River Crossings

Volume 6 September/October 1997 Number 5

Heritage Rivers Program Launched

President Clinton signed an executive order on 9/11 formally launching his *American Heritage Rivers Initiative*. Through this somewhat controversial initiative Clinton will seek to provide federal funds and spur local leadership in revitalizing 10 riverfront communities across the country. In a White House ceremony Clinton said, "Through this voluntary program ... we will lend our hand of assistance to community-led waterfront projects that protect natural resources, promote economic revitalization and preserve our cultural heritage".

"To calm fears that the program would infringe on property rights", Clinton adopted language from an executive order signed by President Reagan "that specifically protects property owners." Administration officials also said the program would need "no more than several thousand dollars" to print brochures and create a Web Site promoting it. Current federal employees would act as "navigators" to help localities in taking advantage of existing federal programs. White House Council on Environmental Quality Chair Katie McGinty said in defense of the initiative, "It is 100% voluntary. It is 100% driven by local concerns. It is 100% non-regulatory".

Rep. Helen Chenoweth (R/ID), who has offered legislation to block the program, called Clinton's moves "illegal" because Congress has never authorized the program nor appropriated money for it. But the initiative was applauded by environmental groups, "many of whom have forgiven [Clinton's] failure as governor of AR to stop the poultry industry from polluting virtually every tributary of the White River". Rebecca Wodder, president of the group *American Rivers* said, "This program will transform river-restoration efforts throughout the country".

Communities will now have 90 days to apply for designation as "American Heritage" rivers. The "leading candidates," reports the *Washington Times*, are:

- Washington, D.C.'s Anacostia and Potomac rivers;
- MI's Detroit River;
- PA's Lehigh and Schuylkill rivers;
- VA's James River;
- IN's Maumee River;
- CO's South Platte River;
- CA's Los Angeles River;
- IL's Illinois and Chicago rivers;
- WY's Yellowstone River;
- MN, WI, IA, IL, and MO's Upper Mississippi River;
- CT, MA, NH and VT's Connecticut River;
- NC and TN's French Broad River;
- OR's Willamette River;
- NY's Hudson River; and
- WI's Fox River.

The designees are expected to be announced in January. Further in for-

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mation on the Initiative can be obtained from its Web Site: http://www.epa.gov/rivers.

Source: National Journal's *GREENWIRE The Environmental News Daily*, 9/12/97

Dam Removal - A Real Option for Fish Recovery

Future historians may trace the beginning of serious consideration of major hydroelectric dam removal to 4/25 and 7/28 of this year. Yes, removal of massive, megaton, multi-story dams — or, more accurately, breaching their walls or lowering their reservoirs and ending their ability to generate power — is being seriously considered now. Federal overseers, conservationists, local officials and others are desperate to restore fish stocks and, for the first time since the Depression-era wave of dam building began, are suggesting dam removal may be the solution.

The National Marine Fisheries Service (NMFS) on 4/25 listed coastal coho salmon populations in northern CA and southern OR as "threatened" under the 1973 Endangered Species Act (ESA). Pointing up how serious the problem is and how seriously it is taken, the move covers some 700 miles of coastline and extends up to 150 miles inland. Except for restrictions protecting Pacific Ocean whales and owl habitat throughout the Northwest, it affects an area larger than any other ESA-related ruling.

The Edwards Dam Precedent - Three months later the Federal Energy Regulatory Commission (FERC) for the first time began thinking about closing an operating dam for environmental reasons; specifically, the 160-year-old Edwards Dam in Augusta, ME, to benefit migratory fish in the Kennebec River. In their 7/28 final environmental impact statement (FEIS), FERC staff tersely state, "We recommend retirement of the Edwards Project and complete removal of the dam." FERC commissioners are expected to consider the FEIS over the next six months and are under further pressure from Gov. Angus King (I), the ME State Planning Office, ME Department of Marine Resources, U.S. Fish and Wildlife Service (USFWS) and the NMFS to deny the relicensing request and order removal of the dam. **The fact that such a final ruling could set a precedent for state, regional or national plans to preserve fish is not lost on anyone close to the issue.**

While the FEIS delineates the proper fishway in case FERC in the end opts against dam removal, *Edwards Manufacturing* has said it would not spend more than $2 million on such a system and presumably would abandon the dam if relicensing requires it. Ironically, fishway construction would return the Edwards Dam to its original state as the ME State Legislature realized very early the value of fish in the Kennebec River. It approved construction of the dam in 1837 on the condition a fishway was included, but the structure was immediately washed away and never rebuilt.

The Columbia River Basin - While the first operating dam removal appears possible, if not imminent, in the Northeast, nowhere is the idea more controversial than on the other side of the country, in the Columbia River Basin. Lawmakers, academics, conservationists, commercial interests, tribal leaders and others in ID, MT, OR and WA are talking seriously of scaling back the area's renowned hydroelectric dam system to help bring back rapidly disappearing salmon, to some the very symbol of the region.

Such a move is not subject to FERC regulation because the dams are federally operated by the U.S. Army Corps of Engineers (Corps) and their power is sold by the Bonneville Power Administration (BPA). Power generated from the Columbia River dams accounts for 40% of the hydropower in the U.S. and 75% of the electricity in the Northwest.

River Crossings

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An estimated $3 billion has already been spent over the last 15 years on innumerable efforts to save the fish. But those attempts — unmonitored and sometimes logic-defying, critics have said — have had just two things in common: they have tried to save fish without interrupting the Columbia's power generation, navigation, irrigation and other uses and they have failed. The BPA estimates that 7% of monthly residential bills, less for commercial users, goes to salmon-recovery programs. Federal and state taxes make up the rest of fish-related spending.

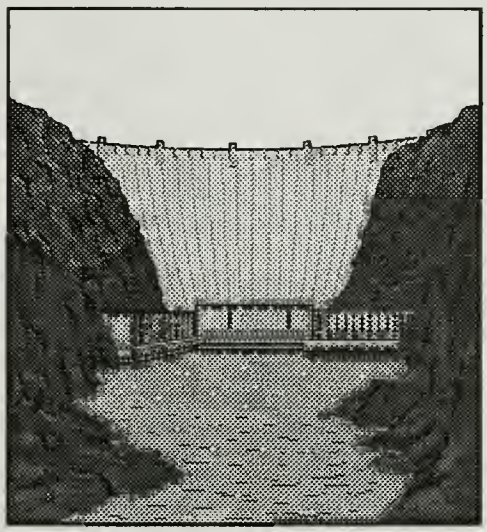
As perspective on the problem and the great shortfall in fixing it, BPA last year spent $176 million and lost another $102 million in "foregone revenue" by using water to help salmon swim past dams it otherwise would have used to produce and sell electricity. Total salmon recovery spending by all concerned agencies was $438 million. **By contrast, spending by all parties on all other endangered species in the U.S. reached just $193 million in 1993, the most recent year for which such data is available.**

Apart from BPA contracts, concerned agencies have financed the world's largest system of fish hatcheries — 92 in all, producing 166 million fish each year at a cost since 1981 of nearly $700 million. However, these fish do not survive as well as wild ones, perhaps because they are not toughened by natural selection pressures, scientists surmise. Construction of fishways has soaked up another $290 million but has not proven very effective.

BPA and the Corps have collaborated on an elaborate method of moving young fish beyond the dams and to the sea: Sucking as much as 90% of the young salmon from the river at the Lower Granite Dam, putting them on barges and floating them around the 8 dams that separate Lower Granite from the Columbia estuary. While that has cost more than $100 million so far, studies show the fish do not return to their spawning grounds much more than do fish left to use fishways and not enough to counter the plummeting fish stocks.

"chinook salmon"

It is largely the failure of barging that has brought the region and all concerned parties to what many have been termed a "crossroads." While experts cannot explain with certainty why this has not worked — some say the most likely reason is that the fish do not learn what they would naturally by their surroundings and so have problems finding their way back — most say that and other evidence indicates fish need as natural a river as possible to spawn and rebound from near-extinction.



These factors have led to two new proposals that would alter the Columbia Basin dam network:

- The first proposal is by the *Independent Scientific Group* which recommends restoring a 35-mile stretch of the Columbia River behind the John Day Dam to close to its natural state by dropping the reservoir some 40 ft. The newly shallow and braided river section would provide prime spawning grounds for Columbia River chinook salmon and serve as a resting place for Snake River fish on their migratory route, proponents and scientists say.

- The second proposal, put forth by a private consulting firm says that breaching four Snake River dams — Ice Harbor, Lower Monumental, Little Goose and Lower Granite — would restore 140 miles of natural conditions in WA and offers the best hope of restoring ESA listed fish stocks there and in ID.

The direct and indirect costs of these proposals are enormous. The Corps estimates that construction costs of breaching the four Snake River dams would be in the neighborhood of $530 million, which would be done by leaving the central, concrete parts intact and removing the earthen portions that join them to the river shores and canyon walls. That figure alone is some $100 million more than all of 1996's combined salmon recovery efforts. Significant additional costs are sited by losses to irrigation, hydropower, and navigation.

Condit Dam, White Salmon River, WA - This river tumbles 45 miles from the glaciers of Mt. Adams to the Columbia River and teemed with steelhead, coho and chinook salmon until the dam was built in 1913. The *American Fisheries Society* reports that the fish are at a high risk of extinction and the spring chinook run has completely vanished. *PacifiCorp Electric's* operating license to run the dam has expired and FERC says it must provide passage for fish to be granted renewal. *PacifiCorp* is challenging FERC's authority over any element of the dam and has said it may simply "walk away" from Condit rather than incur fish-related expenses. Numerous national, regional and local conservation and fishing groups have entered the relicensing process to support dam removal. *American Rivers* and others see *PacifiCorp's* threat as a frightening harbinger: Deregulation of the electric industry and increased competition may make use of small hydropower dams uneconomical, even without fish protection. "As a result, the nation may face an epidemic of abandoned dams that have continuing adverse environmental impacts," says *American Rivers* in its 1997 report on river health.

Elwha and Glines Canyon Dams, Elwha River, WA - These dams have all but obliterated the river's salmon and steelhead populations, to which the *Elwha S'Klallam* tribe was guaranteed

access in an 1855 treaty. One of the dams is located in Olympic National Park and both affect the park, according to *American Rivers*. Tribal leaders and environmentalists urged removal of the dams when they came up for relicensing in the 1970s and the Interior Department, following a 1992 congressional mandate to study how the river and fisheries could best be restored, likewise recommended removal. Olympic National Park Superintendent David Morris recently said removing the dams would be the most effective of any Northwestern salmon-restoration effort and last year a panel of local citizens and businesses unanimously approved a plan to buy the dams and remove one immediately. The dams are owned by the *James River Corp.*, a timber company. Interior Secretary Bruce Babbitt said this summer that the dams' fate is in the hands of state officials and the congressional delegation. The appropriations subcommittee that funds Interior and that Sen. Slade Gorton (R/WA) chairs provided just $3 million for the project for FY98. Gorton has said he fears breaching the Elwha River dam would set precedents encouraging removal of other Western dams.

Station 160, Genesee River, NY - Establishing the fish protection measures recommended by the NY Department of Environmental Conservation (NYDEC) would cost at least $60,000 more than retiring the project altogether, according to *American Rivers*. Dam owner, *Rochester Gas & Electric Co.*, is currently negotiating with NYDEC, and action on a FERC draft environmental assessment is on hold pending outcome of the talks, the group says.

Baraboo River, WI - FERC claims jurisdiction over two small hydroelectric dams that produce marginal profits for their private owner. The relicensing process and its environmental mitigation requirements are almost certain to make the dams uneconomical, says *American Rivers*. The *Hydropower Reform Coalition* (HRC) is working with the owner, local officials and others on a river restoration plan that could include removal of these dams as well as a municipally owned one. Removal of all three — crowded in a five-mile area that slackens 60 mi. of Baraboo current — would improve habitat for lake sturgeon and pre-historic paddlefish, *American Rivers* says.

"lake sturgeon"

Menominee River, MI and WI - The *Wisconsin Electric Power Co.* recently agreed to remove three small dams — two in WI, the other in MI — as part of a broader settlement with HRC, state natural resource agencies and the USFWS that affects eight hydro projects in the upper Menominee River Basin. The *"Wilderness Shores Settlement Agreement"* marks the first time all major issues were resolved prior to the start of a FERC relicensing process, according to *American Rivers*.

According to the *International Rivers Network (IRN)* in a special issue of *World Rivers Review (8/97)*, momentum around the world is building to remove more dams. They say a sign of progress in that area is the fact that the *American Society of Civil Engineers* has just published technical guidelines for dam removal - the first important sign that the dam-building industry is beginning to take this issue seriously.

More than 500 of the 50-year licenses given by FERC to private hydrodam operators in the U.S. are expiring by 2004. A coalition of river conservation groups have used this spate of expiring licenses to urge FERC to institute a comprehensive dam decommissioning policy. According to IRN, the Washington, DC-based HRC believes that new licenses should only be given on the condition that the owner pay into special decommissioning funds during the lifetime of their projects, just as nuclear power plant operators in the U.S. have to put money aside to pay their inevitable decommissioning costs.

However, since the engineering of dam removal is so young, exactly how to dismantle a very large dam, what to do with the sediment clogging the reservoir behind it, and how much such an operation would cost are all largely unknowns. Removing a hydrodam could cost even more than building one, especially where reservoir sediments contain heavy metals and other toxic contaminants

Safety is the most common reason for dam removals. Dams age at different rates and in different ways, depending on a variety of circumstances. Some dams may remain safe for a thousand years, while others may start to crack and leak after less than a decade. IRN says that around the world, some 5,000 large dam (defined by the industry as being at least 15 m. high) are now more than 50 years old, and the number and size of the dams reaching their half century is rapidly increasing. The average age of dams in the U.S. is now around 40 years.

Between 1977 and 1982 the Corps inspected 8,800 non-federal dams in the U.S., most of them privately-owned, which it classified as "high-hazard" - where a failure could cause significant loss of life. One-third of these dams were considered "unsafe," primarily because of inadequate spillway capacity. A 1994 survey showed at least 1,800 non-federal dams were still unsafe. The situation is similar for federal dams: in 1987 one-fifth of the U.S. Bureau of Reclamation's 275 dams were classified as unsafe, as were one-third of the 554 dams operated by the Corps themselves.

An *Ontario Hydro* study of data from several hundred North American dams shows that on average hydrodam operating costs rise dramatically after around 25-35 years of operation due to the increasing need for repairs. When the cost of maintaining an old dam exceeds the receipts from power sales, its owners must decide either to invest in rehabilitating the dam or, if the cost of repairs would be prohibitive, to disconnect the dam from the grid and cease producing power.

One of the largest dams to be removed in the U.S. to date is the 19-m. (62-foot) Grangeville Dam on ID's Clearwater River, which was dynamited in 1963 to restore salmon runs. A new report documenting hundreds of dam removals across the U.S. will be released this fall by *Friends of the*

Earth (FoE). The report contains a state-by-state listing of known dam removals, as well as detailed case studies of several completed removals. It also outlines pertinent issues which should be considered in a decision about whether to remove or retain a dam. The report provides policy makers and concerned citizens valuable information regarding past dam removals as they consider the future of dams in their own communities.

While safety and economics are the most often sited reasons for dam removal, the report documents several instances in which environmental restoration was a major factor. One example of a habitat restoration removal described in the report is that of ID's Lewiston Dam. The small blast that helped bring down the 45-foot-high hydroelectric dam in 1972 prompted ID Governor Cecil Andrus to comment, "for me, the [explosion] is a large one, for it symbolized ... that the main stem of the Clearwater River will always be free of dams." The dam removal improved the lot of migrating salmon and steelhead, and restored four miles of free-flowing river.

FoE's research found that dam removal has not been restricted to a particular type of dam, size of structure, or region of the country. Hydroelectric dams, municipal water supply dams, flood control dams, irrigation dams and mining dams have all been removed. While the majority of the historic removals have been smaller structures, dams over 75 ft. high have been taken out. The report found information on dam removals in every part of the U.S., from NM to WI to WA state. A free copy of the FoE report is available through their Northwest office at (206) 633-1661.

The HRC also has just released *"Relicensing Toolkit: Guidelines for Effective Participation in the FERC Relicensing Process."* Because FERC's relicensing procedures are complex, it can be difficult for parties less experienced with the process to participate effectively. The *Coalition* hopes that this "Tool Kit" will provide some assistance to groups and individuals as they seek to influence how a FERC dam will be operated. To get a copy of the Toolkit or for more information, contact: Andrew Fahlund *Hydropower Reform Coalition* 1025 Vermont Ave., NW, Suite 720, Washington, DC 20005, (202) 547-6900, E-mail: hrc@igc.apc.org, Web Site: www.amrivers.org/hydro.html

There are more than 74,000 dams listed in the 1993-1994 National Inventory of dams, which includes all dams that are at least 25 ft. high or hold more than 50 acre-feet of water, and thousands of smaller dams on rivers and streams around the country. As the case studies in the FoE report demonstrate, dam removal is a well-established response for dealing with unsafe, unwanted, uneconomic or obsolete dams. The decision to remove a dam is not as "radical" an idea as some opponents might imply: dams have been removed countless times, for a wide variety of reasons, and under many different conditions.

In addition to projects up for FERC review, there are many small abandoned hydro dams across the Mississippi River Basin that merit serious consideration for removal. According to the MI Department of Natural Resources (MDNR), several abandoned small MI dams have been washed out during storms in recent years. "These failures," says the MDNR, "have caused extreme erosion, excessive sediment deposition and destruction of aquatic habitat accompanied by the loss the fisheries." MI taxpayers, through the MDNR, have had to pay for removing several "retired" hydroelectric projects, while their former owners have suffered no financial liabilities.

In many cases these dams block access of the basin's fish to important spawning habitats. It is important to recognize that dams cannot and should not last forever. Dam removal is a necessary responsibility we have to our rivers and watersheds.

Sources: *Land Letter*, Vol. 16, No.23, 9/4/97, and Patrick McCully and Shawn Cantrell in *World Rivers Review*, Vol. 12, No. 4, 8/97

"smallmouth bass"

Flaming Gorge Dam Threatened

Several recent problems at the Flaming Gorge Dam on the Green River in UT have raised safety concerns for that 502 ft. dam. On 6/21, an emergency bypass tube at the dam sprung a leak in what the *Salt Lake Tribune* referred to as "the worst accident in the 35-year-old dam's history, and one of the worst in the annals of the *Colorado River Storage Project*." The leak flooded the power plant and automatically forced the dam to shut down, causing the water discharge to fall from 8,600 to 1,000 cfs. The change in flow killed fish and threatened the river's $25 million fishing and recreation industry.

Bureau of Reclamation (BOR) investigators found a 3 ft. wide hole in the bypass tube and a 3 ft^3. chunk of concrete missing near the base of the dam. BOR officials maintain that the dam was never in danger of failing. The dam was idle for ten days, costing the federal government an estimated $870,000 in labor costs and lost power. The loss of one of two bypass tubes forced the release of water from the emergency spillway, further endangering downstream fish. The spillway takes water from the top of the reservoir, which is too warm for the tailwater trout to survive.

Consequently, the downstream fish endured a 20° fluctuation in water temperature within 3 hrs.. Earlier this year, the dam experienced three power outages within a week which stopped its turbines.

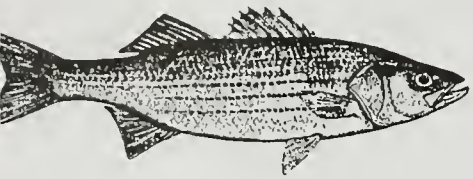
Source: Daniel Schact, *World Rivers Review New Briefs*, Vol. 12, No. 4, 8/97

Pumped Back Hydro Problems

Recent creel surveys at the Richard B. Russell (Thurmond) Lake in SC indicate a significant decline in the harvest of striped hybrid bass. This situation is setting the stage for a potential showdown between the state of SC and the U.S. Army Corps of Engineers (Corps) in the federal court system.

At the heart of the controversy are

four reversible turbines installed by the Corps for power generation at the Russell dam. During periods of low electrical demand, the Corps pulls water back into the impoundment with the new turbines, where the water is stored for later use



"striped bass"

From the onset, the SC Department of Natural Resources (SCDNR) has been an outspoken critic of the project, insisting that thousands of fish are literally shredded to pieces as they are carried through the turbines. State biologists insist that millions of fish have already been killed since the testing phase began several years ago.

"More information is needed to learn why the fish harvest was reduced. There may be other factors to consider, but the biggest change for 1996 was the operation of the four pump turbines," said SC biologist Tripp Boltin.

According to Boltin, creel surveys show a decline of 30%. Meanwhile, critics of the Corps project insist that a draft environmental impact study completed by the federal agency did not adequately address impacts of turbine operation on recreational fishing, fish entrainment, fish mortality, water quality, hydraulic conditions and the effectiveness of fish protection systems.

The state of SC, the *National Wildlife Federation* and its GA and SC affiliates sued the Corps once before to prevent potential fish kills. This suit occurred in 1988 before the four turbines were installed. The Corps began testing the turbines in 1992 under the guidance of a court-approved testing and monitoring plan. From that time until last year, the pump-back turbines were used infrequently.

The Corps was to release its final report in mid-June, at which time a 45-day comment period was to occur. If the Corps decides to use the turbines on a regular basis, it will have to convince a federal judge that no environmental harm will occur to the lake's recreational fishery. SC officials believe that damage is already occurring.

Source: Craig Lamb, *B.A.S.S. Times*, 8/97

River Diverted to Preserve Coastal Wetlands

The Army Corps of Engineers recently began work on the largest freshwater diversion in LA, diverting 2% of the Mississippi River's flow to preserve 33,000 acres of sediment starved marsh in Barataria Bay.

The $103 million project, which will ultimately aid nearly 800,000 acres of marsh and bays between St. Charles Parish and the Gulf of Mexico, was first authorized by Congress more the three decades ago. But, pipeline and oyster relocations led to delays, and resource managers were ultimately forced to move the project 25 mi. downriver.

Unlike the *Bonnet Carre Freshwater Diversion Project*, which has triggered protests from anglers and environmentalists, the Davis Pond Spillway has received support from natural resource advocates. Mississippi River water released through the Bonnet Carre diversion this year has been linked with algae blooms in Lake Pontchartrain (see next article).

"Not all diversions are created equal," said Mark Davis, Executive Director of the *Coalition to Restore Coastal Louisiana*. "In Pontchartrain, the impacts were not likely to be offset by the benefits. If the Barataria Bay models are correct, the benefits will be far greater and more effective than all of the other coastal projects put together."

The *Barataria Bay Diversion Project* includes an underwater channel, 535 ft. long by 85 ft. wide, which will draw river water through a control structure and into a series of 14 ft. by 14 ft. box culverts secured by iron gates to control the intake. From there the water will course through a man made channel beneath two roads to a pump station and a 9,200-acre ponding area. Weirs will control the flow from the ponding area into surrounding wetlands on a path to Lake Cataouatche, the adjacent Lake Salvador and beyond.

Within a year, officials hope to see a jump in marsh grasses and floating vegetation that binds soil and provides nurseries for shrimp, crabs and some saltwater fish. The heaviest diversion periods probably will fall between January and May, imitating nature's springtime flooding.

Source: *Mississippi Monitor*, 8/97

Mississippi River Linked To Lake Pontchartrain Algae Bloom

The oxygen-robbing bloom of bluegreen algae and the declining fish catch predicted by conservationists when the Corps of Engineers (Corps) opened the *Bonnet Carre Spillway* have both materialized, officials with the *Lake Pontchartrain Basin Foundation* said. Fishing has been extremely bad since the opening of the spillway, and now a blue-green algal bloom has appeared, said the Foundation's Neil Armingeon.

In the past, blue-green algae has caused odors and fish kills in Lake Pontchartrain after large amounts of Mississippi River water got into the lake. No fish kills from the current algal bloom have been reported. But Foundation officials said the amount of algae is already fairly large, and they fear it will worsen, particularly if warm, relatively still weather continues. Algae blooms occur in warm, non-flowing water that contains high levels of nutrients. The blooms can take over the surface of a lake or pond under certain conditions.

"It's very visible along the north shore, and also showing up in the middle of the lake," Armingeon said. "We're afraid this is the beginning of a worse algal problem. But it's not surprising that when you pour millions of tons of nitrogen and phosphorus in a shallow estuary that you get algal blooms," he said, referring to the opening of the

spillway.

A number of conservationists, fishermen and environmental groups opposed the opening, saying it would hurt fishing and lead to algal blooms because of the high levels of fertilizers and other nutrients combined in Mississippi River water. Officials with the Corps maintain no evidence links the algal bloom to the spillway opening, and say many other sources put high levels of nutrients in the lake.

Bruce Baird, a Corps biologist, said high levels of nutrients are indeed showing up in the lake. But only some of that is the result of Mississippi River water, Baird said. Sewage from New Orleans and runoff into waterways that drain into the lake also add nutrients, he said.

The Corps opened the spillway in mid-March to relieve the pressure high water was putting on the Mississippi River levees that protect New Orleans. Opponents said the flooding danger wasn't big enough to justify opening the spillway and harming Lake Pontchartrain. A month later, after the danger of flooding passed and the lake's brackish water was mixed with fresh water from the river, the Corps closed the spillway.

Conservationists said previous openings of the spillway — and even heavy leakage through the spillway's planks during high water — have caused algal blooms.

Source: *Mississippi Monitor*, 8/97

Fish Killed by Toxic Ambush-Predator

The toxic ambush-predator dinoflagellate *Pfiesteria piscicida* has been implicated as a causative agent of major fish kills in several tributaries to the Chesapeake Bay. MD Natural Resources Secretary John Griffin estimated as many as 11,000 fish deaths, but fishers said up to 50,000 may have died. Dr. JoAnn Burkholder, a *NC State University Pfiesteria piscicida* expert, found the organism present in MD's Pocomoke River at toxic levels, and confirmed that the microbe contributed to the August fish deaths.

Similar fish kills occurred in MD's Kings Creek, a branch of the Manokin River, about 15 miles north of the site of the first fish kill; and in the Chicamacomico River. *Pfiesteria* has been blamed for killing more than a billion fish in NC in recent years and has also been found in FL waters.

A state-appointed panel of MD health experts said on 9/17 that people exposed to waters containing the toxic microbe *Pfiesteria piscicida* can develop chronic memory and learning problems "that increase with higher exposure." The team created by MD Gov. Parris Glendening (D) said humans can develop symptoms without coming into contact with fish kills. Still, study leader Glenn Morris said the research on 28 residents of MD's Eastern Shore indicated that people with little exposure to *Pfiesteria* infected water showed only mild symptoms. Doctors said there is no evidence to suggest people could become ill by eating seafood, but some MD grocers have refused to buy local seafood anyway because of customers' concerns.

The state-appointed team of physicians from *Johns Hopkins University* and the *University of MD* said the group of state environmental officials, fishers, crabbers and students examined on 9/12 showed difficulties with memory and learning. Study leader J. Glenn Morris said the symptoms were similar to those identified among 12 people who had been exposed to *Pfiesteria* in the Pocomoke River before and during an 8/8 fish kill. One Pocomoke River water-skier was treated for lesions and a form of encephalitis, a brain inflammation. Also, MD officials said three state workers were among the 14 people who became ill after coming in contact with the Pocomoke River during the August fish-kill. A doctor attending two of the employees said they suffered blisters and peeling skin on areas exposed to river water, as well as memory loss and respiratory problems.

The university researchers could not attribute the health problems to any other medical cause, and MD Health Secretary Martin Wasserman said there is a "likely link" between the people's illnesses and *Pfiesteria*.

Many environmentalists and some scientists have said that nitrogen pollution from the region's poultry industry is a cause of the outbreaks. Following the fish kills, scientists investigated and found that chickens raised in the 430 m^2. Pocomoke watershed produce an amount of manure equal to the amount of sewage produced by a city of 1 million people. The manure is typically applied as fertilizer to farmland and eventually makes its way into the Pocomoke through runoff and leaching. State Delegate James Hubbard (D) has said he plans to sponsor a mandatory nutrient-management bill in the next legislative session to address the growing pollution concern. But other legislators warned that such a bill would face stiff opposition from the agriculture industry.

Meanwhile, fish with *Pfiesteria*-like lesions were also discovered VA's Rappahannock River, causing one scientist to "raise the possibility that the toxic microorganism has been attacking Chesapeake Bay fish for years." Eugene Burreson of the *VA Institute of Marine Science* could not determine whether *Pfiesteria* was to blame for the lesions, which appear on young menhaden in the river every fall. Burreson said such lesions have been detected since 1984 and that "there have never been any human health problems and no fish kills". Gregory. Garman, environmental center director at *VA Commonwealth University*, said the discovery of *Pfiesteria* in the Rappahannock would challenge the theory that nutrient pollution is to blame for the outbreaks, because the river is one of VA's cleanest.

MD and DE officials said they suspect that *Pfiesteria* may have caused fish kills on the East Coast as far back as 1982." Research published in 1987 by the National Oceanic and Atmospheric Administration details the discovery of fish with lesions in 30 eastern waterways, but scientists at the time attributed the lesions to a fungal infection. Sergio Huerta of the DE Dept. of Natural Resources and Environmental Control said a major fish kill in 1987 in the Indian River south of Rehobeth, DE, appears to have been caused by *Pfiesteria*.

Although scientists have not proven the theory that waste runoff has caused the problem, MD officials say there is enough evidence of a link to step up the state's overhaul of 64 wastewater treatment plants to reduce the amount of nitrogen and phosphorus that enter the bay. Regulators including EPA regional administrator W. Michael McCabe have suggested the *Pfiesteria* outbreaks may also lead to stricter agricultural pollution rules, including tougher permit requirements. Meanwhile, a Hampstead, MD, mechanical engineer has developed a furnace that uses chicken manure to heat poultry houses. Steve Vayda's research has attracted funding from the MD Dept. of Business and Economic Development and the U.S. Agriculture and Energy departments; some officials say the innovation might help reduce manure runoff.

The *Pfiesteria* problem was significant enough to attract the attention of the White House, and officials assembled a meeting of federal experts on 9/11 to discuss the threats posed by the organism. "In all, five governors, several cabinet secretaries and President Clinton focused part of their day on *Pfiesteria*. Spurred by the concerns of MD Gov. Parris Glendening (D), the Clinton administration guaranteed to provide "as much help as possible."

Speaking at a news conference, Glendening said he had spoken to the President and to VP Gore about the issue, and he predicted that tighter limits on farm runoff would be required to fight the toxic microbe. The governor "stopped just short of saying he expected legislation to impose mandatory controls" on poultry farms in bay watersheds. "But he made it clear that he thinks the current voluntary system is not working." Glendening also formed a blue-ribbon panel comprised of farmers, scientists, environmentalists and lawmakers who will study the problem and propose solutions by 11/1.

In Richmond, VA Gov. George Allen (R) said he would form a similar committee. Glendening said MD would immediately allocate $2 million to farmers to help them plant "cover crops" this winter to stem nitrogen runoff. On 9/11, the U.S. House voted to spend $7 million to research *Pfiesteria's* effect on human health in the Mid-Atlantic states. VA Gov. George Allen (R) on 9/23 announced a $2.3 million plan to research the microbe and increase monitoring efforts. He also said he would establish an expert medical panel similar to MD's.

Regarding the organism itself, Dr. Burkholder and her colleagues describe *Pfiesteria* biology in the abstract of a recent paper as follows:

"...P. piscicida is stimulated by fresh fish secreta, and it was lethal to all 19 species of native and exotic finfish and shellfish bioassayed in culture; thus far in field and aquaculture kills linked to the dinoflagellate, 13 additional fish species have been affected. Field data in combination with confirming laboratory bioassays documented toxicity at temperatures ranging from 12° C to 33° C, with most outbreaks occurring at 26°C or higher. *P. piscicida* also exhibits wide salinity tolerance; it was lethal to fish from 0 to 35 ppt in calcareous waters, with an optimum salinity for growth and toxic activity at 15 ppt. It was toxic to fish day or night (greater than or equal to 250 toxic zoospores ml^{-1}) without an apparent light optimum, in experimental laboratory conditions ranging from 0.2 uEin m^{-2} s^{-1} (darkness for all but 30 to 60 s at 20 uEin m^{-2} s^{-1} per 24 h period) to 200 uEin m^{-2} s^{-1} (12:12 h light:dark cycle). Moreover, field fish kills have occurred in darkness and at light intensities up to 2400 uEin m^{-2} s^{-1}. Through direct microscope counts of water samples, confirmed identifications with scanning electron microscopy, and confirmed toxic activity in bioassays, *P piscicida* was implicated as the causative agent of 52 +/- 7% of the major fish kills (affecting 10^3 to 10^9 fish from May 1991 to November 1993) on an annual basis in North Carolina estuaries and coastal waters. Since their discovery in natural habitat during 1991, *Pfiesteria*-like species also have been tracked to eutrophic sudden-death fish kill sites in estuaries, coastal waters, and aquaculture facilities from the mid-Atlantic through the Gulf Coast. Toxic ambush-predator dinoflagellates likely are widespread in warm temperate/subtropical regions, acting as significant but often undetected sources of fish mortality and disease."

Sources: National Journal's *GREENWIRE The Environmental News Daily*, 8/8,8/15,9/2,9/8,9/11,9/12, 9/15,9/16,9/17, 9/18, and 9/24/97; and Burkholder, J.M.; H. B. Glasgow Jr, and C. W. Hobbs. 1995. Fish kills linked to a toxic ambush-predator dinoflagellate: distribution and environmental conditions. *Marine Ecology Progress Series*, Vol. 124: 43-61.

Hog Waste Update

Murphy Family Farms, Smithfield Foods, Carroll's Foods and Prestage Farms are building the nation's largest hog operation in southwestern UT. The *Circle Four Farms* will be "so large that it dwarfs the industrial-style" hog farms in NC that have come under fire recently after a series of waste spills. By the year 2000, the UT operation is expected to annually produce up to 2.5 million hogs. The *Circle Four* partners say their farm's remote location near Milford, UT, will limit waste-spill and runoff risks. And they have "agreed to the kind of land-use regulations vigorously opposed" by NC hog farmers, such as siting buildings more than three miles from any home. But some residents "complain that the *Circle Four* partners have talked and bought their way into UT politics".

The *Farmers for Fairness* lobby group based in NC has begun airing radio and TV advertisements attempting to derail legislation that would put a two-year moratorium on new hog farms in that state. The ads "imply" that municipalities, not pork producers, are to blame for diminished water quality in eastern NC. The state's pork producers blame city sewage plants for pollution in NC's rivers, and are urging local officials to force all polluters to "pay for every pound of algae-spurring, fish-choking nitrogen" they dump into a river. The *Farmers for Fairness* are also objecting to a proposed $1 billion bond issue that would finance wastewater treatment plant upgrades. The group "wants to move the debate away from improving sewage plants that sometimes pollute to punishing everyone" involved.

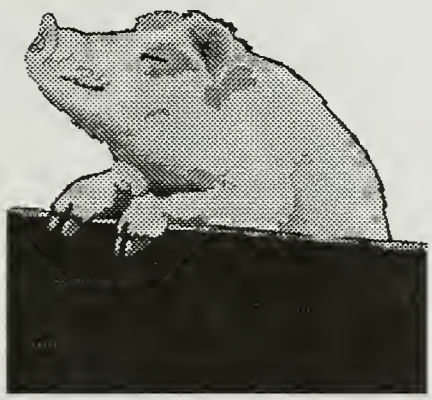
Don Reuter of the NC Dept. of Environment, Health and Natural Resources said that farmers and sewage plants are required to report all sewage spills, but that hog farms do not face the same extensive monitoring as treatment plants. "Citing a pattern of pollution violations," state water regulators are investigating the environmental compliance record of the world's largest hog slaughterhouse in Bladen County, NC. The *Carolina Food Processor* pork plant, owned and operated by VA-based *Smithfield Foods*, has been cited for violations 20 times and fined $32,000 for "dozens of other" pollution infractions since 1993, according to the state Division of Water Quality (DWQ). Most of the violations involved high levels of pollutants in the 3 million gallons of waste the plant releases into the Cape Fear River each day. Ernie Seneca of the DWQ said the agency would examine all of the company's environmental records, including those related to a VA case which recently resulted in a $12.6 million fine for polluting the Pagan River.

In VA several hundred opponents of hog farms planned for central and southern VA packed a hearing held by a state legislative committee studying the expansion of the hog industry. Joseph Maroon of the *Chesapeake Bay Foundation* urged the lawmakers to impose a two-year moratorium on new farms similar to the one adopted by NC Gov. Jim Hunt on 8/27.

In PA state Senate Majority Leader Robert Jubelirer (R) is proposing a new agency to draft guidelines for that state's expanding hog industry. Many rural residents say the industry lacks oversight. Regulations aimed at controlling agricultural runoff into PA waterways takes effect on 10/1. The Nutrient Management Act will require owners of large-scale dairy, chicken and hog farms to design and implement plans to control waste runoff.

"Providing what could be a powerful tool for local officials" in KY, that state's attorney general's office on 8/21 said counties have the power to regulate large hog farms. KY Assistant Attorney General Ross Carter's opinion, which is not legally binding, "comes amid growing controversy over two large hog farms planned in western KY that together would produce about 600,000 pigs per year." That state's pork industry had argued that KY's right-to-farm laws kept counties from regulating "normal and accepted" agricultural operations as a nuisance. But Carter said that the laws were meant to protect family farms and that modern corporate hog farms "are less a farm than a manufacturing facility." Critics of the farms have said that state regulations don't address potential pollution and stench from hog waste. Gov. Paul Patton (D) recently ordered the state to develop emergency hog-waste regulations and has told the state to stop issuing permits for hog-waste systems. "Simmering emotions" over the issue "may have contributed" to the shooting of a hog-farm opponent at a proposed facility in Hickman County, KY, earlier this summer.

OH state Sen. Dick Schafrath (R) has proposed a joint legislative commission to study the effects of



high-density livestock farms on that state's environment and economy. But state Sen. Karen Gillmor (R) said the industry has been studied enough and lawmakers shouldn't "wait another two or three years" to act. She plans to introduce a measure that would put "tougher" restrictions on large-scale farms, which are currently exempt from many environmental laws.

In MO the attorney general has launched an investigation into the waste-discharge practices of Kansas City-based *Premium Standard Farms*, the nation's third largest pork producer. The state Dept. of Natural Resources has alleged that *Premium Standard* has discharged wastes without a permit, operated unapproved waste-collection systems and overapplied waste as fertilizer on farm land. *Premium Standard* officials acknowledge "only one recent spill" in northern MO in June. The firm also faces a federal lawsuit filed in July by the *Citizens Legal Environmental Action Network*, alleging even more violations

Seward County, KS, on 9/16 became the 18th county in Kansas to oppose new corporate hog operations. Residents voted two to one to block a proposed farm that would house 400,000 hogs, and Seward County commissioners said they will honor the referendum in their decision on whether to allow Shawnee Mission, KS-based *Seaboard Farms* to build. Jim Shantz of NC-based *Murphy Family Farms*, the U.S.'s largest pork producer, said the Seward County decision would not have long-term effects on the industry. Shantz said, "There are other communities where corporate farming is being welcomed." But Nancy Thompson of the Walthill, NE-based *Center for Rural Affairs* said the Seward County vote, like similar ones in NE, KY and the other KS counties, "reflected a widely held sentiment."

In OK water-quality issues related to large hog farms are some the most important facing the administration of Gov. Frank Keating (R), according spokesperson Brian Griffin. The governor's Animal Waste and Water Quality Protection Task Force must propose legislation or regulations addressing corporate farms by 12/ 1.

In NE Attorney General Don Stenberg on 8/27 ruled that state lawmakers may impose a moratorium on the construction of large hog farms in order to protect the environment and public health. State Sen. Cap Dierks, who requested the nonbinding opinion, said that he may propose a moratorium that would give county officials time to implement restrictions on hog farms.

In a poll taken in IA, a majority of those questioned say that state law should not encourage formation of huge hog operations. When asked if IA laws should encourage or discourage large hog operations, 59% said

these farms should be discouraged, 32% were in favor of the big operations, while 9% were not sure. While 59% said the law should discourage big hog farms, an even larger majority said the law should be tough when it comes to controlling agriculture pollution. Sixty-eight percent said farming practices that cause pollution and odor problems need to be severely restricted, even if that has a negative impact on farmers. The poll also found that a majority of Iowans believe that small family farms are efficient and competitive. Sixty percent said small farms are efficient enough to compete with big ones, while 17% disagreed.

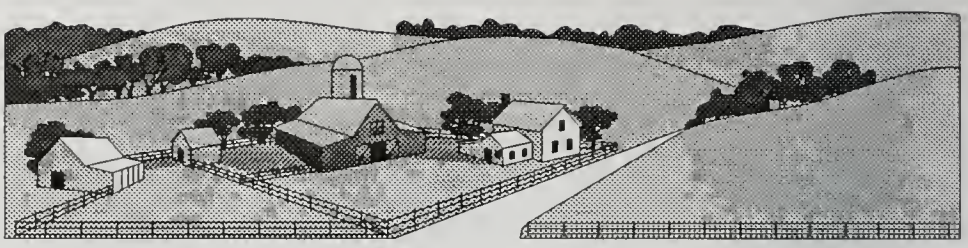
Fish kills have cropped up all over the Mississippi River Basin this year related to spills of hog wastes from intensive livestock production facilities. Concentrations of animals in confinement operations such as these, and the intensive use of their wastes to fertilize farm crops in localized areas can lead to outbreaks of disease and pest organisms. The outbreak of the toxic ambush-predator, *Pfiesteria piscicida*, in the tributaries to the Chesapeake Bay (see previous article) may just be a harbinger of things to come for other rivers across the country unless adequate measures are taken to regulate these activities. We didn't have these problems when the land was less populated, and agricultural activities were spread out across the country-side in the form of family farms.

Sources: National Journal's *GREENWIRE The Environmental News Daily*, 8/6,8/20,8/26,9/3 9/16 and 9/2297; and Mississippi Monitor, 8/97

Livestock Feeding, Corn Prices, & Navigation

The impact of intensive livestock feeding operations is beginning to be reflected in corn prices across the state of IA. This in turn, could soon be reflected on demand for use of the state's rivers for export of grains to foreign markets.

This discussion surfaced in a *Des Moines Register* article last spring, but more recently, became the subject of a "pointed" discussion between a Mississippi River floodplain farmer and an inland farmer at a late August meeting held in Davenport, IA to discuss Mississippi River environmental and navigation issues. The inland farmer argued against expansion of the Upper Mississippi River navigation system, saying that the trend is toward production of grain for secondary markets (i.e. ethanol and livestock) and away from export, which in turn, will lead to a decline in demand for expanding the navigation system.



The *Des Moines Register* article reported that according to a trio of *IA State University* (ISU) economists, the prices of corn in various localities across the state demonstrate the impact of livestock feeding operations — mostly large-scale pork and poultry facilities — on crop prices. The economists say that increased demand for corn by livestock operations promises to change IA's traditional corn pricing patterns.

In the past, local corn prices have been determined by distance from the Mississippi River. "In general, grain producers in regions farthest from export ports will receive the lowest grain prices," wrote ISU economists Dermot Hayes, Daniel Otto and John Lawrence in a report called *"Pork Production in Iowa: An Industry at a Crossroads."* Because of their relative distance from export ports, landlocked IA corn producers receive some of the lowest corn prices in the world, the economists said. And because of the cost of transporting corn from inland IA to the Mississippi River, corn prices in north-central IA tend to be lower than corn prices in southeast IA, which is nearer the river market.

The economists said that largescale hog and poultry operations established in the past four years have the potential to soak up all the corn produced in the county where a production facility is located, thus driving up the local price and altering the state's traditional marketing patterns. As local demand for corn increases because of livestock feeding, there will be less incentive to ship corn to export markets via the river. In fact, if livestock feeding expands so much that localities become corn-deficit areas, corn might start to move from the river west, counter to the current pattern, the economists said.

Such changes in regional economic patterns and movement of grain away from the river could have a major effect on the demand to expanding navigation capacity on the Mississippi River, and could be good news for the River's ecosystem.

Source: By line article by Jerry Perkins, Farm Editor, *Des Moines Register*, 3/24/97

Flood Control/Navigation Plan Draws Fire From Farmers, River Users

A coalition of levee districts, navigation boosters and other economic interests have proposed a comprehensive plan for the Upper Mississippi River which would expand some levees and deepen the river's navigation channel. But the proposal faces as much opposition from floodplain farmers as from advocates for reclamation and river wildlife.

The *Upper Mississippi, Illinois and Missouri Rivers Association* (UMIAMRA), formerly the *Upper Mississippi Flood Control Association*, commissioned a study by *Delft Hydraulics*, a Dutch water resources firm best

known for recommending 1,250-year levees along portions of the Rhine River in the Netherlands. Although the Association's members initially supported the study, some supporters of the organization, which includes 120 levee and drainage districts now oppose *Delft's* recommendations.

The *Delft Report* makes the following statements:

• The Corps of Engineers could be far more effective if the agency were to have a "mandate" to fully control publicly owned floodplain land and all levees (public and private), and to strive for balanced use of the river for all users and functions, now and in the future.

• The resources of the river and floodplains could be used more intensively, without compromising sustainability, providing that planning of the use of resources is carried out properly. The government should initiate such planning. The planning process would be steered away from one marked by confrontation of interests to one in which stakeholders "actively participate with an attitude of willingness to reach compromises.'

• The nation's interest in the economic development of the Upper Mississippi, Illinois and Missouri River Basin seems poorly reflected in the restricted way future benefits are calculated by the Corps. The present estimation of future benefits under values economic development and environmental protection. A balanced River Basin Development Plan for the Upper Mississippi, Illinois and Missouri River Basin, drafted interactively with participation from all parties concerned, will improve the understanding of the complete, interrelationships between environmental protection, resource. use, and river and floodplain development.

• The interests of the farmers on the bottomlands should be properly taken into account in river management, in particular, flood management, river navigation, and seepage and drainage issues. Damages incurred by farmers due to river and flood management operations need to be compensated, and farmers who move buildings out of the floodplain and allow their land to be flooded should be compensated, both for lost revenues from crops and for some of the benefits to society of not having to build more costly flood protection.

• Given cost considerations, increased flood safety will, for the near future primarily rely on improving the levee system and not on reducing flood stages by other means. One option might be to raise rural levees upstream of large urban and industrial areas to 500 year levels. During extreme floods, rural areas could be inundated deliberately to bring down the peak flood stage at urban areas.

• The government should invest to allow river navigation to expand. With a limited amount of annual dredging, the depth of the navigation channel can be increased to more

than 9 ft. depth. Studies should be conducted for 10, 11, and 12 -foot channels. To allow 12-foot navigation, the locks do not need adjustments. The existing lock system along the Mississippi and Illinois rivers is currently near capacity.

• The Upper Mississippi, Illinois and Missouri rivers, although undoubtedly impoverished compared to the "natural state," still exhibit river corridors of outstanding natural beauty and ecological importance. Nature restoration should concentrate on the rehabilitation of the river processes, rather than the creation of habitats for specific species. If wetlands are well distributed along the river ("a string of pearls"), the river ecosystem itself will develop the cover types and species populations belonging to the system.

Two Rivers Levee and Drainage Association, a newly formed consolidation of 50,000 acres of farm land located just north of Burlington, IA, has opted to withhold their support of the *Delft Report* because of the report's proposal to deliberately inundate some areas of the floodplain in favor of higher levees and increased protection in urban areas. The report places a special emphasis on the St. Louis area, where the *Delft* team has proposed raising levees to 500-year levels.

Richard Siegle lives and farms the bottomlands near Oakville, IA and was an avid supporter of the comprehensive plan last fall. He toured much of the Upper Mississippi, along with UMIMRA'a then-Chairman John Robb of rural Gladstone, IL and *Delft* Water Resources Engineer Jost Dijkman of the Netherlands, holding town meetings and soliciting funds in support of the developing concept

But now Siegle. who is also chairman of the *Louisa-Des Moines County Drainage District No. 4*, feels irate and disillusioned. "Their recommendation was to put in a gate above Burlington. If the water got too high and Burlington might flood, they would open that gate and let the floodwaters come in here. How can you have members paying dues and expect them to support this," he said recently during a telephone interview. Later he commented, "And another thing, the banking associations won't loan money to landowners if they know the land might be flooded."

Siegle's sentiments are shared with other landowners and members of the *Two Rivers Levee and Drainage Association.* Their land, which is currently protected by a levee and regularly pumped and drained of any excess water, was able to withstand the flood of 1993.

"Ours was one of the few levees that didn't break in '93," says *Two Rivers* Administrator Vicki Stoller. "And there are homes behind that levee." There are parts of the *Delft Report* UMIMRA's membership is willing to support, such as expanding levees and increased dredging of sand from the river's navigation channel. *Two Rivers*

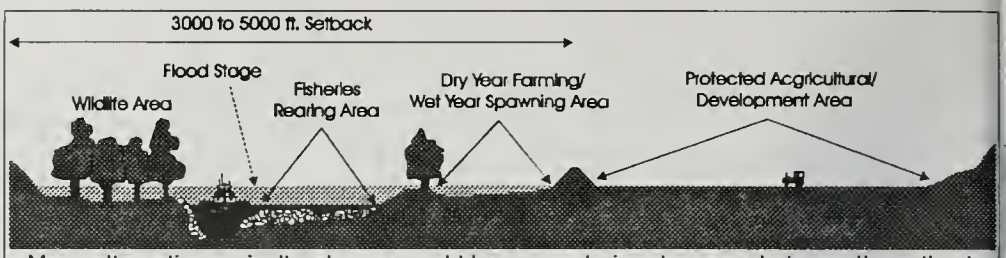
would like to see the dredged sediment used to strengthen and fortify their levees. "We feel it would be just as economical in the long run if the Corps would do that instead of using the sand to build another island, or take it down river and drop it in a hole," Stoller says

UMIMRA's plan, based on the *Delft Report*, is now spearheaded by newly elected President Dave McMurray in Hancock County, IL, a fertile strip of river towns and agricultural lands located across from *Two Rivers'* levee and drainage districts. Weakened levees broke and the area received substantial flood damage in the spring of 1993. McMurray hopes that "in this next round of budgeting ... next year ... a Congressional review of the Delft plan can be put in place."

But that plan is facing competition. Currently, the Corps spends $130 million annually to maintain the river's navigation channel and is conducting a $45 million study on the feasibility of lengthening locks from 600 ft. to 1200 ft. The *Delft Report* proposes lengthening the locks and widening the channel to limit delays, increase commercial and recreational navigation, and allow two-way barge traffic. Ultimately, the lock expansions could cost more than $1 billion, according to the Corps.

Conservation groups are concerned that expanding navigation and flood control will reduce the river's value for recreation and tourism. "It is ludicrous to think about expanding the navigation system to benefit a few at the expense of a $1.2 billion recreation industry," said Suzi Wilkins, Executive Director of the *Mississippi River Basin Alliance*, referring to plans such as those suggested in the *Delft Report*. "If the system crashes and we lose natural resources, we lose the economic benefit derived from it."

Environmentalists aren't the only ones concerned with the effects of implementing this plan. Jack Voelker and Randy Winegard were quick to give UMIMRA's lofty ideals a thumbs down while preparing for a pleasure boat cruise upriver. The two Burlington businessmen both agreed that, economically, the plan wasn't practical. "They phrase everything as economic development, but think of what that will cost," says Voelker. A retired-yet very vocal-river authority, Jack gave a series of lectures on river issues after the '93 flood and has attended some of UMIMRA's meetings. He also owned and operated a chartered river boat business for a number of years.



Many alternative agricultural crops could be grown during dry years between the setback levees of a floodway system. During high water years these same areas would serve as important spawning and rearing areas for riverine fishes.

"We're just going to have to get everybody together, explain what's happening, and give some of the land back to the river," he explains. Citing the building of levees as a major contributor to intense flooding problems, Winegard adds, **"I don't think we should be building the levees any higher. I think we'll just create more flooding and bigger floods.**

Source: Carolyn Noon, *Mississippi Monitor*, 8/97

Floodplain Farming Survey/Options

In August, the *Minnesota River Basin Joint Powers Board* surveyed floodplain landowners in the Minnesota River floodplain to help identify profitable land uses that meet both economic and conservation needs. In particular, information was requested on interest in crops that tolerate flooding, but also resist erosion and increase wildlife habitat. More than 250 landowners replied to the survey and more than 150 attended workshops in Granite Falls, New Ulm and Le Sueur.

Workshop participants expressed an interested in renewable energy crops, tree production, grasses like reed canary grass, and hunting leases. In the next 18 months, plans are being made to work with floodplain experts like *American Rivers* to analyze and demonstrate floodplain land uses to measure their economic potential and conservation benefits. Todd Lein, a floodplain farmer from Northfield, has been contracted by *American Rivers* to demonstrate many of the flood tolerant uses of the floodplain about which interest was greatest. Results of the survey follow:

- **Percentage of landowners wanting information about various floodplain uses (respondents could pick two):**

Renewable energy crops	29%
Timber and pulpwood	25%
Hunting leases	22%
Hay and forage	16%
Grazing	14%
Fruit and nut trees	10%
Alfalfa	9%
Rice	3%

- **Obstacles to adopting alternative floodplain land uses*:**

Equipment costs	37%
No market	37%
No experience	29%
Getting loans	23%
Climate	19%
Tradition	19%
Soils	14%
Peer pressure	13%
Transportation costs	12%

* Percent rating each as a tough obstacle.

- **Percentage saying these things would encourage them to grow alternative floodplain crops (respondents could pick three):**

Tax credits	40%
Long-term contract with crop end users	40%
Assurance that alternative crops will improve the Minnesota River	40%
Income support payments	37%

Knowledge provided by other experienced landowners	20%
More information from local extension services	13%
Flexible easements	13%
Participation in a cooperative buying arrangement	10%

• Percentage of floodplain landowners who have grown alternative crops in the past*:

Alfalfa	25%
Wheat	23%
Oats	19%
Small Grains	5%
Hay	4%
Sunflowers	4%
Edible beans	3%
Sorghum	3%
Grasses	2%
Flax	2%
Rye	2%

* 53 % of floodplain landowners said they had grown crops other than corn, soybeans or sugar beets in the floodplain.

• Top reasons to try alternative floodplain land uses (respondents could pick three):

Restore the river's natural filtration system	59%
Reduce crop losses associated with flooding	50%
Restore habitat for river wildlife	40%
Improve quality of drinking water	38%
Increase income potential	37%
Absorb excess phosphorous and nitrogen found in fertilizer	24%

• Threats to the Minnesota River*:

Bank erosion	33%
Loss of wetlands	28%
Inadequate sewage treatment	25%
Manure lagoon failures	25%
Runoff from farms	24%
Pollution from factories	22%
Erosion from farms	18%
Animal waste management	17%
Faulty septic tanks	14%
Suburban development	12%

* Percentage rating each as extremely serious

• Best solutions for cleaning up the Minnesota River (respondents could pick three):

Improved tillage and land use practices	49%
Wetlands restoration	42%
Regulate polluting industries	36%
Bank stabilization	35%
Better livestock waste management	25%
Sewage treatment plants	23%
Land acquisition	13%
Alternative crops	13%
Replace aging septic tanks	11%
Zoning controls	8%

Contact: Melissa Gerr, *Minnesota River Basin Joint Powers Board*, 2610 Freemont Avenue S, Minneapolis, MN 55408

Hypoxia Study

An oxygen-depleted (hypoxia) "dead zone" in the Gulf of Mexico thought to be caused largely by fertilizer use in the Mississippi River watershed has spread across nearly 7,000 mi^2 each summer since 1993. The oxygen-poor conditions arise from the growth and decay of too much algae, caused in turn by nitrogen in agricultural runoff, sewage discharges and air pollution throughout the central U.S. The river basin drains 65% of the nation's harvested cropland, and nearly half of the 11 million tons of nitrogen fertilizer used in the U.S. each year is applied in the region.

Concern about the dead zone's impact was led the *Earthjustice Legal Defense Fund* to warn the USEPA in 1/95 that runoff into the Mississippi River was violating state and federal water pollution standards. "Out of this came official EPA acknowledgment" of the dead zone's seriousness and a commitment to stem its spread, according to *Earthjustice's* Nathalie Walker. The agency now is establishing a 26-state task force to address the situation. The "ambitious" 18-month project involving independent scientists and officials from the federal government and 26 states in the Mississippi River Basin will try to determine what can be done to stop the problem.

Scientists agree that the dead zone is caused by increasing pollution flushed into the gulf from the Mississippi River Basin. Six teams of experts will meet to "resolve scientific questions and develop options" for slowing the flow of pollutants into the Gulf, according to Dan Scavia of the National Oceanic and Atmospheric Admin. But "solutions may not come easily." More than 40% of the continental U.S. is drained by the Mississippi and the "bulk" of the river's nitrogen nutrients come from farm runoff. The "most likely" plans to limit pollutants could include "unpopular" controls on agriculture, such as buffer zones along rivers and streams.

Donald Boesch, director of MD's three major Chesapeake Bay laboratories, said that at a *Midwestern Farm Bureau* conference earlier this month, farmers "sometimes got pretty hostile" in discussing the problem, but "many were genuinely trying to understand [it]".

Source: National Journal's *GREENWIRE The Environmental News Daily*, 7/30 and 8/25/97

Designing Riparian Buffers for Agricultural Lands

According to experts at a recent *"Farming the Floodplain"* conference, sponsored by *The Wetlands Initiative* in Moline, IL there are **virtually "unlimited funds" available under the current farm bill to develop riparian buffers for the nation's streams and rivers.** For more information on this program readers are encouraged to contact their local National Resource Conservation Service (NRCS) office.

One of the handouts provided at the *"Farming the Floodplain"* conference detailed how to design such a buffer for agricultural lands. That handout is summarized below:

There are four basic steps in designing a successful riparian buffer They include:

- Determining what benefits are needed;
- Identifying the best types of vegetation to provide the needed benefits;
- Determining the minimum acceptable buffer width; and
- Developing an installation and maintenance plan.

Riparian buffers can:

- reduce unacceptable bank erosion;

- reduce erosion from cultivated crops, livestock enclosures, or grazing along a waterway;
- reduce algae blooms or excessively turbid water;
- increase the amount of shade and larger debris for fish habitat;
- enhance wildlife habitat;
- enhance the diversity of vegetation and landscape beauty;
- etc.

The three basic types of vegetation including grasses, forbes, shrubs, and trees each provide certain benefits. Grasses are best at filtering sediments, nutrients, pesticides, and microbes; while providing for range, pasture, and prairie wildlife. Shrubs are excellent at stabilizing stream banks, while providing for aquatic and riparian habitats, enhancing visual diversity, and providing for flood protection. Trees provide excellent bank stabilization; while filtering both soluble and sediment bound nutrients, pesticides, and microbes; providing for forest wildlife, economic products, visual diversity, and flood protection.

The minimum acceptable buffer width is the one that provides acceptable levels of all of the landowner's needed benefits at an acceptable cost. Minimum acceptable width is determined by the specific benefit that requires the greatest width. For most benefits, research information is limited, but best estimates are as follows:
- bank protection - at least 20 ft.
- sediment runoff - at least 25 ft.
- aquatic habitat - 35-50 ft.
- wildlife habitat - 45-60 ft.
- nutrient runoff - 50-95 ft.

As noted below, required widths may vary a great deal depending on site conditions, vegetation type, and landowner objectives:

- **Stabilizing eroding banks** - On smaller streams and lakes, good erosion control may require only the width of the bank to be covered with shrubs and trees. Extending buffer vegetation beyond the bank is necessary where more active bank erosion is occurring. Severe bank erosion on larger streams will require special engineering practices to stabilize and protect the bank.

- **Filtering sediment and sediment attached contaminants from agricultural runoff** - For slopes less than 15%, most sediment settling occurs within a 25 to 30 ft. wide buffer of grass. Greater width may be required for shrub and tree vegetation, on steeper slopes. or where sediment loads are particularly high.

- **Filtering soluble nutrients and pesticides from agricultural runoff** - Widths up to 100 ft. or more may be necessary on steeper slopes and less-permeable soils to obtain sufficient capacity for infiltration of runoff, and vegetation and microbial uptake of nutrients and pesticides. Dilution of contaminant-rich runoff by rain falling on the buffer is directly related to buffer width.

- **Providing shade, shelter, and food for aquatic organisms** - Warm water fisheries may require only very narrow buffers, except where shade and temperature control is needed to discourage algae blooms. Width up to 100 ft. in trees may be needed for adequate shade and water temperature control for cold water fisheries in warmer climates.

- **Providing wildlife habitat** - Width required is highly dependent upon desired species. For example, NE NRCS standards call for a minimum of 45 ft. of grass to promote upland game birds. Generally, larger animals have greater minimum width requirements, particularly interior forest species. Narrower width may be acceptable where a travel corridor is desired for connecting larger areas of habitat.

- **Producing Economic products** - Minimum width requirement is highly dependent upon the desired crop and its management. Tax incentives and cost-share program requirements must also be considered in determining buffer width from an economic standpoint.

- **Visually diversifying a cropland landscape** - Width required to obtain acceptable visual diversity depends entirely on the landowner's opinion.

- **Protecting cropland from flood damage** - Smaller streams may require only a narrow width of trees or shrubs to adequately protect cropland from flood damage. A larger stream or river may require a buffer that covers a substantial portion of its floodplain.

Installation:
- Local knowledge should be used to select the best plant species for each situation.
- Easily obtainable species yielding quick establishment and good growth on the site should be emphasized.
- Width may be varied to straighten tillage boundaries along meandering streams.
- Existing perennial vegetation should be incorporated into the buffer design, if possible, since some benefits, such as shade and bank stabilization from trees, are maximized only after vegetation matures.
- Use of existing vegetation also reduces installation costs and risk of total planting failure.

• The site may require tillage or herbicide application prior to planting. Bare soil in areas where trees and shrubs are to be planted may also need to be planted with less competitive grasses and forbes to hold soil in place and discourage weed growth until trees and shrubs become established.
• Some replanting may also be needed to get adequate vegetation established.

Maintenance:
• Weed control is often necessary until trees and shrubs are large enough to compete on their own.
• Mowing and mulches are good methods. Tillage is not.
• Herbicides may be useful for spot weed control provided their labels do not prohibit use near waterways.
• Mulches may be necessary for initial tree and shrub survival in drought-prone regions.
• Protecting tree and shrub plantings from wildlife, such as deer, rabbits, and beaver, may be necessary in some locations.
• Periodic soil removal may be needed at the cropland edge of a runoff filtering buffer, where sediment trapping or tillage has formed a dike which prevents evenly-spread, shallow flow through the buffer.
• Periodic harvesting of buffer vegetation may be necessary to maintain vigorous plant growth for filtering and nutrient uptake; and provide marketable products.
• The maintenance schedule should be flexible and fit into the landowner's schedule

Source: AF Note - 4, *Agroforestry Notes*, USDA Forest Service, Rocky Mountain Station, USDA NRCS, 1/97

Stream Corridor Restoration Handbook

A landmark cooperative effort among an unprecedented number of federal agencies is underway to improve the health of streams.

The agencies are developing a *Stream Corridor Restoration Handbook* to serve as a common technical reference for stream corridor restoration. Use of techniques in the handbook can help improve many of the nation's 3.5 million miles of rivers which are currently considered degraded, primarily due to erosion and sedimentation and excess nutrients. The handbook will help to boost the number of healthy stream corridors, which provide benefits such as water supplies, recreational opportunities, fish and wildlife habitat, and productive agricultural lands.

Several agencies from the Dept. of Agriculture and Dept. of the Interior, the Dept. of Commerce, the Dept. of Housing and Urban Development, USEPA, U.S. Army Corps of Engineers, Federal Emergency Management Agency, and Tennessee Valley Authority are pooling their expertise to develop the reference manual for interdisciplinary teams working on stream corridor restoration projects. The handbook also is expected to benefit agency staff, state and local governments, the academic community, private consultants, contractors. and landowners.

One of the handbook's advantages is that it will be easy to update as new information becomes available. The handbook will be distributed in the Spring of 1998. Information on the handbook is accessible via the Stream Corridor Restoration Handbook Home Page: www.usda.gov/stream_ restoration.

River Corridors and Wetlands Restoration Web Site

The USEPA, Office of Wetlands, Oceans, and Watersheds has established the *River Corridors and Wetlands Restoration Web Site at* http://www.epa.gov/owow/wetlands/restore. The Web Site contains information on restoration projects, proposals, ideas, and contacts. This site is intended to provide information to those involved in aquatic ecosystem restoration, and to help develop a more complete picture of restoration activities nationwide.

Users are encouraged to contribute to the Web Site by submitting information on their restoration activities and proposals, as well as by providing suggestions and comments. To submit a project, users simply complete the restoration survey form under the heading *"Put Your Project On The Map"*.

The Restoration Web Site provides project names; descriptions; other project data; and an identification of individuals, organizations, and agencies from around the nation involved in restoration efforts. Site-specific restoration projects are listed by watershed and State to facilitate user discovery of restoration activities in their areas of interest. The project data structure accommodates the type of restoration project undertaken, partners involved, funding, restoration goals, accomplishments to date and photographs, among other information.

Restoration projects are accessible for viewing on a U.S. map by State and local watershed. The Restoration Web Site also links to EPA's *Surf Your Watershed* web site at http:/www.gov.epa/surf and the Office of Wetlands, Oceans, and Watersheds web site at http:/www.gov.epa/owow. By sharing restoration experiences, users can assist others in revitalizing sensitive aquatic ecosystems in their local watersheds.

The Web Site also includes information about proposals for restoration projects. This is intended to facilitate the development of restoration partnerships. By combining experience, resources and technical expertise, multiple organizations can often accomplish more than through individual efforts.

Development of the Web Site was encouraged by the work of the following Restoration Partners: *The Nature*

Conservancy, The National Fish and Wildlife Foundation, The National Audubon Society, The National Association of Service and Conservation Corps, Ducks Unlimited, The Coalition to Restore Urban Waters, the Wildlife Habitat Council, the Waterway Research Institute, American Rivers, The Izaak Walton League of America, the International City Management Association, the League of Women Voters, the Association of State Floodplain Managers, the River Network, the National Association of Counties, Trout Unlimited, the National Park Service, the U.S. Department of Agriculture, the Natural Resources Conservation Service, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency (USEPA) Office of Enforcement and Compliance Assurance, the USEPA Office of Policy, Planning, and Evaluation, the USEPA Office of Research and Development, and the USEPA Regional Offices of Wetlands, Oceans, and Watersheds.

Missouri River Environmental Assessment Program

The *Missouri River Natural Resources Committee* (MRNRC) recommended, in a report to the *Missouri River Basin Association* (7/11/97) implementation of a *Missouri River Environmental Assessment Program* (MREAP). The report states that, "In 1994, the operational changes proposed by the Corps in its Master Manual 'preferred alternative' demonstrated the need for a scientific understanding of how such changes might affect the rivers' ecosystem. The Master Manual Draft Environmental Impact Statement indicates that a monitoring plan for native fish is needed and would be developed."

The need to collect valid long-term natural resource data was one of the few issues that received support from the individuals and agencies who commented at public hearings on the Master Manual "preferred alternative". The recommended MREAP was developed by the MRNRC over the past year. Seventy-five individuals representing 12 state and 7 federal agencies contributed to development of the plan. It's goal is "To provide the scientific basis for optimum management of the Missouri River's rnainstem and floodplain fish and wildlife resources, while avoiding or minimizing conflicts with other river uses." The objectives are to understand and predict:

- Species, community, habitat and water quality responses to different flow regimes, including intra-system regulation.
- Biological response to structure addition, modification or removal.
- The impact of physical changes due to aggradation (sedimentation) in the upper reaches of reservoirs and degradation (incision) below the dams on biota and habitat.

The MREAP divides the river into 19 different sampling segments, recognizing:

- unchannelized,
- reservoir and headwater,
- inter-reservoir, and
- channelized habitat types.

The MRNRC recommended that federal authorization and appropriation for the MREAP identify a neutral federal agency (i.e. an agency with no existing river regulatory or management jurisdiction) as the recipient of funding. This federal agency would develop interagency cooperative agreements with the MRNRC member states and agencies and establish the MRNRC as the interagency organization responsible for directing program implementation. The MRNRC also recommended that authorizing legislation contain provisions that limit the lead federal agency overhead to 12% or less and index annual appropriations to inflation. It was also recommended that hydroelectric power revenues placed in trust be considered as a funding option.

The MRNRC said that a monitoring and assessment effort will be required "as long as operation and maintenance are found to affect Missouri River habitat and biological communities, or until alternative management scenarios are identified and adopted which minimize these impacts". Monitoring was proposed to occur in 7 of the 19 sampling segments at any one time. The MRNRC would review yearly progress reports, and a five year summary would be submitted to the MRNRC for review and to aid in program refinement. An independent scientific review committee would also be established to provide Program guidance.

The proposed plan recommends establishment of seven field stations financed by the lead federal agency and operated by the mainstem states, with central support provided by the USGS/Biological Resource Division's Environmental and Contaminants Research Center (ECRC), located in Columbia, MO (with a field station in Yankton, SD). The states would be responsible for monitoring fish, invertebrates, birds, reptiles, amphibians and vegetation. Water quality parameters would be measured in association with other aquatic measurements. The ECRC would coordinate monitoring efforts, compile existing data, and act as the project database manager. Additionally, the ECRC would provide support to develop sampling protocols; conduct statistical analysis; develop hydraulic modeling; and facilitate mapping of river depth, velocity and substrate.

Focused investigations would include identification of relationships between operation and maintenance activities and impacts on habitat and biota.. These investigations would include assessment of habitat restoration efforts and special studies identified by the MRNRC. Most of the focused investigations would be accomplished using a competitive process. Each year, the MRNRC would prioritize information needs and issue a request for proposals (RFPs) to state, federal, for-profit, and not-for-profit organizations with interest and expertise. The MRNRC would then review the proposals and fund those which show promise of success and best address program needs. The MRNRC would provide the MRBA with the results of the RFP evaluation process on a yearly basis, along with results of previously funded proposals.

Contact: Mark Laustrup, USGS/BRD, ECRC/Mid-Continent Ecological Science Center, 4200 New Haven Road, Columbia, MO (573) 875-5399

Missouri River Monitoring

Starting this summer, the states of IA, MO, and NE joined forces to fund a joint Missouri River fish monitoring program. Each of the three states contributed funding to the project through MICRA. At the states' request, MICRA in turn contracted with Larry Hesse, *River Corporation, Inc.*, Crofton, NE to conduct the work.

Mr. Hesse was employed as a fisheries biologist for the NE Game and Parks Commission until 1994, where he conducted research on the River's fish populations for some 23 years. Mr. Heese is one of a "handful" of biologists with extensive research experience on the Missouri River. Under this project the three states wished to capture Hesse's expertise and experience, and extend his work into the future.

To supplement state contributions to this work, Hesse is also seeking charitable contributions from businesses along the river. Such businesses as the agricultural, navigation and power industries have long profited from the way the River has been operated and maintained by the Corps of Engineers. It is hoped that they will feel a debt of gratitude to the River, and share in the expense of restoring its ecosystem to a healthy condition.

Hesse is using a mix of sampling approaches to build on his historical database, and utilizing concepts developed for the proposed MREAP (see previous article). He hopes to eventually use only the methods laid out for the MREAP so that his work will be totally compatible with any future federally funded program. However, Hesse points out that since much of the prerestoration data is from his old program in NE, it is important to integrate the two approaches so that new data in the next century can benefit from historical comparisons.

Data presently being collected by Hesse under the MICRA umbrella will help to bridge the gap until Congress can review, approve, and hopefully appropriate funding for the proposed MREAP. Hesse's work will also serve as a field test for developing the new program and help demonstrate that a public-private partnership can help to buy the necessary data to argue for and evaluate new restoration projects and changes to the operating plans of the mainstem dams.

Hesse estimates that it will cost approximately $110,000 annually to sample eight sites between the tailwater of Fort Randall Dam, SD and St. Joseph, MO. The three states have contributed about half that amount, it is hoped that others will match state contributions in order to keep the effort going.

Drawing on a career-long commitment to the River, Hesse's desire is to assure that repeatable, defensible, and long-term data is available for the foreseeable future to ensure the long-term preservation of the unique fish and wildlife resources of the Missouri River and its tributaries.

Contact: Larry Hesse, *Rivers Corporation, Inc.*, 88896 552nd Ave., P.O. Box 395, Crofton, NE 68730, (402) 388-4276, FAX (402) 388-4128, email: reihesse @holonet.net

Miscellaneous River Issues

AZ Diversion Project Law Suit - Officials from the Central Arizona Project (CAP), which brings water from the Colorado River to central AZ cities, on 7/14 filed a lawsuit to stop the federal government from pursuing a project that the feds say is needed to protect AZ fish. The 1994 study upon which the federal program is based concluded that fish species from the Colorado River could infiltrate central and southern AZ rivers via the CAP and prey on endangered native fish. The study recommended that the Bureau of Reclamation construct fish barriers, monitor for the presence of non-native fish presence over the next century, and conduct other research and conservation projects. But the CAP called the study "fundamentally flawed," for example by finding that one species of fish would migrate through rivers that the CAP says are dry. CAP officials also argue that the study applied an "overly broad" definition of what constitutes jeopardy to the fish; that the funds to be spent on protecting the fish are "an abuse of discretion" by Interior Secretary Bruce Babbitt; and that the conservation project would add nearly $150 million to the $4.7 billion that the CAP is already projected to cost. Source: National Journal's *GREENWIRE The Environmental News Daily*, 7/22/97

Eastern Water - Six small water districts in TN have formed an alliance to ease water-supply problems in a fast-growing mountaintop enclave, a move that "could provide a blueprint" for other water-strapped areas in the Southeast. The agreement among the Cumberland County, TN, districts comes at a time when water supply "could well develop into one of the more significant issues for the Southeast," according to Justin Wilson, deputy to TN Gov. Don Sundquist (R). Wilson said, "There is some evidence ... that the [water] blood fights out West are moving east." Cumberland County Executive Brock Hill says small districts acting independently of one another create more environmental problems and increase overall costs when they try to secure their own water sources by damming waterways or diverting flows. With help from the TN Dept. of Environment and Conservation, Hill pulled Cumberland water district officials together to look for a single, adequate water source for 42,000 users. Meanwhile, the Army Corps of Engineers promised to make the group's project a "top" funding priority. Source: Motoko Rich, *Wall Street Journal* online, 9/10.

Fish Consumption Advisories Up 26% - The number of lakes, rivers and other U.S. waterways under fish consumption warnings because of chemical contamination rose 26% last year over 1995, according to a USEPA report released on 7/23. The report said 2,193 advisories were issued in 1996, representing 5% of the U.S.'s total river miles and 15% of total lake acres. Advisories increased for mercury, PCBs, chlordane and DDT. Source: National Journal's *GREENWIRE The Environmental News Daily*, 7/29/97

Flood Protection Compromises Fish Conservation - A sharp increase in emergency construction projects along OR waterways in the wake of heavy flooding last year has created conflicts

with fish-conservation efforts. The number of construction projects since the deluge of 1996 has doubled, forcing state officials to make "tough decisions about balancing attempts to restore dwindling fish runs" with projects to clean up flood damage. The increased workload is "overwhelming" regulators and jeopardizing $26 million set aside by the National Resources Conservation Service for 300 watershed-protection projects. The lack of environmental oversight "came to light recently" when an *Oak Lodge Water District* construction project polluted the Clackamas River for several days. Source: National Journal's *GREENWIRE The Environmental News Daily*, 9/19/97

GA Water Settlement - The USEPA and GA environmental groups agreed in early August on a plan to clean pollution from thousands of miles of waterways in the state within the next eight years. The agreement ended a three-year lawsuit in which the state *Sierra Club* and other environmental groups claimed the USEPA "wasn't forcing the state to comply" with the federal Clean Water Act. Under the settlement, the EPA would require the GA Environmental Protection Division (EPD) to monitor pollution in the tributaries, estuaries, lakes and rivers of 14 river basins; establish pollution limits on any newly found problem areas; and begin pollution-abatement efforts within 18 months. The first pollution limits would be placed on the Savannah and Ogeechee rivers by 1999. A plan to clean the Chattahoochee and Flint rivers would have to be completed by 2002. Plaintiffs' attorney Doug Haines said that the plan could cost businesses and local governments "a little more to start," but that it would be "much more effective" than the current program. But EPD water-quality director Allan Hallum said the settlement "is not a new approach. This is a narrow band of stream segments that we weren't dealing with as rapidly as somebody wanted." U.S. District Judge Marvin Shoob on 8/5 agreed to the settlement, which still must be reviewed by the 11th U.S. Circuit Court of Appeals. **Meanwhile, the USEPA is facing similar lawsuits in at least 20 states.** Source: National Journal's *GREENWIRE The Environmental News Daily*, 8/8/97

KY Fried Chicken - An Atlanta-based chicken processor's plans to build a plant in rural Clinton County, KY, has created "fear that the plant could create an environmental mess." The new *Cagle's Inc.* plant would be two miles from Lake Cumberland, the source of much of the region's drinking water and a "backbone" of its tourism industry. The KY *Sierra Club* believes the plant and feeder houses that supply it will contaminate groundwater. But "so far, few Clinton County residents don't share the environmentalist's concern." The plant would bring permanent jobs and benefits to "a work force used to seasonal jobs ... [or] minimum-wage work". Source: Jane DuBose, *Atlanta JournalConstitution*, 8/17.

KY Logging Boom - As logging in KY nears record levels, the state is moving to better protect forests from "environmental abuses." The logging boom, spurred by an increased demand for timber and curtailed harvests in the Pacific Northwest, has led environmenalist to demand stricter state regulation of logging. Forestry experts said it has taken 90 years for some state forests to recover from the record-setting tree harvest in 1907. Gov. Paul Patton's (D) administration has proposed to tighten current controls -- which rely almost entirely on voluntary compliance -- by licensing loggers and mandating best management practices. The proposals, opposed by property-rights advocates and the timber industry, will be introduced next year in the state's General Assembly. Source: Andrew Melcykovych, *Louisville Courier-Journal*, 8/15).

LA Environmental Enforcement Contract Overturned - A "sharply divided" LA Supreme Court on 9/9 ruled that LA Attorney General Richard Ieyoub's contract with private law firms to track down polluters is unconstitutional. Under a 9/94 contract, Ieyoub hired 14 law firms to identify polluters and force them to clean up and pay for environmental damages, offering the firms 25% of the restitution they collected. The court upheld a 12/94 decision by state District Judge A. Foster Sanders, which said the contract violated a state statute requiring all recovered money to be paid into the state treasury. Ieyoub said he was "deeply disappointed" with the decision and will ask the Supreme Court to reconsider. Source: Joe Gyan, *Baton Rouge Advocate*, 9/10

MN Gasoline Leak - MN environmental officials have discovered a "huge pool" of gasoline stretching from a Rosemount, MN, refinery to the backwaters of the Mississippi River. Mark Toso of the MN Pollution Control Agency (MPCA) said "at least tens of thousands of gallons" of leaded aviation gas has leaked from *Koch Refining Co.'s* 1.5 million gallon tank since 1992, when state officials found 30 leaks during an inspection. Leslie Davis of *Earth Protector Inc.* blasted Koch and the MPCA for delaying action and not publicizing the problem. But state officials said the leak did not pollute any drinking water and "only minimally damaged" the area. Source: Tom Meersman, *Minneapolis Star Tribune*, 9/11.

MN River Cleanup - According to recent studies, water quality is improving in the Minnesota River, the state's "most-polluted" waterway. Scientists at a late July conference in St. Peter, MN, said the improvement can be attributed to less soil erosion from farmland and decreased phosphorus pollution from two sewage-treatment plants along the river. Source: Dean Rebuffoni, *Minneapolis Star Tribune*, 813.

Natural Wetlands Out Perform Replacements - Natural wetlands are "substantially" better providers of flood control, water filtration and wildlife habitat than artificial ones, according to a new study by the OH EPA. The study marks the first time the state has compared wetlands quality under a 1991 law that allows developers to destroy natural wetlands if they create new ones. Siobhan Fennessy, the OH EPA biologist who conducted the research, studied 11 artificial wetlands throughout the state and compared them to natural wetlands. Fennessy noted the artificial wetlands she examined -- none more than five years old -- may not have had adequate time to mature, and that healthy substitutes are possible. But she backed proposed state standards that would require three acres of wetlands to be created for

each acre destroyed, and would give less protection to natural wetlands deemed to be of low quality. The study was "seized upon" by environmentalists who said the findings undermine the state's proposal. *National Audubon Society's* Julie Sibbing said the state should approve the destruction and replacement of wetlands "only when absolutely necessary" and should classify some wetlands as untouchable. Source: National Journal's *GREENWIRE The Environmental News Daily*, 8/7/97 .

NC Watershed Protection Law - In a ruling that "could help end a debate over whether water quality takes precedence over the rights of property owners," the NC Supreme Court on 7/24 upheld the state's watershed protection law. The ruling overturned a 9/96 decision in which the state Court of Appeals held that the law, designed to protect watersheds used as sources of drinking water, gave state environmental regulators unconstitutional authority to control development around rivers and reservoirs and infringed on property owners' rights. Environmentalists were pleased with the decision. Attorney John Runkle of the *Conservation Council of NC*, who defended the law said, "It certainly told the Environmental Management Commission (EMC) that they can regulate watersheds without being micro-managed by the legislature." The EMC, which sets NC's pollution regulations, has used its authority to restrict landfills, housing density, sewage discharges and storage of hazardous materials in areas that drain into the state's waterways. Source: James Shiffer, *Raleigh News & Observer*, 7/25.

NM Diversion Project Law Suit - As a portion of the Rio Grande dried up in 4/96, killing 11,000 endangered silvery minnows, a NM water district kept its canal "brim-full" of water it had diverted from the river, a U.S. Fish and Wildlife Service (USFWS) report says. According to the report, released by the Santa Fe-based *Forest Guardians* under a Freedom of Information Act request, the *Middle Rio Grande Conservancy District* refused to cooperate for several "crucial" days during the minnows' spawning season, and it reneged on a pledge to release some of the water it had seized -- even though the water legally belonged to the USFWS. District manager Subhas Shah at one point ordered the release of some water, but the report says that never happened because "locals were at the dam with guns and [they] were going to cause trouble if the gates were opened". *Forest Guardians* President Sam Hitt said the report proves the federal government should have punished the water district for violating the Endangered Species Act (ESA). Instead, the district in 5/97 accepted a plan to begin habitat restoration for the minnow. So far, the effort to protect the minnows appears to be working. But "it remains to be seen....whether the district will remain cooperative in a (future) drought". Hitt said his group plans to sue the district under the ESA, "If the government won't do it, we will. This was a deliberate attempt to kill the last minnow in the Rio Grande". Source: National Journal's *GREEWIRE The Environmental News Daily*, 8/7/97

OH River Mussels - In our last issue of *River Crossings* we reported from an *Associated Press* article that "OH enforces a daily take of 15 mussels/person that can be used only for bait". Randy Sanders of the OH Dept. of Natural Resources (OHDNR) informed us that OH's law now prohibits possession of **any** mussels in the state unless the person has in his or her possession a valid scientific collector's permit issued by the OHDNR.

Red River (MN) Flood Control - "Despite the threat of a lawsuit by environmentalists," the Army Corps of Engineers on 8/4 tentatively approved a flood-control dam on a tributary of the Red River in northwestern MN. The Corps said it would issue a final permit for the Marsh Creek project if a local watershed district agrees to mitigate the project's expected harm to wetlands. But environmentalists "contend that ... local watershed agencies are just giving lip service to the idea of restoring wetlands." "Environmentalists are especially intent upon blocking or forcing major changes to the dam proposal because it is the first of perhaps 33 dams and other flood-control projects planned on tributaries of the Red." Sixteen environmental groups oppose the project, while the *MN Center for Environmental Advocacy* has threatened to sue to halt it. Source: Dean Rebuffoni, *Minneapolis Star Tribune*, 8/5

Tribe Contributes to Reward for MN Polluters - The Prairie Island Mdewakanton Dakota Tribe has donated $5,000 to a MN state fund that will reward people for information leading to the arrest of people who violate environmental laws. The fund was created in mid August to elicit information about the cause of a 7/97 fish kill of 7,500 brown trout in Hay Creek near the tribe's reservation. State officials say the deaths may have been caused by a chemical that was dumped or washed into the creek. A segment of the creek near Red Wing, MN has been the focus of a $160,000 state fish-habitat restoration project. Source: Dean Rebuffoni, *Minneapolis Star Tribune* 8/6 and 8/26.

TVA Lands - The TN Valley Authority's (TVA) delay in deciding how to use lands surrounding its Columbia Dam has sparked "a firestorm of controversy," pitting environmentalists against the federal agency and state officials. The TVA bought 12,800 acres at the planned dam site in Maury County, TN, in the 1960s, but abandoned the partly constructed dam in 1983 after the discovery of a rare mussel colony upstream. Now, the TVA wants to divest the land as it shifts away from its nonpower programs. A coalition of developers and business leaders want the land set aside for recreational and residential development -- a move that is supported by about 85% of local residents, according to a TVA poll. But environmentalists, who want the land preserved, are "outraged" by the TVA's delay, saying it will favor those who are pushing for development. TVA spokesperson Barbara Martocci said the agency, which for two years has said it would have a recommendation by this summer, would be making its decision "soon". Source: Alisa LaPolt, *Nashville Banner*, 9/1.

UMR Barge Cleaner Guilty - A barge-cleaning company on 8/20 pled guilty to illegally discharging pollutants into the Mississippi River. A federal

charge filed on 7/24 alleged that *LA-based TT Barge Cleaning Inc.* had released untreated waste water and "dozens" of barrels of rust, sludge and mud into the river since 1986. Court records show that the government had no evidence that company officials, including CEO Roy Toepfer, were aware of any illegal activity. State, federal and local investigators "raided" the company site on 2/4. The government recommended fining the company $300,000 and putting it on probation for five years while it removes wastes from the river, implements waste-handling training, and hires an independent auditor to monitor its environmental performance. Source: *AP/Journal of Commerce*, 8122.

UMR Environmental Management Report - Improved environmental management is needed to stem the threat to water quality, sport fishing and waterfowl in the Mississippi River, according to a study led by the Army Corps of Engineers. A draft report of the *Upper Mississippi's Environmental Management Program* found that conditions in even the most healthy reaches of the river's upper basin are "at least partially artificial, nonsustainable and in a recognized state of degradation." The report recommends doubling the amount spent on environmental management to $33.2 million. Source: Bill Lambrecht, *St. Louis Post-Dispatch*, 9/10.

WV Mountaintop Removal - Between 15% and 25% of the mountaintops in south-central WV "are being leveled in massive strip-mining operations," reports *US News & World Report*. The procedure, called mountaintop removal, is also practiced in southeastern KY, eastern TN, southwestern VA and western PA. But its impact "has been especially intense" in WV, where low-polluting coal is plentiful and "weak environmental laws and lax regulators" have made mining's effects "more profound." If the current pace continues, environmentalists predict that half the peaks in southern WV will be gone within 20 years. Debris from the mining is dumped into adjacent valleys, polluting streams and water wells and leaving some areas more vulnerable to floods. Valley fills have already buried more than 100 miles of stream beds, according to Cindy Rank

of the *WV Highlands Conservancy*. And "hardly any mining firm's reclamation projects abide by" environmental rules; waivers of such rules are "routinely granted." Recent floods have prompted WV officials to re-examine the state's valley-fill rules and "to look hard" at watershed drainage and ditching systems. Since 1988, the state has doubled the number of mining inspectors to about 100. But state fines for violations average just $800. At the federal level, the Interior Dept.'s Office of Surface Mining "doesn't have the time or personnel" to address the issue. The 1977 Surface Mining Control and Reclamation Act "is largely silent" about the practice. Coal companies admit they are changing the landscape, but "say, essentially, that they are doing the least-destructive job that they can to extract a resource the whole world craves". Source: Penny Loeb, *U.S. News & World Report*, 8/11

Western Rivers - Deteriorating Western rivers and riverside habitat should be left alone "to let nature heal the wounds" caused by logging, grazing and dam building, concludes an *OR State University* study published in the current issue of the journal *Fisheries*. The study's authors, J. Boone Kauffman and Robert Beschta, said restoration efforts such as recreating spawning pools with hatchery fish or rebuilding river banks may further damage waterways plagued by erosion, pollution and low water flows. Instead, the authors said their study of habitat-restoration projects in eastern OR showed the "single most effective" way to restore fish habitats is to stop livestock grazing. And the "easiest" way to improve river quality is through prevention -- maintaining ecosystems that have not yet been damaged Source: *AP/Portland Oregonian* online, 8/18.

ESA Rewrites

"After five years of bitter feuding, key Senate Republicans and Democrats" unveiled a new bill on 9/16 to reauthorize the Endangered Species Act (ESA). Interior Secretary Bruce Babbitt joined Sens. Max Baucus (D/MT), John Chafee (R/RI), Dirk Kempthorne (R/ID) and Harry Reid (D/NV) at a press conference announcing the bill. But Babbitt said President Clinton hasn't yet decided whether to endorse the measure.

Baucus, the ranking Democrat on the *Senate Environment and Public Works Committee*, said the bill would improve the use of science and encourage conservation and recovery so that more species could be delisted from the ESA. Both the public and landowners would carry more influence with the federal government under the bill, he said. The bill would also create more financial incentives for landowners to conserve prime habitat and expand the role of states in enforcing the law.
Babbitt praised the bipartisan proposal in part because it would codify the administrative changes he has implemented, including the expansion of habitat conservation plans (HCPs) and a "no surprises" policy. Under HCPs, landowners agree to preserve certain tracts of land in exchange for being granted the right to develop other parcels. The "no surprises" policy exempts landowners from future ESA requirements for up to 100 years if they voluntarily protect species already known to be on their properties.

Still, Babbitt -- who emphasized that he wasn't speaking on behalf of the administration -- said the bill was just a starting point for debate and could be improved. Chafee, the chair of the Senate committee, said he would hold a hearing on the bill and schedule Committee votes before the end of Sept.

Many environmentalists, however, "quickly denounced" the Senate bill.

The *Endangered Species Coalition*, a collection of more than 240 green groups, said the measure "is sorely lacking in provisions needed to ensure that species recover." Coalition leaders -- including representatives from the *Earthjustice Legal Defense Fund, Sierra Club*, and *Defenders of Wildlife* – are instead backing a reauthorization bill proposed by Rep. George Miller (D/CA). *The Environmental Defense* fund said the Senate bill failed to include adequate incentives for landowners to protect species.

Meanwhile, the *Endangered Species Coordinating Council*, which includes the *National Cattlemen's Beef Assn.* and *National Mining Assn.*, came out in support of the Senate bill. W. Henson Moore, president of the *American Forest & Paper Assn.*, a coalition member, said the bill created a "balanced, workable approach" for the ESA.

The House bill introduced by Miller would increase protections for fish and wildlife, while addressing some concerns of property-rights activists. Miller, the top Democrat on the *House Resources Committee*, said he was reaching out to Republicans and landowners with his bill. The bill would provide several tax breaks to landowners who enter agreements with the feds to protect species. The bill also would require designation of "survival habitat" needed to keep a species alive at the time of its formal listing, and it would expand the current number of species the federal government hopes to remove from threatened and endangered status.

The bill put Miller somewhat at odds with the Clinton administration's wish list for reauthorizing the ESA. "Perhaps most controversial" is Miller's proposal to change the administration's "no surprises" policy, which ensures landowners will not be subject to future restrictions for up to 100 years if new endangered species are found on their property after they begin managing their land to protect species that are already present.

The administration wants the policy -- under which "taxpayers pick up the tab" for any future protections found necessary to save a species -- codified into the ESA. But some environmentalists object to the long-term guarantee to landowners. Miller's bill would require landowners to secure a bond insuring them against future protection requirements, and it would create a "streamlined process for owners of five acres or less," a group exempted from the current administration's policy. It would also subject the habitat-conservation plans that are developed under the "no surprises" policy to independent scientific peer review and allow legal challenges to the plans.

Republican Reps. Connie Morella (MD) and Christopher Shays (CT) are among the bill's cosponsors. Northwest supporters in the House include Earl Blumenauer (D/OR), Norm Dicks (D/WA) and Jim McDermott (D/WA). Last year, the *House Resources Committee* fought openly over ESA reform. In contrast, this year Miller said he is informally discussing the issues with other members, including committee chair Don Young (R/AK) and Jim Saxton (R/NJ), who chairs the *Fisheries, Wildlife and Oceans Subcommittee*. But GOP sources said Miller's staff has refused to meet with Young's staff and expressed discouragement about Miller's approach to reform. "An industry source" described Miller's bill as catering to environmentalists.

Sources: National Journal's *GREENWIRE The Environmental News Daily*, 7/31 and 9/17/97

Climate Change

President Clinton launched a campaign on 7/26 to build support for actions to prevent global climate change, seeking to convince the public of the "urgency of a problem that, in many minds, looms far in the future, if it exists at all".

At a White House meeting with seven "eminent" scientists, Clinton said, "It is no longer a theory, but now a fact that global warming is for real. ... We have evidence, we see the train coming, but most ordinary Americans in their day-to-day lives can't hear the whistle blowing". The scientists, including three Nobel Prize winners, took turns painting a near-apocalyptic picture of life as the Earth heats up. Physicist Henry Kendall of *MIT* said climate disruptions in the tropics could spur millions of "environmental refugees" to head north to richer, more temperate nations. Other affects of global warming include killer heat waves, encroaching seas, more disastrous floods, and the northward spread of tropical insect-borne diseases.

Alden Meyer of the *Union of Concerned Scientists* said Clinton appears to be seizing climate change as the principal issue for the rest of his administration.. Meyer said, He's [been] persuaded that this is the environmental issue he is going to be judged on 50 years from now".

In a 9/15 meeting with the CEOs of 13 environmental groups, Clinton agreed that the current international effort to reduce greenhouse-gas emissions to 1990 levels would not go far enough to prevent global climate change, but he acknowledged Senate demands that a treaty with binding emissions limits must include developing nations. Clinton said he will decide the position that U.S. negotiators will take at the December UN summit in Kyoto, Japan, by 10/20. The environmental group leaders advised Clinton to "push for an aggressive global warming pact."

Meanwhile, industry leaders were critical of the president's new campaign. *Ford Motor Co.* chief Alex Troutman said the auto industry would mount its own public-education effort, employing "equally eminent" scientists to present "our version of the science". Jerry Jasinowski, president of the *National Assn. of Manufacturers* said, "We should avoid a herd mentality that says, 'Sign now, ask questions later"'.

An "unusual" coalition of manufacturers, transportation companies, African-American and senior citizens' groups launched an advertising "blitz" on 9/9 aimed at pressuring the Clinton administration not to agree to limits on greenhouse-gas emissions. The $13 million campaign will seek to convince the public that prices of basic goods will rise if the government pursues emissions reductions. The *Global Climate Information Project,* whose sponsors include the *National Assn. of*

Manufacturers, Air Transport Assn. of America, National Cattlemen's Beef Assn. and *United Mine Workers of America*, warns of a "50-cent per gallon gasoline tax and higher prices for everything from heat to food to clothing." The campaign will feature radio spots, ads in national newspapers, and a site on the World Wide Web.

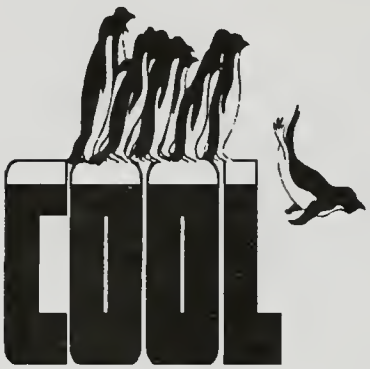
The campaign drew immediate criticism from environmentalists and the White House. Kelly Sims of DC-based *Ozone Action* called the coalition campaign "totally distorted." Sims said the coalition was "trying to scare the public before there's anything to be scared about.... No one has talked about a gas tax" The *Global Climate Information Project* also prompted a "sharp response" from industries that support an international treaty. Michael Marvin of the *Business Council for Sustainable Energy*, a coalition of alternative energy companies, said the project was "using models that assume a worst-case, least-realistic scenario."

In a 7/21 interview on *National Public Radio's Diane Rehm Show*," Interior Secretary Bruce Babbitt is reported to have said that oil and coal companies have "joined in a conspiracy to hire pseudo-scientists to deny the facts" and make arguments "that are essentially fraudulent." The newsletter *EPA Watch* reports that Babbitt also said, "I think the energy companies need to be called to account because what they are doing is un-American in the most basic sense."

Recent reported evidence of possible global climate change include the following:

• Sea ice around the Antarctic region may already have shrunk as much as 25% from the mid-1950s to the early 1970s, according to a study from Australia published on 9/4 in the journal *Nature*. "But the cause and purport of the phenomenon -- and whether it might be related somehow to global warming -- are entirely unknown. "Numerous scientists believe" the decline could have had a "substantial effect" on local ocean circulation and climate "and possibly broader effects worldwide".

• Researchers say a decline in Antarctica's Adelie penguin population is the result of warmer average temperatures that have caused declines in "seasonal ice pack" and krill



– "a pivotal link in the Antarctic food chain". Adelie populations have dropped from 15,200 breeding pairs in 1975 to 9,200 today. Average annual air temperatures on the Antarctic Peninsula have climbed by 5° F over the last 50 years, 10 times faster than the global rate, with mid-winter temperatures up 9°. Scientists don't know if the warming is part of a natural climatic cycle or is caused by an increase in greenhouse gases from human activity.

• If carbon-dioxide (CO^2) levels in the atmosphere continue to increase at the present rate, the "essential marine" circulation system that "dominates weather patterns" in the U.S. and Europe could be "completely shut down," according to a study published in the 8/28 issue of the journal *Nature*. "Normally," warm, salty surface water from the equator flows north in the Atlantic Ocean until it hits colder, less salty water around Greenland, where it cools, absorbs atmospheric CO^2, sinks and returns south. This "conveyor belt ...sheds its heat into the air, keeping Europe's weather comfortable." But if CO^2 emissions continue to increase at 1% a year, physicists at the *University of Bern*, Switzerland, found that "irreversible changes" would occur to this process, and "Europe's weather would become unstable" and much less CO^2 would be trapped by the water. The scientists said policy makers should "take into account critical limits on the rate of greenhouse gas increase" to avoid this calamity.

• A study published on 9/11 in the journal *Nature* suggests that rising levels of greenhouse gases in the atmosphere may be changing the "favorable atmospheric conditions" in which humans evolved and may trigger a shift in world grain species. *University of UT* geochemist Thrue Cerling and biologist Jim Ehleringer compared more than 500 fossilized and modern animal teeth worldwide and found that a "slight" decrease in carbon dioxide (CO^2) levels nearly 7 million years ago "significantly altered" global ecosystems, including the plant species that animals fed upon. A small shift in global temperatures in coming decades could have similar, "profound effects" on modern food grains, they believe.

• Glenn Juday, a professor of forest sciences at the *University of AK*, says global warming is already "an unfolding reality" in the nation's northernmost state. At a conference in early Sept. at the *University of NH* Juday presented evidence that average temperatures in AK have risen since the mid-1970s, while precipitation has declined, with both factors contributing to a rise in insect infestations. Sinkholes caused by melting permafrost have caused "extensive" damage to roads, buildings and airport runways.

• "Lingering effects" of a period 500 years ago called the Little Ice Age may be helping to slow global warming, according to a study published 8/29 in the journal *Science*. Researchers at the *University of NH* said the temperatures of cold winds over the North and South poles haven't changed since the "global chill" period began in 1400. Karl Kreutz of the university's *Climate Change Research Center* said, "This shows we are still feeling the effects of the Little Ice Age. This could be modifying the temperatures caused by the greenhouse effect." "Another scientist said the research...raises the possibility that the warming effects of greenhouse gases might be worse than believed"

On the positive side of the issue, the global campaign to reduce acid rain is "beginning to pay off" in much of Europe, the *UN Economic Commission for Europe* announced on 8/26. Surface-water studies show that "sulfate concentrations are falling at nearly all

...monitoring sites and... the decline has accelerated since 1990." Nitrogen levels have stabilized. One indicator lake in southern Norway, Lake Storgama, has experienced a nearly 33% drop in the sulfate concentration and a 60% increase in alkalinity, marking a "spectacular improvement." Alkalinity in lakes has risen nearly everywhere in Europe in the 1990s, except in the UK. The study concludes that because the lake improvements have coincided with stable nitrogen levels, "phenomena other than nitrogen deposition...are responsible for changes in water quality in the 1990s". However, the study said that lakes in eastern Canada and the American Northeast and Midwest showed no signs of recovery. Acidity levels in some lakes have increased despite dropping sulfur emissions.

On the opposite side of the issue, "A growing number of scientists contend" that the sun's variability "might rival human pollution as a factor in climate change," reports the *New York Times*. "Some research, though sketchy and

much debated, suggests that the sun's variability could account for virtually all of the global warming measured to date."

In recent years, scientists have established "firm" links between the sun's varying activity and conditions on the Earth. Three key variables are the sun's brightness, which is believed to affect temperatures; its ultraviolet radiation, which is seen to affect winds and the ozone layer; and its magnetic storms, which are seen as affecting rainfall and cloud cover. "The biggest correlation" in the data occurred from about 1640 to 1720, when the number of sunspots dropped sharply and the Earth cooled by about 2 ° F. Sallie Baliunas of the *Harvard- Smithsonian Center for Astrophysics* in Cambridge, MA, who has questioned the theory of global warming caused by emissions of greenhouse gases, has studied records of the last 120 years and believes the sun is responsible for up to 71% of the Earth's temperature shifts.

Skeptics, however, say the Sun-Earth connections are "interesting but insufficient to explain satisfactorily the drama of climate change, which they insist is mainly driven by the rise in carbon dioxide" in the atmosphere. James Hansen of the *Goddard Institute for Space Studies* in NY said the sun's effects might be significant "but smaller than other mechanisms we already know about". Hansen also points out that "the long-term trend of solar energy absorbed by Earth is less than one watt per square meter" averaged over the planet's surface, while heating by industrial greenhouse-gas emissions is about 2.5 watts, "which could increase to five or six watts in the coming century".

Sources: National Journal's *GREENWIRE The Environmental News Daily*, 7/25, 8/5, 8/6, 8/29, 9/2, 9/4,9/9,9/10,9/16, 9/23, and 9/25/97

Environmental Protection at all Costs

Sixty percent of U.S. adults say that environmental protection is "so important that requirements and standards cannot be too high, and continuing environmental improvements must be made, regardless of cost," according to a survey released by GOP polling firm *Public Opinion Strategies* at a Midwest Republican Leadership Conference held in August.

The 60% figure is up from a low point of 52% taken in a similar pole in 10/92, but down from a peak of 80% in 6/89, before the 1991-92 recession. When asked to choose from a list of which environmental concern should receive the highest priority in their state, 30% said ensuring safe drinking water; 20% wanted assurance of proper disposal of toxic wastes; and 17% said cleaning up rivers and lakes. Thirteen percent said reducing air pollution should be the top priority, while 8% cited cleaning up hazardous waste sites, and another 8% cited garbage and trash disposal.

The poll surveyed 800 registered voters from 8/16 to 8/19; the margin of error was + /- 3.5 %.

Source: National Journal's *GREENWIRE The Environmental News Daily*, 9/3/97

Democrats vs Republicans Environmental Poll

Democrats have a huge edge over Republicans when it comes to public perception about environmental protection, according to a poll conducted for the *Wall Street Journal and NBC*.

When asked which party "would do a better job...protecting the environment," 51% of the voting-age respondents chose the Democrats, while only 12% chose the GOP. Some 19% of respondents said the parties would perform "about the same," and 11% selected neither party.

The 39-point advantage to the Democrats was dramatically larger than the 28-point advantage recorded in 5/96, when the same question was asked. In 1989, when the question was first asked, respondents preferred the Democratic approach by 21 percentage points. Before this year, the highest split between the parties was recorded in 12/95, when respondents sided with the Democrats by 32 percentage points.

In this year's poll, 50% of respondents chose the more activist candidate when asked whether they would support a congressional candidate "who says that the federal government needs to be more active in dealing with issues such as affirmative action, environmental regulation, and economic

policy," versus one "who says that the federal government interferes too much in issues...that are better decided by the private marketplace and individuals." Forty-two percent chose the candidate who felt "government interferes too much."

The telephone poll by Democratic pollster Peter Hart and GOP pollster Robert Teeter surveyed 2,004 adults, and was conducted from 9/11 to 9/15. It has a margin of error of +/-2.2%.

In an accompanying *Wall Street Journal* article Jackie Calmes reports that with the economy booming and the balanced-budget deal completed, the public is turning its attention to "often-obscure" issues like the environment and education. "Environmental groups...are telling politicians, that with economic issues off the table, such causes as clean air, water and ozone protection gain prominence. GOP leaders, acknowledging they can't compete fully with Democrats on green issues, go so far as to seek photo opportunities back home planting trees and joining river cleanups."

Political analyst Stuart Rothenberg says the debate over the USEPA's new clean-air standards has come to be a defining one in the battle between GOP moderates and conservatives

Source: *Wall Street Journal*, 9/19

Deformed Frog Research - Public Involvement

U.S. and Canadian residents are being asked to help USGS scientists in the investigation of deformed frogs, toads, and salamanders. Citizens are encouraged to report sightings of both normal and malformed amphibians that are encountered during hiking, fishing, or other outdoor related activities. "We need rigorous scientific investigations as well as observations from the general public to understand the observed decline in North American amphibian populations and the increase in reports of deformed amphibians," said Denny Fenn, Chief, Biological Resources Division of the U.S. Geological Survey.

The *North American Reporting Center for Amphibian Malformations* (NARCAM) is an Internet Web Site maintained by the USGS Northern Prairie Science Center in Jamestown, ND. NARCAM provides information on the geographic distribution of amphibians and makes that information readily available to scientists who are investigating the problem.

The Web Site (http://www.npsc.nbs.gov/narcam), which is jointly funded by the USGS and the USEPA, provides background information on the problem in common-language terms, maps of known incidences, photographs of malformed frogs, and sources of additional information. The site also has an easy to use data entry form through which anyone can report an observed malformation. The report form can also be used to record the absence of malformations in a location if the observer has examined several animals.

Scientific concern began in 1995 when middle school students on a field trip reported a high incidence of leopard frogs with misshapen, extra, or malformed limbs in a farm pond in southern MN. Since then, these and other malformations, including missing and misplaced eyes, have been reported among many amphibian species in several states and provinces across the continent. Efforts to determine the cause or causes of the problem are driven by concern both for amphibian populations and for human health.

Like the canaries that miners once carried to detect poison gases, amphibians may deserve attention because they are especially sensitive to chemical contaminants and other stressors in aquatic environments.

Contact: Dave Fellows at (701) 252 5363, x5514

Political Lobby for Fishermen

The *Fishable Waters Coalition Inc.* (FWC) will be the voice for recreational anglers in the nation's capital as Congress once again considers reauthorization of the Clean Water Act (CWA). "The fisheries community has never really been an active participant in the CWA debate said Norville Prosser, vice president of the *American Sportfishing Association* (ASA). "In the past, the debate has been led by people who were concerned about human health. I see the current reauthorization process as one of the last and best opportunities to make wholesale improvements in our nation's fisheries."

Consequently, Prosser and the ASA spearheaded the founding of FWC as a non-profit lobbying corporation. With *B.A.S.S., Trout Unlimited* and the *Izaak Walton League* among its active members, the FWC will be used to raise money to fund a campaign to change the CWA for the betterment of fish. "We have done excellent work in removing public health contaminants from our nation's surface waters, but we haven't made a lot of progress in many waters to make them more fishable," Prosser said.

At the *Wrangler/B.A.S.S. National Championship* fishing tournament this spring, Prosser told *B.A.S.S.* conservation directors about the fisheries changes that the FWC will propose for the act. They include:

- **Community-Based Watershed Restoration** - Provide financial and technical assistance and incentives that encourage and support community-based watershed conservation and restoration, largely within existing authorities at all levels of jurisdiction.

- **Effective Management of Nonpoint Pollutants** - Focus EPA grant programs on nonpoint-source control.

- **Maintaining Sufficient Instream Flow for Fisheries** - Create incentives for more efficient water use, such as in irrigation, and direct water savings to accomplish instream flow objectives, restoring the biological integrity of the nation's waters.

• **Reconnecting Rivers and Floodplains** - Create incentives to landowners so their lands can be farmed during non-flood periods, but would allow such lands to be inundated during years of high water. River fisheries could be greatly improved by reconnecting fertile bottom lands during floods.

• **Increasing Emphasis on Urban Waters** - Put more resources and greater emphasis on creating and maintaining healthy fisheries in urban and metropolitan areas.

"I am really proud of the progress we have made so far, but this will be a long, hard campaign," Prosser said. "We have set our goals high, but if we accomplish even a portion of them, we will do more to improve fisheries in our country than anything we have done since the CWA was originally passed 25 years ago."

Source: Robert Montgomery, *B.A.S.S. Times*, 8/97

ANS Regulations/Guidelines May Be Needed

There is evidence that regulations and guidelines can play an important role in minimizing the spread of Aquatic Nuisance Species (ANS)

According to an article by William (Jay) Rendall, Exotic Species Program Coordinator, MN Dept. of Natural Resources (St. Paul), the majority of boaters recently surveyed in MN, OH, and WI said that regulations would be "very to moderately effective" at getting them to take steps to prevent spreading nuisance species. In the same survey only about 10% said they would not be influenced by regulations. The fact that a significant percentage of those surveyed would not respond to guidelines suggests that enforcement, including penalties, is necessary.

MN's experience with the spread of Eurasian watermilfoil is evidence that regulations can be effective. Before state regulations and education efforts targeting boaters were established, 12-15 additional infested lakes were identified per year. In subsequent years, the annual rate of discovery of infested lakes dropped to between 2 and 7 per year.

Education of the regulated community is another important way to encourage people to follow guidelines and regulations. When Midwest boaters who did not take precautions to prevent spreading ANS were asked why, they gave two primary reasons, either they were not at infested waters or they did not know what to do. Low public awareness is a key concern; if the target individuals don't know that regulations and guidelines exist, we can't expect them to be followed.

Rendell concludes that to help prevent the introduction and spread of ANS, guidelines and regulations need four elements:

• prevention guidelines for each type of pathway must be established so that people know what to do and how to do it;

• effective educational and outreach efforts must be used that tell those involved with various pathways what the guidelines and regulations are (according to surveys, signs at water accesses are one of the best ways to communicate to boaters);

• regulations of potential pathways must be established, especially high risk pathways; and

• penalties must be established and enforcement of the regulations used for those who need the "stick" approach rather than the "carrot."

Each of these four elements will have some beneficial effect independently, but the four combined are likely to be the most effective at protecting our waters for future generations.

Source: *ANS Digest*, Vol. 2, No. 2, 8/97

Noxious and Nuisance Plant Management Information System (PMIS)

A new CD-ROM is available from the U.S. Army Corps of Engineers, entitled: *Noxious and Nuisance Plant Management Information System (PMIS)*. The CD-ROM provides information on the identification and management of 34 species of noxious and nuisance vegetation. The CD-ROM operates with Windows 3.1 and Windows 95. For more information or to obtain a copy, contact: Michael J. Grodowitz, Waterways Experiment Station, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, (601) 634-2972

Native Fishes Web Sites

The North American Native Fishes Association, at (612) 776-3468, reports a new Web Site at www.nanfa.org. Also Dr. Jay Hatch, *University of MN*, has created a new Web Site showing 30 color images of various native nongame species. In the works are natural history, species identification, and range maps for each species. The site address is www.gen.umn.edu/faculty_staff/hatch/fishes.

Meetings of Interest

November 2-3: Automated Sportsman's Data Systems Symposium, Indianapolis, IN. Contact: Ken Nettles, ASDS Coordinator (317) 933-3393; Hannah Kirchner, Symposium Coordinator, (504) 937-3737; or Bruce McCloskey, International Association of Fish and Wildlife Agencies (202) 624-7890.

November 12-15 : 9th Annual International Conference of the Society for Ecological Restoration. Radisson Bahia Mar Beach Resort, Ft. Lauderdale, FL. Contact: Conference Headquarters (305) 247-1132.

November 16-19: International Conference on Advances in Groundwater Hydrology - a Decade of Progress. Tampa, FL. Contact: American Institute of Hydrology (612) 484-8169, FAX: 612-4848357, E-Mail: AlHydro@aol.com.

Dec. 6-10: Symposium on the Effects of Riparian Land-Uses on Aquatic Ecosystems. Milwaukee, WI. Contact: John Lyons, WI Dept. of Natural Resources, 1350 Femrite Dr., Monona, WI 537163736, (608) 221-6328, FAX (608) 221-6353, lyonsj@dnr.state.wi.us.

December 7-10: **59th Midwest Fish & Wildlife Conference, Milwaukee, WI.** Contact: Alan Crossley, Wi Dept. of Natural Resources. (608) 275-3242.

February ?: **Lower Mississippi River Conservation Committee 5th Annual Meeting. Memphis, TN.** Contact: Ron Nassar, LMRCC Coordinator (601 629-6602.

March 6-8: Freshwater Mussels Conservation, Captive Care, & Propagation, Columbus, OH. Contact: Doug Warmolts, Columbus Zoo, 9990 Riverside Drive, P.O. Box 400, Columbus, OH 43065, (614 645-3400, email: dwarmolt @postbox.acs.ohio-state.edu.

March 16-19: Eighth International Zebra Mussel and other Aquatic Nuisance Species Conference, Sacramento, CA. Contact: Elizabeth Muckle-Jeffs, (800) 868-8776 email: profedge@renc.igs.net

March 20-24: 63rd North American Wildlife and Natural Resources Conference, Orlando, FL, Session: Nonindigenous Species: Methods of Introduction and Impacts. Contact: Richard E. McCabe, Wildlife Management Institute, (202) 371-1808

March 22-25: The Floodplain of the Future, 2nd Annual Conference on Natural Resources of the Missouri River Basin, Nebraska City, NE. Contact: Pam Haverland, USGS/BRD, Environmental & contaminants Research Center, 4200 New Haven Road, Columbia, MO 65201, (573) 876-1841, FAX (573) 876-1896, E-mail: pamela_haverland@nbs.gov.

May 3-6: Watershed Management: Moving from Theory to Implementation, Denver, CO. Water Environment Federation. (703) 684-2400.

June 23-28: First International Ictalurid Symposium - Catfish 2000 Davenport, IA. Contact Steve Eder, Missouri Dept of Conservation, P.O Box 180, Jefferson City, MO 65109-0180, (573) 75-4115, FAX (573) 526-4047.

June 8-12: GCIP Mississippi River Hydrometeorology Conference "Predicting Climate Variability and it's Implications for Water Resource Management: Regal Riverfront Hotel, St. Louis, MO. The conference will highlight scientific developments in the GEWEX (Global Energy and Water Cycle Experiment) continental-scale International Project (GCIP). In addition it will address other climatological, hydrometeorological and environmental research issues in the Mississippi River Basin.

September ?: 38th Annual Meeting of the International Association of Fish and Wildlife Agencies. Contact: Georgia Department of Natural Resources.

Congressional Action Pertinent to the Mississippi River Basin

Fish and Wildlife

S. 361 (Jeffords, R/VT) amends the **Endangered Species Act** to prohibit the sale, import, and export of products labeled as containing endangered species.

S. 491 (Ford, R/KY) to amend the **National Wildlife Refuge System Administration Act of 1966** to prohibit the Fish and Wildlife Service from acquiring land to establish a refuge of the National Wildlife Refuge System unless at least 50% of the land owners in the proposed refuge favor the acquisition.

S. 751 (Shelby, R/AL) to protect and enhance **sportsmen's opportunities and conservation of wildlife.**

H.R. 374 (Young, R/AK) amends the **Sikes Act** to enhance fish and wildlife conservation and natural resources management programs.

H.R.1718 (Cunningham, R/CA) to protect and enhance **sportsmen's opportunities** and enhance **wildlife conservation.**

Flood Insurance

H.R. 230 (McCollum, R/FL) to ensure that insurance against the **risk of catastrophic natural disasters**, such as hurricanes, earthquakes, floods, and volcanic eruptions, is available and affordable, and to provide for expanded hazard mitigation and relief.

Forests

S. 977 (Robert Torricelli, D/NJ) and John Kerry, D/MA) to amend the **Forest and Rangeland Renewable Resources Planning Act of 1974** to ban clearcutting and strengthen preservation on federal lands, and designate ancient forests, roadless and other areas where no logging may occur.

S. 1058 (Richard Durbin, D/IL) to amend the **National Forest Management Act of 1976** to ban timber sales where the cost of making timber available for the sale is greater than the expected revenues from the sale in the Shawnee National Forest in IL.

H.R.101 (Baher, R/LA) amends the **National Forest Foundation Act** to extend and increase the matching funds authorization for the foundation, to provide additional administrative support to the foundation, to authorize the use of investment income, and to permit the foundation to license the use of trademarks, **trade names, and other such devices** to advertise that a person is an official sponsor or supporter of the Forest Service or the National Forest System

H.R.1376 (Eshoo, D/CA) to amend the **Forest and Rangeland Renewable Resources Planning Act of 1974** and related laws to strengthen the protection

of biodiversity and ban clearcutting on federal lands and to designate certain federal lands as Northwest Ancient Forests, roadless areas. and special areas, where logging and other intrusive activities are prohibited.

H.R.1861 (Hinchey, D/NY) amends the **Forest and Rangeland Renewable Resources Planning Act of 1974, the Federal Land Policy and Management Act of 1976, the National Wildlife Refuge System Administration Act of 1966, the National Indian Forest Resources Management Act, and title 10 of the U.S. Code** to strengthen the protection of native biodiversity and to place restraints upon clearcutting and certain other cutting practices on U.S. forests.

H.R. 2127 (Frank Riggs, (R/CA) to streamline **Forest Service** operation' by contracting out some services connected with planning and implementing programs in national forests.

H.R.2458 (Helen Chenoweth, R/ID) to authorize the Agriculture and Interior secretaries to **remove forest floor overgrowth and conduct other management practices** where federal lands abut urban areas.

Grazing

H.R. 547 (Nadler, D/NY) requires the Interior and Agriculture secretaries to **establish grazing fees** at fair market value for use of public grazing lands.

H.R.2493 (Bob Smith, R/OR) the **Forage Improvement Act of 1997**, to make "moderate" changes to grazing regulations, such as setting a formula for fees at $1.84 per adult head of cattle per month, up from the current amount of $1.35. The bill also would guarantee lease renewal after 10 years if ranchers have followed all lease terms, and it would codify the structure and duties of Resource Advisory Councils, which give the federal government advice on managing federal lands.

Land Acquisition

H.R.1487 (Campbell, R/CA) to provide off-budget treatment for one-half of the receipts and disbursements of the **Land and Water Conservation Fund,** and to provide that the amount appropriated from the fund for a fiscal year for federal purposes may not exceed the amount appropriated for that fiscal year for financial assistance to the states for state purposes.

H.R.1732 (Kildee, D/MI) to amend the **Land and Water Conservation Fund Act of 1965** to provide for off budget treatment of the receipts and disbursements of the land and water conservation fund and the accounts established under that act.

Mining

S. 325, S. 326, and S. 327 (Bumpers, D/AR) to repeal the percentage depletion allowance for certain **hardrock mines**, provide for the reclamation of abandoned hard-rock mines, and ensure federal taxpayers receive a fair return for the extraction of locatable minerals on public domain lands, respectively.

Parks

S.991 (Frank Murkowski A/AK) to make technical-changes to **Omnibus Parks and Public Lands Management Act of 1996.**

H.R.104 (Bartlatt, R/MD) authorizes the **private ownership and use of National Park System lands.**

H.R. 901 (Young, R/AK) to preserve the sovereignty of the U.S. over public lands by requiring that **United Nations heritage designations** be subject to congressional approval.

H.R. 2143 (Miller D/CA) to **provide certain escrowed oil and gas revenues** be available to improve national parks' visitors facilities.

Public Lands

S. 477 (Hatch, R-UT) amends the **Antiquities Act** to require an Act of Congress and the consultation with the governor and state legislature prior to establishment by the president of national monuments in excess of 5,000 acres.

S. 691 (Murkowski, R/AK), to require public review and the authorization of Congress for any presidential **designations of national monuments,** biosphere reserves, and world heritage sites on public lands.

S. 749 (Dorgan, D/ND) to provide for more effective management of the **National Grasslands.**

S. 1118 (Frank Murkowski, A/AK) to set up a **Community Recreation** and **Conservation Endowment** of $800 million for the state side portion of the **Land and Water Conservation Fund** from oil and gas revenues.

S. 1176 (Craig Thomas, R/WY) to elevate the role of local and state governments under the **National Environmental Policy Act.**

H.R. 919 (Miller, D/CA) establishes **fair market value pricing** of federal natural assets, and for other purposes.

H.R. 2223 (J.D. Hayworth (R/AZ) To amend the **Recreation and Public Purposes Act** to allow the conveyance of public land and forests to local education agencies for elementary, secondary and charter school use.

H.R. 2502 (John Duncan, R/TN and Bill Jenkins, R/TN) to amend the **Land and Water Conservation Fund Act** of 1965 to allow national park units that cannot charge entrance fees to retain other fees.

Refuges

H.R. 511 (Young, R/AK) to amend the **National Wildlife Refuge System Administration Act of 1966** to improve the management of the refuge system.

H.R. 512 (Young, R/AK) to prohibit the expenditure of funds from the **Land and Water Conservation Fund** to create new National Wildlife Refuges without specific authorization from Congress. Passed by the House Resources Committee. Opposed by the President.

House Resources Committee approved on April 30, H.R.1420, the National Wildlife Refuge System Improvement Act of 1997 reforming the management of the National Wildlife Refuge System. Passed by the House, referred to the Senate. Passed by the Senate and referred back to the House with amendments.

Takings

S. 709 (Hager, R/NE) to protect private property rights guaranteed by the fifth amendment to the Constitution by requiring federal agencies to prepare **private property taking impact** analyses and by allowing expanded access to federal courts.

S. 781 (Hatch, R/UT) to establish a uniform and efficient federal process for **protecting property owners' rights** under the fifth amendment.

Water and Wetlands

H.R.128 (Crapo, R/ID) to preserve the authority of the states over waters within their boundaries, and to delegate the authority of the Congress to the states to regulate water.

H.R. 227 (McCollum, R/FL) directs the Secretary of the Army to conduct a study of **mitigation banks.**

H.R. 238 (Robert Menendez D/NJ) to amend the **Oil Pollution Act of 1990** to make the act more effective in preventing oil pollution in the nation's waters through enhanced prevention of, and improved response to oil spills, and to ensure that citizens and communities injured by oil spills are promptly and fully compensated, and for other purposes.

H.R. 550 (Oberstar, D/MN), NonPoint Source Water Pollution Prevention Act of 1997 amends the **Clean Water Act** to establish requirements and provide assistance to prevent nonpoint sources of water pollution, and for other purposes.

H.R. 640 (Hostettler, R/IN) amends the wetland conservation provisions of the **Food Security Act of 1985 and the Clean Water Act** to permit the unimpeded use of privately owned crop range and pasture land that have been used for the planting of crops or the grazing of corn in a least 5 of the preceding 10 years.

Sources: Land Letter, STATUS REPORT Vol.16, No. 2,5,8,11,13 17, 20, and 25; and NOAA Legislative Informer 3/97, Issue

River Crossings

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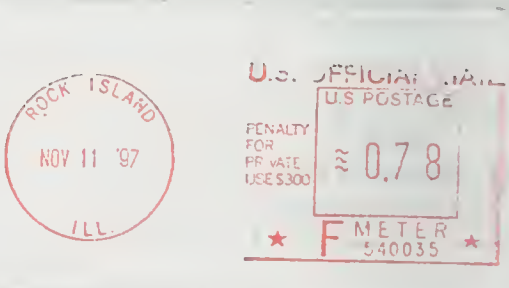

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