River Crossings

olume 7 November/December 1998 Number 6

Season's Greetings

n behalf of MICRA we'd like to wish l of our readers and friends a joyous oliday season, and all the best for the ew year. And, may the winds of hange bring new opportunities in 999 to restore and conserve our nportant river systems.

Reader's Survey

With this issue *River Crossings* cele- orates the end of its seventh year of ublication, and in keeping with past radition we are conducting our bian- ual Reader's Survey. Please note the nsert provided with this issue. We'd ike to know what our readers think and would appreciate very much if you would take the time to complete the survey and mail it back to us by the end of January.

We continue to provide *River Crossings*, free of charge and your opinions are important to us in keeping the publication of high quality and value to our members and friends. Thanks in advance for your continued support and cooperation!

Missouri River Master Manual Meetings

Late this summer and fall the Corps of Engineers scheduled 13 workshops up and down the Missouri River Basin to discuss future plans for Missouri River water management. On the same days they held public meetings to review the draft plan for operating the river in the coming year. Long-term revision of the Corps' Missouri River Master Water Control Manual, in the works for about nine years, will determine which river users get water and when and how the Corps responds to the threat of drought or floods. The Corps' plans started with 64 alternatives which were boiled down to the eight options being discussed at the public meetings.

Three of the alternatives would vary the amount of water to be held in large reservoirs in Montana, North Dakota and South Dakota for protection against drought. Three others would offer additional releases from Gavins Point Dam near Yankton, SD in the spring and summer for fish and wildlife, and one would provide additional water to supplement the heavily trafficked Mississippi River during dry times. One is the same plan the Corps now uses.

Paul Johnston, a Corps spokesman for the Missouri River Regional Office in

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Omaha said the Corps is looking for an option, possibly a hybrid of the eight, that river users can agree on. But Chad Smith, Missouri River regional representative for *American Rivers* and chairman of the *Missouri River Coalition*, said the Corps failed to include in its options one that would provide for a split barge navigation season - one that provides water to float barges in the spring and fall, but lowers the river in the summer.

That's the way the river used to run, Smith said, and that's what fish and wildlife need. Lower water in the summer also would expose sandbars for boaters and other recreationists. "Until they seriously consider a split navigation season and incorporate a spring rise, you're not going to get an alternative that's acceptable to anyone who's concerned about the environment or recreation," Smith said.

That kind of schedule also would match what farmers say they need for barges - flows to carry fertilizer north in the spring and grain south in the fall, he said. *American Rivers* has backed away from its stance calling for navigation to be shut down entirely. The group once argued that the limited amount of traffic on the river wasn't worth maintaining navigation flows or the rock-lined river channel. Johnston said his agency must consider all uses of the river, not just wildlife, when writing its management plan. He said further that the value of fertilizer and grain moved during the spring and fall may be higher, but navigation traffic is fairly even throughout the spring-to-fall season.

Adding to *American Rivers* concerns, environmental critiques attending meetings held in New Orleans, told the Corps that the proposed Master Water Control Manual changes do not address how the Missouri River's sediment could be used to rebuild wetlands in Louisiana and how to better control agricultural nutrients that may be helping to create the annual Dead Zone in the Gulf of Mexico. Spokespersons for two environmental groups told Corps officials they're concerned the seven alternative proposals under consideration do not adequately address the changes they would make in the flow and content of the Mississippi River as it runs through Louisiana.

Officials with the *Mississippi River Basin Alliance* (Alliance) -- which represents 105 environmental groups from New Orleans to Minneapolis -- and the *Coalition to Restore Coastal Louisiana* (CRCL) said the Corps proposals don't consider the effects of the recommended alternatives downstream of St. Louis. "It's very clear that their idea of the Missouri River is what runs by their water control structures and what happens after the water empties into the Mississippi is someone else's problem," said Mark Davis, executive director of the CRCL.

"The Corps has said at a number of meetings that they are the new and better Corps, that they think in terms of ecosystems," said Darryl Malek-Wiley, president of the *Alliance*. "But the ecosystem of the Mississippi River includes the Missouri, and they aren't thinking of how the Missouri impacts the Mississippi." Both organizations are concerned about the plans' effect on sediment and nutrients carried downstream to Louisiana. Three of the plans designed to benefit fish and wildlife would significantly increase the amount of water released from the six reservoirs during spring and summer months. However, Corps officials said that in studying those proposals, no research was done on whether that increased flow would add nutrients to the Mississippi River and eventually to the Gulf of Mexico.

Spring flood waters from the Mississippi that are rich in nutrients are believed to be one of the causes of the huge "dead zone" -- an area of water containing very low dissolved oxygen -- that forms along the Louisiana coastline each spring and summer. The lack of oxygen causes fish and shrimp to avoid the area, which has

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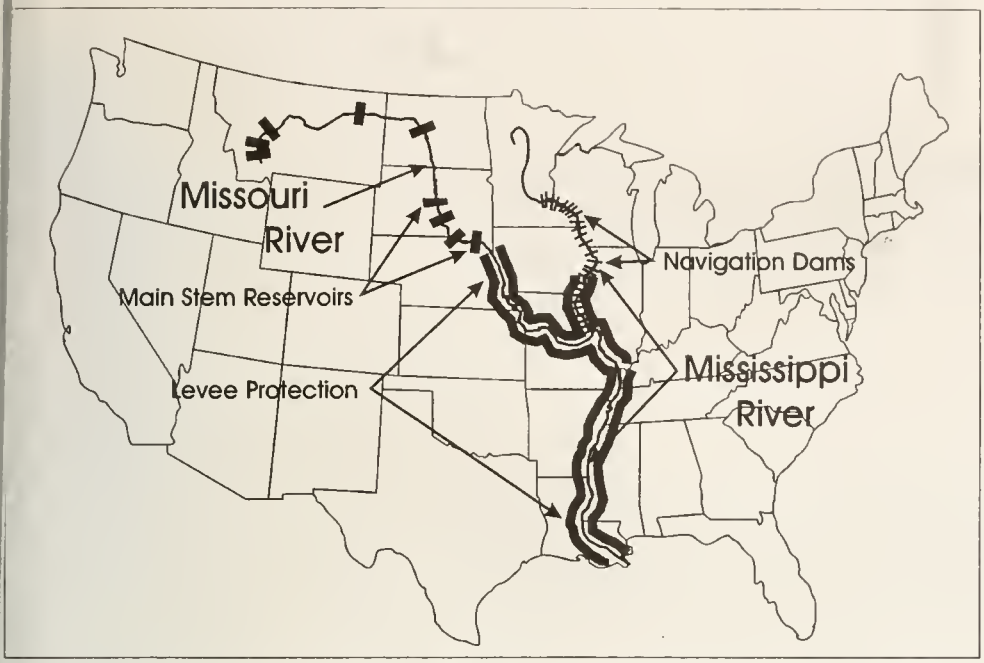


Map of the Missouri and Mississippi Rivers showing the extensive system of mainstem dams, flood control reservoirs, and levees which impact sediment transport to the Gulf of Mexico. A similar system occurs on other major tributaries and in much of the watershed.

been as large as 7,000 square miles during some summers, and kills organisms that live on or in bottom sediments.

Malek-Wiley said the failure of the Missouri River Plan to address down-river nutrient problems goes beyond concerns about use of fertilizers on farmland in the River's watershed. "We're also starting to see new large animal feedlots established along the Missouri," he said. "They haven't made the link between discharges from those feedlots and water quality, especially the nutrient issue." Under all the alternatives, officials expect continued erosion problems within the Missouri River Basin. But the water leaving the final dam on the river contains little of the sediment that the River's tributaries have collected, said Albert Swoboda, an engineer with the Corps. That sediment is carried into the six lakes formed by the dams, where it falls to the bottom.

Louisiana wetland restoration planners have long been concerned that the dams along the Missouri, upper Mississippi, and Ohio rivers and their tributaries have dramatically reduced both the amount and size of sediment particles that reach Louisiana. The dams and the reservoirs they create cause larger sediment particles to fall out in the slower-moving water, and result in much smaller particles making their way to the Gulf of Mexico. The result is that it may take much longer to build new wetlands.

Davis said that in writing their water plan, Corps officials apparently ignored a provision of the *Coastal Wetlands Planning, Protection and Restoration Act -- the Breaux Bill --* that requires all federal agencies to find ways of linking other projects to the restoration of wetlands in Louisiana. "They should be thinking of sediment not as a problem, but as a resource," Davis said. "They should be thinking about nutrients not as a local issue, but about the ability of the system down river to use and handle them."

The Corps still must conduct a formal environmental impact study of their proposals, during which they will identify the best alternative and solicit additional public comment. That study is expected to begin early next year. The Missouri and its tributaries drain parts of nine states before joining the Mississippi at St. Louis (See Figure above). The River has six major dams that form reservoirs used for recreation, drinking water and the production of electricity. Much of the River also is used for navigation, especially by barges that often begin their trek upriver in Louisiana.

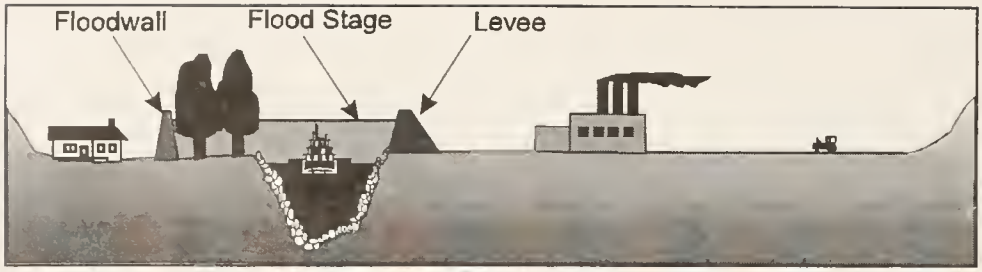
Source: Mark Schleifstein, *The Times-Picayune*, 11/19/98, Julie Anderson, *Omaha World-Herald*, 10/25/98

Flood Prediction Model Fails

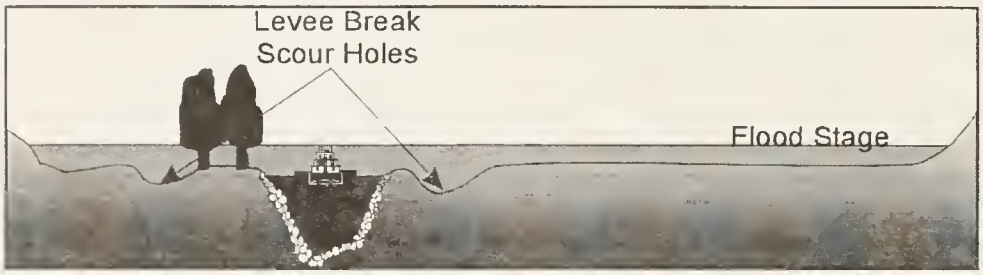
The fact that the Missouri River flooded this fall should come as no surprise to those who watched the *Kansas City Chiefs'* Monday night football game in Mid-October. The rains came so fast, and in such a torrential downpour that night that water running out of the stands and onto the field at *Arrowhead Stadium* literally looked like small rivers. Sadly, so much rain fell so fast that night that several people in the greater Kansas City area drowned in the swollen creeks. What did come as a surprise with this flood was the fact that later in the week the predicted downstream Missouri River flood crests didn't occur.

When experts predict a river will flood and it does, people appreciate that they had a chance to get prepared. But if a predicted flood doesn't happen, it can make some people unhappy. Dave Beckman, a farmer in West Alton, on the Missouri River just north of St. Louis, can tell you how much a missed flood call can hurt. He spent about $2,000 to move grain to beat the mid October flood that never came. "They've been over predicting crests for years now," Beckman said. "This one was the worst yet." Beckman said he might have had to spend about $7,000 to store all the grain he moved, but he got a break from the storage facility.

Larry Black is the National Weather Service hydrologist who predicted the Missouri River would crest 6 ft. higher than it did at St. Charles. He knows he lost face with farmers like Beckman when the river crested in St. Charles at 30.3 ft., as much as 6 ft. below his predictions. Black is in charge of the Missouri Basin River Forecast Center in Pleasant Hill, near Kansas City. As a member of the only legal authority in the nation that can issue a flood warning, Black took full responsibility for the miscalculation. But the question remained: How did he miss it by so much?



As shown here levees increase flood heights by narrowing river channels.



Areas where levees are broken or removed provide space for water to spread out across the floodplain, lowering flood heights in other areas. This is a natural floodplain function that open space, natural areas play in reducing flood damages.

A part of the answer had to do with a decision made after the 1993 flood. That's when the Missouri Department of Conservation (MDC) and the federal government began purchasing thousands of acres of ruined farmland along the River after record flooding. Most of the acreage lies along an 80-mile stretch of the Missouri River starting near Jefferson City and running upstream. The MDC and the U.S. Fish and Wildlife Service bought flood land but purposely didn't fix broken levees.

We have always said that channelizing the river and keeping it within levees worsens floods, said Jim Low, spokesperson for the MDC (See figures above). With his colleagues, Low listened as the National Weather Service revised its predictions downward during the week of the flood. Late in the week he flew over the remote MDC property purchased after the 1993 flood, and found thousands of acres of that land under water. "We're not in the flood prevention business", Low said, we bought the land primarily to serve as a wildlife habitat." "But nobody can argue", he said, "that every acre foot of water that spreads out and stands for a day or a week upriver is an acre foot of water that's not zipping over a levee at Jefferson City or St. Charles."

Black said the flood of 1993 so altered the lay of the land – scouring out here, creating new lakes there, smashing levees – that old computer models used to predict flooding are virtually obsolete. The weather service, he said, is trying to correct the problems. He said they needed a flood like this to bring their computer models up to date.

A 10/14 editorial in the *Columbia Daily Tribune* summed it all up this way: "In 1993, the River Gods sent a message. We puny humans had done enough with our levees to stymie the natural flow of the rivers, particularly the largest and freest of them all, the Mississippi and the Missouri. Raging waters knocked down miles of artificial levees, sending water over lowland acres where high water traditionally had found outlet...It takes no hydrology expert to know why this is so. Without levees, flood water simply has much more territory for dissipation instead of being herded on. Pray we've learned to minimize levee building rather than the other way around. Some protective devices must be built and maintained, of course, but we'd gone much too far. Except where overall public welfare dictates, government policy should not encourage levee building."

Source: *AP/Columbia (MO) Daily Tribune*, 10/12 and 10/14/98

Ecological Value of Floodplain Habitats in the Colorado River Basin

Reconnecting floodplain habitats with rivers in the Upper Colorado River Basin is expected to benefit razorback suckers since these habitats will provide adequate quantity and quality of food organisms that are required by larval razorback suckers to survive their "critical period". Larvae and juveniles of other fishes including the other endangered species (Colorado squawfish, humpback chub, and bonytail) are also expected to benefit from zooplankton and benthic macroinvertebrates that enter the main channel and backwaters from floodplain habitats.

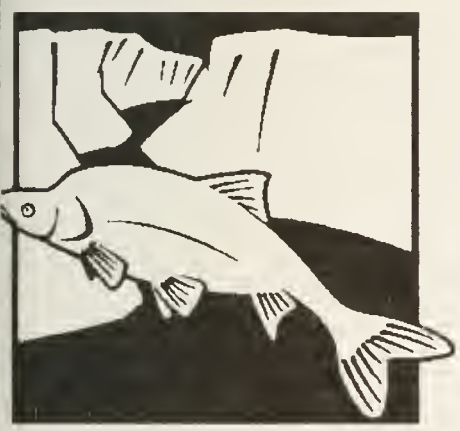
Predation and competition from nonnative fishes on native fish larvae and juveniles can be reduced in floodplain habitats with high densities of zooplankton and benthic food organisms that can serve as alternate food items. Floodplain habitats with rooted aquatic vegetation or other structure also provide protection to razorback larvae and juveniles that readily use such cover when available. In contrast, there is little to no survival of larval razorback suckers in the present low velocity habitats (primarily backwaters without cover) in Upper Colorado River Basin rivers.

"Bonytail"

Historically, the continuum concept and the flood pulse concept both applied to nutrient cycling in the turbid, unproductive rivers of the Upper Colorado River Basin. However, fragmentation of Upper Basin rivers disrupted nutrient cycling through the continuum process. Although the flood pulse process was an integral part of the natural river-floodplain ecosystem, it is even more important for productivity in the present fragmented ecosystem. Reduction of historic peak stream flows and extensive levees prevent connectivity in this river-floodplain ecosystem. Reconnection of the floodplain with Upper Basin rivers will reestablish some of the lost integrity

and productivity.

The long-lived and highly fecund razorback suckers may not require successful recruitment annually to develop self-sustaining populations. The frequency of successful recruitment to produce self-sustaining populations of razorback suckers is unknown but can be determined through field evaluations. It is possible that successful recruitment every five to ten years may be sufficient to naturally maintain the razorback sucker since this species lives to 44 years or possibly longer. However, it would be desirable to have recruitment every year or as often as possible until target Recovery Program objectives are achieved.



RECOVERY PROGRAM FOR THE ENDANGERED SPECIES OF THE UPPER COLORADO

Recommendations:

1. Continue acquisition and enhancement/restoration of floodplain habitats in the Upper Colorado River Basin because reconnection of rivers with floodplain habitats will improve the productivity of the ecosystem for zooplankton and benthic invertebrates required for survival by the early life stages of the razorback sucker. Acquisition with the intent of preserving existing floodplains that are still functional will help maintain the existing integrity of the river-floodplain ecosystem. Reconnection of floodplain habitats appears to be critical to increase larval razorback sucker survival during their critical period so self-sustaining populations (i.e., recovery) can be developed. Also, adult razorback suckers may benefit from feeding on zooplankton and benthic invertebrates in the productive floodplain habitats to regain their body condition after spawning. Mature razorbacks may spawn in floodplain habitats that would benefit natural reproduction when stream flows at normal river sites are unsuitable for spawning. Any enhancement or restoration endeavors must be made through experiments that are thoroughly evaluated using a systems approach that incorporates adaptive management processes. Areas that are enhanced/restored should be thoroughly evaluated to determine the responses of the endangered and nonnative fishes to such efforts and refinements made as necessary to achieve desired goals and objectives.

2. Continue to focus on levee removal to reconnect floodplains with Upper Basin rivers and consider excavating present floodplain terraces that are higher in elevation than present streambanks. Regulated stream flows can be managed to inundate floodplain habitats for a longer period of time to increase survival of razorback sucker larvae. Several large-river ecologists emphasize the importance of mimicking historic hydrographs to reestablish integrity of river-floodplain ecosystems. Field experiments to evaluate increasing stream flows will have to deal with private land issues and streamflow variability will have to be increased incrementally to minimize flood hazards to private agricultural or occupied floodplain areas. The timing of flows through regulated water releases from dams is important to ensure that (1) flows and substrate in the main channel are suitable for razorback sucker spawning and (2) flows will inundate floodplains so that larval razorbacks have access to productive floodplains during their critical period. Removal of levees that are located on the lowest floodplain terraces (public property or acquired private property) is an alternative way to reconnect mainstem and tributary rivers with productive floodplain habitats. Such removal should be done on properties that can be easily reconnected with the main channel and inundated with existing or slightly enhanced stream flows. Since the existing floodplain terraces were deposited when natural stream flows were high, floodplain terraces in prime areas that can be easily inundation are limited. It may be necessary to excavate existing terraces so that present and/or restored streamflow regimes can inundate floodplains where levees are breached.

3. The river discharge necessary to provide an adequate frequency of inundation of floodplain habitats should be initially made on an annual basis or as often as possible. However, long-lived fish species that have exhibited strong year-class strength such as the razorback sucker or Colorado squawfish may only require inundation of floodplains in 1 out of 5 to 10 years to maintain self-sustaining populations after populations have been reestablished.

4. The use of depression ponds in the floodplain should be considered as prime habitats for rearing wild razorback sucker larvae or captive-reared razorback suckers. Shallow floodplain depressions may require excavation to increase the water depth to prevent winterkill if the razorback suckers are reared to a larger size. Excellent growth of razorback suckers in floodplain habitats has been demonstrated in the Upper and Lower Basins of the Colorado River system. Floodplain depression ponds provide habitat where razorback suckers can reach a size when predation by nonnative fish species would be considerably reduced as razorbacks gain access to the river on subsequent high stream flows. If frequency and duration of flooding through managed stream flows cannot be restored, then floodplain depressions may be the only course of action left for maintaining razorback sucker stocks from extinction until solutions are found for recovery.

5. Design and conduct appropriate field experiments as Recovery Program funds are available to determine the control method(s) that will be adequate to reduce or manage selected nonnative fish species where the floodplain has been reconnected with the main channel. Control of nonnative fishes on a large-scale basis in a large river system is not practical based on the published literature. Therefore, nonnative fish management should be emphasized in river reaches that are immediately upstream or downstream of floodplain habitats that are already connected or are reconnected to the river.

6. Continue reintroduction stocking of captive-reared razorback suckers in the upper Colorado River and augmentation stocking in the middle Green River. Floodplain ponds in the vicinity of suitable spawning bars in adjacent rivers can be used to rear wild razorback sucker larvae or captive-reared juveniles. The use of such ponds would expose fish to waters that provide olfaction cues in the event that imprinting behavior is important. Exposure to feeding on natural food organisms may also be important to survival after release into Upper Basin rivers. The average size of razorback suckers at the end of the first growing season in the Upper Basin is about 100 mm TL (~ 4 in) and about 300 mm TL (~ 12 in) at the end of the second growing season in off-channel habitats. The best survival of captive-reared razorback suckers in the Upper Basin has been from larger stocked fish. It is highly recommended that razorback suckers be reared for two growing seasons and stocked when they are about 300 mm TL (~ 12 in) or larger. Although augmentation stocking is not recovery, it provides a mechanism to maintain adult razorback suckers in the Upper Basin until a solution is found to achieve self-sustaining populations (i.e., recovery). Evaluate factors that may affect survival of razorback suckers after stocking, including (1) use of floodplain ponds as a "half-way" habitat where captive-reared razorback suckers can become conditioned to eating natural food organisms before release, (2) importance of physical conditioning to various water velocities prior to release, (3) size of fish at release, and (4) time of release, etc. If the provisions of (1) nursery habitat with adequate food and cover and (2) adequate control of nonnative fishes cannot be achieved, human intervention may be required to rear razorback suckers in predator-free off-channel habitats so that their populations can be either reestablished through reintroduction stocking or bolstered (i.e., jump-started) through augmentation stocking.

Source: Wydoski, R. S. and E. J. Wick 1998. *Ecological Value of Floodplain Habitats to Razorback Suckers in the Upper Colorado River Basin*. Upper Colorado River Basin Recovery Program, USDOI, FWS, Denver, CO. Final Rept. 10/1/98. 55 pp.

Upper Mississippi River Navigation Study Delayed by Corps

Environmentalists are criticizing the Army Corps of Engineers' $50 million study of options to increase barge traffic on the Upper Mississippi River. The "present" study, underway for more than five years so far, is looking at doubling lock sizes or installing new mooring facilities to increase barge capacity. Environmentalists "charge that the Corps has quietly ditched its first set of findings" and embarked on a revised study in order to reach a conclusion that would justify river expansion. Environmental groups are concerned that major work on the river will jeopardize wetlands and wildlife.

A half-dozen environmental groups, including the *Environmental Defense Fund,* the *National Wildlife Federation* and the *Sierra Club*, recently wrote to Army officials that the Corps' procedures "call into question the integrity of [the Corps'] planning process."

But Corps spokesperson Ron Fournier said the agency is redoing parts of the study because "the Corps has had to question some of its own assumptions" and are simply trying to be accurate.

The controversial study is also under attack by navigation boosters and may be delayed for at least one year. The study was scheduled to be complete by the end of 1999 -- a deadline set by Congress. But the Corps says that their models developed to forecast growth of barge traffic and potential environmental problems need to be reviewed by outside experts. "We will not be able to complete the study as planned by December of 1999," said Dudley Hanson, Planning Chief for the Corps' Rock Island District, which is overseeing the study. "It was an ambitious timetable and we are simply trying to ensure data from our models is entirely accurate."

The Corps has been unable to integrate different models designed to predict future barge traffic, environmental problems, and engineering needs, Hanson announced at a meeting of state officials this fall. The real problem with the models, sources said, was that they were not giving navigation boosters the results they wanted. The study was initiated in 1993 to address costly delays at locks and to recommend ways to accommodate traffic increases in the future. While most locks are 600 feet long, tows typically push 15 barges which are 1,200 feet long when combined, forcing tow operators to lock through in two steps -- a process which can take up to two hours. Eight of the 29 locks on the Upper Mississippi River were identified by the Corps as being among the 20 locks in the country with the longest average delays.

Navigation boosters would like to expand the length of seven locks -- five on the Mississippi and two on the Illinois River -- from 600 to 1,200 feet. But, Corps economists have concluded that small-scale measures, which include helper boats, longer guidewalls, and power operated ratchets, would more cost-effectively reduce delays. Navigation industry officials questioned the ability of small-scale measures to reduce delays and contended that government experts had over-estimated the benefits of such measures. They are also concerned about the likelihood of accidents. And, they wonder why Corps-funded lock expansions make sense on the Ohio River but not on the Mississippi.

If they don't get the answers they want, some navigation boosters are prepared to ask Congress to give the Corps a math lesson. They told state officials that the Corps is relying on unrealistic traffic projections which might require a "Congressional rem-

edy." For some, the debate between small-scale measures and longer locks is a non-issue. Environmentalists warn that small-scale measures such as mooring cells and helper boats raise just as many environmental concerns as longer locks. "Whether the Corps recommends longer locks or small-scale measures is irrelevant," said Jonathan Ela, Mississippi River specialist for the *Sierra Club*, a national environmental group. "Either way, the Corps is proposing to allow twice as many barges on the river without adequately assessing the long-term impacts of increased traffic on habitat for river wildlife. Their models and studies won't answer that."

This is not a new controversy! It dates back at least to 1978 when Congress directed the *Upper Mississippi River Basin Commission* (UMRBC - a federal commission later eliminated by the Reagan Administration) to complete a *Comprehensive Master Plan for the Management of the Upper Mississippi River System*. The Master Plan was to solve these issues once and for all and to recommend to Congress the size of a 2nd lock to be constructed at Lock and Dam 26 near Alton, IL. Environmentalists said at the time that the $1 billion Lock and Dam 26 (then under construction with one 1200 foot lock) was the keystone to expansion of navigation traffic on the entire Upper Mississippi River. Once Lock 26 was enlarged, they said, one by one (domino style), there would be a need to expand each upstream lock all the way to the Twin Cities. In this piecemeal fashion navigation capacity would be expanded for the entire system without ever addressing the systemwide impacts on the river's fish and wildlife resources.

The MICRA Coordinator/Executive Secretary (then representing the Department of the Interior) served as Chairman of the Interagency Environmental Work Team (EWT) assigned by the UMRBC to address the systemwide impacts of navigation on fish, wildlife and recreation. The Master Plan's EWT studies were cut short by the Lock and Dam 26 construction schedule, and a compromise decision was forced by navigation interests. The final result was a 1981 decision by Congress to expand the navigation capacity of Lock 26 by adding a $300 million, 600 ft. second lock to the facility, and to fund a $300 million, 10 year Environmental Management Program (EMP). The 2nd lock was built and the EMP began implementation in 1986.

So here we are twenty years after Congress authorized the *Master Plan*, and still we have no answer to the impacts of navigation expansion on the river system's fish, wildlife and recreational resources. The continuing political sensitivity of this issue hit home last month when the MICRA office received a call from the senior author of the article, *"Barge Caused Fish Mortality"*, that we printed in the September/October issue of *River Crossings*.

The article, printed as a large quote, was sent to us from sources inside the federal government who had read it in a government review document at an August meeting held in Madison, WI. Since no government meetings are closed to the public (especially in Wisconsin), we assumed that the article was available for public digestion. The small bit of information it provided seemed to us the least that we and the public could expect see after twenty years and millions of dollars worth of study. Apparently, however, even this small bit of information was not intended to be seen by the public. We apologize to any of the authors who may have been pressured or inconvenienced because of our use and publication of their work.

Sources: Philip Dine, *St. Louis Post-Dispatch*, 10/1/98; and Dan Kaplan, Staff Writer, *Mississippi Monitor*, October 1998

Invasive Species Threat

Natural barriers that are the "instrument of evolution" are "losing their ecological reality, as more and more organisms are moved around them," according to Chris Bright in an excerpt from the *Worldwatch Institute's* "Life out of Bounds". He writes that invasive species "may already rank just behind 'habitat loss'" as a global threat of extinction, and that non-native species have been a factor in 68% of U.S. fish extinctions this century.

Some environmentalists call the phenomenon "smart pollution" because the species can evolve to "dominate and sometimes destroy native plants and animals." "Even the worst chemical spills are dumb", Bright said. "They cannot reproduce and they dissipate over time. But smart pollution proliferates and spreads."

Bright uses the example of organisms traveling in ballast water as one of the major causes of species spreading around the world. The ballast-water problem "appears to have worsened" over the past 30 years, a development some attribute to faster-moving ships that increase the likelihood that organisms will survive the trip between ports. The *International Maritime Organization* has issued shipping guidelines recommending that ballast water be replaced at sea rather than in port. It is also examining other options such as treating the water with heat, chemicals and by filtration.

The report also says that invasive species can be transported in the wheel wells of aircraft and sometimes in "valuable artifacts". Global trade and travel patterns allow species to move across natural boundaries like mountains, deserts and oceans. Bright also said the spread of "exotics" endangers public health and costs millions of dollars a year.

According to Bright, "attempts to deal with the problem in an integrated way have been pretty weak and inconsistent." The report suggests strengthening international treaties, re-engineering ship-ballast water systems and developing international monitoring systems.

Sources: *Inter Press Service*, 10/12/98; David Briscoe, *AP/Seattle Times/others*, 10/11/98; Baltimore Sun, 11/2/98; Simon Hadlington, *Financial Times*, 10/27/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/13 and 11/2/98

Ag Waste Update

The U.S. water supply is threatened by the 1.4 billion tons of chicken and hog waste produced each year, according to a recent report by the *National Research Council*, a branch of the *National Academy of Sciences*. The report, by the council's geosciences committee, notes recent outbreaks of toxic microbes like *Pfiesteria piscicida* and *cryptosporidium,* which are believed to have been caused by runoff of agricultural waste. The council calls for revamping the Clean Water Act so that watersheds are considered as a whole instead of in separate parts.

Meanwhile, the *American Farm Bureau Federation* (AFBF) in October issued a report from its Water Quality Task Force that questions federal and state agricultural water quality regulations and recommends increased involvement from its members in the regulatory process. The 35-member task force expressed concern that the USEPA is using "aggressive initiatives" to broaden its authority under the Clean Water Act to address agricultural runoff concerns. The panel also said regulatory agencies are using "flawed" sample data to argue that 70% of rivers and streams in the U.S. are impaired by agricultural runoff. AFBF President Dean Kleckner said the report "charts an aggressive course for Farm Bureau action, including cooperation at the watershed level, active involvement at the regulatory level, continued effective legislative advocacy and litigation if regulators fail to follow the letter of the law".

In Delaware the Agricultural Industry Advisory Committee on Nutrient Management in September heard proposals on how to address poultry waste pollution. One suggestion outlined a proposal by UK-based *Fibrowatt* to use the waste to produce electricity, while another option would use feed additives to reduce the phosphorus in the manure. Meanwhile, a state newspaper reported that Gov. Thomas Carper (D) has moved away from supporting "voluntary" compliance for manure management toward more state regulation. But a spokesperson for the governor said he has not yet taken a position, and the state has put out recommendations for review.

Sawtooth Farms LLC has proposed a $1 billion hog-raising operation in Idaho on land adjacent to the National Engineering and Environmental Laboratory instead of in Owyhee County, as originally proposed. The company, which has yet to submit a formal proposal, says it would use a "state-of-the-art" system of bacteria-eating bugs to help purify and dispose of animal waste in covered, lined ponds.

Iowa's highest court has struck down a state law that shielded livestock operations from lawsuits over air and water pollution. "Declaring the law flagrantly unconstitutional," the Iowa Supreme Court on 9/23 ruled that the immunity amounted to taking away the property rights of nearby residents. The 1982 state law allowed counties to designate land parcels as "agricultural areas" and thereby give farmers protection from any lawsuits filed over livestock confinement. But the court agreed with the plaintiffs, who argued that such protection gave hog producers a right to "create or maintain a nuisance over the neighbor's property" and deprived the neighbors of their property rights without compensation. Legal analysts said Iowa is the first state to remove lawsuit immunity for farm operations. Professor Neil Hamilton of *Drake University* in Iowa "predicted the ruling will be studied closely across the nation". Pork producers feared the decision would unleash a torrent of lawsuits, as residential development spreads closer to farms in once-rural counties. The *Environmental Policy Project* at *Georgetown University* said that "for years," farm groups have supported the "takings" agenda and argued that regulation of their operations was an unconstitutional infringement of their property rights. Now the Iowa court has said that the state statute allowed farmers to "take" the property of their neighbors, because it permitted a condemnation of nearby land by nuisance.

The *Sara Lee Corp.* in Wisconsin has announced a proposed settlement to a lawsuit that alleged the *Peck Meat Packing Corp.*, a *Sara Lee* affiliate, dumped animal waste contaminated with *cryptosporidium* into a public sewer system near Milwaukee in 1993. The company contends it bears no responsibility for the pollution, "especially since it has never been proven that the Peck plant was discharging *cryptosporidium*." Under the deal, the companies would be released from any liability in exchange for paying $250,000 into a fund that would be used to pursue claims against other defendants.

South Dakota is moving towards "center stage of a decades-long battle" between family hog farmers and multibillion-dollar agricultural companies after voters approved a constitutional amendment "severely limiting nearly all forms of corporate involvement in agriculture." Groups such as the *National Pork Producers Council* fear the restrictions, described as the "strictest" in the U.S., could be an "ominous precedent" that may spread to other states. Nebraska is the only other state that has an anti-corporate farming provision in its constitution, while seven states have time limited restrictions on corporate involvement in agriculture. Although the measure passed with 59% of the vote, a legal challenge is "all but certain".

In Maryland the *Sierra Club*, other environmental groups and "dissident farmers" in mid November called for a three-year moratorium on new or expanded livestock operations in the state, calling the eastern shore's $1.5 billion poultry business the "largest unregulated industry" in the Chesapeake Bay

region. The ban would allow state and federal regulators time to develop guidelines to limit the industry's water pollution. Also, in Maryland agriculture and environmental officials are reviewing a proposal by a Texas company to build a factory on the Eastern Shore that would turn poultry manure into an insoluble fertilizer that could stem some leaching of nutrients into the Chesapeake Bay and its tributaries. Officials at Houston-based *Ag Org Texas Co.* are seeking to pay farmers for their manure in a venture "they think can help Maryland with a major pollution problem and turn a profit in the process." They presented the plan in October to the Maryland Dept. of Agriculture and the *Chesapeake Bay Foundation*. The proposed plant's technology involves mixing poultry manure with three other organic ingredients and baking the mix into time-release pellets. The mix is 80% insoluble. The 20% (in nitrogen and phosphorus) that leaches out of the fertilizer is absorbed by growing plants, according to *Ag Org* partner Martin Reiner. Excess nutrients are suspected of fueling toxic outbreaks of *Pfiesteria piscicida* and generally contributing to declining ecosystem health in the bay. Maryland Dept. of Agriculture Asst. Secretary Bradley Powers said the plan "has great potential," and George Chmael of the *Chesapeake Bay Foundation* said "we were intrigued by what they proposed." *Perdue Farms* officials said they would review the company's proposal.

In North Carolina two months after state officials announced a deal with the US EPA over hog farm regulation, the EPA last week joined a lawsuit challenging the regulations. The *American Canoe Assn.* wants hog producers to get the same permits required of sewage treatment plants and polluting industries. If the suit is successful, the state would have to "revamp its entire permit system for industrial-style farms," according to Don Reuter of the state Dept. of Environment and Natural Resources. Meanwhile, the *National Pork Producers Council* has asked Pres. Clinton to ease federally imposed environmental restrictions on a Tar Heel, NC, hog processing plant to allow more pigs. The EPA has restricted the *Carolina Foods Processors* Plant to 144,000 hogs a week because of pollution concerns.

The Sussex County, VA, Board of Supervisors in October voted to limit the number of chickens allowed on any farm to 100,000. The decision prompted Mississippi-based *Cal-Maine Foods Inc.* to abandon its plans to build a 1.5-million-chicken farm in the county, which would have been the largest poultry facility in the state. A coalition of farm groups in Virginia will propose legislation giving the Virginia Dept. of Agriculture and Consumer Services oversight of poultry waste. The effort is aimed at "short-circuiting" a proposal by Del. Tayloe Murphy (D) that would give the state's environmental agency regulatory authority over poultry waste. Environmentalists called the farm groups' proposal "lax" and "insufficient".

Meanwhile, a *University of California* at Berkeley biologist says that, wetlands may be the answer to cleaning toxic concentrations of selenium from farm waste water that has poisoned waterfowl and other wildlife. Scientists studying an oil clean-up project found "intriguing evidence" that some wetlands can convert selenium, a toxic, inorganic trace element, into a nontoxic gaseous form. Researchers believe that creating artificial wetlands between farms and evaporation ponds may head off high levels of selenium and other toxic trace elements in evaporation ponds. Norman Terry of the *University of California* at Berkeley said, "It has a great chance of succeeding as a way of cleaning up ag drainage water." In the 1980s, selenium contamination killed and deformed thousands of birds at the Kesterson National Wildlife Refuge in southern California, and selenium has been blamed for part of the pollution problem in the Salton Sea.

Sources: *Washington Times*, 10/11/98; Gregory Layton, *Dover Delaware State News*, 10/15/98; D.L. Bonar, *Dover Delaware State News*, 10/20/98; Jennifer Langston, *Idaho Falls Post Register*, 10/13/98; Frank Santiago, *Des Moines Register*, 9/24/98; *AP/Omaha World-Herald*, 9/24/98; *EPP release*, 9/29/98; Bill Geroux, *Richmond Times-Dispatch*, 10/17/98; *AP/Washington Post*, 10/12/98; Judith Graham, *Chicago Tribune*, 11/23/98; Guy/Dewar, *Baltimore Sun*, 11/19/98; *AP/Raleigh News & Observer*, 11/22/98; *AP/San Francisco Chronicle/Examiner* online, 11/21/98; Greg Edwards, *Richmond Times-Dispatch*, 11/21/98; Scott Harper, *Norfolk Virginia-Pilot*, 11/21/98; Sources: Ted Shelby, *Baltimore Sun*, 10/22/98; *AFBF release*, 10/27/98; Christine Hanley, *AP/Journal of Commerce*, 10/26/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 9/30, 10/21, 10/22, 10/24, 10/26, and 11/3/98

Sustainable Farming in Australia

Rural Australia knows that sustainable agriculture is no longer an option. The *National Farming Federation* (NFF) publication *Hand in Hand: farming sustainably* illustrates, through a series of case studies, that economic and environmental sustainability go hand in hand. Sustainable agriculture means improving economic efficiency and productivity, along with the equal need for protection and enhancement of environmental values. Today, environmental concerns are an integral part of every decision that farmers make about what they do on their farms.

NFF has a long term commitment to making the Australian agricultural sector sustainable into the next century. This is why *NFF* was not only a founding member of the *National Landcare Program*, but continues to be one of its strongest advocates and supporters. The bottom line for farming is that it must be both profitable and environmentally sustainable. The two are naturally complementary and neither can exist without the other.

For more information and a free copy of the booklet: *Hand in Hand: farming sustainably*, contact Anwen Lovett, *National Farmers' Federation*, GPO Box E10, Queen Victoria Terrace, Barton ACT 2600 Tel: (02) 6273 3855 Fax (02) 6273 2331

Source: Riprap, Issue 10, 1998 (Newsletter of *Land & Water Resources Research & Development Corporation*, Riparian Lands R&D Program, GPO Box 2182, Canberra ACT 2601, email: public@lwrrdc.gov.au)

Miscellaneous River Issues

Big Sunflower River Suit: The *National Wildlife Federation* (NWF) filed a lawsuit in November against the Army Corps of Engineers to block a Corps plan to dredge parts of the Big Sunflower River Basin. The suit contends that the $62 million plan could disturb the sediments, which are believed to be laced with DDT, and damage "important fish and wildlife habitat". Sources: *NWF release*, 11/5/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/12/98

Cahaba Shiner: The endangered Cahaba shiner is the subject of a suit against the U.S. Fish and Wildlife Service (USFWS) filed by three conservation organizations. *Wild Alabama, the Biodiversity Legal Foundation* and *Wildlaw* have filed a notice of intent to sue, saying the USFWS has failed to designate critical habitat or implement the fish's recovery plan and is "meeting the fish's needs in a piecemeal fashion". Source: National Journal's GREENWIRE, *The Environmental News Daily*, 11/24/98

Chattahoochee River Water War: The Chattahoochee River "is at the center of a new water war" between Alabama, Georgia and Florida, and analysts say this type of conflict will become more common as pressures from development continue. Georgia has been the primary user of Chattahoochee River water, and Atlanta's "booming" growth has led state officials to devise a plan to draw more of the river's flow by building a dam and storing more supply. The prospect of a decreased flow has "alarmed" downstream Alabama, which sued to block Georgia from building additional reservoirs. Under court order, Alabama and Georgia have proposed water-sharing compacts for the river, and if the three states don't agree on a deal by 12/31, a federal judge will decide the issue. As the population of Southern cities grows, "we are going to hear more and more of these battles" more typically associated with the West, according to Kenneth Reckhow of the *University of North Carolina*. Sources: Larry Copeland, *USA Today*, 11/24/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/24/98

Cheat River Acid Mine Waste: Under an agreement with the West Virginia Division of Environmental Protection and the USEPA, *Coastal Coal Co.* has agreed to pay $1.7 million over five years to clean up acid mine drainage that it discharged into a tributary of the Cheat River. *Coastal Coal* will also pay a $100,000 fine. Sources: *EPA release*, 9/28/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/1/98

Environmentally Clean Power: The New York Public Service Commission has ordered utilities, beginning in 4/00, to notify customers about the sources of its electricity and how much of it would qualify as environmentally "clean". Meanwhile, in Pennsylvania electricity competition is forcing some consumers to "choose sides" between environmental activists and competing marketers, as "even generation sources touted as Earth-friendly have their environmental tradeoffs," the *Philadelphia Inquirer* reports. Hydropower plants can disrupt fish spawning; biomass plants can cause forest clear cutting; and windmills can kill birds, the newspaper reports. The Ralph Nader group *Public Citizen* in October issued a report in California that said many claims about green power "cannot be verified," and that "false and misleading green product claims are common." But the *Natural Resources Defense Council* and Pennsylvania's *Clean Air Council* have united behind the Green-e certification program, which accredits suppliers that get at least 50% of their energy from renewable sources. In California, the demand for green energy "has been one of the surprises of electric deregulation," with more than 33% of switching customers choosing green products. In Pennsylvania, about 10% of the more than 2,000 customers who have switched have chosen green power. Sources: Rich Heidorn, *Philadelphia Inquirer*, 11/8/98; and *AP/Buffalo News*, 11/6/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/9 and 11/10/98

Ephemeral Stream Regulations: The New Mexico Environment Dept. has proposed extending water quality restrictions to "ephemeral streams," such as dry washes, arroyos and canyon bottoms that fill with rushing water during storms. The proposal, which is opposed by ranching, mining, and farming interests, could force the Los Alamos National Laboratory to implement expensive waste-treatment measures to ensure that toxic chemicals are not discharged into canyons in the Pajarito Plateau. Sources: *AP*, 9/23/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/1/98

Idaho Pollution: A U.S. District Court judge has ordered Idaho to devise a plan to clean up the Portneuf River, where silt and nutrients are degrading water quality. The state Division of Environmental Quality attributes the pollution to both agricultural waste and sewage plants. Sources: *AP/Idaho Falls Post Register*, 11/10/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/13/98

Iowa Species Listings: State scientists are moving to cut by half the number of species on the state's endangered species list as part of a periodic revision of the state's Protected Species Program. John Pearon of the Iowa Dept. of Natural Resources said the new list is an effort to focus attention and resources on the most threatened species and those that thrive primarily in Iowa. Sources: Perry Beeman, *Des Moines Register*, 11/22/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/24/98

Kansas Groundwater Pollution: Wichita is suing 26 companies for $25-30 million, claiming they are responsible for a four-mile-long "blob" of groundwater pollution downtown. The city in 1991 began cleanup of the solvents, marking the first time any U.S. city had accepted financial liability for a large cleanup to keep a site off the federal Superfund list. Sources: Hays/Lessner, *Wichita Eagle*, 10/8/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/14/98

Louisiana Nuke Leak: Citing safety concerns, the D.C.-based *Union of Concerned Scientists* (USC) in September petitioned the Nuclear Regulatory Commission (NRC) to shut down the *River Bend Nuclear Power Plant* in West Feliciana Parish, LA. The group said it had taken the action after the plant's operator, New Orleans-based

Entergy, discovered the "possibility" that one or more fuel rods in the plant's reactor might have a "pinhole" leak, allowing radiation to escape into the reactors' cooling water. A spokesperson said the company had followed its "standard procedure," cutting power output to 65% of capacity and inserting a control rod next to the suspected leaker. The problem is "common" in nuclear reactors and presents no safety concern, an NRC spokesperson said. But the *UCS* said River Bend appears to be violating the industry-wide policy of reducing worker exposure to radiation. The group said the NRC has noted a five-fold increase in radiation exposure rates in some areas of plants where fuel rods have pinhole leaks. The *UCS's* David Lochbaum said, "Last April we gave the NRC a full report on the serious safety hazards of operating a nuclear plant with a failed fuel barrier. ... Now ... the time has come for the regulators to regulate." The group said that the plant should stay closed until the leaking fuel rods are replaced or the company amends its permit to operate with known fuel damage. Sources: James Minton, *Baton Rouge [LA] Advocate*, 9/30/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/1/98

Low Impact Logging: Loggers who use horses and band saws to "selectively harvest trees" offered public demonstrations in southeast Kentucky in early October to highlight low-impact timber business practices. Independent logger Gary Anderson uses two Suffolk horses for transport and a portable, diesel-fueled band saw to harvest wood marked "inferior" by the U.S. Forest Service. The horses enable loggers to avoid using roads and disturbing undergrowth, and the band saw, "a portable sawmill," allows 50% more harvest per log, because its blade is able to make "tighter, closer cuts." Anderson estimates his costs at $10/day. The horses cost $2,000 each, "much less than mechanical log skidders." He estimates his overall start-up costs for getting into the logging business at under $40,000. According to U.S. Dept. of Agriculture conservationist Tim Anders, using horses for logging practices causes "little damage to the ecosystem" and the Kentucky Dept. of Agriculture's John Cotten said, "There are definitely some markets" for the wood. Sources: Janet Patton, *Lexington Herald-Leader*, 9/29/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 9/30/98

Maryland Nutria Infestation: Nutria, rodents that have cost Louisiana millions of dollars in control efforts, are destroying wetlands in Maryland and other Eastern marshes. The 40,000 or so nutria in Maryland have contributed to the destruction of about 7,000 acres of the Blackwater National Wildlife Refuge. The rodents chew up marsh grasses at the root, turning wetlands into "swaths of shallow, lifeless water." Refuge biologist Keith Weaver said, "We're starting to get the impression that once it gets to be open water, it's lost marsh, irreversible." Weaver called nutria "a cancer on the marsh" because they literally destroy the places where they eat and they have no natural predators. Wetlands loss means the loss of habitat for frogs, a diet staple of bald eagles and peregrine falcons. Congress in October authorized $2.9 million for a project to begin in 2000 that will test methods to eradicate nutria. Researchers also will try to restore damaged areas by replacing sediments and replanting native grasses. Sources: Heather Dewar, *Baltimore Sun*, 11/10/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/10/98

Montana Cyanide Mining: State Sen. Chuck Swysgood (R) said he will introduce legislation to repeal the "controversial" measure passed on 11/3 that bans new or expanded cyanide mines in Montana. Mining interests have already filed suit to overturn the new law, saying that it violates the Federal Mining Law of 1872. Sources: Erin Billings, *Billings Gazette*, 11/6/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/6/98

Mountaintop Removal: The Interior Department's Office of Surface Mining Reclamation and Enforcement on 10/2 finalized an agreement that gives Kentucky authority to regulate and reclaim surface and underground coal mining operations on federal lands in the state. Then on 11/4 the West Virginia Dept. of Environmental Protection (DEP) Director Michael Miano issued "the largest mountaintop removal permit in West Virginia history" for the *Arch Coal Inc.'s Dal-Tex* complex in Blair, WV. The USEPA in 8/98 moved to block permits for the project because of the potential damage to surrounding waterways. The EPA said the DEP permit writers "did not do enough studies to conclude the mining would not violate the Clean Water Act." The EPA water-quality permit for the project is still pending. Miano said the DEP granted the permit because *Arch Coal* had threatened to lay off 400 workers if the agency didn't approve it. Russ Hunter, the top lawyer in the DEP's Office of Mining and Reclamation, said Miano issued the *Arch Coal* permit on the condition that mining not start until the EPA permit is approved. Meanwhile, the director of the West Virginia Division of Forestry on 10/31 resigned from his post, saying that Gov. Cecil Underwood (R) attempted to stifle his opposition to "mountaintop removal" strip mining. Bill Maxey, who has held his post since 1993, said he was also pressured by the DEP and the U.S. Office of Surface Mining to approve regulations justifying

moutaintop removal practices. Sources in those offices denied Maxey's charges. Meanwhile, "mine operators say they are losing money every day because of what amounts to a moratorium on new permits" for mountaintop removal mining in light of lawsuits challenging the practice. A recent poll of 406 West Virginians by the *Charleston [WV] Daily Mail* and *WSAZ-TV*, Huntington, found that 53% of respondents opposed mountaintop removal mining, while 29% favored it, and 18% were unsure. The poll had a margin of error of +/- 5%. Sources: Lee Mueller, Lexington Herald-Leader, 9/30/98; *DOI release*, 10/5/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/1 and 10/14/98; Jennifer

Bundy, *AP/Charleston [WV] Gazette*, 11/1/98 Martha Bryson Hodel, *AP/Charleston [WV] Gazette*, 11/1/98; Ken Ward, *Charleston [WV] Gazette*, 10/31/98; *AP//Charleston [WV] Gazette*, 10/30/98; Ken Ward, *Charleston [WV] Gazette*, 11/4/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/4 and 11/6/98

Ohio River Awareness: The USEPA has awarded a $475,000 grant to the *Miami Valley Regional Planning Commission* to provide information to heighten public awareness of area rivers. The $3.5 million federal program, called Empact grants, grew out of a 1996 initiative from Pres. Clinton concerning citizens' right to know about the quality of air and water. Meanwhile, *LTV Corp.* -- a steel manufacturer that operates wastewater treatment systems on the Cuyahoga River -- has agreed to pay a $419,000 settlement to the state for wastewater discharge violations dating from 1993. Sources: Dale Dempsey, *Dayton Daily News*, 10/27/98; *Cleveland Plain Dealer*, 10/31/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/3/98

Oregon Stream Restoration: The federal government will pay Oregon farmers $200 million during the next 15 years to plant trees and fence out livestock along streams where salmon habitat has been degraded, marking the first time property owners will be paid for such actions to protect a federally listed species. The plan, announced on 10/17 by Agriculture Secretary Dan Glickman, Sen. Ron Wyden (D/OR) and Oregon Gov. John Kitzhaber (D), will use Conservation Reserve Enhancement Program money to entice area farmers to restore as much as 100,000 acres of land along 2,000 miles of state streams. The agreement is expected to provide a "significant boost" to Kitzhaber's salmon restoration plan, which relies on voluntary measures to improve water quality in Oregon rivers. VP Al Gore said that he was "pleased" with the agreement. He said, "This federal-state partnership helps sustain both a healthy environment and strong farm economy." *Oregon Cattlemen's Assn.* Pres. Sharon Beck said that the program is preferable to federal mandates, but she said it could lead to restrictions on property owners. "With federal assistance programs, there are always strings attached," she said. Four other states receive Conservation Reserve funds to protect the quality of their waters: Maryland, Illinois, Minnesota and New York. Sources: Jonathan Brinckman, *Portland Oregonian*, 10/17/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/19/98

Pennsylvania Permit System Revision: The Pennsylvania Dept. of Environmental Protection (DEP) is moving to "relax some of its water-pollution regulations," and government officials say the action would not diminish the quality of the state's water. The DEP's plan is to allow companies to obtain a "general permit" for the release of toxic chemicals rather than individual permits for specific chemicals. And the new rules would remove "aquatic-life criteria" standards for 76 chemicals and remove all numeric standards for 19 others including cobalt, which is "highly toxic" to aquatic life. The current aquatic-life criteria are "designed to protect fish and other organisms" in a state that is the nation's second-largest discharger of toxic chemicals into streams and rivers. Robert Wendelgass, state director of *Clean Water Action*, says granting companies general permits would "reduce the ability of the state to monitor toxic discharges." Barbara Kooser of the *Chesapeake Bay Foundation* said, "The changes actually roll back the current protection of our waterways from the effects of toxic chemicals." The environment subcommittees of the state House and Senate must approve the proposed changes before they could take effect. Sources: Paul Nussbaum, *Philadelphia Inquirer*, 10/28/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/20/98

Texas Groundwater Case: The Texas Supreme Court is preparing to hear a case challenging the "rule of capture" that allows "the virtually unlimited pumping of groundwater," regardless of the impact on other water users. In this case, landowners sued the Irving-based *Ozarka Natural Spring Water Co.* for lowering aquifer levels in East Texas and drying up the plaintiffs' wells. Texas is the only state where the 94-year-old rule still stands, as other states gradually abandoned it as "aquifers became strained by myriad users." Legal experts believe that the court is poised to overturn the rule, which has already withstood several legal and legislative challenges. Austin lawyer Lee Parsley said, "The only likely explanation for why the court took this case is to rewrite the law in this area." In the 1904 Texas Supreme Court decision that established the rule of capture, the court declared the groundwater could not be regulated because it is too "secret, occult and concealed" to be legally allocated. Today, engineers can pinpoint exactly how much water flows and where, and most states rely on pro rata allocations based on percentages of total water available. The *Texas Farm Bureau* intends to file arguments in support of the rule. Sources: Mary Flood, *Wall Street Journal* [Texas edition], 9/23/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/1/98

Texas Dump Fine: After just two hours of jury deliberation, the owner of the largest illegal dump in Texas has received the state's "heftiest sentence" ever levied for an environmental crime. Herman Nethery was sentenced to a 30-year prison term and was ordered to pay $10,000 in fines and $125,900 in restitution for his "organized criminal activity" in connection with operating the 84-acre dump a half-mile from the Trinity River in southeast Dallas. His former partner, Herman Gibbons, pleaded guilty to the same charge in 1996 and was sentenced to 10 years in prison. In 1997, a fire at the dump "raged" for 37 days. Nethery's lawyer argued that his client should be allowed to work to pay for cleanup costs associated with the 2 million cubic yards of trash at the dump, estimated to be as high as $21.2 million. Sources: Holly Becka, *Dallas Morning News*, 10/31/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/4/98

Virginia Landfill Pollution: More than 100 Virginia landfills are leaking pollution into groundwater, according to a top state environmental official. Tests at 168 of 250 landfills show "some apparent contamination" of groundwater. Hassan Vekili, director of waste coordination for the state Dept. of Environmental Quality, estimates that leaking landfills account for 90% of

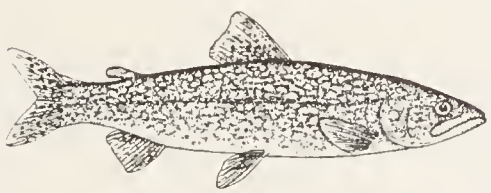
those cases. Virginia imports approximately 3.2 million tons of garbage per year, second in the U.S. after Pennsylvania. State landfills also bury up to 8 million tons of waste created by Virginians, and state environmentalists are seeking to restrict to the state's trash imports. Sources: Rex Springston, *Richmond Times-Dispatch*, 11/1/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/2/98

Water Recycling: A $5 million water-reuse project will take waste water from microchip factories to "green" Albuquerque athletic fields, parks and office complexes by next fall. The project, the first of its kind in Albuquerque, will also supply recycled water to cooling towers and cleaning processes in other local factories. Sources: Tania Soussan, *Albuquerque Journal*, 11/20/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/24/98

Willamette River Superfund Listing: "Facing untold millions of dollars" in cleanup costs, a group of private companies and public organizations has "launched an extraordinary campaign to block" a potential Superfund listing for portions of the Williamette River in the Portland harbor. The group, which calls itself the *Portland Harbor Group* and includes the city of Portland, shipyard operator *Cascade General* and the *Port of Portland*, says a Superfund listing for the Williamette "would unnecessarily blacken the reputation of a river Oregon once touted as an environmental comeback." It argues that a Superfund program "would make the cleanup complicated, time-consuming and costly." The Oregon Dept. of Environmental Quality (DEQ) "agrees" and is being paid $500,000 to write a cleanup plan it would conduct as an alternative. But Nina Bell of *Northwest Environmental Advocates* said, "DEQ's overriding desire to get along with the industries it regulates too often interferes with the job regulators ought to do." The USEPA is set to decide in 5/99 whether to propose the Portland harbor for the Superfund program. Sources: Brent Walth, *Portland Oregonian*, 11/8/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/10/98

Wyoming Mining Regs: In a decision that could affect state mining practices, the Wyoming Supreme Court in early November ruled that topsoil is part of overburden, the material displaced during mining. The Wyoming Dept. of Environmental Quality (DEQ) currently follows industry practice in distinguishing topsoil from overburden and places no annual volume limit on the amount of topsoil which can be removed with a small mine permit. The state Environmental Quality Council recommended that topsoil be included in overburden calculations after having been asked by residents near the *Platte Development Co.'s* gravel mine near Casper to review DEQ requirements on the issue. The court also "suggested the Legislature alter state law to address concerns raised by its decision". Sources: *AP/Billings Gazette*, 11/8/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/9/98

Yellowstone Lake Trout: The recent discovery of non-native lake trout in Yellowstone Lake has created a potential "ecological time bomb" and a possible food-chain unbalance in the region. A single lake trout can eat up to 100 endangered cutthroat trout annually and their presence could affect grizzly bears, bald eagles, osprey, otters, pelicans and about 40 other species in that area that depend on the cutthroat for sustenance.



"Lake trout"

Yellowstone Park Chief Researcher Jim Varley said, "If the lake trout do in the cutthroat and become the bio-mass of note in Yellowstone Lake, they won't provide the same food resources for any of the surrounding species." Scientists believe lake trout were illegally planted in the lake 30 years ago to enhance fishing. Park fisheries pulled 7,000 of the non-native predators out of the lake last summer, up from 43 in 1995. Efforts to eradicate the lake trout -- such as introducing other predators or even poison to the lake -- "are impossible or impractical". Sources: Dan Egan, *Salt Lake Tribune*, 11/8/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 8/20, and 11/9/98

Yellowstone River Flood Control: Critics are warning that the accelerated pace of new flood control projects along the Yellowstone River in Montana amounts to the "piecemeal impoundment of the longest undammed river in the lower 48 states." The Army Corps of Engineers approved 82 riverbank stabilization permits in Park County, MT, between 1995 and 1997, more than twice the number issued in the previous two

"Cutthroat trout"

decades. Back-to-back floods of the Yellowstone in 1996 and 1997 -- the kind expected only once a century -- have driven the projects that include riprap, weirs and dikes. Now "the desire to protect some of the most valuable property in Montana from erosion and flooding" is running "head on" into the desire to keep the Yellowstone untrammeled. The U.S. Fish and Wildlife (USFWS) says the increase in flood-control projects jeopardizes fish and wildlife and threatens to turn the river into "an armored channel." But many landowners argue that the projects do not harm the environment. Rancher and conservation lawyer Andy Dana says public benefits from the bank stabilization projects because they protect ranches where cool-water streams provide critical spawning grounds for cutthroat trout populations. Meanwhile, Montana has formed a task force to assess competing demands on the river, while the Corps is considering a request by the USFWS to stop issuing permits on new flood-control projects. Sources: Tom Kenworthy, *Washington Post*, 10/4/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/5/98

Deformed Frogs

A new study on "mysterious and widespread deformities" in frogs found in New Hampshire ponds is "unset-

tling," according to Hilary Snook, head of the New Hampshire Dept. of Environmental Services (DES) biomonitoring program. Researchers discovered frogs with multiple appendages, missing eyes and legs emanating from their back. About one out of every 30 frogs studied showed some sort of abnormality. The study, conducted by the DES, U.S. Fish and Wildlife Service and the *University of New Hampshire*, is the first to address the internal makeup of these deformed frogs. USEPA scientist Greg Hillyar is optimistic that the study's findings will be valuable. "This is an environmental sign we should pay attention to. This is a canary in a coal mine", Hillyar said.

Meanwhile, a Canadian researcher's work studying frogs along the St. Lawrence River in Canada and the U.S. "suggests a link" between frog deformities and the use of agricultural chemicals. Martin Ouellet of *McGill University* in Montreal examined nearly 30,000 frogs along a 150-mile stretch of the St. Lawrence River valley over the past seven years. Ouellet found that ponds near land where pesticides, insecticides and fungicides had been applied held frog populations with an average of about 20% deformities. Ouellet said the deformities were in the hind limbs and affected many species that have shown deformities in Minnesota, Wisconsin, and Vermont. In contrast, ponds that Ouellet studied near land with no recent pesticide applications contained frog populations with a 0 to 2% deformity rate. "From an epidemiological perspective, it's quite obvious that there is a problem in sites subject to pesticides", Ouellet said.

Sources: *AP/Concord Monitor,* 10/19/98; *AP/Milwaukee Journal-Sentinel*, 11/5/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/20 and 11/6/98

Dioxin in Asian Food Chain

Dioxin from Agent Orange -- the defoliant sprayed on jungles to uncover enemy hiding places during the Vietnam War -- has contaminated Vietnam's food chain, "creating serious environmental and health problems that demand urgent international attention," a new study says. The study, released on 10/30 by *Hatfield Consultants Ltd.* of West Vancouver, BC, is based on five years of research aimed at identifying the effects of defoliants sprayed on Vietnam from 1962 to 1971. The study, considered "one of the most comprehensive" ever done on Agent Orange, found "high levels" of dioxin in the blood of Vietnamese children born after the war, as well as in fish and animal tissues, indicating that the carcinogen is being transferred through the food chain. The study did not attempt to determine the number of people affected, and the researchers cautioned that further study is needed to establish direct links between Agent Orange and health problems.

The Vietnamese government is expected to use the study to support its claims that the 12 million gallons of chemicals dumped on South Vietnam during the war caused "immense" harm. The Vietnamese government says about 500,000 people have died or contracted serious illness due to the spraying, and about 70,000 people are suffering from mental or physical disabilities due to direct or indirect exposure to Agent Orange. The chemical destroyed about 14% of South Vietnam's forests, according to official U.S. data. The study calls for a public health campaign to ensure that people do not eat contaminated food; further studies on the possible links between Agent Orange and health problems; international assistance in reforestation efforts; and a coordinated effort to clean contaminated land. No information was reported about the study's source of funding. Additional information is available on the Internet at http://www.hatfieldgroup.com/spotlight/vietnam.htm.

In a related story, the *San Diego Union-Tribune* reports the U.S. military withheld information about possible links between Agent Orange and birth defects, while it also downplayed the defoliant's link to cancer among Vietnam War veterans. The assertion is based on the newspaper's six-month investigation into a $200 million Air Force study that tracked the health of 1,000 veterans who participated in sprayings of Agent Orange. The *Union-Tribune* charges that the Air Force withheld "for years" one report that indicated a high incidence of birth defects and infant mortality among the children of those veterans. The newspaper also said the military altered a second report to show little difference in the health conditions of veterans and a comparison group. Col. George Lathrop, who headed the Air Force study in its early years, said the changes in the one report were "minor" and it was better not to release sensitive data from the study prematurely.

Sources: David Lamb, *Los Angeles Times*, 10/31/98; *AP/Washington Times*, 11/2/98; *San Diego Union-Tribune*, 11/2/98; and National Journal's GREENWIRE., *The Environmental News Daily*, 11/2/98

Safe Climate, Sound Business

Executives of *General Motors, Monsanto, British Petroleum* (BP) and the *World Resources Institute* (WRI) on 10/27 called for reductions in greenhouse-gas emissions and greater support of climate-change research. In a collaboration unveiled at a Washington, D.C. press briefing, the *"Safe Climate, Sound Business"* partners announced a set of policy recommendations developed over the last 18 months and an action agenda to implement those ideas within their own companies. Among the group's principal conclusions:

- "Climate change is a cause for concern, and precautionary action is justified now";
- "Business can contribute to climate protection efforts in substantial, positive ways by helping to develop sound climate policies, providing the research and technologies needed to address the challenge, and by taking actions to reduce their own emissions"; and

- "Flexible and market-oriented climate policies that implement national commitments ... can effectively build a *'Safe Climate, Sound Business'* outcome by stimulating innovation, early actions and cost-effective reductions."

In the next phase of the project, the companies and *WRI* will:

- Develop a joint protocol for measuring and reporting greenhouse-gas emissions from the companies' global operations;
- Achieve emissions reductions in advance of any regulatory requirements by exchanging best practices and business tools in the areas of energy efficiency, "carbon offsets" and emissions trading;
- Create "strategic business ventures and alliances" to speed climate-friendly action;
- Use purchasing leverage to improve suppliers' energy performance and build market demand for renewable energy;
- Make climate protection an explicit criteria in global business investments; and
- Expand the initiative to involve other companies, environmental groups and governments in policy dialogues.

The project signals yet another effort by some big business leaders to get ahead of the climate change issue. Within the last two months, *Shell* and *BP* have announced plans to reduce greenhouse-gas emissions; earlier this year, *BP* and more than a dozen other companies joined in support of the new *Pew Center on Global Climate Change*, a pro-active think tank. And *BP*, *Shell* and *General Motors* are among 35 companies that recently formed an International *Emissions Trading Assn.* aimed at addressing climate change.

National Journal's GREENWIRE, *The Environmental News Daily*, 10/27/98

Climate Change Update

According to the latest information from the National Oceanic and Atmospheric Administration (NOAA) the 1998 global (land and ocean) mean temperature exceeded the 1997 value by 0.03 °F. NOAA also reported on 10/15 that an iceberg "bigger than Delaware" has broken away from Antarctica. The "monster berg," called A-38, is 92 miles long, 30 miles wide, and 2,750 miles in area, "considerably larger than average." The average area of most icebergs being tracked by NOAA is a few hundred square miles. The agency regards the break-up of large icebergs from the Antarctic ice shelf as "a possible indicator of global warming".

Meanwhile, "the first accurate measurement" of the Antarctic ice cap shows it is shrinking more slowly than many scientists had believed it would due to rising global temperatures. But the research, which was led by Duncan Wingham of the *University College* in London and which relied on data from remote-sensing satellites, also indicated that oceans may be rising faster than expected through thermal expansion of warming sea water. The findings imply that the average sea level may rise over the next century by as much as a meter. "Many millions of people" live within one meter of sea level. For example, according to the *Coastal Resources Commission*, about 1,000 square miles of the North Carolina coast could be covered by water in the next century if the Atlantic Ocean continues to rise.

A study by *University of Colorado* researchers shows the Earth's climate warmed abruptly to end an ice age 12,500 years ago. The analysis of ice cores from Antarctica shows that a 20°C warming came within a "typical human lifetime". According to USGS researchers, the Chesapeake Bay "has been getting steadily warmer for about 300 years." USGS geologist Stacey Verardo estimated the changes by using sediment sample to count and date fossils of "warm-water-loving" dinoflagellates, single-celled aquatic organisms common from North Carolina to Florida. Over the past 1,000 years, the creatures abundance in bay sediment has nearly doubled, according to Verardo, with the largest increase coming after the 17th century and the Industrial Age. If the warming trend is confirmed, it could mean that some shellfish and aquatic grasses that need colder water could disappear. Additionally, rising water levels could pose a threat to low-lying parts of Maryland. Court Sevenson of the *University of Maryland* said, "This is not a theoretical exercise." USGS researcher Thomas Cronin says that the study results are preliminary and need to be confirmed by other studies.

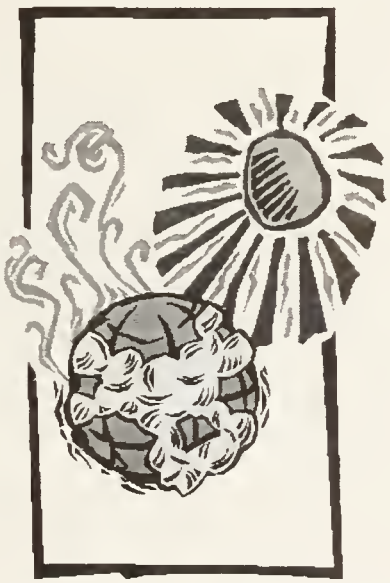
According to a study by "UN environmental expert" Cedric Philibert worldwide air travel each year emits nearly the same quantity of greenhouse gases into the atmosphere as the entire United Kingdom economy, and its contribution is expected to increase. In 1995, airplanes emitted 550 million tons of CO^2, a statistic that makes air travel the seventh-largest CO^2 emitting sector. And since 1990, global air traffic has risen by 6.5% a year, with airplanes now accounting for up to 660 million tons of CO^2 a year. The *Organization for Economic Cooperation and Development* predicts that such emissions could triple by 2020, with international air travel alone possibly emitting up to 800 million tons of CO^2. The study concludes that a tax on aviation fuel would be a critical part of any effort to cut such emissions and encourage the replacement of older, less-efficient airplane engines.

As international negotiators continue talks on climate change, they must give greater consideration to the link between global population growth and greenhouse-gas emissions, concludes a report released in early November by *Population Action International (PAI)*, a D.C.-based think tank. The report notes that the world's population has more than doubled in the last 45 years to about 5.9 billion, and it could double again by 2040 if current birth rates continue. Such growth will make it more difficult to curb industrial and vehicle emissions, says *PAI*'s Robert Engelman, the report's author. Engelman adds that the link between population and per-capita greenhouse gas emissions "has been largely passed over and obviously matters critically to the process" of reducing greenhouse-gas emissions. The report recommends that the *Intergovernmental Panel on Climate Change*, a UN-organized scientific panel, include a comprehensive study of the link between population and climate trends in its next report, which is expected in early 2000. It also calls for "social investments" that boost the availability of family-planning services and improve the educational and economic opportunities for women.

"Global warming will have grave consequences for human health and already appears to be a major factor in the alarming spread of infectious diseases," according to an early November report released by the *World Wildlife Fund*. The report concludes that nighttime temperatures are increasing at a faster rate than daytime temperatures, a factor that is particularly disturbing because the range of many disease-transmitting insects is limited by nighttime temperatures. It also indicates that global warming could upset the balance between predators and prey, which could "tip the scales" in favor of the disease-transmitting pests and pathogens that predators typically keep in check.

Human-induced climate change and the extinction of plant and animal species are the world's two most important environmental problems and they are "intricately linked," according to a report released on 11/6 by the D.C.-based *World Resources Institute* (WRI) and *World Conservation Union* (IUCN). The report calls climate change a "major threat to biodiversity," causing species loss and ecosys tem destruction. It asserts that protecting species may help mitigate other impacts of climate change. And while it cites greenhouse-gas emissions from the energy sector as the "predominant" contributor to climate change worldwide, forest conversion and other land-use practices are also "significant," contributing nearly 20% of the world's CO^2 emissions. "Failing to address one issue will only exacerbate the problems caused by the other," and steps taken to address climate change can be more effective if undertaken in conjunction with steps to protect biodiversity, according to the report. *WRI*'s Paige Brown, the report's author said, "One of the most important areas yet to be resolved under the Kyoto Protocol concerns how much of a role forests and land-use change will play. They are both a part of the problem and of the solution of climate change." *WRI* Pres. Jonathan Lash and *IUCN* Director-General David McDowell, in a joint statement said, "Without a much stronger commitment to solving climate change and biodiversity loss, we will bequeath to our children and grandchildren an irretrievably impoverished world".

According to research by Dept. of Agriculture scientists, "Farmers can help slow down the process" of global warming by practicing no-till and low-till farming techniques that keep carbon in the soil and prevent it from seeping into the atmosphere. Also, atmospheric carbon appears to be increasingly absorbed by regrowth of North American forests and vegetation on abandoned farmland and areas previously logged, according to a team of government and university researchers in a report published in an early November edition of the journal *Science*. The researchers found that levels of CO^2 in the atmosphere have risen less than expected, and measurements taken from across the globe indicate that "the major absorption" is occurring in North America. But environmentalists dispute the



data, and say that the report could be used to argue against reductions of emissions called for in the Kyoto global climate treaty. David Schimel of the Boulder-based *National Center for Atmospheric Research* said, "There is a huge concern that this research will be misinterpreted." He said the report's data is inaccurate, and that the true amount of carbon absorbed by North America is no more than 700 million tons, rather than the 1.2 - 2.2 billion tons estimated by the new report. NOAA scientist Peter Tans, who worked on the report, admitted "the evidence is still somewhat tentative. But he noted that the researchers "tried to look at all the uncertainties." He speculated that the increases in carbon uptake may be the result of increased plant growth, spurred by the plants' response either to more carbon or more nitrogen in the atmosphere

Meanwhile, the Clinton Administration on 11/12 signed the Kyoto Protocol on Climate Change, "affirming a crucial American role in a long environmental crusade, but not raising any hope" of Senate ratification in the near future. Pres. Clinton will, reportedly, back up the move within the coming year by launching "new initiatives on federal energy procurement and transportation," setting new energy-efficiency standards for major appliances, spurring clean industrial technologies and promoting the use of carbon "sinks" like forests. The Administration also plans to renew its efforts to "restructure our electricity industry to unleash market forces to boost energy efficiency and reduce emissions."

As expected, the Clinton Administration's signature on the Kyoto Protocol sparked strong reactions from members of Congress and interest groups. Critics of the protocol said it violates a 7/97 Senate resolution authored by Sens. Chuck Hagel (R/NE) and Robert Byrd (D/WV) that said the U.S. should not sign the treaty until developing countries also agree to limit greenhouse-gas emissions. Sen. Larry Craig (R/ID), member of the Energy and Natural Resources Committee said, "The Administration has chosen to ignore economic realities and pursue this misguided political agenda. .... It appears the president and vice president want to shove this protocol down the throats of the American people". Rep. John Dingell (D/MI) "lashed out" at the Clinton Administration, calling its decision to sign the treaty "pusillanimous". But Sen. Joe Lieberman (D/CT) said the move was essential if the U.S. intends to be a "full player" in future talks.

Environmental group representatives "said the move was the minimum the United States could do to show it is serious about carrying out the ... treaty". Kurt Davies, science and policy advisor to D.C.-based *Ozone Action*, said that although the U.S.'s decision was a welcome move, "people must not mistake U.S. signature of the treaty for leadership". *Environmental Defense Fund* Executive Director Fred Krupp said, "The buildup of

greenhouse gases will not be stopped by the stroke of a pen. The [Clinton] Administration must back up their work to move the negotiations forward". Howard Ris, executive director of the *Union of Concerned Scientists* said, "Signing the treaty is an important step, but reducing pollution at home is the giant leap we need to protect us from global warming".

Business reactions were mixed. Dale Heydlauff, VP of environmental affairs for Columbus-based *American Electric Power* said, "If U.S. industries can seek emissions reductions in the cheapest possible way, particularly through buying pollution credits overseas, the costs of the Kyoto Protocol to the U.S. economy will be manageable". Mark Whitenton, VP for resources at the *National Assn. of Manufacturers* (NAM) said, "Given the complete lack of interest in the developing world to malign their own economies, the Administration's endorsement only reduces what little bargaining power the U.S. has in these negotiations". Connie Holmes, chair of the D.C.-based *Global Climate Coalition* (GCC) said that by instructing the U.S. to sign the protocol, "Clinton has sent the U.S. careening down an endless highway [that] appears on no maps, has no speed limits, no police patrols and no exit or entrance ramps". William O'Keefe, director of the *American Petroleum Institute*, responding to recent overtures by companies to become more proactive on climate change said, "The business community is not split over this treaty. There is no giant movement towards supporting this treaty". Bill Kovacs, VP for environmental policy at the *U.S. Chamber of Commerce* (USCC), says "the Administration's actions will simply amount to unilateral economic disarmament for the United States".

Sources: Curt Suplee, *Washington Post*, 10/16/98; Clive Cookson, *Financial Times*, 10/16/98; *AP/Norfolk Virginian-Pilot*, 9/26/98; *AP/Washington Times,* 10/2/98; Heather Dewar, *Baltimore Sun*, 11/5/98; *Agence France Presse*, 11/6/98; *ABCNews.com*, 11/4/98; *PAI release*, 11/1/98; *WWF release*, 11/5/98; *WRI and IUCN joint release*, 11/6/98;Matt Kelley, *Omaha World-Herald*, 9/30/98; Randolph Schmid, *AP/Richmond Times- Dispatch*, 10/16/98; John Cushman, *New York Times; State Dept. transcript*, 11/12/98; John Fialka, *Wall Street Journal*, 11/13/98; *Craig release*, 11/12/98; *CongressDaily*, 11/12/98; Bill Cormier, *AP/San Francisco Chronicle/Examiner online/others*, 11/13/98; Patrice Hill, *Washington Times*, 11/13/98; *Ozone Action release, 11/12/98; EDF release, 11/12/98; UCS release*, 11/12/98; Laurie Goering, *Chicago Tribune//Salt Lake Tribune*, 11/12/98; *NAM release*, 11/12/98; *GCC release*, 11/12/98; Anna Bray Duff, *Investor's Business Daily*, 11/12/98; *USCC release*, 11/12/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/2, 10/16, 11/5, 11/6, 11/10 and 11/13/98

Worldwide Water Shortages

Water shortages in parts of the world over the next 25 years will pose the "single greatest threat" to food production and human health, according to a study by *World Bank* VP and agriculture expert Ismail Serageldin. Worldwide, about 80% of water use goes to agriculture, and that demand is increasing. And at a time when 1.3 billion people worldwide lack access to potable water, such scarcity "is likely to be the biggest impediment to food production in developing countries," the AP reports. Serageldin, who also heads the *Consultative Group of International Agriculture Research* (CGIAR) said, "New ways must be developed to take advantage of this diminishing resource if humanity is to feed itself in the 21st Century."

In the U.S., however, "Americans are using less water" even as the U.S. population grows, according to a recent report by the U.S. Geological Survey. The newly released statistics show that the U.S. is using 402 billion gallons/day for all uses, 2% less than in 1990 and nearly 10% less than in 1980, "despite a continuous increase in population over that same time period." Freshwater per-capita use also decreased from 1,340 gallons/day in 1990 to 1,280 gallons/day in 1995. The government "said conservation programs in many communities, improved irrigation techniques and efficient industrial use have helped cut consumption." The largest uses of water were for irrigation and electric power generation.

U.S. Forest Service hydrologist Pamela Case, speaking at a recent Western Regional Instream Flow conference in Copper Mountain, CO, said that water consumption in the West is declining due to more efficient agricultural and industrial practices. She also said that the nearly 33% growth in the population of the West in the last 25 years is expected to continue in the next 25. The conference focused on the effectiveness and consequences of establishing minimum in-stream flows as a means of maintaining river life,

To help improve global water management, the CGIAR has developed a "massive," electronic water and climate atlas. Using the atlas, local farmers, government planners and others can identify areas that could be cultivated with little or no additional irrigation. The atlas, which contains maps of every country, contains data on rainfall patterns, sunlight hours, temperature averages and soil types in various areas. It also indicates where new or different crops could be grown without clearing forests. The atlas, which is currently available on a set of compact discs, is expected to be posted next month on the CGIAR's Internet website at http://www.iwmi.org. The project was financed by the U.S. and Japanese governments.

Meanwhile, bottled water drawn from melted Canadian icebergs has won an "enthusiastic" response from consumers, making it difficult for the firm marketing the water to keep up with demand. *Iceberg Industries*, based in St. John's, Newfoundland, became the first firm to sell iceberg water after Ron Stamp, the company's president, pioneered a process to tear chunks off of icebergs, ship the melted water to port and bottle what some call "the cleanest drinking water on Earth." The ice -- broken off from glaciers -- "was formed so long ago it was never exposed to modern-day contamination." To find icebergs for its *"Borealis"* brand water, the company uses a locator plane and the help of the Canadian Coast Guard's "iceberg patrol." A second firm, *"Canada's Original Iceberg Water",* is expected to market iceberg water next year under its own label in Europe, Asia and the U.S.

Sources: Randolph Schmid, *AP/Washington Times/others*, 11/24/98; *USGS*

release, 10/6/98; *Washington Post*, 10/9/98; *AP/Phoenix Arizona Republic*, 10/11/98; Scott Morrison, *Financial Times*, 11/24/98; National Journal's GREENWIRE, *The Environmental News Daily*, 10/13 and 11/24/98

30% of Earth's Wealth Lost 1970 - Present

The Earth lost almost 30% of its natural wealth between 1970 and 1995, according to the *World Wildlife Fund's (WWF)* first-ever *"Living Planet"* report, released on 10/1. The report -- based on environmental data and consumption patterns from 152 countries -- attempts to measure the impact of modern human civilization on the health of the world's forests, freshwater and marine ecosystems. The study focuses on "key areas of consumption" -- grain and meat, marine fish, wood and paper, freshwater, and cement use -- as well as carbon-dioxide emissions, which contribute to the greenhouse effect. The report also offers an index that measures the burden placed on natural ecosystems by humanity.

Among the report's "most alarming" findings is that freshwater ecosystems declined by 50%, marine ecosystems deteriorated by 30% and natural forest cover fell by 10% over the 25-year period. The *WWF*'s Jonathan Loh, one of the report's authors said, "These figures are a stark indication of the deteriorating health of natural ecosystems." The study recommends further controls on fishing and the phase out of fishing subsidies, more efficient water use by farmers, pollution controls and limits on urban growth into the countryside. The report was produced by *WWF* in association with the *New Economics Foundation* and the *World Conservation Monitoring Centre*, a pair of UK-based organizations. The groups plan to publish the report annually as a sort of "Dow Jones Index of the global environment".

Meanwhile, *Intel Corp.* co-founder and Chair Emeritus Gordon Moore and his wife Betty on 10/2, announced they will contribute $35 million towards the creation of a biodiversity research center to identify and address emerging threats to the world's "most biologically valuable ecosystems." The *Center for Applied Biodiversity Science,* which will be based at the Washington, D.C. headquarters of *Conservation International* (CI), is expected to bring together experts in such fields as science, technology, economics and conservation to develop action plans in response to environmental threats. *CI* Chair and CEO Peter Seligmann says the center will "serve as an early warning system by forecasting impending biodiversity crises." The center's efforts will parallel *CI's* strategy to save the world's "highest-priority" biological "hot spots," tropical wilderness areas and marine ecosystems. Specific projects will include stopping the destruction of "pristine" forests

by "international logging conglomerates," and studying the threats to biodiversity in many developing nations posed by mining, logging and other extractive industries. *Harvard University* ecologist Edward O. Wilson will chair the center's advisory council, and Gustavo Fonseca, *CI's* VP for Brazil programs, will be its executive director.

Sources: *WWF release*, 10/1/98; *AP/San Francisco Chronicle/Examiner online*, 10/1/98; *CI release*, 10/2/98; *AP/San Francisco Chronicle/Examiner online*, 10/2/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/2/98

Controversial Land Swap

"Congress's approval of a huge land swap in Washington state will prompt more businesses" to similar "shortcuts" around traditional land swap rules, environmentalists say. Under a provision included in the FY 99 omnibus appropriations bill, Seattle-based *Plum Creek Timber Co.* agreed to swap more than 62,000 acres of land in west-central Washington for 16,500 acres of national forest land. The deal was negotiated by Sens. Slade Gorton (R/WA) and Patty Murray (D/WA), the Clinton Administration, and some environmental groups.

Plum Creek sought Congressional authorization to "avoid lengthy appeals and lawsuits from environmental groups," although *Plum Creek* VP William Brown said the company turned to Congress only after it became clear the company would not meet a deadline for completing the trade administratively. The normal process allows public participation and appeals in U.S. Forest Service decisions. Janine Blaeloch of the Seattle-based *Western Land Exchange Project* said now "more companies may follow *Plum Creek's* lead" by going to Congress, "where Republican leaders have a poor track record of giving environmentalists access."

But Charlie Raines of the *Sierra Club's Cascade Checkerboard Project* said this deal doesn't set a precedent because Congress has approved other land swaps. Raines added that the *Plum Creek* deal was improved after Murray added a 1,500-acre wilderness study area and a 5,500-acre special management area.

Sources: John Hughes, *AP/Vancouver [WA] Columbian*, 11/1/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 11/4/98

Government Spending by State

Rank by Per Capita Total Spending

1	VA	7,857
2	AK	7,715
3	MD	7,683
4	NM	7,192
5	HI	6,966
6	ND	6,758
7	MA	6,110
8	RI	5,954
9	MO	5,868
10	MT	5,840
11	ME	5,784

12	WV	5,733
13	AL	5,687
14	SD	5,622
15	FL	5,600
16	WY	5,509
17	MS	5,503
18	CT	5,463
19	KY	5,440
20	PA	5,434
21	WA	5,404
22	LA	5,321
23	TN	5,320
24	NY	5,272
25	OK	5,221
26	CO	5,061
27	AR	5,021
28	SC	5,004
29	CA	4,986
30	NJ	4,910
31	AZ	4,854
32	KS	4,820
33	GA	4,779
34	IA	4,753
35	DE	4,719
36	NE	4,713
37	ID	4,696
38	NC	4,677
39	VT	4,632
40	TX	4,544
41	OH	4,533
42	OR	4,512
43	IL	4,440
44	NH	4,299
45	MN	4,287
46	IN	4,283
47	NV	4,225
48	MI	4,159
49	UT	4,097
50	WI	4,024
	U.S.	5,133

Rank by Per Capita Tax Burden

1	CT	9,089
2	NJ	7,944
3	MA	7,488
4	NY	6,861
5	IL	6,776
6	MD	6,588
7	NH	6,527
8	NV	6,453
9	DE	6,401
10	WA	6,192
11	MN	6,191
12	CO	6,167
13	MI	6,090
14	AK	6,087
15	VA	5,926
16	PA	5,909
17	FL	5,904
18	RI	5,856
19	CA	5,647
20	WI	5,520
21	OH	5,495
22	OR	5,454
23	KS	5,453
24	WY	5,413
25	NE	5,412
26	GA	5,405
27	HI	5,332
28	MO	5,332
29	IN	5,321
30	TX	5,217
31	TN	5,197
32	VT	5,155
33	NC	5,121
34	AZ	5,019
35	IA	5,016
36	SD	4,703
37	ME	4,684
38	ND	4,640
39	AL	4,630
40	SC	4,558
41	ID	4,552
42	UT	4,523
43	KY	4,454
44	MT	4,383
45	LA	4,355
46	NM	4,243
47	AR	4,230
48	OK	4,201
49	WV	3,979
50	MS	3,881
	U.S.	5,765

Rank by Return on Tax Dollar

1	NM	1.90
2	ND	1.64
3	WV	1.62
4	MS	1.59
5	MT	1.50
6	VA	1.49
7	HI	1.47
8	AK	1.42
9	OK	1.40
10	ME	1.39
11	AL	1.38
12	LA	1.37
13	KY	1.37
14	SD	1.34
15	AR	1.33
16	MD	1.31
17	MO	1.24
18	SC	1.22
19	ID	1.16
20	TN	1.15
21	WY	1.14
22	RI	1.14
23	AZ	1.09
24	FL	1.07
25	IA	1.06
26	PA	1.03
27	NC	1.03
28	UT	1.02
29	VT	1.01
30	KS	0.99
31	CA	0.99
32	GA	0.99
33	WA	0.98
34	TX	0.98
35	NE	0.98
36	OR	0.93
37	OH	0.93
38	CO	0.92
39	MA	0.92
40	IN	0.90
41	NY	0.86
42	DE	0.83
43	WI	0.82
44	MN	0.78
45	MI	0.77
46	NH	0.74
47	IL	0.74
48	NV	0.74
49	NJ	0.69
50	CT	0.68
	U.S.	1.00

Sources: *Northeast-Midwest Institute*, Wash., D.C., staff calculations based on U.S. Department of Commerce, Bureau of the Census, Federal Expenditures by State for FY97; and *The Tax Foundation*, Spec. Rept.: 1997 Federal Tax Burden by State (Washington, D.C.: July 1998).

Religion and the Environment

A two-year series of conferences entitled, *"Can the world's faiths help us get out of the ecological 'predicament' in which we find ourselves?"*, sponsored by *Harvard University's Center for the Study of World Religions* (HCSWR), recently culminated in a four-day interdisciplinary session that drew together spiritual scholars, scientists, economists and policymakers. The *Harvard* study focused on the role that *Buddhism, Christianity, Confucianism, Daoism, Hinduism, Islam, Jainism, Judaism, Shinto* and indigenous traditions can play in environmental debates and in influencing public-policy initiatives.

Most conferees agreed that "our predicament is the result of both individual choices and systemic problems." The *Christian Science Monitor* observes, "Larger houses, gas-guzzling vehicles and more frequent air travel are some of the highly damaging choices Americans now prize." *Harvard* ecologist E.O. Wilson said, "If the rest of the world lived as [Americans] do, we would need two more planet Earths." "Technology won't provide a quick fix. While it has reduced envi-

ronmental impact, that is being erased by increased output and consumption, says Juliet Schor, a *Harvard* economist."

Since 1996, more than 1,000 scholars and activists have been involved in the *Harvard* Project through a "wide-anging" series of conferences that explored the relationship between the traditions of the world's major religions and the environment. The dialogue indicated that all of the major religions contain principles of abstention and "making due with what's sufficient." Lawrence Sullivan of the HCSWR says such values could be a powerful counterweight to the over consumption and wastefulness that damages the environment. And *Bucknell University* professor Mary Evelyn Tucker says the environment "is a new moral issue that religions need to adapt to."

"Why have religions as a repository of ethics not been a more powerful force" for preventing environmental degradation? the newspaper asks. "Some say consumerism and technology have become a religion," while others say mainstream religions "have not seen the environment as their moral turf." Conferees also questioned whether policy choices, such as those related to global warming, should rely solely on "scientific" evidence. *Smith College* anthropologist Frederique Apffel-Marglin said, "There is a blind belief research will give us answers, but we are dealing with ethical choices".

In its report on the Project to the U.N., *Harvard University* said, "The world's major religions must do far more to provide the 'moral force' behind environmental preservation". The report was released at a late October press conference at the UN headquarters in New York. Religious environmentalists "welcomed the boost" from the Project. Michael Crook of the Indiana-based *Evangelical Environmental Network* said, "They're absolutely right. The church has been silent for too long ... on issues of stewardship of the abundance that God gave us." And Michael McElroy of the *Harvard's Committee on the Environment* "said scientists pushing for policies that ward off mass extinctions, global warming and pollution now could find a powerful new ally in the world's religions."

But some conservative groups viewed the project as a way of bringing politics into the church. David Ridenour of the *National Center for Public Policy Research* said, "Frankly, we see it as largely a strategy by the environmental movement to broaden their base". The HCSWR plans to continue the dialogue through a forum whose primary goal "will be to influence public policy, develop school curriculums and contribute to scientific and social research on the environment."

Sources: Jane Lampman, *Christian Science Monitor*, 10/1/98; Edith Lederer, *AP/San Francisco Chronicle/Examiner online*, 10/21/98; Scott Allen, *Boston Globe*, 10/21/98; Bill Broadway, *Washington Post*, 10/24/98; and National Journal's GREENWIRE, *The Environmental News Daily*, 10/1, 10/21, and 10/26/98

Creating a Native Stream Biotope Aquarium

Michael Thennet of Arlington, VA offers the following suggestions as a result of a year long effort to create a harmonious community stream aquarium, populated with various fish species settled in their own little niche. Mr. Thennet evaluated several kinds of community stream biotope aquariums, stocked with a variety of species from Virginia's Potomac and James River drainages. The native species included in his study were darters, sculpins, dace, shiners and even crayfish. He offers the information that follows in the hope that it will help the fishkeeper achieve "a special Zen-like native communal aquarium experience".

His most successful community tank setup was an aquarium about 12 inches high and 24 inches long. Tank height is an important factor during feeding; in taller tanks, sinking food takes longer to reach the bottom, making it more available to the fast mid-level fish species such as dace and shiners. As a result, little food reaches the bottom, thus depriving the slower bottom dwellers like darters and sculpins of their fair share. A shorter tank height allows enough food to reach the bottom where darters and sculpins can forage successfully. Tank length is another critical parameter, needed to accommodate the territorial tendencies of darters, sculpins, and some breeding male dace. Also, a longer length provides more swimming space for active cyprinids.

"Mottled sculpin"

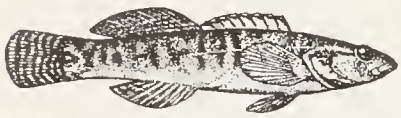
Rocks, and plenty of them, are essential to minimize territorial squabbles between darters and sculpins. This also provides a sense of security for the tank inhabitants. He always gathers rubble, slabs and stones from fish collecting sites to better simulate the community biotope setting. He says to be sure to place the rocks on a layer of gravel, about two to three inches thick, to prevent cracking the aquarium bottom. Rocks from the collecting sites are typically populated with insect larvae, which the fish consume. But he says to always be aware of unwanted stowaways: clean rocks thoroughly with hot water and a brush to rid them of bacteria, fungus, parasites or any other unwanted creatures. He says also that darker colored rocks in an aquarium enhance the colors of fish.

Water current is an important part of a stream biotope tank. Depending on the size of the aquarium, he likes to use one or two hanging power filters. In addition, he recommends attaching (with a suction cup) one or two powerheads to the wall at one end of the length of the aquarium. This generates a current directly across the length of the tank.

The powerhead intake tube should be covered with a small sponge. This provides an additional biological filtration media, and a barrier to keep smaller tank inhabitants from becoming trapped in the powerhead. An air pump is also useful for providing high oxygen saturation in the water and additional water current for the community inhabitants.

Darters and sculpins tend to be the

focal point of his community tanks. Most of his experience has been with the greenside darter (*Etheostoma blennioides*), fantail darter (*E. flabellare*), and mottled sculpins (*Cottus bairdi*). These stream dwellers have a curious rock-hopping tendency that is fascinating to watch. The darters, in particular, are very colorful while in breeding condition. All three species tend to be somewhat territorial, especially among their own kind. For a 20-gallon setup, he recommends no more than three or four individuals, each about two to three inches in length, with no more than one male of each species to minimize squabbles. He recommends starting with smaller-sized sculpins, about one to two inches in length, because larger ones have a tendency to swallow smaller tank mates. When keeping sculpins, a cool water species, he says that water temperature should be about 70°F or less. It should be noted that the use of powerheads may increase tank temperature.



"Fantail Darter"

He says that dace and shiners help to provide security for the usually shy darters and sculpins that would otherwise hide among the rocks. They also fill the upper and midwater levels of the community tank with activity. Most of his experience with these kinds of fishes have been with blacknose dace (*Rhinichthys atratulus*) and longnose dace (*R. cataractae*). Both species are very hardy. The presence of these active cyprinids assures darters and sculpins that it's safe to come out and explore their surroundings. He says that no more than four dace or shiners should be placed in this setup; a larger group jeopardizes the food supply of darters and sculpins at the bottom. Cyprinids do very well in small groups and always get enough food. His blacknose dace even supplement their diet by grazing on the algae growth covering the rocky habitat.

He says that clean-up duty in this type of community tank falls to the ever-faithful common crayfish (*Procambarus sp.*). He finds it extremely entertaining to watch them go about their chores industriously, like miniature underwater cranes. He recommends starting with specimens about one to two inches in length that will keep them from inflicting serious injury on other small tank mates. He says he has a three-inch specimen which has yet to claim a fish, but this may also be due to his accidentally amputating, while cleaning the tank, its right claw (still in the process of growing back). The crayfish diligently scavenges uneaten food. He points out that aerating the water and providing adequate lighting in the tank promotes the growth of plants and algae. This vegetation is also relished by the crayfish that grazes on the plants and excess algae keeping the tank virtually spotless and well groomed. If fed well, he says, the crayfish will generally leave its tank mates alone-as long as they stay out of its way!

He says that maintaining such a setup is relatively simple. He feeds his fish once every other day; *spirulina* flakes, mainly to stuff the dace, and one or two cubes of frozen bloodworms and/or brine shrimp, mainly for the darters and sculpins. For a 20-gallon tank, he says that a partial water change, about five gallons, should be done every two weeks. The changeable filter media should also be replaced at least once a month.

He recommends keeping a watchful eye on the bellies of the darters and sculpins to make sure they're getting enough food. Also inspect all tank inhabitants for telltale signs of damage, possibly inflicted by larger crayfish. Remove overly aggressive fish and/or crayfish.

"Greenside darter"

He says that common sense and logical application of the suggestions outlined above should provide you with a harmonious community tank, which includes not just one or two, but many facets of the stream ecosystem. Essentially, with all the different characters involved in the community, it becomes much easier to become one with the stream. "Create it, realize it, and love it!"

Mr. Thennet, a member of the *North American Native Fishes Association (NANFA)*, provided this useful information in the group's newsletter, *American Currents*. In addition to the newsletter, the group provides information through an email network. More information on NANFA and how to subscribe to their newsletter can be obtained by contacting NANFA at P.O. Box 2304, Kensington, MD 20891 or through their Website at http://www.nanfa.org.

"Blackside dace"

Potential native fish aquarium enthusiasts are cautioned that before attempting to capture or keep any native fish species they should contact their state game and fish management agency for information on laws and regulations governing this activity. When done within the law, the keeping of a native stream fish aquarium can be a very educational and rewarding experience.

Source: *American Currents,* Vol. 24, No. 3, Summer 1998

Rivers Project 1999 Summer Training

The *Rivers Project* of *Southern Illinois University* at Edwardsville (SIUE) has announced its 7th annual summer training sessions for teachers. All middle and high school teachers are invited to attend and help achieve the goal of "increasing scientific literacy through river study". Six subject areas (biology, chemistry, earth science, geography, language arts, and mathematics), developed under a grant from the *National Science Foundation*, are available. Teacher trainees will choose a main subject area of study, but, by the week's end, all trainees will have received instruction in each subject area. Due to this instructional design, the *Rivers Project* strongly encourages the

participation of interdisciplinary teams.

Teacher training sessions are being planned in Chicago, the Smoky Mountains, and at the SIUE campus in Edwardsville, IL.

The Chicago session will be held on the campus of *North Park University* in Chicago, IL in cooperation with the *Friends of the Chicago River*. Here, teachers will meet in an urban setting and perform river-related activities both inside the college classroom and in and along the banks of the Chicago River. Relevant field trips will also occur.

The Edwardsville, IL session is held annually on the campus of SIUE which also happens to be the home of the *Rivers Project*. Edwardsville, is a small community located 30-minutes from the city of St. Louis. Though close to the banks of the Mississippi River, the seminar will focus primarily on the more rural, Southwestern streams of Illinois. Past field trips include trips to Alton Locks and Dam 26, the Mississippi Riverfront, a dinner cruise on a Mississippi River boat, and Illinois Caverns.

The most recent addition to the annual session line-up is the Smoky Mountains location. Because this will be the first time in the National Park, current information is unavailable.

Seminar dates and details are still being negotiated for all 1999 summer sessions. Interested persons should periodically check the *Rivers Project* Web Page for updated information and details at: http://www.siue.edu/OSME/river

Also available through the *Rivers Project* are several educational activities that focus on the grim economical and ecological effects of the Zebra mussel infestation. Available for purchase are an:

- Alien Invaders Curriculum Unit;
- Zebra Mussel Investigation Unit for Middle School students;
- Zebra Mussel Monitoring Device;
- monitoring device appropriate for any age level; and
- Zebra Mussel Mania Traveling Trunk, which includes the Zebra Mussel Mania curriculum guide for Middle School and the necessary supplies to perform all activities.

The Zebra Mussel Mania Traveling Trunk was developed through a grant from the *Illinois-Indiana Sea Grant* and can be borrowed from several lending centers. The location of these lending centers can be found on the *Rivers Project* Web Page. For more information about borrowing this kit or purchasing it or other Zebra mussel materials please contact: The *Rivers Project*, (618) 650-3788, rivers@siue.edu, or visit the web page at http://www.siue.edu/OSME/river.

Correction

The *Wetland Initiative's* new Illinois River Restoration Project discussed in the July/August issue of *River Crossings* gave credit for the Project to the *Illinois River Strategy Team*. We were reminded that although the subject project is supportive of the goals of the Strategy Team, the project itself was funded privately through the *Wetlands Initiative* project. The most important funders were Sue and Wes Dixon. We apologize to the *Wetlands Initiative* and the Dixons for the error.

Meetings of Interest

February 18-20: 3rd Annual American Wetlands Month Conference: Communities Working for Wetlands, New Orleans, LA. Conference will feature hands on, interactive workshops where participants will learn how to solve their own wetland problems. Contact: Terrene Institute, 4 Herbert St., Alexandria, VA 22305, (703) 548-5473, FAX (703) 548-6299, or terrconf@erols.com.

March 2-4: International Symposium on Geographic Information Systems in Fishery Sciences, Seattle, WA. Contact: Tom Nishida, 011/81-543-366043, tnishida@enyo.affrc.go.jp

March 3-4: Applied River Geomorphology and Biotechnical Engineering Workshop, Horizon Convention Center, Muncie, IN. Understanding and managing watersheds and streams as parts of a fluvial system - structural integrity of fluvual systems, and basic hydraulic geometry. Sponsored by the Indiana Chapter of the American Fisheries Society. Contact: (765) 285-8845 or (765) 285-8825, tmccomis@bsu.edu or tlauer@bsu.edu.

March 16-19: Ecosystem Effects on Fishing, Montpellier, France. Contact: Henrik Gislason, 011/45-33963361, hg@dfu.min.dk

March 17-19: Freshwater Mollusk Conservation Society 1st Annual Symposium, Clarion Hotel, Chattanooga, TN. Contact: Paul Johnson, (423) 785-4074, pdj@tennis.org, http://www.sari.org.

March 21-24: Sustaining the Missouri River for Future Generations, 3rd Annual Missouri River Conference, Ramkota Inn River Centre, Pierre, SD. The conference provides a forum for researchers, resource managers, and citizens from all river interests to discuss the future of this unique river system. Contact: Jeanne Heuser, USGS-BRD, Environmental and Contaminants Research Center, 4200 New Haven Road, Columbia, MO 65201, (573) 876-1876, FAX (573) 876-1896, jeanne_heuser@usgs.gov.

March 22-27: Wetlands Engineering and River Restoration Conference, Denver, CO. Sponsored by the American Society of Civil Engineers. Contact: ASCE, Conferences and Expositions, P.O. Box 832, Somerset, NJ 08875-0832, (800) 548-ASCE w/in the U.S., and (703) 295-6050 outside the U.S., or FAX (703) 295-6333.

March 26-30: 64th North American Wildlife and Natural Resources Conference, Hyatt Regency San Francisco Airport, Burlingame, CA. Contact: Richard Mc Cabe, (202) 371-1808.

April 6-8: Environmental Monitoring and Assessment Program Symposium on Western Ecological Systems: Status, Issues, and New Approaches, Holiday Inn Fisherman's Wharf, San Francisco. Contact symposium coordinator, (781)

544-0026, symposium@tpmc.com.

April 12-15: EPRI Conference on Power Plant Impacts on Aquatic Resources, Renaissance Waverly Hotel, Atlanta, GA. Contact: Cindy Layman, Conference Coordinator, P.O. Box 10412, Palo Alto, CA 94303-9964, (650) 855-8763, or FAX (650) 855-2166.

April 22-23: Mississippi River Research Consortium Annual Meeting, Yacht Club Resorts, La Crosse, WI. Contact: Richard Anderson, (309) 298-1553, randerson@wiu.edu.

May 16-19: National Watershed Coalition's Sixth National Watershed Conference, Austin, TX. Conference theme is "Getting the Job Done at the Ground Level". Contact: John W. Peterson, Executive Director, National Watershed Coalition, 9304 Lundy Court, Burke, VA 22015-3431, (703) 455-6886, FAX (703) 455-6888, jwpeterson@erols.com.

May 23-28: 10th International Soil Conservation Organization Conference – Sustaining the Global Farm, Local Action for Land Stewardship, Purdue University, West Lafayette, IN. Contact: Mark Nearing, Purdue University, 1196 SOIL Bldg., West Lafayette, IN 47907-1196, (765) 494-8673, FAX (765) 494-5948, isco99@ecn.purdue.edu.

April 26-30: 9th International Zebra Mussel and Aquatic Nuisance Species Conference, Duluth Entertainment Convention Center, MN. Contact: Elizabeth Muckle-Jeffs, (800) 868-8776, profedge@renc.igs.net.

May 9-14: 15th International Symposium on Biotelemetry, Juneau, AK. Contact: John H. Eiler, (907) 789-6033, john.eiler@noaa.gov.

May 13-14: 26th Annual Conference on Ecosystem Restoration and Creation, Tampa, FL. Contact: Frederick J. Webb, (813) 757-2104, webb@mail.hcc.cc.fl.us.

May 25-28: 47th Annual Meeting of the North American Benthological Society, Duluth, MN. Contact: Stephen W. Golladay, (912) 734-4706, http://www.benthos.org.

June 1-4: Evaluating the Benefits of Recreational Fishing, The Fisheries Centre, University of British Columbia, Vancouver, BC. Contact: Gunna Weingartner, (604) 822-0618, events@fisheries.com.

August 29-Sept. 2: 129th Annual Meeting of the American Fisheries Society, Adam's Mark Hotel, Charlotte, NC. Contact: Betsy Fritz, (301) 897-8616, ext. 212, bfritz@fisheries. org

Congressional Action Pertinent to the Mississippi River Basin

Clean Water

S. 2620: Sen. Chuck Robb (D/VA) to establish a fund to carry out projects to promote the recovery of U.S. waters.

Conservation Reserves

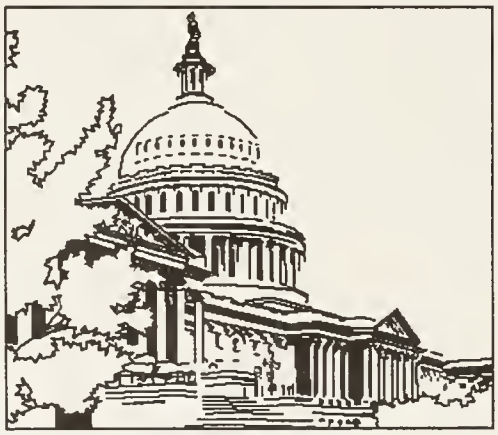
H.R. 4394: Rep. Collin Peterson (D/MN) to establish temporary enrollment priorities for the Conservation Reserve Program.

Endangered Species

S. 1180: Efforts to move this comprehensive bill to reform the Endangered Species Act, continued right up until the closing days of the congressional session. The bill, introduced by Sen. Dirk Kempthorne (R/ID), enjoyed wide support, including the critical endorsement of the Clinton Administration, but the numerous attempts to take the bill to the Senate floor, either as a stand-alone bill or attached to another bill, failed. Environmentalists, many of whom opposed S.1180, were pleased at the inability to move the bill.

H.R. 4335: Rep. Don Young (R/AK) authored H.R. 4335 to consolidate ESA responsibilities now shared by the National Marine Fisheries Service and U.S. Fish and Wildlife Service.

H.R. 4554, H.R. 4555, H.R. 455: Rep. William Thomas (R/CA) to reform the regulatory process under ESA and land management activities.



Environmental Education

S. 2359 was introduce by Sen. James Inhofe (R/OK) to amend the National Environmental Education Act to extend the programs.

Environmental Justice

H.R. 4584: Rep. John Lewis (D/GA) to promote environmental justice and pollution reduction efforts.

Farmland Protection

S. 2596 and S. 2597: Sen. Robert Torricelli (D/NJ) to improve the farmland protection program.

Land Conservation

H.R.4496 provides tax incentives for land sales for conservation purposes.

Mining

H.R.4356: Rep. Philip English (R/Pa.) to amend the Surface Mining Control and Reclamation Act to ensure that the full amount deposited in the abandoned mine reclamation fund is spent to carry out the intentions of the fund.

Public Lands

S. 2414: Sen. Conrad Burns (R/MT) to set up terms for the Interior Secretary to convey leaseholds in certain properties around Canyon Ferry Reservoir in Montana.

S. 2555: Sen. Tom Daschle (D/SD) to deauthorize the Blunt Reservoir feature of the Oahe irrigation project in

MICRA
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READER'S SURVEY

January 1999

This biannual "Reader's Survey" is an effort to identify our regular readers, to streamline our mailing list in order to reduce printing and postage costs, and to better serve our readers by soliciting their views. In order to ensure that your name remains on our mailing list, please answer the questions below and return this form to our office at your earliest convenience (preferably before January 30, 1999). If you do not respond we will assume that *"River Crossings"* is not being read, and your name may be dropped from our mailing list. We look forward to hearing from you, and especially appreciate receiving your written comments. Thank you for your assistance and continued interest in river issues.

Sincerely,

Jerry L. Rasmussen
Executive Secretary/Coordinator

_____ I enjoy reading "River Crossings", and wish to remain on your mailing list.

_____ I do not wish to remain on the "River Crossings" mailing list.

Additional Comments: _____

South Dakota and direct the Interior Secretary to convey some land to

Public Lands.

H.R. 4505: Rep. David Skaggs (D/CO) to designate lands in the Arapaho and Roosevelt national forests in Colorado as wilderness.

H.R. 4469: Rep. Rick Hill (R/MT) to set up terms for the Interior Secretary to convey leaseholds in certain properties around Canyon Ferry Reservoir Montana.

H.R. 4467: Rep. Richard Gephardt (D/MO) offered H.R.4467 to amend the Land and Water Conservation Fund Act of 1965 to provide for a secure source of funds for federal land acquisition and state matching grants, and the Urban Park and Recreation Recovery Act of 1978 for state, local, urban conservation and recreation needs.

Water Reclamation

H.R. 4389 would provide for conveyance of various reclamation project facilities to local water authorities.

Source: Land Letter, Status Report, Vol. 17, No. 20, 10/30/98 and Vol. 17, No. 18,

River Crossings

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