertilizer runoff. "We're glad the governor has signed it," said Greg Hicks, a *Virginia Farm Bureau* spokesman. "It's a good thing for Virginia and looks like it will be a good thing for agriculture." Under the voluntary program, farmers can enroll sensitive lands for up to 15 years and receive annual payments not to exceed $100 per acre in the Chesapeake Bay watershed and $90 per acre in other parts of the state. Those could be critical payments for some farmers at a time when they are struggling to cope with rising business expenses while commodity prices nose-dive. A combination of $68 million from the federal government and $23 million from Virginia is expected over the next 15 years to generate $91 million for the conservation payments. In addition, the *Chesapeake Bay Foundation* and *Ducks Unlimited* are adding $1.5 million as extra incentives to landowners within the bay watershed. "It's a win-win agreement," said Mary Beth Schultheis, a spokesperson with the U.S. Department of Agriculture. She said similar payment plans are being offered in several other states, including Maryland and North Carolina, to target water pollution problems. In Virginia, about $65.4 million of the incentive payments will be offered for land within the sprawling bay watershed that includes the Shenandoah Valley and stretches from the James River through the Northern Neck. About $25.5 million will be devoted to the other major watersheds in the state, including the New, Holston and Clinch rivers in the far southwest (all tributaries of the Mississippi River Basin). Those figures include $3.75 million earmarked for the purchase of permanent conservation easements of sensitive lands along waterways, Brickley said. Virginia already has $3.8 million in its budget to begin the program. Gilmore's budget proposal includes an additional $4.56 million in matching state money. Source: Lawrence Latane, *Richmond Times-Dispatch*, 3/9/00

Minnesota River Cleanup - Minnesota's

environmental agency has prepared an ambitious plan to clean up the 330-mile Minnesota River, which accumulates a heavy load of sediment, bacteria and other pollutants as it makes its way across the state. Norman Senjem (Minnesota Pollution Control Agency), coordinator of the plan, said the 62-page document is an attempt to solve problems using a holistic, basinwide approach. Instead of looking at only segments of the river, he said, pollution-control officials want to analyze the entire river system, with its tributaries, ditches, wetlands and lakes. "Instead of operating our different programs in isolation from each other, we want to combine those programs to achieve environmental goals," he said. The agency also is trying to coordinate its programs with those of agriculture and natural resources departments on the state and federal levels. Other goals in the draft plan include:

• Reduce sediments in the river by 20% by 2005 and by 30% by 2010. Sediments are a problem because they degrade fish and plant habitat – for example, they are filling in portions of Lake Pepin, a wide spot along the Mississippi River south of Red Wing.

• Increase the amount of grass and other vegetation along streams to protect them from erosion and farm chemical runoff.

• Increase the amount of permanent vegetative cover along the river's flood plain by 100,000 acres by 2005, and 140,000 acres by 2010, both to protect the river's water quality and to provide additional habitat for hunting, fishing and recreation.

• Treat more of the water that accumulates pollutants as it runs off streets and industrial sites.

• Reduce the number of communities that contribute raw sewage to Minnesota River tributaries from the present 34 to 20 in 2005, then 10 in 2010.

• Increase the percentage of private septic systems that are functioning properly in the Minnesota River basin to 25% by 2005 and to 50% by 2010.

The plan also recommends significant improvements in how livestock and manure are managed, reductions in mercury and other pollutants in the lower 25 miles of the Minnesota River, removal of junkyards and illegal demolition landfills located in areas subject to flooding, and reductions in nitrates and phosphorus in the lower parts of the river. Tom Meersman, *Star Tribune/ Minneapolis-St. Paul*, 5/17/00

Mountaintop Removal - The Clinton Administration for the first time on 4/17/00 weighed in on a controversial court ruling regarding mountaintop removal mining, drawing "a mixed reaction" from environmental groups. At issue is a 10/99 ruling by Chief Judge Charles H. Haden II of U.S. District Court in Charleston, WV, that the practice violates the Clean Water Act. Haden stayed his ruling upon appeal. In its brief, the Department of Justice (DOJ) agreed with parts of the judge's ruling, including those that could lead to stricter environmental scrutiny, but "disagreed that the practice should be curtailed entirely." The administration also disagreed with Haden's ruling that the dumping of waste fill in waterways should be regulated by the USEPA and not the U.S. Army Corps of Engineers. The DOJ said the Corps' program under the Clean Water Act addresses the placement of fill into waterways. The administration also said Haden's injunction barring any valley fills in certain waterways in West Virginia is too broad and needs to be narrowed because it prohibits placing small amounts of dirt and rock into streams. In connection with the brief, the USEPA and Corps are proposing to amend sections of the Clean Water Act to make their respective definitions of "fill" consistent. The proposed definitions would clarify that rock and dirt from surface mining is "fill". Sources: Ben White, *Washington Post*, 4/18/00, *DOJ release*, 4/17/00, and *Greenwire*, The Environmental News Daily, 4/18/00

Delaware River Dredging - Dredging of the Delaware River continues to draw opposition as two New Jersey Republicans add their names to the list of members of Congress demanding an investigation of the $311 million plan to deepen the river. Representatives Frank LoBiondo of Vineland and Jim Saxton of Mt. Holly have asked the General Accounting Office of the Congress to determine whether the plan to deepen the river by five feet is worth the money, and whether the Corps has accurately calculated the costs and benefits. The project is scheduled to begin in the spring. Sources: *USA Today* 5/9/00; and American Rivers, *River Currents*, 5/12/00

Illinois River Projects - Lt. Gov. Corrine Wood of Illinois is seeking up to 2.5 billion in federal funds to match state funds directed toward funding for restoration of the Illinois River. The voluntary state program is seeking to enhance transportation for the river and its tributaries, improve water quality, protect farmland and open spaces, protect and restore of habitat, and provide economic opportunities for agriculture. Recently, Woods declined to comment on whether she supports expansion of locks on the Illinois River. That expansion is now under study by the U.S. Army Corps of Engineers. Sources: *Peoria Journal*, 5/8/00; and American Rivers, *River Currents*, 5/12/00

North Platte River - A settlement has been reached between the states of Wyoming and Nebraska after 13 years of litigation on how to monitor the division of water from the North Platte River. Additional talks will be necessary to iron out details, but the decision comes just as the states were to begin trial on the issue. The agreement will "monitor and control the flow of the river to the benefit of both parties." Sources: *AP* 5/11/00; and American Rivers, *River Currents*, 5/12/00

Alabama Sturgeon Listed - The U.S. Fish and Wildlife Service (FWS) added the Alabama sturgeon to the endangered species list on 5/3/00 after years of controversy. Alabama Gov. Don Siegelman (D) said the FWS decision will not affect industrial use of the river. A coalition of Alabama industries that fought the sturgeon's listing will probably pull out of an agreement to spend $433,000 over five years on recovery efforts for the fish that they hoped would eliminate the need for listing. Alabama Sen. Richard Shelby (R) said, "The listing will actually impede the recovery of the sturgeon because it sets back the cooperative efforts already in place and will reduce the amount of resources being used to save the fish." The "tawny orange" sturgeon, which has been a subject of controversy since its addition to the endangered species list was proposed, is now so rare that "fewer than a half dozen have been caught in recent years." Sources: Bill Finch, *Mobile Register*, 5/3/00; Garry Mitchell, *AP/ Birmingham News online*; 5/3/00; Michael Sznajderman, *Birmingham News*, 5/3/00; and *Greenwire*, Environmental News Daily, 5/3/00

Low Level Contaminant Threat - Rivers throughout the U.S. are spiked with small doses of multiple contaminants, including pain relievers, caffeine, antibiotics, birth control pills, and perfumes. These chemicals are believed to emanate from wastewater treatment plants. Although found in very low concentrations, some of the chemicals appear to change the reproductive organs of fish downstream from wastewater outfalls. The magnitude and risks of these contaminants is largely unknown, as they are not monitored or regulated. German researchers have found that chemical fragrances in perfumes,

shampoos, detergents, and sunscreens accumulates in the flesh of carp, perch, eels and other fish. These data were presented at the *American Chemical Society's* annual meeting in San Francisco in March. Despite the alarming number of detections, Thomas Heberer of the *Institute of Food Chemistry* at the *University of Berlin* stated "It's not a real problem for human health." Other researchers have greater concern. "We're discovering that there are a whole suite of compounds – 25, 50, 100 – all at low levels, but we don't know what the combined effects of those are," said Donald Wilkison of the USGS. Caffeine is one of the most prominent contaminants, resulting in the designation, "*the Starbucks effect*." Animal feedlots have also been implicated, as antibiotics and hormones have been found downstream of manure pits in North Carolina, Iowa, and Missouri. These drugs could facilitate the development of antibiotic-resistant bacteria, complicating the treatment of illness. Another study has found that low levels of nitrates and nitrites can cause physical abnormalties and death in frogs. The levels of the nitrogen compounds tested were well below EPA drinking water standards and regularly found in agricultural areas in the U.S. However, levels of nitrite considered safe for human drinking water killed over half of the Oregon spotted frog tadpoles tested after 15 days of exposure. Sources: Carl T. Hall, *San Francisco Chronicle*, 3/28/00; Chris Bowman, *Sacramento Bee*, 3/28/00; AP, 1/5/00; *Environmental News*, 1/5/00; and *Watershed Currents*, Vol. 4, No. 1, 3/31/00

Amphibians Still in Decline - The world's amphibian populations are continuing the decline first noticed in the 1980s, according to a *University of Ottawa* led study. But the decline may have started well before "scientists first sounded the alarm" in the 1980s. The overall number of amphibians dropped 15% per year from 1960 to 1966, and continued to decline about 2% per year through 1997, says the study, published in a recent issue of the journal *Nature*. The researchers say their findings provide conclusive proof of a widespread decline. Previous evidence was "either anecdotal or derived from short-term studies at small geographical scales," the researchers said . This study is the biggest statistical analysis ever done on amphibians, using data collected on 936 populations and 157 species in 37 countries and eight regions around the world. The cause of the decline is not known, but scientists suspect many factors, including loss of wetlands; use of fertilizers and pesticides; increased ultraviolet radiation exposure due to ozone layer depletion; and the introduction of exotic predators. Sources: Jeff Barnard, *AP/Albany Times Union*, 4/13/00; Alex Kirby, *BBC News online*, 4/12/13; *Australian Associated Press*, 4/13/00; and *Greenwire*, The Environmental News Daily, 4/13/00

Fawn River Sediment Spill - Lawsuits resulting from a large discharge of sediment-laden water in 5/98 into the Fawn River from a pond housing an Indiana Department of Natural Resources fish hatchery are seeking more than $38 million in penalties. Plaintiffs in the suit are residents living downstream from the hatchery in Indiana. According to hatchery officials the incident was an accident that happened during maintenance work, though the plaintiffs claim it was a deliberate attempt to remove sediment from the hatchery. Professors from the *Indiana University School of Public and Environmental Affairs* in Bloomington say the "catastrophic release of about 100,000 yd^3 of mud from the fish hatchery has ecologically crippled a five-mile segment of one of Indiana's cleanest rivers." Sources: *Indianapolis Star*, 5/17/00; and American Rivers, *River Currents*, 5/15/00

Kentucky River Whiskey Spill - A warehouse fire at the *Wild Turkey Distillery* has caused a massive fish kill in an eight-mile stretch of the Kentucky River. "A plume of contamination permeated the river from surface to bottom." The bourbon itself is not toxic to the fish, but apparently something else in the water such as bacteria was fed by the alcohol and depleted the water's oxygen, suffocating the fish. Sources: *AP*, 5/15/00; and American Rivers, *River Currents*, 5/15/00

Yellowstone River Bank Revetments - Chief U.S. District Judge Jack Shanstrom has ruled that the U.S. Army Corps of Engineers violated federal environmental law in issuing permits for bank stabilization projects along the Yellowstone River in Montana. According to the ruling, the Corps "failed to adequately consider the cumulative effects of individual projects when granting 14 permits issued in 1996 and 1997." The agency has been ordered to review its findings that the projects did not significantly impact river health, and to evaluate whether environmental impact statements should be carried out on each of the projects. Sources: *Billings Gazette*, 5/16/00; and American Rivers, *River Currents* 5/15/00

Watauga River Fish Kill - One hundred thousand trout fingerlings have been released into the Watauga River in East Tennessee, nearly three months after a *North American Corporation* factory fire led to a massive fish kill. Recent tests show that water quality has just about returned to normal, though it will be 7-10 years before the trout population is fully restored. A 10-mile section of the river was affected by the fire, killing tens of thousands of fish. Sources: *Nashville Tennessean*, 5/18/00; and American Rivers, *River Currents*, 5/15/00

Chicago River Fish Warnings - Fish consumption warnings are being issued for the first time for bass and sunfish in the Chicago and Calumet river systems. Ironically, that's good and bad news since before now, the urban waterways were too polluted to sustain enough bass or sunfish to worry about . Carp were the only fish commonly caught in the rivers. But now river cleanup programs have restored the rivers enough to support a number of sport fish. However, carp over a foot long from either river shouldn't be eaten, and this year black bass, yellow bass and sunfish caught in the Calumet and Little Calumet rivers have been added to the warnings, as well as largemouth bass and sunfish caught in the Chicago River and its branches. Women of childbearing age and children under age 6 must be most careful to observe the warnings. Unfortunately, cleanup of the rivers and waterways also has it's negative side. In the past the polluted water in these streams and canals (which connect Lake Michigan to the Mississippi River Basin) served as a barrier for migration and movements of aquatic organisms from the lake to the river and vice versa. Adding to present day concerns is the fact that Lake Michigan has become infested with numerous species of foreign invaders (i.e. zebra mussel, round goby, river ruffe, fishhook water flea, etc.); and the cleaned canals now serve as avenues for these aquatic invaders to enter the Mississippi River Basin. Great Lakes officials are equally concerned about Asian carp entering Lake Michigan from the Mississippi River Basin. See the Great Lakes/MRB Connection article later in this issue of *River Crossings*. Sources: *Chicago Sun Times*, 5/18/00; and American Rivers, *River Currents*, 5/15/00

Michigan Ballast Water Bill - State Sen. Ken Sikkema, R/Grandville on 1/26/00 introduced a bill to require that ballast water acquired from outside Michigan waters be

sterilized before a ship can enter Michigan's Great Lakes waters. The Bill would also prohibit ships from discharging ballast into such waters without a permit from the Michigan Department of Environmental Quality (DEQ), which would be required to make inspections. DEQ Director Russ Harding did not embrace the legislation, rebelling against anything that he said would "threaten a shutdown of Great Lakes shipping." John Jamian, executive director of the Detroit/Wayne County Port Authority, advanced dire predictions that the bill would chase ships away from Great Lakes ports. But Sikkema is a big player in Lansing and not one to be ignored; so in mid March, Harding informed Sikkema that he has formed a work group on the issue dedicated "to get ballast water introductions of exotic species stopped within 12 months." Source: George Weeks, *The Detroit News*, 3/26/00

The MRB/Great Lakes Connection

Grotesque tumors on tiny water fleas, mass disappearances of freshwater shrimp, unnatural behaviors of forage fish, and new species of zooplankton are among the parade of weird occurrences documented during the past few years in the Great Lakes. Add these problems to the continuing introduction of exotic species via ship's ballast water (i.e. zebra mussel, river ruffe, round goby, and tubenosed goby) and you've got a troubled ecosystem.

Then consider the fact that these problems are all headed toward the Mississippi River Basin (MRB) by way of the Cal-Sag and Chicago Ship and Sanitary Canals that connect Lake Michigan with the Illinois River and (See drawing at right) and we've all got trouble. Some of these species will arrive in the MRB as free swimming organisms (fish) entering the Basin by way of the Illinois River and others as hitch-hikers, catching rides over long distances on barges, just as the zebra mussel did in the 1990's.

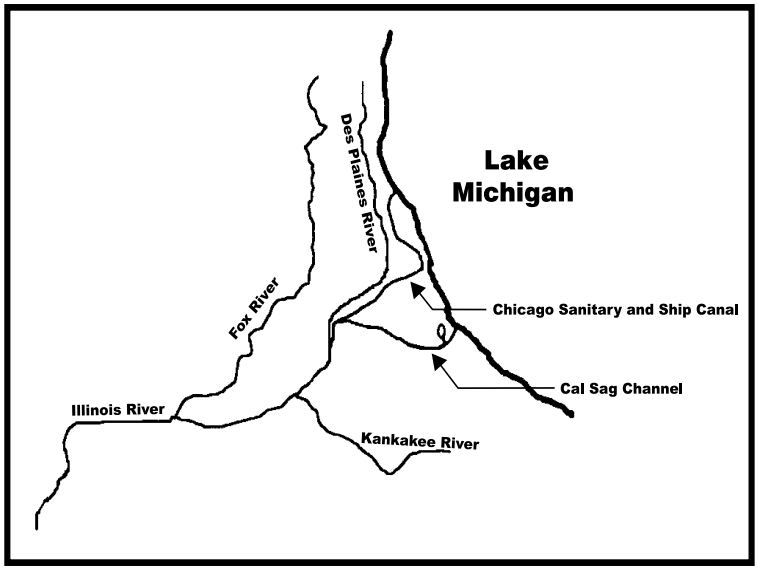
An effort is underway to stop new introductions in the Great Lakes by requiring that ocean going vessels dump their pest-infested ballast water before entering the fresh waters of the U.S., but a Canadian study found that NOBOBs (i.e. ships reporting No Ballast on Board – or not carrying any pumpable ballast) still carried an average of over 150 tons of residual water and sediment in their holds. Between 75% and 95% of vessels entering the Great Lakes are NOBOBs. Once in the Great Lakes, these vessels unload cargo or take on Great Lakes water as ballast, thereby diluting the slop already on board and making it available for discharge in other Great Lakes ports if the ship moves around the lakes loading and unloading cargo.

David Jude of the *Center for Great Lakes and Aquatic Sciences* at the *University of Michigan* said, "You can look anywhere in the lake and see odd things that have never happened before". Something is going on with the food supply, and it has a lot of people scratching their heads, Jude said.

Tumors: Different species of plankton, the tiny animals that are the foundation of the food chain, are developing tumors at alarming rates. In some species, nearly 75% have the enormous growths – some nearly half the size of their diminutive host. Also, some fishermen in the southern part of Lake Michigan last fall noticed tumors as large as silver dollars in about 5% of yellow perch. The tumors discovered on the small crustaceans called zooplankton in early 1999 shook up some scientists because it was thought that such animals, with lifespans of just a few months didn't live long enough to develop cancer or tumors. It's interesting to note that only one other group of scientists has ever reported finding tumors in zooplankton – <u>they were working in an Italaian Lake and in severely polluted areas of the Baltic Sea in eastern Europe</u> – the latter being the source of many of the Great Lakes exotic species.

These tumors could be tremendously significant, perhaps indicating that some new pollutant has entered the largest body of freshwater in the world. Or they might mean little, perhaps heralding the rise of a parasite with implications for little else than a few species of microscopic water creatures. But the USEPA has found them on plankton throughout the lake, sometimes near shore and sometimes in deeper water, said Henry Vanderploeg, a scientist based at the federal research station in Ann Arbor. The only good news has been that the tumors were less common in 1999 than in 1998 and that they don't appear to be cancerous, he said. The smaller, predatory forms of zooplankton are showing the highest incidence of tumors – up to 70% in one species.

While the tale of the perch tumors has disturbed some fishermen, scientists say there is far too little information to know if the issue is even worth pursuing. Some of the leaders of *Perch America*, an angler's advocacy group, started getting calls about the tumors late last fall. Mike Starcevich, an avid perch fisherman who operates a bait shop in Hammond, IN said he found 50 male fish with internal, silver dollar-sized testicular tumors during November and December. He said that amounted to about 5% of his catch. Researchers from the Wisconsin Department of Natural Resources and a federal fisheries lab reported last year finding testicular tumors in about 30% of 57 perch collected off Milwaukee. Only some of the tumors were visible to the naked eye. The rest were identified by microscopic examination, said C.S. Schrank one of the researchers. Indiana and Michigan officials estimate the rate of visible tumor in perch they collect annually at about 1%, Jude said.



The Cal Sag and Chicago Sanitary and Ship Canals connecting Lake Michigan with the Mississippi River Basin via the Illinois River.

Disappearances: The shrimp-like creatures called *diporeia* have for millennia comprised 70% of living creatures on the lake bottom. Since the last glacier retreated 10,000 years

ago, the half-inch long, *diporeia* provided an oil-rich food source perfect for many fish. As recently as a decade ago, they made up 70% of the creatures living near the lake bottom and thrived in a 7 mile-wide swath at depths between 15 and 70 meters. But they have virtually disappeared from the southern end of the lake in just a few years.

The decline of *diporeia* since the early 1990s has been tracked by Tom Nalepa, a biologist at the federal *Great Lakes Environmental Research Laboratory* in Ann Arbor. By the summer of 1998, Nalepa found virtually none of the creatures in Lake Michigan south of a line running from Chicago to Grand Haven, MI, in water up to 70 meters deep. Preliminary 1999 data show the disappearance is accelerating and spreading. "We used to find 10,000 individuals/m^2," an area about the size of a washing machine, Nalepa said. "Now we're lucky to find one. I don't think there's a record of an animal this numerous going down to zero over such a short time." Nalepa, while suspecting zebra mussels may be reducing the amount of food available to *diporeia*, is now convinced that other factors are also at play because the *diporeia* are dying despite appearing to be well nourished. "Zebra mussels don't filter out all the food," he said. "Perhaps something else came in with the zebra mussels. So we're pursuing alternative theories, looking at other competitors and parasites, viral, bacterial and fungal infections."

Like Nalepa, most scientists have pet theories about what might be at the root of the new phenomenon; and most hypotheses – to some extent involve foreign species – particularly the zebra mussels that consume mass quantities of lake nutrients, including the tiny plants and algae called phytoplankton. Because few creatures can eat zebra mussels, many feel they may be locking up the lake's limited supply of nutrients and keeping other species, including zooplankton, from finding sufficient food to thrive. If that's happening, it could explain why yellow perch are successfully reproducing, but the newly hatched fish are disappearing before maturing, as happened during most seasons in the 1990s, said Mike Conlin, fisheries chief for the Illinois Department of Natural Resources.

Unnatural Behaviors: The slimy sculpin, one of the forage fish species used as food by game fish, inhabits waters less than 50 meters deep. But biologists are now finding the fish between 75 and 150 meters in the middle of the southern part of the lake.

Fishhook Water Flea: *Cercopagis pengoi*, sometimes known as the fishhook water flea, also recently made its way into Lake Michigan in ship's ballast waters. Like the spiny water flea, *Bytholrephes cederstoemi*, this large zooplankton species eats smaller animals and may compete with young fish for food. The ecological impacts of the fishook water flea are as yet unknown, but like the spiny water flea, it can become snagged on downrigger lines or fish nets, aggravating fishermen. The largest of the fishhook water fleas have body lengths slightly less than 1/16 inch and tailspines almost 1/3 inch long.

The fishhook water flea has spread rapidly across the Great Lakes in what may be record time for such an invader. It originated in the same regions of Russia and Ukraine that brought us the zebra mussel and was discovered in Lake Ontario in 1998. Most scientists had expected *Cercopagis* to next invade Lake Erie, which is adjacent Lake Ontario, but instead it leapfrogged over both lakes Erie and Huron, almost certainly aboard a domestic ship sailing from Lake Huron to the Traverse Bay port. Last summer it was abundant throughout Lake Ontario, erupting in dense blooms in warm, shallow water. Then in August, it was discovered in Traverse Bay, Lake Michigan. It's almost guaranteed that they will arrive in the Chicago area in 2000 if they behave the way they did in Lake Ontario, said Hugh MacIsaac, a *University of Windsor* professor who's a leading *Cercopagis* expert. The animals could already be in the southern part of the lake, or right now there could be a freighter carrying it from Traverse Bay to Chicago.

The fishhook water flea bears it's name for two reasons: It's a mere speck of a thing, as small as a flea, but it has a long, hooked tail 5-7 times the length of its body, that makes it difficult for fish to swallow. "The smallest fish are 'gape limited' – they can only open their mouth so wide," MacIsaac said. People can't eat a grapefruit whole, and they can't eat this thing because of its long tail spine, he said. Also the appendage acts like Velcro, sticking the water flea onto anything cutting through the water such as fishing and downrigger line or fish nets.

MacIsaac spent part of last summer touring fishing villages in Ukraine to learn more about *Cercopagis*. "We would ask the local fishermen if they had seen this thing, and they all said it was a major problem," MacIsaac said. "Their nets get clogged with it to the point that it is easy for the fish to see the nets. As it dries on the nets, it smells like decaying flesh, and they have to knock it off with rubber hoses." The dried husks of dead water fleas turn the fishermen's nets a pale color. "They call that 'frost ', and they clearly don't like it," Maclsaac said.

Although their gear is different, Great Lakes fishermen are likely to curse the fishhook water flea as well. According to fishermen, "...they get caught up on the line and you can't flick them off. You have to cut your line or pick them off." "These things bunch up at the eyelets of the rod and you can't reel in the line any more so you have to try to bring in the fish by hand," said Jim Fogarty, a Toronto-based charter boat captain. "Tell me how you're gong to bring in a 30-pound Chinook salmon by hand without tearing your fingers. "It was so bad this summer that a lot of guys with their own private boats didn't even go out, and for a couple weeks in August we had to cancel our charters."

Ukrainian fishermen have learned that the easiest way to clean them off of fishing gear is to let them dry first. But even if snarled fishing lines are its only consequence, *Cercopagis* seems certain to make a big splash, considering that sport fishing on the Great Lakes and their tributary waters is a $6.3 billion-a-year industry. In northern Illinois alone, nearly 500,000 people buy fishing licenses annually, according to the Illinois Department of Natural Resources. And about 140 charter boats operate out of Illinois harbors.

Scientists don't yet know how seriously this prolific predator might further upset the lake's aquatic ecosystem. But preliminary research in Lake Ontario suggests *Cercopagis* is already altering the plankton populations on which juvenile fish and other aquatic creatures rely for food, said Marc Tuchman, a scientist with the USEPA's Great Lakes national program office. "That could mean a problem for the fishery in Lake Michigan," Tuchman said.

Another consequence could be an increase in algae blooms that steal oxygen from the water, MacIsaac said. *Cercopagis* seems, to have an appetite for the zooplankton that eat tiny aquatic plants such as algae. There also have been complaints about odors in the drinking water of Canadian cities that draw their water from Lake Ontario. "The day they showed up in the lake was the day the smell appeared in the drinking water", said Fogarty.

Cercopagis thrives best in water temperatures above 70 degrees, so its numbers tend to mushroom in Lake Ontario in the late summer. At their peak, MacIsaac measured 600 animals/m^3 of water, or about two per gallon. That's extremely dense for any predatory plankton species in the Great Lakes. In the cooling water reservoirs of Ukrainian nuclear plants, the warmer water hosts populations of more than 300 per gallon.

Females of the species normally reproduce asexually, producing female clones of themselves. But in times of stress, such as dropping water temperatures in the fall, the females produce male offspring. Then when the female and male offspring mate, they produce eggs with a protective coating. The parents seem to die off during the winter. But these "resting" eggs eventually drop to the bottom of the lake and lay dormant until conditions such as water temperatures improve.

MacIsaac thinks that *Cercopagis* might have survived the trip from Europe in this form. The adult is somewhat tolerant of salt water, but the "resting egg" is immune. The resting eggs can also survive out of water, possibly for weeks, increasing the danger of transport to inland lakes by recreational craft. MacIsaac said because of their mode of reproduction, "You need only one animal, one female to infect an entire lake". This could even be a dead female with "resting eggs". Also, dead, brittle water fleas on fishing line can contain "resting eggs," which can survive even if they are dried or frozen. Then if fishing line with a few husks of female *Cercopagis* is dipped into another lake, the eggs come to life like reconstituted instant soup mix.

After invading Lake Ontario, the creature quickly hopped into six of New York's Finger Lakes. "All these lakes are waiting for is some fishermen to use the same line he used in the Great Lakes, and they will be infected too," MacIsaac said. The fishhook tail can also glom onto a feather, making it possible that ducks, loons and herons could spread the water flea around the United States, as well.

All of these problems are of growing concern to MRB states, and MICRA has developed a proposal to evaluate the Cal Sag and Chicago Sanitary and Ship Canal situation, looking for ways to modify or alter these canals in order to close the path of entry of these exotic species into the Basin. Of equal to concern to Great Lakes managers is keeping the Asian carps that have invaded the MRB out of the Great Lakes.

One such barrier to fish movement – an electrical device – is being installed by the Corps of Engineers to prevent the round goby from moving downstream into the Illinois River. The goby already inhabits the canals, and unfortunately the Corps has delayed completion of the barrier because of a budget shortfall. Another idea has been to use heated water from power plant effluents for lockages to and from Lake Michigan in hopes that the heated water would kill any exotic organisms present.

Readers are encouraged to inform their Congressional representatives of these concerns, to voice their own concern for the welfare of MRB aquatic resources, and to encourage Congress to support funding for solving these problems. If something is not done soon we will all find these aquatic invaders in the rivers and lakes near us!

Sources: Kevin Carmody, *Daily Southtown*, 10/17/99 and 1/28/00; *Great Lakes Basin Report*, Vol. 10, No. 6, June 1999; Bill Horns, Great Lakes Fisheries Specialist, Wisconsin Dept. of Natural Resources *Memo to People interested in the Great Lakes*, 11/2/99; and Peter Kendall, *Chicago Tribune*, Monday, 9/12 and 11/1/99

Meetings of Interest

July 12-14: Water Conservation in the West, Holiday Inn, Casper, WY. Jointly sponsored by the Wyoming State Engineer's Office, the Western States Water Council and the Bureau of Reclamation. Contact: Sue Lowry (307) 777-5927, slowry@state.wy.us

July 17-21: EISORS (Eight International. Symposium on the Ecology of Regulated Rivers) - River Restoration, Toulouse, France. Contact: CESAC/CNRS, 29, rue Jeanne Marvig, 31055 Toulouse Cedex 04, France, Phone: 33-5 62 26 99 60, FAX: 33-5 62 26 99 99, www-cesac.cemes.fr/~eisors

July 23-26: International Congress on the Biology of Fish, Aberdeen, Scotland. Contact: Don D. MacKinlay, Fisheries & Oceans Canada, (604) 666-3520, FAX (604) 666-6894, e-Mail: MACKINLAYD@ PAC.DFO-MPO.GC.CA or http://www.fishbiologycongress.org

Aug. 20-24: 130th Annual Meeting of the American Fisheries Society, Adam's Mark Hotel, St. Louis, MO. Contact: Betsy Fritz, (301) 897-8616, ext. 212; bfritz@fisheries.org

Aug. 20: MICRA Paddlefish/Sturgeon Committee Meeting, Adam's Mark Hotel, St. Louis, MO (held in conjunction with the 130th AFS Mtg.). Contact Kim Graham, Missouri Dept. of Conservation, (573) 882-9880, FAX (573) 882-4517, email: grahal@mail.conservation. state.mo.us

Aug. 21-24: Black Bass 2000 Symposium, Adam's Mark Hotel, St. Louis, MO (held in conjunction with the 130th AFS Mtg.). Contact: David Philipp, philipp @uiuc.edu or Mark Ridgway, ridgwama@pogov.on.ca

Dec. 3-6: Walleye Management Symposium: Recruitment, Stocking and Regulations. 2000 Midwest Fish and Wildlife Conference, Minneapolis, MN. Contact: Joe Larscheid, (712) 336-1840, FAX (712) 336-0921, joe.larscheid@dnr.state.ia.us

Mar. 14-17: Riparian Habitat and Floodplains Conference. Radisson Hotel, Sacramento, CA. Contact: Diana Craig, (707) 562-8930, dcraig01@fs.fed.us; or Lyann Comrack, (858) 467-4208, lcomrack@dfg.ca.gov

July 8-11: 4th International Symposium on Sturgeon, Oshkosh, WI. Contact: bruchr@dnr.state.wi.us, www.sturgeonsymposium.org

Oct. 11-13: Brownfields 2000 - Research and Regionalism: Revitalizing the American Community, Atlantic City Convention Center, Atlantic City, NJ. Contact: (877) 343-5374 (toll free) or email brownfields2000@dyncorp.com

Feb. 12-15: International Large River Symposium II, Phnom Penh, Kingdom of Cambodia. Contact Robin Welcomme, welcomme@dial.pipex.com

Aquatic Nuisance Species

H.R. 4191: P. Hoekstra, R/MI. Requires issuance of regulations for disposal of ballast water and sediment in the Great Lakes.

Endangered Species Act

H.R. 3160: D. Young R/AK and 31 cosponsors. Reauthorizes and amends the Endangered Species Act of 1973.

Environment

S. 352: State and Local Government Participation Act of 1999, C. Thomas, R/WY and H.R. 2029: G. Radanovich, R/CA. Amends NEPA requiring Federal agencies to consult with State, county, and local agencies and governments on environmental impact statements.

S. 481: Environmental Crimes and Enforcement Act of 1999, C.E. Schumer, D/NY. Increases penalties and strengthens enforcement of environmental crimes.

S. 1066: P. Roberts, R/KS. Amends the National Agricultural Research, Extension, and Teaching Policy Act of 1977 to encourage use of and research into agricultural best practices to improve the environment.

S. 1090: J. Chafee, R/RI and H.R. 2956: F. Pallone D/NJ and 30 co-sponsors. Reauthorizes and amends the Comprehensive Environmental Response, Liability, and Compensation Act of 1980.

S. 1426: T. Harkin (R/IA) and 5 co-sponsors. Amends the Food Security Act of 1985 to promote the conservation of soil and related resources.

S. 1622: B. Lincoln (D/AR) and 5 co-sponsors. Provides economic, planning, and coordination assistance for the development of the lower Mississippi River region.

S. 1762: P. Coverdell R/GA and H.R. 728: K. Lucas, D/KY. Amends the Watershed Protection and Flood Prevention Act providing cost share assistance for rehabilitation of structural measures constructed previously by the Secretary of Agriculture.

H.R. 408: C. Peterson, D/MN. Amends the Food Security Act of 1985 to expand the number of acres authorized for inclusion in the CRP.

H.R. 525, Defense of the Environment Act of 1999: H.A. Waxman, D/CAS. Requires any Congressional provision that reduces environmental protection to: (1) identify and describe the provision, (2) assess the extent of the reduction, (3) describe actions taken to avoid the reduction, and (4) recognize any statement of the Comptroller General in assessing the reduction.

H.R. 3448: J. Greenwood R/PA and 3 co-sponsors. Improves management of environmental information and encourages innovation in the pursuit of enhanced environmental quality

Fish Management

S. 1653 and H.R. 4010: J. Chafee, R/RI and E. Faleomavaega, D/Am.Sam. Reauthorizes and amends the National Fish and Wildlife Foundation Establishment Act.

S. 2609: L. Craig, R/ID and H.R. 3671: D. Young, R/AK. Amends P.R. and D.J. programs to enhance funds available for grants to States by eliminating opportunities for waste, fraud, abuse, maladministration and unauthorized expenditures for administration and execution of those Acts.

H.R. 3810: R. Ney, R/OH. Permits any individual 62 years of age and older to engage in recreational fishing in navigable waters of any State without obtaining a license.

Forests

S. 1368: R. Torricelli, D/NJ. Amends the Forest and Rangeland Renewable Resources Planning Act of 1974 to strengthen protection of native biodiversity and ban clearcutting on Federal lands, and to make various special designations.

Hydropower

S. 740: L. Craig, R/ID and E. Towns, D/NY. Amends the Federal Power Act to improve hydroelectric licensing processes by granting the FERC statutory authority to better coordinate participation of other agencies and entities.

Property Rights

S. 333: P. Leahy, D/VT, H.R. 598: R. Santorium, R/PA, and H.R. 1950: S. Farr, D/CA. Amends the Federal Agriculture Improvement and Reform Act of 1996 to improve the farmland protection program.

S. 1028: O. Hatch, R/UT. Simplifies and expedites access to Federal courts for parties whose rights and privileges, secured by the Constitution, have been deprived by actions of Federal agencies, entities or officials acting under color of State law.

S. 1202: B.N. Campbell, R/CO. Requires a warrant of consent before land inspections may be carried out to enforce any law administered by the Secretary of the Interior.

H.R. 1002: Declaration of Taking Act,, D. Hunter, R/CA. Amends the subject act to require that all government condemnations of property proceed under that Act.

H.R. 1142: D. Young, R/AK. Ensures that landowners receive equal treatment to the government when property must be used.

H.R. 2263: N. Johnson R/CT. Amends IRS Code of 1986 to encourage contribution of capital gains real property for conservation purposes.

H.R. 2550: T. Delay (R/TX). Compensates owners of private property for the effect of certain regulatory restrictions.

Public Lands

S. 338: B.N. Campbell, R/CO; S. 568: C. Thomas, R/WY and H.R. 154: J. Hefley, R/C. Establish fee systems for commercial filming activities on public lands.

S. 446: B. Boxer, D/CA. Provides for permanent protection of U.S. resources in the year 2000 and beyond.

S. 510: B.N. Campbell, R/CO and H.R. 883: D. Young, R/AK. Preserves U.S. sovereignty over public and acquired lands, and preserves state sovereignty and private property rights in non-federal lands surrounding public and acquired lands.

S. 826: C. Thomas, R/WY. Limits federal acquisition of lands located in States where 25% or more of the land in the State is owned by the U.S.

S. 1049: F. Murkowski, R/AK, and H.R. 1985: B. Cubin, R/WY. Improves adminis-

tration of oil and gas leases on Federal lands.

H.R. 701: D. Young, R/AK. Conservation and Reinvestment Act (CARA) provides investment of offshore oil and gas revenues in parks, wildlife, historic preservation, and coastal and restoration programs, as well as a variety of other conservation programs.

H.R. 1199. R.W. Pombo, R/CA. Prohibits expenditure of Land and Water Conservation Funds for new National Wildlife Refuges without Congressional authorization.

H.R. 1207: B.F. Vento, D/MN. Prohibits the U.S. government from entering into agreements related to public lands without Congressional approval.

H.R. 1284: Minnesota Valley Refuge Bill, D. Young, R/AK. Protects the Minnesota Valley National Wildlife Refuge and protected species to ensure that scarce refuge land in and around the Minneapolis, MN metro area are not subjected to physical and auditory impairment.

H.R. 1396: C. McKinney, D/GA. Saves taxpayers money, reduces the deficit, cuts corporate welfare, and protects and restores America's natural heritage by eliminating the fiscally wasteful and ecologically destructive commercial logging programs on Federal public lands.

H.R. 1500: J. Hansen, R/UT. Accelerates the wilderness designation process by establishing a timetable for completion of wilderness studies on Federal lands.

H.R. 2222: G. Miller, D/CA. Establishes fair market value pricing of Federal natural assets.

H.R. 3002: D. Young, R/AK. Provides for preparation of certain useful reports concerning public lands, Native Americans, fisheries, wildlife, insular affairs, and other natural resource related matters.

H.R. 4299: N. Deal, R/GA. Requires federal agencies to enhance recreational opportunities at federal lake projects.

Regulations

S. 746: Regulatory Improvement Act of 1999, S.M. Leven, D/MI. Improves the ability of Federal agencies to use scientific and economic analyses to assess C/B and risk assessments of regulatory programs.

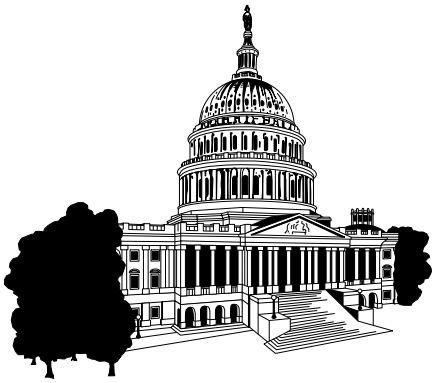
H.R. 1864: J. Hansen, R/UT. Standardizes public hearing processes for Federal agencies within the Dept. of the Interior.

H.R. 1866: J. Hansen, R/UT. Provides a process for the public to appeal certain decisions made by the National Park Service and the U.S. Fish & Wildlife Service.

Water Resources

S. 294: R. Wyden D/OR. Directs the Secretary of the Army to develop and implement a comprehensive program for fish screens and passage devices.

S. 685: M. Crapo, R/ID and H.R. 2456. M. Simpson, R/ID. Preserves state authority over water within their boundaries and delegates states the authority of Congress to regulate water.



S. 1279: R. Kerrey, D/NE. Improves environmental quality, public use and appreciation of the Missouri River and provides additional authority to the Army Corps of Engineers to protect, enhance, and restore Missouri River fish and wildlife habitat.

S. 2027: C. Burns, R/MT. Authorizes the Secretary of the Army to design and construct a warm water fish hatchery at Fort Peck Lake, MT.

S. 2291: T. Daschle, D/SD. Provides for improved conservation of, recreation in, erosion control of, and maintenance of fish and wildlife habitat in the Missouri River in the State of South Dakota.

S. 2309: T. Daschle, D/SD. Establishes a commission to assess the performance of the civil works function of the Secretary of the Army.

S. 2437: B. Smith, R/NH. Provides for conservation and development of water and related resources (WRDA).

H.R. 1186: E. Blumenauer, D/OR. Directs Secretary of the Army to include primary flood damages avoided as benefits for C/B analyses for Federal nonstructural flood damage reduction projects.

H.R. 2297: M. Crapo, R/ID. Reauthorizes the Water Resources Research Act of 1984.

H.R. 3002: D. Young R/AK. Provides for the continued preparation of certain useful reports concerning public lands, Native Americans, fisheries, wildlife, insular areas, and other natural resources-related matters, and to repeal provisions of law regarding terminated reporting requirements concerning such matters.

H.R. 4013: Upper Mississippi River Conservation Act, R. Kind R/WI and 9 co-sponsors. Establishes a water quality monitoring network and an integrated computer modeling program to reduce the river's sediment and nutrient intake, and expands various USDA incentive programs.

H.R. 4123: B.G. Thompson, D/MS. Modifies Yazoo Backwater Project to make payments to local interest as compensation for certain reductions in local tax revenues.

H.R. 4185 and 4186: R.E. Andrews, D/NJ. Directs the Secretary of the Army to establish a market for dredged material; and USDOT to use dredged material in construction of federally funded transportation projects.

Water Quality

S. 20: Brownfield Remediation and Environmental Cleanup, F.R. Lautenberg D/NJ. Directs EPA to establish a grant program for States and local governments to inventory and conduct site assessments of brownfield sites. Defines brownfield sites as facilities suspected of having environmental contamination that could limit their timely use and can be readily analyzed.

S. 188: R. Wyden, D/OR. Amends the Federal Water Pollution Control Act (FWPCA) to authorize use of the revolving loan funds for construction of water conservation and quality improvements.

S. 669: P. Coverdell, R/GA. Amends the FWPCA to ensure compliance by Federal facilities with pollution control requirements.

S. 914: B. Smith, R/NH and H.R. 828: J. Barcia, D/MI. Amends the FWPCA requiring discharges from combined storm and sanitary sewers to conform to the *Combined Sewer Overflow Control Policy* of the USEPA.

S. 968: B. Graham, D/FL. Authorizes USEPA to make grants to States for water source development to maximize the supply of water and protect the environment through development of alternative water sources, and for other purposes.

S. 1621: M. Landrieu D/LA and H.R. 2957: D. Vitter R/LA and W. Jefferson D/LA. Amends the FWPCA to authorize funding to carry out certain water quality restoration projects for Lake Pontchartrain Basin, LA.

S. 1787: M. Baucus D/MT, and 2 co-sponsors. Amends the FWPCA to improve water quality on abandoned or inactive mined land.

S. 2441: Fishable Waters Act of 2000, C. Bond R/MO and H.R. 4278: J. Tanner D/TN. Amends FWPCA to establish a program for fisheries habitat protection, restoration, and enhancement.

H.R. 155: Municipal Biological Monitoring Use Act, J. Hefley, R/CO. Amends the Clean Water Act (CWA).

H.R. 684: Farm Sustainability and Animal Feedlot Enforcement Act, G. Miller, D/CA. Amends the CWA.

H.R. 1290: W.B. Jones, R/NC. Amends the FWPCA related to wetlands mitigation banking.

H.R. 1549: P. Visclosky, D/IN. Amends the FWPCA to establish a National Clean Water Trust Fund to carry out projects to restore and recover U.S. waters from damages resulting from FWPCA violations.

H.R. 1578: J. Hostettler, R/IN. Amends the wetland conservation provisions of the Food Security Act of 1985 and the FWPCA to permit unimpeded use of privately owned crop, range, and pasture lands that have been used for the planting of crops or the grazing of livestock in at least 5 of the preceding 10 years.

H.R. 1712: B. Stupak, D/MI. Amends FWPCA to authorize an estrogenic substances screening program.

H.R. 2328: J. Sweeney, R/NY. Amends the FWPCA to reauthorize the Clean Lakes Program.

H.R. 2449: C. Norwood, R/CA. Amends the FWPCA relating to Federal facilities pollution control.

H.R. 4013: R. Kind, D/WI. Establishes USDA/USDI effort to reduce sediment and nutrient loss in the Upper Mississippi River Basin.

River Crossings

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