River Crossings

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River Scientists Agree: Missouri River Fish Need Flow Management

Rivers Corporation, a Nebraska nonprofit Missouri River research foundation, and the Missouri River Natural Resources Committee (MRNRC), representing 7 states (MO,KS,IA,NE,SD,ND and MT), announced in late July that extensive biological information, gathered on the Missouri River, demonstrates that river flow is linked to the abundance of many native river fish species. They also pointed out that a large amount of biological data already exists and is continuing to be gathered, and that these data will play a central role in a new initiative to develop a science-based program for ecosystem recovery that includes the University of Nebraska at Lincoln.

In response to the drought of the late 1980s, and legal actions taken by the states of the Upper Missouri River Basin, the U.S. Army Corps of Engineers (Corps) initiated a review of the Missouri River Master Water Control Manual in 1988. This Manual, guiding the release of water from the mainstem dams, was developed in the 1960s and currently places a low priority on fish and wildlife. After evaluating hundreds of alternative plans over the past 14 years, with input from state and federal agencies and citizens throughout the basin, and after receiving a Biological Opinion from the U.S. Fish and Wildlife Service (FWS) recommending flow changes to protect endangered species, the Corps has apparently chosen to delay the decision on a new, preferred operating plan for another 5 years.

This Corps' decision is not only at odds with the MRNRC, but also with recent recommendations of the National Academy of Sciences and a growing body knowledge on large river science developed by researchers around the globe. A panel of 12 scientists, engineers, and economists, chosen by the National Academy of Science's National Research Council, recently released a 24-month review on the state of the science available for Missouri River ecosystem management. This unbiased review concluded that adequate information exists to initiate an experimental ecosystem recovery program immediately.

Views of the unchannelized (left) and channelized (right) Missouri River.

Moreover, past and recent analyses of relationships between discharge and abundance of selected native fish species in the Middle Missouri River adjacent to South Dakota, Nebraska, Iowa, and Missouri suggest that flow plays an important role in maintaining the

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diversity and abundance of native fish. Native fishes such as the channel catfish, sauger, blue sucker, bigmouth buffalo, smallmouth buffalo, and river minnows (important in the diet of a host of Missouri River fish and birds), responded to the higher flows of the middle 1990's by increasing in abundance.

Thus, scientists believe that recovery of the Missouri River ecosystem will not happen without a flow program that restores some of the attributes of the natural hydrograph. And without proper flows at the right time of the year, expensive man-made habitat construction projects will fail.

Rivers Corporation, the Nebraska Game and Parks Commission, the South Dakota Department of Game, Fish, and Parks, the Iowa Department of Natural Resources, the Missouri Department of Conservation, the Missouri River Natural Resources Committee, the Papio-Missouri River Natural Resources District, the FWS, the National Park Service, and American Rivers are currently funding a biomonitoring and assessment project for the Middle Missouri River, extending from Fort Randall Dam to about Mound City, Missouri. This program can provide the necessary feedback to fine-tune an initial discharge experiment beginning at Fort Randall Dam. This project is continuing to acquire data at a rapid pace for inclusion in the Missouri River Historical Database or MRHD. The MRHD has nearly 2 million observations of native fish and insect life from the Middle Missouri River, dating back to 1963.

As part of the biomonitoring and assessment project, Rivers Corporation is entering into an agreement with the Departments of Biometry and Biological Systems Engineering at the University of Nebraska at Lincoln to initiate Ph.D. level investigations into the development of science based recovery experiments for the Missouri River ecosystem. The MRHD will provide most of the necessary data for this investigation.

Thus additional study of the existing operating plan recommended by the Corps is unwarranted. Data in the MRHD is comprehensive and covers a large section of the middle Missouri River over a 40-year time period. These data constitute a good starting data base, until a long-term basin-wide monitoring program is authorized and funded by Congress. Any new investigation initiated by the Corps could not begin to match available data in the MRHD. Many of these data, generated by state biologists, were obtained to fulfill state mandates to manage the whole Missouri River fish and wildlife resource, including the select few species that have been listed as threatened or endangered.

The MRNRC says that the time has arrived to initiate a flow management experiment, while biomonitoring is firmly in place below Fort Randall and Gavins Point Dams, and a cooperative research program between the University of Nebraska, Rivers Corporation, and other funding partners is developing. MRNRC concludes that there is no scientific reason to justify delaying this first experiment for an additional 5 years A copy of the most recent study is available from: Mike Levalley, Missouri River Natural Resources Committee, 1434 316th Lane, Missouri Valley, IA 51555, (712) 642-5409 or Larry Hesse, Rivers Corporation, 88896 – 552 Ave., Crofton, NE 68730, (402) 388-4276.

Source: Missouri River Natural Resources Committee News Release, 7/24/02

Southeastern Water Wars

The first political skirmishes in the future "Southeastern Water Wars" have already begun. In anticipation of further confrontations, key state and federal regulators and environmentalists gathered at a symposium entitled, "When the Water Runs Dry", in early September. The symposium was sponsored by a group of environmental organizations and underwritten by the USEPA, the Gulf of Mexico Program and the Charles Stewart Mott and Turner foundations. "For those of us east of the Sabine River, we're embarking on a new adventure in freshwater management," said Mark Davis, chairman of the Gulf Restoration Network, which coordinated the conference.

These new water wars will be caused by rapid population growth, fights over control of the water, and lapses in the law regarding water concerns, said David Feldman, scientist at the University of Tennessee-Knoxville. "These fights will usually be

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precipitated by a catalyst, such as a drought or unilateral decisions made without broad consultation," he said. "Cooperation is difficult, due to mistrust and perceived inequalities of power in water decision-making," he said. "But no single jurisdiction can solve its problems alone."

For example in Louisiana, the state legislature last year required new water wells to be licensed in response to fears that rice farmers and new power plants might be using up the state's scarce groundwater. Louisiana officials also are carefully watching as Texas cities and counties develop plans to meet their 50-year water needs, in case they rely too heavily on Louisiana's half of the Sabine River, which forms the border between the two states.

Tennessee officials already have made it clear that they're unhappy about suggestions floated by Atlanta, GA and Birmingham, AL, officials that the rapidly growing cities' future water may come from across their northern border, said Dodd Galbreath, director of the Tennessee Department of Conservation. In this case, the stakes include more than use of rivers as drinking water. Tennessee ordered a moratorium last year on new transfers of water from one river basin to another until it could determine the effects on the Tennessee Valley Authority, which produces much of its electricity from dams.

In Florida, dramatic population growth in the state's coastal communities has pitted coastal cities against interior farmers and wildlife advocates in a series of court battles over the rights to interior groundwater supplies. St. Petersburg already has been forced to create a second set of water pipes that carry recycled sewage water for lawn use, and Tampa has the nation's largest desalination plant under construction and a second one on the drawing boards. And the federal government has agreed to pay half the cost of replumbing the Everglades both to protect what remains of a national wildlife treasure and to supply additional drinking water to South Florida, whose population is expected to increase by 36% — to 5.5 million people — by 2025.

The concern isn't just about public water supplies. Scientists attending the conference warned that:

- damming of rivers and streams in Alabama is thought to be disrupting the life cycle of dozens of species of fish important to commercial and recreational fishery industries,
- water release on many dammed rivers now is timed on a daily or weekly basis, for the convenience of producing electricity, replacing the natural seasonal ebbs and flows. These changes in water releases also change water temperature;
- dams also create fragmented habitats for fish and other species that would otherwise be able to traverse well upstream; and
- the change from flowing water to lake conditions also results in increased salinity in surface and groundwater, increased concentration of pollutants, altered sediment transport patterns, increased erosion below dams, and unnatural water temperatures for stretches of as much as 20 miles downstream.

Concerns were also raised about nutrients and pesticides finding their way into surface waters and underground aquifers used by public water supplies. High levels of nutrients in surface waters throughout the Midwest make their way downstream to the Gulf of Mexico. Pesticide use, by both farmers and homeowners, is found everywhere. "Virtually every sample of water shows detectable levels of pesticides," said James Smoot, a USGS hydrologist. Most common is Atrazine, a weed killer found in over-the-counter products, which was detected in 85% of surface water samples collected from agricultural and urban areas across the nation.

Global warming also will cause problems for water supplies, said University of Louisiana- Lafayette biologist Robert Twilley. Rising sea levels will push Gulf saltwater inland, where it can seep into freshwater aquifers. And changes in rain patterns might bring flooding or drought. Jimmy Palmer, director of the Southeast region of the USEPA, said states should begin immediately to address water concerns by changing their laws and regulations to:

- Make it clear that surface water and groundwater belong to the state and are subject to regulation.
- Require a permit system for water withdrawals.
- Recognize that individual water sources will have multiple users.
- Allow cutoffs of water supplies when the water source is endangered.
- Make sure wildlife needs are recognized.
- Require that no water withdrawals will hurt the water quality of streams.

Water conservation in Georgia is already a high priority, but at public meetings held recently in Atlanta, Savannah and Athens the real focus was on building regional reservoirs. In response, an editorial in the Atlanta Journal-Constitution said that all the growth that is occurring in North Georgia will surely make more reservoirs necessary, but "...given the time, expense and environmental damage to wetlands and wildlife caused by reservoirs, we ought to build as few as possible. The top priority in meeting water needs must be conservation, with reservoirs built only as necessary to meet the remaining shortfall...Furthermore, communities should be required to implement a series of best-management conservation measures — and to show subsequent reductions in per capita water use — before getting permission from state officials to build a reservoir". "Finally", the editorial says, " before we commit to more reservoirs, we should at least know the cumulative impact of those we already have. The state Environmental Protection Division identifies 4,400 dams 6 feet or more in height, but altogether the state has an estimated 63,000 dams. Even the small ones can impair the headwaters of rivers that supply drinking water downstream". "Reservoirs capture water and supply it as needed, but they are not a water-saving alternative."

Mark Schleifstein, New Orleans Times-Picayune, 9/11/02; and Atlanta Journal-Constitution, 8/22/02

Colorado Drought Raises Call for More Dams

Colorado Attorney General Ken Salazar unveiled an eight-point plan in late August for helping that state fight its worst drought in a century, including fixing up old dams and adding new ones. Salazar didn't have a price tag on his proposal, but said he knew

firsthand from watching the drought on the family ranch in the San Luis Valley and from talking to others that something must be done.

"There are ranchers and farmers in this state who I think are very much on the brink of disaster," said Salazar. His plan, sent to the 2002 Colorado Water Resources Review Committee, included many proposals that have also been made by others. They include expanding existing dams, increasing well inspections, helping farmers augment supplies and ensuring economic and environmental mitigation when water rights are transferred. He also wants legislation that will clarify use of donated water rights and will protect the state's water compact entitlements.

State Water Engineer Hal Simpson said parts of the proposal involved some issues already under study - including fixing up and expanding reservoirs. "They're all aimed at improving our water supplies and everyone is more aware these days of the need for additional water in light of the current drought," he said. He strongly endorsed Salazar's suggestion that more water well inspections are needed. Salazar pointed out that Colorado's "unprecedented drought" is requiring many new wells to be drilled

Salazar also called for focusing more attention on the impact to rural Colorado when agricultural water is tapped for municipal needs. He said a group of speculators has been buying up thousands of acres of land with water rights along the lower Arkansas River in what eventually could lead to a major transfer of water to the Denver metro area. More than 100,000 acres of land has dried up in rural areas in the Arkansas and South Platte basins because of similar water shifts in the past, he said.

Sources: John J. Sanko, Rocky Mountain News

Record Number of Dam Removals in 2002

Sixty-three dams in 15 states and the District of Columbia are slated for removal this year, the impetus being the growing realization that the economic and environmental benefits of free-flowing rivers can be great as more and more aging dams come under review, American Rivers said.

In the three years since American Rivers has been tracking dam removal, about 40 have been removed. The group began keeping score in 1999, when the breaching of Edwards Dam on Maine's Kennebec River, largely to improve fish passage, caught national attention. The group said it considers October 2001 another milestone, as a series of dams was removed to free a record 115-mile stretch of Wisconsin's Baraboo River. "It's an exciting trend for our nation's rivers," said Elizabeth Maclin, director of American Rivers' dam removal program. "The number of voluntary dam removals is clearly accelerating as the word gets out about the ecological and economic benefits."

Coralville Dam, Iowa

There are about 75,000 dams greater than six feet high across the U.S., most built to run mills, control floods, and create water supplies; and relatively few to provide electrical power. A disproportionate number are set for licensing or other reviews as they near the end of their life expectancy (about 50 years). American Rivers cited figures from the Association of State Dam Safety Officials that some 30% of dams have reached obsolescence.

The dams set for removal in 2002 include one each in Alaska, Connecticut and New York; two each in Colorado, the District of Columbia, Maine, Massachusetts and Oregon; three each in Michigan, New Hampshire, North Carolina and Ohio; five in Illinois; six in California; 10 in Pennsylvania; and at least 17 in Wisconsin.

Tim Breen, Greenwire, 7/19/02

Record Fines Levied for Kentucky Coal Slurry Spill

Kentucky officials announced in August that a Massey Energy subsidiary (Martin County Coal) will pay the state $3.25 million in penalties and damage claims for its October 2000 slurry impoundment spill. The company agreed to pay $1.75 million in fines and $1 million for damage to the state's environment. The company will also pay $500,000 for costs Kentucky regulators incurred in responding to the spill.

In the October 2000 incident, more than 250 million gallons of slurry poured from an impoundment into adjacent underground mine workings. The slurry, made up of coal waste, water and treatment chemicals, broke through a hillside and into Coldwater Fork and Wolf Creek. From those streams, the mess made its way into the Tug Fork of the Big Sandy River, which is the border between West Virginia and Kentucky, and then into the Ohio River. Experts have called the spill one of the worst environmental disasters ever in the southeast.

Kentucky officials charged that the company polluted state waters, released hazardous substances, created an environmental emergency, and engaged in unsafe practices. In addition to monetary payments, Martin County Coal must close and reclaim the Big Branch Slurry Impoundment, near Inez, and remediate and restore streams in the area to meet water quality standards. The company is also required to obtain permits and post reclamation bonds for the areas where slurry from the cleanup operation is stored.
Earlier, in April, the federal Mine Safety and Health Administration (MSHA) fined Martin County Coal an additional $110,000 for two violations related to the spill. MSHA and the U.S. Office of Surface Mining have said that the spill could have been avoided if the company followed proper procedures. Martin County Coal also paid $225,000 to the Kentucky Department of Fish and Wildlife Resources for damages caused by the spill. Still possible, is a federal Clean Water Act (CWA) enforcement action by the USEPA. A March 2001 EPA order concerning the spill cleanup reserved for federal authorities the right to seek penalties under the CWA. So far, fines sought from Massey have reportedly amounted to less than 0.3% of the company's 2001 revenues. Massey has said that it expects to pay $46.5 million on the cleanup alone.

Sen. Paul Wellstone, D/MN, chairman of a U.S. Senate panel that oversees mine safety, praised the Kentucky agreement. Wellstone has been critical of what he considered meager federal fines in the case. "I am pleased to see an enforcement action with

some teeth in it,'' Wellstone said. "I think this demonstrates how important it is to examine both the application of current federal enforcement tools and penalties as well as changes to the law to enhance those tools and penalties.'' Tom FitzGerald, director of the environmental group Kentucky Resources Council, agreed that the state is moving more aggressively than its federal counterparts. "This is the first fine from any agency that begins to reflect the severity of the impact of that spill,'' he said. "I would hope that the assessment of a penalty and holding the company accountable for natural resource damage would send a message to other companies to more carefully review existing and proposed impoundments.''

Fish killed from coal slurry pollution. Source: American Rivers Web Page.

But some Martin County residents who suffered property damage weren't satisfied. "I think I should have had that much (money) for my place,'' said Glenn Cornette, 67, whose property was inundated by sludge. "They destroyed everything I've got". A retired strip miner, Cornette grew crops on eight acres of fertile bottomland beside Coldwater Fork outside Inez. The sludge buried the land, and the company covered it with rocky soil that isn't good for anything, he said. "I couldn't put it in words,'' Cornette said. "It's a place I've lived on for 67 years. I was born and raised here. . . . It's hard to put a price on something like that.'' At least 10 lawsuits have been filed against the company by residents and landowners, said Ned Pillersdorf, a Prestonsburg attorney who represents a dozen families living near the impoundment.

Gov. Paul Patton declared 10 northeastern counties disaster areas, and since the spill, Inez Mayor Richard Penix said he has watched a growing island in the middle of Coldwater Fork behind the Martin County Courthouse. The island is a combination of sludge, silt, rocks and debris that began collecting when the impoundment broke, he said. "It just adds to the possibility of flooding,'' Penix said. The coal company still has "a lot to do as far as restoration and cleanup, in my opinion", he said. Under the agreement with the state, the company is to restore Wolf Creek, Coldwater Fork, Rockcastle Creek, their tributaries and shorelines. The company agreed to provide regular environmental samples as evidence of its restoration efforts, which the accord said must be completed no later than 10/31/07.

Sources: Ken Ward, Jr., Charleston Gazette, 8/1/02; and James R. Carroll, Louisville Courier-Journal, 8/1/02

Half Billion Dollar Mine Cleanup in Montana

Asarco, a company which operated lead, copper and zinc smelting or mining operations in Montana for more than 100 years has been found liable for cleanup costs of more than half a billion dollars, according to a USEPA tally. The USEPA estimate comes as federal prosecutors attempt to block Asarco from transferring assets to another firm. The Department of Justice says it suspects that Asarco's parent company, Grupo Mexico, which bought Asarco 3 years ago has systematically begun selling off divisions and assets, a ploy to liquidate the firm and declare it bankrupt,.

Asarco has denied this, and company officials say the USEPA estimate of $580 to $695 million for cleanup is about three times too high. "Part of our discussion with the USEPA now is to make a case for what we think is a reasonable amount," said Asarco spokesman Clay Allen. "This is an exercise we have been through internally before." He said the final number will fall between the company's $200 million estimate and what the USEPA is asking.

USEPA estimates that Asarco will have to pay $30 million to cleanup its East Helena site and $5.5 million for its Butte site. The amount doesn't cover clean up orders issued by state agencies, like Montana's Department of Environmental Quality, which hold sway over at least five sites in the state.

Montana Attorney General Mike McGrath said he is trying to determine if there is legal action the state can take now to make sure Asarco doesn't shuck cleanup bills owed to the state. "That's why we are looking into what the Justice Department has done," he said. "That very well may have an impact in Montana if Asarco files bankruptcy." USEPA documents show that the firm has already paid $614.5 million for environmental cleanup since 1990.

Source: AP/Billings Gazette, 8/26/02

Coal Industry Fights Mountaintop Mining Ruling

Coal-industry officials from Kentucky, West Virginia and Virginia are pressing the U.S. Circuit Court of Appeals in Richmond to overturn a lower court decision blocking valley fills that are not part of post-mining development plans. Lawyers from five law firms in Charleston, WV; Richmond, VA; Huntington, WV; and Louisville, KY filed their brief in late August on behalf of the Kentucky Coal Association, Horizon NR LLC and Pocahontas Development Corp. over the 5/8/02 ruling of Chief U.S. District Judge Charles H. Haden II.

The ruling ordered the U.S. Army Corps of Engineers to stop issuing federal permits allowing streams to be buried under excess rock and dirt from mountaintop-removal coal operations. "For the second time, this court must review a decision by the same district court that will strangle coal mining in Appalachia by enjoining the construction of valley fills", the industry lawyers said in the 62-page brief. The 4th Circuit Court of Appeals previously overturned a 1999 ruling by Haden to limit valley fills, saying the judge lacked jurisdiction because the underlying lawsuit was against a state agency. In that ruling, Haden said a federal stream buffer-zone rule prohibited West Virginia's Department of Environmental Protection from issuing most valley-fill permits.

In May, Haden ruled that the Clean Water Act outlaws most valley-fill waste piles. He said valley fills are only allowed when they are proposed with a "constructive, primary purpose". Lawyers argued in the brief that the court erred in declaring that valley fills for such purposes as roads and malls were justified, while coal mine waste fills supply no social benefit. "This was naked policy making,'' the lawyers wrote. "The district court may prefer the proliferation of shopping malls and urban sprawl to coal mining, but others may legitimately feel that a supply of affordable coal has 'social benefit' for our nation. It was not the province of the district court to decide this.''

The lawyers also argued that "the coal industry simply could not exist in mountainous areas without valley fills.'' Lawyers for the U.S. Justice Department, on behalf of the Bush Administration, also filed a brief appealing Haden's decision. Meanwhile, the citizen group Kentuckians For The Commonwealth Inc. has argued that preliminary government studies say limits on valley fills would not cripple the coal industry. Haden's May ruling stemmed from a lawsuit filed in February by the citizen group, which has 30 days to file a brief responding to the legal arguments by the coal industry and the federal government.

Source: AP/Louisville Courier-Journal, 8/22/02

Coal Bed Methane Issues

Water discharged by coalbed methane production has been at the center of debate over the new energy source. The gas is trapped under pressure in coal seams, and to release it requires pumping groundwater to the surface. In southeastern Montana, where some of the richest methane pockets are found, groundwater is sometimes very salty. Farmers who irrigate crops using water from major rivers in the area — the same waterways likely to be the disposal grounds for coalbed methane water — have argued that the salt could kill their crops and forever sour their fields. They are asking that the state of Montana take a tough stand on regulating well discharges

In the meantime, U.S. District Judge Sam Haddon in Great Falls, Montana has ruled that the groundwater discharged in coalbed methane drilling isn't a pollutant under federal law, and drillers who release the water into waterways aren't breaking federal law. Thus the Fidelity Exploration and Production Co. didn't violate the Federal Clean Water Act (CWA) when it released coalbed methane water into Montana's Tongue River and nearby Squirrel Creek drainage. Since groundwater, like the kind brought to the surface in coalbed methane drilling, isn't a pollutant drillers are not bound by the Federal CWA when they discharge it. Fidelity, whose parent company is MDU Resources Group Inc., has about 235 wells on the Montana side of the Powder River Basin, the methane-rich river valley that straddles the Montana-Wyoming border.

The ruling came in response to a suit filed in June 2000 by the Northern Plains Resource Council, a regional environmental organization, which argued that the company didn't have a permit to discharge the water and was breaking federal law. The group has vowed to appeal Haddon's decision.

Bruce Williams, vice president of operations for Fidelity at its office in Sheridan, WY., said his company had a permit from the state stipulating that it not release more than 1,600 gallons of methane water per minute. The state Board of Environmental Review is now looking at setting up numerical limits for the amount of salt that can be released in the Tongue and Powder rivers, both important waterways for irrigation and discharge of methane-related groundwater. The state still has the right to enact state laws governing methane discharge water and those laws can be more strict than federal rules, said Jack Tuholske, a Missoula lawyer who argued the case for Northern Plains.

Meanwhile, the Montana office of the U.S. Bureau of Land Management (BLM) and the largest coalbed methane companies plan to team up to drill groundwater monitoring wells in the western Powder River Basin. Under the plan, the companies would drill 30-40 monitoring wells and pay for the associated equipment, and the BLM would operate the wells and compile data from them. While it is the BLM's responsibility to monitor the effects of oil and gas development, industry officials hope that by taking part in monitoring they will help indemnify themselves against allegations of environmental and aquifer degradation.

Across the border In Wyoming, in a move that could have major implications for coalbed methane development, the Wyoming BLM office will reexamine thousands of coalbed methane leases in the Powder River Basin. This action is being taken to make sure they comply with environmental rules. "This is a huge deal," said Tom Darin, staff attorney for the Wyoming Outdoor Council, who has been doing legal work on coalbed methane for years. "There's a great opportunity there to ensure more environmentally responsible development, which is what should happen." In its environmental assessment, the BLM will look at whether the leases were awarded based on information that fully considered all of the possible negative impacts of drilling for coalbed methane.

If the foundation for the leases is flawed, the BLM will then decided whether they should be renegotiated with more strict conditions or reacquired by the government — meaning the leases would be canceled and then possibly put up for sale again with new terms. In all, about 5,100 leases in the Powder River Basin will be involved, said a BLM official. The BLM's decision stems from an earlier ruling this spring by a federal judicial panel that the agency sold leases that did not comply with the National Environmental Policy Act.

Another possibility given the Bush Administration's "fast track" interest in coalbed methane is that the BLM will decide to let the existing leases stand and require the developers to deal with environmental issues after the leases are in effect.

Source: Becky Bohrer, AP, 8/26/02; Jennifer Mckee, The Billings Gazette, 8/27/02; and Mike Stark, Billings Gazette, 8/31/02.

Feedlot Perils Outpace Regulations

The rapid growth of huge animal feedlots and slaughterhouses in the 1990's has outpaced the power of state and federal regulators to keep them operating safely and cleanly. This has lead to polluted rivers and lakes, meat recalls and workplace injuries, a Sierra Club report says.

In an effort to catalog the environmental, health and safety records of feedlots and packing plants owned by corporations, the Sierra Club reported the following findings from a study of state and federal records for the 1980's and 90's:

- Slaughterhouses produced 134 million pounds of contaminated or possibly contaminated meat.
- Millions of gallons of animal feces and urine that seeped from manure pits of the big feedlots polluted 35,000 miles of rivers.
- More than $48 million in fines were paid for health and environmental violations that included slaughtering diseased cows; polluting water with animal carcasses, urine and feces; and selling rodent-tainted meat.
- Labor and worker-safety violations lead to 13 deaths and more than $35 million in fines for the corporations.

The report entitled, "The Rap Sheet on Animal Factories," argues for more regulation. The report also identifies 10 companies as having the worst health, safety and pollution records. The study found that most violations occurred in the

1990's, when the meat industry began building large feedlots in rural America from North Carolina to California. The 630 meat factories in 44 states covered by the study included the largest feedlots, which raise millions of hogs, chickens or cattle.

The meat industry criticized the report, saying it failed to reflect improvements made in response to early problems or innovations to improve meat safety. Instead, industry spokesmen said, the report focused on old problems already uncovered by federal and local regulators.

The Sierra Club and other environmental groups have argued that regulations are written to cover small family farms, not the huge modern feedlots. The USEPA is under court order to come up with new federal regulations for feedlots. Stephanie Bell, a spokeswoman, said the agency would complete them by December. Worried that new regulations would impose new expenses, the large corporations lobbied for and won eligibility for money from the new farm bill to help clean up animal wastewater. Ed Hopkins, author of the Sierra Club's study, said, "That's why we opposed the new farm bill, because it makes the American taxpayer subsidize these huge animal factories and clean up their mess."

Most of the environmental problems associated with the feedlots stem from the animal waste they concentrate. The country's cattle, hog and chicken feedlots produce 291 billion pounds of manure a day. That waste is held in open pits, known as manure lagoons. Leaks and spills from these lagoons have caused most of the water pollution and fish kills documented in the report.

Source: Elizabeth Becker, New York Times, 8/12/02

Water Pollution Violations — Pervasive and Increasing

Violations of the Clean Water Act (CWA) by major industrial, municipal and federal facilities are pervasive and severe, says the U.S. Public Interest Research Group (PIRG) "Permit to Pollute" report released in August. Between January 2000 and March 2001, the report says that over one-quarter of the nation's largest facilities seriously violated their CWA permits at least once. The findings represent an increase across the spectrum of polluters from PIRG's last report on this issue, with significant increases for federal facilities.

Reviewing CWA violations as recorded in the USEPA's Permit Compliance System database, PIRG's report found that 134 major facilities were in "significant noncompliance" (SNC) during the entire 15-month period. "When you look at numbers like nearly 30% of polluters breaking the law, you would reasonably start taking measures to significantly reduce the pollution, but instead the Bush Administration has launched a widespread effort to take the cops off the beat," said Richard Caplan, the report's author. Caplan criticized the administration's efforts to rely more on the states for enforcement activity.

President Bush's fiscal year 2003 budget requested $402 million for USEPA enforcement activities, an increase from the $387 million enacted level for FY 2002, and a $15 million state grant program. For the second year in a row, the Senate Appropriations Committee has increased USEPA's budget — this year by $20 million — and rejected the grant program. PIRG's report, which used information obtained through a Freedom of Information Act request, found that three states — Indiana, Tennessee and Texas — ranked among the top 10 for states with the greatest number of facilities in SNC and the highest percentage of facilities in SNC. "Clearly, the states aren't doing the job. Both the states and the USEPA are culpable for this problem," Caplan said.

Scott Slaughter of the Center for Regulatory Effectiveness said that if PIRG's findings are correct, the problem lies more with the states than USEPA or the Bush Administration. "Assuming their findings are true, and I find their numbers startling, their real complaint should be with state enforcement, because they have the primary responsibility for enforcement and USEPA has more of an oversight role," he said. "States don't have the money, and the real problem is that the regulatory programs are underfunded and understaffed."

Besides more funding for USEPA enforcement, PIRG is supporting legislation introduced by Rep. Frank Pallone (D/NJ) that would follow many of the report's recommendations, including tougher penalties for polluters, greater citizen access to the courts, and expanding the availability of information on enforcement. Caplan admits the bill faces an uphill battle, saying he wouldn't bet his annual salary on its passage, but he says it may at least bring more attention to the enforcement issue. Sen. Jon Corzine (D/NJ) is expected to introduce similar legislation shortly.

Earthjustice Legal Defense Fund lawyer and lobbyist Joan Mulhern says the Bush Administration and USEPA Administrator Christie Whitman have sent strong signals to industry that they're unconcerned with enforcement. "If the worst thing that can happen to a company is that they'll get a strong talking to by Administrator Whitman, that's not much of an incentive to meet the law," she said.

Meanwhile, the USEPA is drafting new guidelines for the Total Maximum Daily Load (TMDL) program that would give states greater leeway in deciding which waterways would be cleaned. Under the proposal, the USEPA would not have the power to approve or reject state plans for cleaning the waterways, but would "trust the states," a USEPA outline of the proposal said. The proposal would allow states to remove waterways from the program if they determine there is not enough data on a particular lake or river.

For example in Iowa, plans for special pollution limits in 111 waterways are being shelved because state law limits the data water experts can use to classify them as "impaired." John Olson, a water-quality worker for the Iowa Department of Natural Resources (DNR), said most of the 111 lakes, rivers and wetlands taken off the state's impaired-waters list are still seriously polluted. They were on a 1998 list of 157 waterways reported to federal authorities but not on the updated list released in late August. The state's "credible data law," passed in 2000, also banned the DNR's old practice of listing waterways based on the "best professional judgment" of scientists, or based on data more than five years old.

Lawmakers also banned the state from using data from the extensive volunteer water-quality monitoring program, even though the data has been verified as generally accurate.

In West Virginia, members the state Environmental Quality Board have moved forward with a proposal meant to ensure that the water in all state streams is kept clean enough to drink But at the same time, they have advanced a draft rule that would make it easier to seek exemptions from the requirement. Under the law, streams designated for use as drinking water must meet tighter water quality standards, but companies can seek Board approval to exempt certain streams from the drinking water standards. Industry lobbyists had complained vigorously about the drinking water proposal, so the Board agreed to delay it, and write a companion rule meant to speed up the exemption process. Since then, the Board has been trying to get the USEPA to go along with speeding the exemption process.

In Indiana federal judge Sarah Evans Barker ruled in mid September that the state needs to bolster its oversight of livestock feedlots. If the Indiana Department of Environmental Management fails to do so, the state could lose federal authorization to regulate discharges into state waterways.

In Kentucky, 949 waterways were listed as polluted this year, nearly three times the number recorded four years ago when state water officials last compiled such a report. Bruce Scott, a permits branch manager for the state Division of Water, said the reason for the increase isn't necessarily an increase in pollution, but instead can be traced to a more stringent state water monitoring program than the one used in 1998. Waterways new to the list this year were polluted in 1998, but the division didn't have the data to prove it.

In Ohio, only one watershed out of 330 is clean enough to swim in and has fish safe enough to eat. That's the rather bleak assessment from the Ohio Environmental Protection Agency in its latest report on the quality of the state's rivers and streams. Still, state officials say progress continues. Data show that 12 watersheds meet some, but not all, of the CWA standards. State biologists also found that nearly 50 watersheds, including the entire Chagrin River, have healthy and diverse populations of fish and aquatic life. Both factors are indicators of good water quality. While marked improvements have been made during the last 30 years, pollution problems today are more complex and diverse, such as storm water runoff, which the state has no power to regulate. Last fall, the National Wildlife Federation and two state conservation groups sued the USEPA for not forcing Ohio to clean up its polluted rivers and streams.

At the same time that the Bush Administration looks to the states for more environmental control, their instate budgets are being cut on the average of $6.8 million this year, according to the Environmental Council of the States (ECOS). For some states, the moves come after average cuts of $6.5 million last year, resulting in significant reductions in monitoring and other programs. Water programs are the hardest hit, with cuts being made to 32 programs.

ECOS' acting executive director, R. Steven Brown, said water programs receive the largest portion of funding out of state environmental budgets and therefore would be prime targets for reductions. Some states reported reducing or eliminating groundwater monitoring, monitoring for non-TMDL sources, and oversight regarding aquifer water quality permits. Other states cut funding for wetlands programs, shore protection and monitoring livestock compliance, Brown said. The report includes information from 40 states. Only ten of the 40 states reported either maintaining their current environmental budgets or increasing them.

Brown says the main difference this year is that funding for actual programs are being reduced. Last year they could deal with the cuts by eliminating travel, not promoting people, not filling empty positions," he said. The environmental cuts are part of a wider picture of budget cuts states were forced to make this year. Collectively, states had to overcome a $37.2 billion budget deficit, according to the National Conference of State Legislatures, which released a report analyzing budgetary and tax actions for 2002 across the 50 states.

Meanwhile in Congress, Delaware's top environment official urged a U.S. Senate panel in late July to strengthen criminal laws to make it easier to hold corporate leaders personally responsible for violating clean air, clean water and hazardous waste laws. Fines are not enough to stop corporate polluters, who often find it cheaper to pay the penalty than to stop fouling the air or water, said Nicholas A. Di Pasquale, secretary of the Delaware Department of Natural Resources and Environmental Control. Corporate executives need to face jail time, which they rarely do now, he said. Di Pasquale was invited to testify by Sen. Joe Biden, D/DE, chairman of the Subcommittee on Crime and Drugs. Di Pasquale, who was appointed to his post in 1999 by former Gov. Tom Carper, announced before his testimony that he was resigning, effective 9/20/02, to work on environmental issues at the regional and national level.

Prison for Polluters!

Biden agreed with Di Pasquale that national environmental laws should be given more teeth. "We need to send polluters a loud, clear message: If you break the law and pollute the environment, you will be prosecuted to the fullest extent of the law," Biden said. "And we will put you in jail for your crimes." Biden said budget cuts at the USEPA have led to a drop in the criminal cases it has prosecuted — as many as 200 employees have been cut. Last year, the agency netted $95 million in fines, down from 2000's $122 million, he said. From 1986 to 2000, the federal agency's funding for state environmental programs dropped more than 4%, Di Pasquale said. At the same time, state funding increased by 65%. States now spend almost twice as much as the USEPA on the environment, he said.

Thomas Sansonetti, assistant attorney general for the environment division, said the Bush Administration has made strong enforcement of environmental laws a top priority. However, he agreed with Biden that it would help to strengthen existing laws to allow prosecution of people who attempt to break the law. Currently, prosecutors must wait until environmental damage has been done. "We will continue to press forward in this area to ensure the protection of all Americans and of our environment," Sansonetti said.

Sources: Greenwire, 8/7/02 and 8/8/02; Elizabeth Shogren, Los Angeles Times, 8/8/02; Perry Beeman, Des Moines Register, 8/20/02; Ken Ward, Jr., Charleston Gazette, 9/

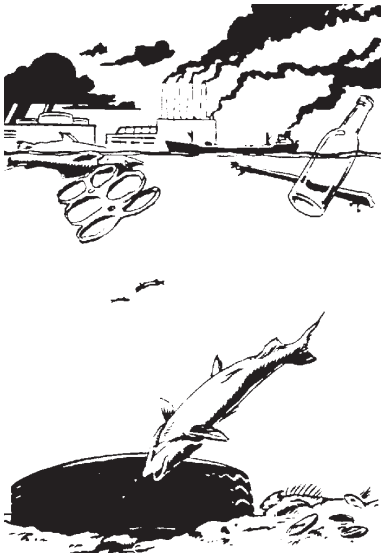
6/02; Shannon Tan and Tammy Webber, Indianapolis Star, 9/18/02; Lexington Herald-Leader, 8/21/02; John C. Kuehner, Cleveland Plain Dealer, 0/11/02; Molly Villamana, Greenwire, 8/1/02; and Erin Kelly, Gannett News Service/Delaware News-Journal, 7/31/02

Gulf/Lake Erie Dead Zones Grow

This year's Gulf of Mexico dead (hypoxia) zone was four times larger than the goal set for 2015 in an action plan developed by a special national task force. It extended well into Texas waters. "Because of time constraints, we weren't able to map the entire extent into Texas," Nancy Rabalais of the Louisiana Universities Marine Consortium said. The zone stretches from the Mississippi River Delta across the Louisiana coast, and onto the upper Texas coast near Galveston. It covers an area from very near shore to as far as 25 miles off Grand Isle and 60 miles off Cameron, in water depths of 10 to 120 feet. The hypoxia area is caused by excessive nutrients from the Mississippi and Atchafalaya rivers. The action plan calls for reducing nitrogen in the river system to bring the size of the low-oxygen zone down to 2,000 square miles/year.

Excessive nitrogen from farm runoff, sewage systems and industry reaches the Gulf and causes algae to bloom. Rabalais said fresh water from the river system first flows over the heavier salt water, stratifying the water. "The two-layer system inhibits the oxygen in the surface waters from penetrating to depths. Nutrients, particularly nitrogen and phosphorus, stimulate the growth of microscopic plants, the phytoplankton." That growth of phytoplankton is the key to the food web that makes Louisiana's offshore waters teem with fish. But too much of a good thing can also be bad. When there is more phytoplankton than the marine ecosystem can consume, the single-celled plants "end up as organic debris on the sea floor. The decomposition of this organic matter by bacteria uses up the oxygen to the point that it becomes depleted and lower than what is necessary to sustain the life of most marine animals," Rabalais said. Those blooms die off and suck oxygen out of the water. Swimming aquatic life generally flee the area, and critters that can't escape die, hence the nickname, "the dead zone."

Rabalais said that higher in the water column there is sufficient oxygen to support sizeable numbers of fish and swimming crabs, but the oxygen is depleted on the bottom where fish and shellfish die. "As usual, the low-oxygen conditions will likely persist until the oxygenated upper waters are mixed with the oxygen-poor lower waters by tropical storms or a series of cold fronts," Rabalais said. "The sequence of events that led to this year's hypoxia was a bit abnormal," she said. "Spring weather was windier than normal, and the two-layer system that supports hypoxia did not develop to its maximum strength until June, unlike other years when hypoxia occurs earlier." Also, the Mississippi River discharge peaked three times in 2002 — February, April and early June. Rabalais said all three peaks had above average flows, and the June spurt reinforced the freshwater cap that sits over the oxygen-deprived saltwater.



The scientific party mapping the dead zone is led by Rabalais and includes scientists from the Louisiana Universities Marine Consortium, Louisiana State University and Woods Hole Oceanographic Institution. It mapped the area along 90 stations from the Mississippi River to just west of High Island, Texas, over a six-day period starting on July 21. The National Oceanic and Atmospheric Administration's Coastal Ocean Program funds the research.

The Mississippi River Basin Hypoxia Task Force formed by the USEPA wants to cut 30% of the nitrogen flowing from farms, cities and other inland river basins into the Gulf of Mexico through the river system. Len Bahr of the Louisiana Governor's Office of Coastal Affairs, who sits on the task force, said his office concluded that target "was doable and realistic and could make a difference." Allowing more river water to flow over and through marshes by building control structures, such as those at Caernarvon and Davis Pond in the Mississippi River levee, could help pull as much as 10% of the nitrogen out of the water as it flows through rebuilding marshes, Bahr said.

Meanwhile in Lake Erie, a team of 27 researchers from 18 institutions studying that lake's dead zone for the USEPA this summer found that it had also grown. The team also found that the quagga mussel outnumbered the zebra mussel by 10 to 1. Just nine years ago, about the time the quagga arrived, the zebra mussel outnumbered the quagga by 100 to 1. "This astounded us," said David A. Culver, Ohio State University, a member of the research team trying to figure out why low oxygen levels have returned to Lake Erie's central basin. Culver presented his findings at an early August hearing in Cleveland held by U.S. Sen. George Voinovich to investigate the dead zone.

Researchers are concerned that the quagga and zebra mussels are causing the high phosphorus levels responsible for creating the dead zone. Both mussels release phosphorus as a waste, but the quagga releases more. Scientists reiterated that the lake remains healthy, but unexpected things are going on. Culver said the quagga, a cousin to the zebra mussel, may be a leading culprit for the dead zone (an area between Erie, PA., and Lorain, OH).

As noted earlier phosphorus serves as a nutrient for the growth of algae. Decomposition of algae or any other organic material, such as matter released from sewage-treatment plants, sucks oxygen from the water. This is a problem in the central basin between spring and fall because the colder, more dense water stays at the bottom and cannot be replenished with oxygen. If oxygen is used up, fish and other mobile organisms avoid the area.

"If the central basin were deeper, there wouldn't be a problem," said Jeffrey M. Reutter, director of the Ohio Sea Grant College Program. What makes it worse is that Lake Erie has lost 3-4 feet in depth since 1997. Scientists do not know why the quagga has replaced the zebra mussel, but the quagga appears suited to out-compete the zebra mussel because it survives at deeper depths and spawns in colder weather.

Scientists urge more funding for research hoping that further study will show if there

is a way to lower the phosphorus levels. One way would be to tighten discharge limits at sewage-treatment plants, but federal funding, which helped sewage-treatment plants make improvements, will not be easy to come by, Voinovich said. "From the testimony submitted for today's hearing, I am very concerned that we may be on the edge of sliding behind rather than moving ahead," he said.

Mike Dunne, Baton Rouge Advocate, 7/26/02; and John C. Kuehner, The Cleveland Plain Dealer, 8/6/02

Louisiana Wetland Restoration Gains Support

Louisiana's new wetlands restoration public education campaign recently received a $3 million, three-year underwriting grant from Shell Oil Co., a spot on the label of Tabasco hot sauce and the backing of several major national and state environmental and civic groups.

"America's Wetland: Campaign to Save Coastal Louisiana", kicked off by Louisiana Gov. Foster in August is aimed at garnering support for the proposed $14 billion federal-state effort to restore Louisiana's deteriorating coastal wetlands. "It's essential that the rest of the country understand the fragility of what we're dealing with here," said King Milling, president of Whitney National Bank and chairman of the Governor's Commission on Coastal Restoration and Conservation.

Shell Oil became the first international company to agree to support the campaign. "With about 2,500 employees and thousands more retirees in Louisiana, Shell is immersed in this great state, and the viability of Louisiana's coast is important to us," said Rob Routs, president and CEO of Shell Oil Products US and president of the Shell Oil Company Foundation, as he handed over a check to Foster. "None of us should underestimate the challenge we face if Louisiana's productivity and rich heritage is to be preserved for future generations."

Paul McIlhenny, chief executive of the McIlhenny Corp., the manufacturer of Tabasco, and a member of a governor's task force that recommended the education effort, agreed to put the "America's Wetland" label on Tabasco bottles to help raise public awareness nationwide. "We are surrounded by coastal wetlands, which we don't need to get any wetter," said McIlhenny, whose factory is on Avery Island, just south of New Iberia.

The campaign also picked up the support of Ducks Unlimited, a nonprofit group that already has committed to investing more than $10 million in wetlands restoration projects in the state to aid waterfowl. Executive Vice President Don Young said Louisiana's wetlands problems would be the subject of stories in the organization's national magazine and on its TV show.

The campaign also has the support of Time for Kids, a division of Time magazine, said Val Marmillion, president of Pacific Visions Communications, which is developing the education campaign for the state. Other organizations agreeing to support the campaign and represented at the August news conference were Environmental Defense, the Louisiana Nature Conservancy, the Coalition to Restore Coastal Louisiana, the Louisiana chapter of the Coastal Conservation Association, the Council for a Better Louisiana, and Restore or Retreat.

Louisiana officials still must persuade Congress and Louisiana voters to help pay for the restoration program. The planned river diversions, barrier island restoration and replanting of vegetation are expected to cost around $14 billion. The hope is that the loss of Gulf wetlands to erosion can be stopped or reversed by 2050.

Sources: Brett Martel, AP, 8/27/02 and Mark Schleifstein, New Orleans Times-Picayune, 8/28/02

Warmest Summer Since 1930's

The National Climatic Data Center reported on 9/14/02 that June through August was the warmest summer since the 1930's, and drought affected about half the country. The average temperature for the 48 contiguous states this summer was 73.9 °F. That's 1.8 degrees warmer than normal and the third-hottest summer on record. Warmest was 1936 and second was 1934. The report comes just a day after the National Weather Service forecast continuing dry conditions for much of the country through winter. Only the southern tier of states are expected to be wetter than normal.

The data center, part of the National Oceanic and Atmospheric Administration, said no state was significantly colder than normal in summer and many were much warmer than average. There was much-below-average rainfall in 29 states, while the only wetter-than-average states were Wisconsin, Minnesota, Iowa and North Dakota, plus parts of Texas and Florida. Heavy rainfall eased drought but led to severe flooding in southern and central Texas in early July with damage estimates reported as high as $1 billion. Strong thunderstorms also brought widespread flooding to western Minnesota and North Dakota and resulted in hundreds of millions of dollars in damage in crop losses in June.

In many areas, the drought extends back years. Indeed, the 12 months ending in August were the driest on record for six states — North Carolina, Virginia, Colorado, Utah, Arizona and Nevada. It was the second-driest 12 months in South Carolina, Georgia, Maryland, Delaware and Wyoming. The Climate Center said there was some drought relief in the Northeast during the spring and early summer, but a return to below-average rainfall during July and August led to worsening drought there as well.

Source: Washington Times/AP, 9/14/02

Drought and Global Warming Effects on Fish and Fishing

The summer drought coupled with high temperatures has sent rivers and reservoirs to dangerously low levels, forcing anglers off rivers in some states, while others are being urged to fish as much as possible before conditions kill the fish. Low water flows and high temperatures can be lethal to fish because the oxygen in the water drops, the number of parasites and diseases increases, and space for the fish shrinks. Temperatures above 65 °F are harmful for cold-water fish like trout. Wildlife officials in some states fear the situation could grow even worse next year without adequate rain and snow.

In Colorado, where the fishing industry's

economic impact is $900 million, monsoon rains and cloudy days have stabilized conditions. But conditions are still subpar, and state officials have urged anglers to fish in the morning, before it gets hot. People have stopped fishing a stretch of the Yampa River near Steamboat Springs because the fish are threatened by low flows and high temperatures. A section of Bear Creek in the foothills west of Denver has been closed to anglers.

Meanwhile, state fish limits were lifted at some reservoirs in hopes anglers would bag as many as they can before water levels drop and the fish die. Wildlife employees recently rescued about 100 rare greenback cutthroat from a creek before it dwindled to a trickle. "These are unprecedented times for Colorado anglers. We haven't had to put out such widespread regulations before, and it's likely we're going to have even more difficult conditions," said Todd Malmsbury, Colorado Division of Wildlife spokesman.

Melting snow provides about 80% of the water in streams, lakes and rivers in Colorado. This year, snowpack that usually doesn't melt until midsummer was gone by June. "We are experiencing small streams drying up at high elevations that in anybody's memory never occurred before," said Robin Knox, the state's sport fish manager.

Anglers in Nebraska and Utah are also being urged to fish as much as possible in some spots before the conditions kill the fish. In Wyoming's Yellowstone National Park, the famed Madison, Firehole and Gibbon rivers have been closed to fishing because of high water temperatures. The problems in Yellowstone are aggravated by geothermal activity that warms those rivers.

Above average snowfall and a wet spring in some areas have kept Montana officials from closing rivers as they did the past three years. But that could change if conditions don't improve, said Bruce Farling, executive director of Montana Trout Unlimited.

Dry weather in Southern California has sapped several popular fishing streams and creeks in Los Angeles and Ventura counties, said Steve Martarano, spokesman for the California Department of Fish and Game. "Flows are so low, they're close to being dry," he said. State officials have started discussing possible restrictions to allow fish to recover, Martarano said.

Also in California, Gov. Gray Davis (D) signed into law on 9/16/02 a bill easing the state's strictest endangered species laws in hopes of moving a deal forward that would reduce the state's dependence on Colorado River water. The new law will allow for the accidental killing or disturbance of 37 fully protected species if all other environmental laws are complied with and the preservation of the Salton Sea — a 376 square-mile lake that gets most of its water from the Colorado River — is guaranteed for 15 years. In other words, the new law allows for the incidental take of fully protected species under state law as long as the salinity of the Salton Sea does not increase for 15 years. Environmentalists gave the bill a lukewarm reception.

The Salton Sea formed nearly 100 years ago when a Colorado River irrigation canal broke; and it has been maintained largely by agricultural runoff. Even if current conditions continue, the sea is expected to go hyper-saline within the next century. But scientists say that if the inflows are maintained, restoring and maintaining the sea as a hotbed of biodiversity is possible — and necessary, given that 90% of the state's natural wetlands have been lost in the past century.

For decades, California has been taking more water from the Colorado than is allowed by the multi-state Colorado River Compact, which governs use of the river's water. Although underuse of the river by Nevada and Arizona has historically allowed California to overdraw without ill effects, those states are now using close to their full apportionments, and California is now under federal mandate to cut its annual take.

California has until 12/31/02 to finalize a plan for bringing its use of the river down to 4.4 million acre-feet per year from its current use of 5.2 acre-feet per year. Completing the so-called Quantification Settlement Agreement means the state will be able to trim its annual take gradually, while failure to do so could lead the Interior Department to cut the entire 800,000 acre-feet at once.

But the deal has been hung up because of the potential ecological impacts to the Salton Sea. As noted above, water levels in the lake are largely sustained by runoff from farms in the Imperial Valley, which has committed to transferring 200,000 acre-feet per year to San Diego so that California can meet its obligations without shutting off water for urban users.

Scientists say that if farmers in the Imperial Valley implemented the agreement by reusing water on the farms, preventing it from flowing to the lake, the Salton Sea will quickly become hyper-saline, making it inhospitable to the fish and other wildlife that depend on it. In addition, they say, the lake would shrink dramatically, increasing dust pollution in the region.

Source: Judith Kohler, Associated Press; Rocky Mountain News, 8/22/02; and Damon Freanz, Greenwire, 9/17/02

Climate Change and It's Potential Cost

Alaska's glaciers have been shrinking even faster than scientists thought, producing more meltwater over the past half-century than any other icy region on Earth. These findings arose from a 10-year study by a team of Fairbanks glaciologists, who figured out a way to apply modern laser technology to the white-knuckle savvy of Alaska glacier flying.

The meltdown doubled during the late 1990s and has flooded the ocean with enough runoff to raise global sea level as much as 0.27 millimeters per year, about one-hundredth of an inch, five scientists with the University of Alaska Fairbanks Geophysical Institute reported on 7/19/02 in the journal Science.

If that sounds tiny, consider this: Spread over all the world's seas, this runoff amounts to about 8% of the recent rise in sea level. It is enough water to flood the Anchorage Bowl 630 feet deep every year. That's more than twice the water flushing from the giant Greenland ice sheet, which is many times larger than Alaska's combined ice, said glaciologist Keith Echelmeyer, the study's lead scientist and glacier pilot.

"Alaska's glaciers are very active," Echelmeyer said. "They are providing the single largest glacier-related contribution to sea level change that has yet been measured." All this melting has complex causes, global warming among them, Echelmeyer added. But the evidence is clear. "What's happened in the last 100 years is huge compared to anything that's happened in the past 10 centuries."

The findings suggest that scientists may be underestimating how much sea levels will keep rising. The next step will be to

complete calculations on the glaciers that have been measured but not yet analyzed, and then Echelmeyer and his team will tackle the causes behind the meltdown. "We have not yet figured out whether it's due to climate warming or, say, less snowfall," he said.

A widely publicized government report recently predicted that sea-level rise caused by global warming could swallow sizable chunks of the coastal U.S. in the coming century. In Louisiana up to 35 square miles of the state's wetlands already sink into the Gulf of Mexico each year. To date, an area the size of Rhode Island has been lost. In some places, the coastline has retreated 30 miles.

More frightening to emergency planners is what a major hurricane could do to New Orleans. High winds and low atmospheric pressure actually raise sea level beneath and in front of a hurricane, sometimes as much as 25 feet. In New Orleans, the only levees high enough to stop a wall of water that big are along the Mississippi, not around the city's perimeter. A direct hit to New Orleans by a hurricane with sustained winds above 110 miles per hour would overwhelm the city's ramparts, filling the city with water as if it were a sinking canoe.

Because New Orleans essentially sits in a bowl ringed by its protective levees, that water would stand around for weeks or months until officials could find a way to breach a levee to drain it. The stagnant pool would probably be contaminated with toxic waste from the dozens of petrochemical plants that line the Mississippi, as well as with human waste and decomposing carcasses. Officials say, "This is a $50 billion disaster.''

If scientists' global warming projections prove correct, virtually every state along the Atlantic and Gulf coasts will have problems similar to Louisiana's by the middle of the century. In a worst-case scenario, sea level would be 44 inches higher 50 years from now. If it is, 23,000 square miles of land along the Gulf and Atlantic coasts will disappear. Low-lying cities such as Miami, FL; Houston, TX; Wilmington, NC; and Charleston, SC, will face many of the same problems New Orleans grapples with today. Beyond the U.S., low-lying coastal countries such as the Netherlands, Bangladesh, and the Bahamas stand to lose large swaths of territory.

A different kind of climate related disaster is also occurring in southern Asia. There a two-mile-thick cloud of pollution is threatening the lives of millions of people and could have an impact much further afield, according to a U.N.-sponsored study. The cloud, a toxic cocktail of ash, acids, aerosols and other particles, is damaging agriculture and changing rainfall patterns across the region which stretches from Afghanistan to Sri Lanka, the study says.

Professor Victor Ramanathan, one of the more than 200 scientists involved in the U.N. study, said the cloud was cutting the amount of solar energy hitting the earth's surface beneath it by up to 15%. "We had expected a drop in sunlight hitting the earth and sea, but not one of this magnitude," he said. At the same time the cloud's heat-absorbing properties are warming the lower atmosphere considerably, and the combination is altering the winter monsoon, leading to a sharp reduction in rainfall over parts of northwestern Asia and a corresponding rise in rainfall over the eastern coast of Asia.

The report calculated that the cloud — 80% of which was man-made — could cut rainfall over northwest Pakistan, Afghanistan, western China and western central Asia by up to 40%. Apart from drastically altering rainfall patterns, the cloud was also making the rain acid, damaging crops and trees, and threatening hundreds of thousands of people with respiratory disease.

The lives of millions of people are at risk from drought and flooding as rainfall patterns are being radically altered, with dire implications for economic growth and health. "We have an early warning. We have clear information and we already have some impact. But we need much, much more information," U.N. Environment Program chief Klaus Toepfer told a news conference.

"There are also global implications... because a pollution parcel like this, which stretches three km high, can travel half way round the globe in a week." Toepfer said the cloud was the result of forest fires, the burning of agricultural wastes, dramatic increases in the burning of fossil fuels in vehicles, industries and power stations, and emissions from millions of inefficient cookers.

"We have the initial findings and the technological and financial resources available. Let's now develop the science and find the political and moral will to achieve this for the sake of Asia, for the sake of the world," he added.

Nobel laureate Paul Crutzen — one of the first scientists to identify the causes of the hole in the ozone layer and also involved in the U.N. report — said up to two million people in India alone were dying each year from atmospheric pollution. "If present trends as they are continue, then we have a very serious problem," he said.

The report called for special monitoring stations to be set up to watch the behavior of the cloud and its impact on people and the environment. "The concern is that the regional and global impacts of the haze are set to intensify over the next 30 years as the population of the Asian region rises to an estimated five billion people," the report said.

Meanwhile, insurance companies around the world are beginning to realize the magnitude of global warming issues. Munich Re, a large German insurance company, estimates that global warming could cost $300 billion annually by 2050 in weather damage, pollution, industrial and agricultural losses and other expenses. It is estimated that the haze in Southeast Asia could severely cut rainfall and reduce India's rice harvest by 10%. Abnormally high temperatures in Eastern Europe have already been partly blamed for the severe floods ravaging Prague and other areas of Europe. Insurance companies may also face unexpected expenses because of compliance with future regulations, fines, taxes and caps on products that produce greenhouse gases.

The impact of climate change varies by sector. Oil, gas and utilities, of course, are directly affected by changes in energy policy, while real estate is affected by coastal flooding and drought. But environmental activists and a growing number of investors have started to catch the corporate world's attention with their warnings that nearly all industries are exposed to some risk. Of particular concern are the costs of complying with a patchwork of regulations in the U.S. and abroad and the potential harm to a company's reputation if it is contributing to global warming.

Some experts in corporate governance say company officers could be held accountable for failing to protect their companies from climate-related risk. And the lawsuits could come from governments as well as investors and other aggrieved parties. Peter Lehner, chief of the New York attorney general's

Environmental Protection Bureau, said it was studying the issue of climate change and might sue polluters along the lines of the successful tobacco litigation by states in the 1990's.

Yet most of the risks and potential costs go unreported. Although Securities and Exchange Commission (SEC) rules require companies to disclose trends and uncertainties that could affect their stocks, few specific provisions exist for disclosing environmental liabilities. Critics say that even those regulations are barely enforced and that financial analysts rarely take such risks into account when assessing companies.

It's not necessarily deliberate. In many cases, companies are unsure how to calculate potential liabilities — especially when regulations have yet to be written. Because global warming is a long-term trend, it does not fit neatly into the quarterly reporting schedule or the outlook of many executives.

Still, many investors are taking such omissions seriously. "There was an assumption that everything important was valued by the market," said Robert K. Massie, executive director at the Coalition of Environmentally Responsible Economies, an association of environmental and investor groups based in Boston. "We know now that investors can be unaware of something with big impact."

Robert Monks, chairman of LENS Investment Management and Ram Trust Services, and a longtime corporate governance activist, said companies need disclosure guidelines for environmental liability because "the market can't reflect something it doesn't know." Mr. Monks was behind a shareholder resolution this year aimed at reducing the duties of Lee Raymond, chairman and chief executive of Exxon Mobil, to mitigate what Mr. Monks saw as the damaging effects of Mr. Raymond's rigid view that global warming was not a problem for the company. The resolution got 20% of the vote, considered surprisingly strong.

The issue of executive and director liability is likely to be closely watched. Shareholder activists "are creating a record of these companies' being put on notice," said Christopher Walker, managing director of a group that assesses the insurance risks of greenhouse gases at the New York offices of Swiss Re, a large insurer. "Our concern is, will there be a shareholder action 5 or 10 years from now?" In particular, he said, emissions reduction is shaping up as a "clear liability issue" for corporate managements and boards.

Swiss Re is reviewing the companies it insures to determine what they are doing to manage climate change risk, he said, and is considering excluding from coverage companies or directors that are not addressing it. Advocates of more disclosure say that in lieu of hard numbers, even qualitative assessments are helpful. Pressure for such assessments has been growing. Shareholder resolutions that ask companies to disclose or reduce greenhouse gas emissions won an unexpectedly high 30% of the vote at some companies during the 2002 annual meeting season. Law firms and insurance companies are setting up business units to deal with climate-related risks. And more institutional investors are lobbying the SEC and companies for better disclosure of environmental risks, particularly those related to climate change.

"People are recognizing that it's an issue they are going to have to deal with," said Tracey Mihelic, a partner at the Baker & McKenzie Law Firm in Chicago and a member of its new practice dealing with energy and climate-change litigation. Tim Little, executive director of the Rose Foundation for Communities and the Environment, a shareholder advocacy group based in Oakland, Calif., that has been campaigning for clearer guidelines on environmental reporting, said, "We see environmental disclosure as the next big corporate accounting scandal out there."

A report being drafted by the foundation predicted shareholder losses from "fines, penalties, and cleanup costs due to violation of environmental laws, increased costs due to changes in environmental regulation, and greater-than-expected costs due to understated or undisclosed liabilities." Innovest Strategic Value Advisors, based in New York, estimates that as much as 15% of the total market capitalization of major companies may be put at risk by climate change.

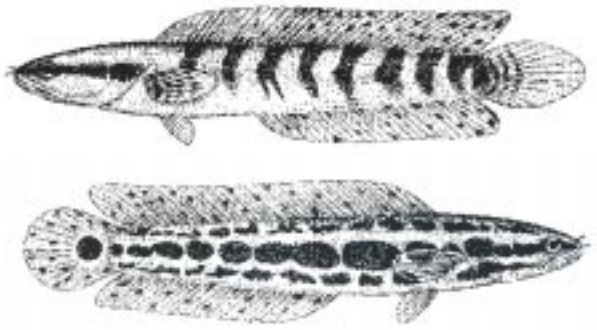
For many corporations, the process of even starting to calculate liability is difficult, because liability is contingent on future regulations. In addition, a single company can have several areas of seemingly insignificant risk that become significant when added up.

Sources: Anchorage Daily News, Doug O'Hara, 7/19/02; Matt Crenson, The Boston Globe/AP, 8/22/02 Jeremy Lovell, 8/12/02; and Amy Cortese, New York Times, 8/18/02

Maryland Snakehead Eradicated/ North Carolina Snakeheads Discovered

Declaring the northern snakehead eradicated from three Maryland shopping mall ponds, biologists have applied a neutralizing agent to rid the water of toxic chemicals. Fifteen gallons of the poison rotenone were sprayed on the ponds earlier in the month, and state cleanup crews recovered more than 1,000 dead juvenile northern snakeheads and six adults. "We believe it's the end of the snakeheads in the pond, but we're going to come back again later this fall and do some additional sampling just to make sure," said state Department of Natural Resources spokesman John Surrick.

In the meantime, in early August two new snakeheads were caught by two fishermen in Lake Wylie, NC. The fishermen were casting for catfish near the U.S. 74 bridge over the Catawba River when the two fish were taken on nightcrawlers. Both fish were kept in an aquarium for inspection by state biologists. Wayne Starnes, research curator of fish at the North Carolina Museum of Natural Sciences in Raleigh identified the fish through digital images taken by the biologists. When asked where the fish came from, Lawrence Dorsey, district fisheries biologist for the state Wildlife Resources Commission (WRC) said, "The only thing we know for sure is they are snakeheads."



African (above) and Asian (below) snakehead.

North Carolina bans fish, such as piranha,

but enforcement is difficult, said Bob Curry, fisheries program manager for the state WRC. To cite someone for illegally releasing a fish into pubic or private water, Curry said, officers would essentially need to see the person releasing the fish and then have catch the fish to identify it. At any rate, the fine is only $10, plus court costs, Curry said, although the federal ban on snakeheads (presently proposed by the U.S. Fish and Wildlife Service — See River Crossings, Vol. 11, No. 4 details), would make releasing them a felony.

Alien species are common in the state, including the Catawba River and its lakes. But biologists were puzzled by the snakeheads because they had never been seen here before, despite regular monitoring by state and Duke Power biologists. It's not known whether the two snakeheads were part of a larger group, but Dorsey said, the state will keep a "vigilant eye" out for further reports from fishermen. But for now, no plans have been made to go looking for the fish. They're probably a northern species of snakehead, like those found in Maryland, Starnes said. The fish were about the size of fish sold live in fish markets, he said, and possibly could have been intentionally released into Lake Wylie.

Source: Jackie Powder, Baltimore Sun, 9/18/02, Bruce Henderson, Charlotte Observer, 8/2/02

Invasive Flathead Catfish

Concerns have been raised by the Pennsylvania Fish and Boat Commission that flathead catfish, common to much of the Mississippi River Basin, could eventually take over the Susquehanna River and disrupt its ecosystem. Commission officials have confirmed that the species recently entered the Susquehanna River, and they are worried that the predatory fish, which can reach more than 100 pounds, could cause problems for other species.

As a result, the agency is now encouraging anglers to help control the growth of the invasive species. "We're going to start spreading the word that we would like anglers to keep and kill all flathead catfish they catch in the Susquehanna or its tributaries, no matter what the size of the fish," said Mike Kaufman, a commission biologist.

Kaufman said he verified that the nonnative catfish was in the river when he saw a photograph of one caught by Lititz resident Greg Misenko. Misenko said he caught a 15-inch flathead on 7/13/02, near the Safe Harbor Dam, and he said other men fishing in the area caught similar fish.

In Pennsylvania, flathead catfish are native to the Ohio, Allegheny and Monongahela river watersheds in Western Pennsylvania. The fish is common in the southern and Midwestern portions of the country. On rare occasions, Kaufman said, anglers catch

"Flathead catfish"

flathead catfish in the Schuylkill and Delaware rivers, and in Blue Marsh Lake in Berks County. "We don't know how they got there, just like we don't know how they got into the Susquehanna," Kaufman said. The flathead catfish are aggressive breeders, he said, and the presence of flathead catfish could significantly reduce the number of other catfish, sunfish, rock bass, smallmouth bass and other species.

Anglers likely won't be able to kill off the flathead catfish now that they have been introduced, he said. But they can help manage them. "Just taking one flathead out of the river is going to save a bunch of other fish because a single flathead eats so much — they are truly eating machines," he said.

Source: AP/Pittsburgh Post-Gazette, 7/26/02

Black Carp Alternatives

The use of black carp to control snails in channel catfish culture ponds has been a highly controversial subject since at least 1999. Fish farmers have argued for their use, while most state natural resource managers have argued against it because of the fear of their ultimate escape from ponds into the wild and the subsequent establishment of wild populations which would then prey on threatened and endangered snail and mussel stocks. In 2000, MICRA petitioned the U.S. Fish and Wildlife Service (FWS) to list the black carp as an injurious species of wildlife. As such, interstate shipment of the species would be restricted under the federal Lacey Act. The FWS proposed such a listing on 7/31/02.

In commenting on the proposed listing, MICRA members agreed: (1) that black carp should eventually be eliminated from the United States; (2) that diploid (fertile) black carp should be listed under the Lacey Act, as proposed by the FWS; (3) that chemical and biological alternatives to the use of black carp for snail control should be pursued; and (4) in those states where black carp continue to be used that only triploid (sterile) black carp be used. Now, the USDA, Agriculture Research Service in Stuttgart, AR has come out in support of other control options.

The flatworm, Bolbophorus confusus, not the snails, is the real problem. It lives in the American white pelican's intestinal tract, where eggs from the flatworm are shed via pelican feces into channel catfish ponds, where they hatch and form larvae that infect the next intermediate host, the ram's-horn snail, Planorbella trivolvis. Once the larvae multiply and mature inside the snail, they exit and find fish to infect — in this case, cultured catfish. The life cycle begins again when a pelican eats an infected fish and the flatworm reaches maturity inside the bird.

"It's called a complex life cycle, "says Andrew J. Mitchell, a fishery biologist at the Harry K. Dupree Stuttgart National Aquaculture Research Center. "The flatworm must have all three hosts to continue it's life cycle. It's interesting that if only one larva penetrates a snail, it can multiply into tens of thousands of larvae through asexual reproduction. It doesn't take a lot to get the cycle going."

A ram's-horn snail typically measures slightly more than one-third of an inch across. As a carrier of this deadly fish parasite, it is a strong link in a chain of events leading to extensive losses for catfish farmers. Fish infected with B. confusus develop small cysts in their flesh, often seen as bumps just below the skin. The disease can kill smaller fish, and it lessens the

appetites of larger fish not killed. This leads to slower-than-normal growth, which makes the fish unsuitable for market and susceptible to other diseases.

Channel catfish are the most commonly raised food fish species in the U.S. Fingerling, or juvenile catfish, deaths can exceed 90% in ponds affected by the flatworm. Mitchell says several farms have lost entire ponds of fry (baby catfish) and fingerlings because of severe infections.

Cases of the disease were first seen in the Delta in 1999. Currently, there is no cure for infected fish. Losses for catfish producers are estimated to be in the millions. Mitchell determined that if he could reduce the snail population, he could control the disease by breaking the parasite's life cycle midway through. The flatworms cannot be transmitted from one fish to another. Control of the pelican, a nationally protected bird, is not an option.

So he developed a chemical combination to target the freshwater snail. The treatment has proven very effective at reducing the threat of the parasite to farm-raised channel cat fish nationwide, including those in Mississippi, Louisiana, Arkansas, and most recently California.

Mitchell's treatment is to apply a formula of copper sulfate and citric acid to the waters at the edge of production ponds. The snails live and breed in these shallow waters, where they graze on the microscopic life coating aquatic vegetation, small rocks, and hardened mud surfaces. The concentrated treatment kills the snails, then Mitchell says, it quickly dilutes as it disperses throughout the water. The troublesome flatworms die when their host snails die. Catfish naturally avoid the treated areas, and by the time the chemical combination spreads throughout the entire pond, it won't harm them.

The formula consists of 10 pounds of copper sulfate plus 1 pound of citric acid, mixed with at least 70 gallons of water, for each 250 feet of shoreline. In experimental trials, the treatment was carried in a 110-gallon tank mounted on a tractor and sprayed through a hose. A plastic pipe at the end of the hose distributes the formula over a strip of land and water near the pond's edge. Mitchell says that farmers in the field use 1,000 gallon tanks mounted on trailers to disperse the treatment.

Ninety-five to 100% of the snails were killed in studies when the water temperature ranged between 73.4 and 86 °F. Treatment effectiveness and fish safety also depend on variables such as alkalinity and water temperature. Wind speed is a factor, too, because it may stir up the water so much that the formula is not retained long enough to be effective. Fish size as well as pond size, shape, and depth also play roles in the treatment's effectiveness. "Copper sulfate had been commonly used in the past to curb the growth of troublesome algae blooms in fish ponds," Mitchell says. "The copper sulfate-citric acid treatment was approved for use against snails by the USEPA, and it is already being widely used in Arkansas and Mississippi for this purpose."

"Black carp"

As a result, Mitchell says, the state of Arkansas has not had a serious snail infestation since late in the summer of 1999. He says credit can also be given to Asian black carp, which have been used to eat ram's-horn snails. But black carp, as noted earlier, might be restricted because of fears that it will escape fish ponds, enter natural waters, and consume threatened or endangered snails and mussels.

Also a lime treatment developed under a cooperative research program at the Thad Cochran National Warmwater Aquaculture Center in Stoneville, Mississippi, has shown considerable success as a snail treatment and is being further evaluated.

Contact: Andrew J. Mitchell, (870) 673-4483, fax (870) 673-7710, e-mail dmitchell@spa.ars.usda.gov.
Source: Jim Core, Agricultural Research, September 2002

Spring Viremia Suspected in Wisconsin

An exotic fish virus, spring viremia of carp (SVC), is suspected of killing more than 10 tons of carp last spring and the previous fall in northwestern Wisconsin's Cedar Lake, (St. Croix and Polk counties). If confirmed by the final of three tests being conducted by a European laboratory, the diagnosis would represent the first time the virus has been documented in the wild in the U.S. SVC was previously diagnosed this spring in a North Carolina fish farm that raises an ornamental variety of carp called koi.

The virus, which is widespread in Europe and found in Russia, Asia and the Middle East, cannot infect humans. But the disease is an international animal health concern that is covered under a treaty that requires confirmation of the virus by a designated laboratory, reporting to international animal health authorities, and other measures.

Only fish of the minnow family, which include carp, are naturally susceptible to the virus, but northern pike fry also have been infected in laboratory studies. That possibility worries Wisconsin fisheries and state aquaculture officials, as does the possibility that the virus may have already passed to downstream waters. The outlet of Cedar Lake flows into the Apple River, which in turn flows into the St. Croix and Mississippi rivers.

"We're concerned this virus could be a problem for northern pike and some important forage fish so we're proceeding as if we've got a positive diagnosis of SVC," says Mike Staggs, Chief of Fisheries for the Wisconsin Department of Natural Resources (DNR) fisheries management and habitat protection program. Dr. Myron Kebus, aquaculture veterinarian with the Wisconsin Department of Agriculture, Trade and Consumer Protection Department, said that SVC also threatens the state's fish farms and hatcheries, so that department has alerted fish farmers to the SVC threat.

"We haven't studied the epidemiology yet, so we can't speculate how the virus arrived in, Wisconsin," Kebus says. "Other states in our region "are now sharing information that they have also experienced carp kills over the past several years, so this may be a virus that has been present in the U.S. for a while, but just not previously detected. The

fact that it is here, however, raises the possibility that it could move from wild fish to hatcheries and farms."

The possibility also exists that the virus may have moved the other way — from fish farms or the pet industry to wild fish. Koi from the infected North Carolina fish farm were shipped across the country, including to Wisconsin. However, there is no indication that the ornamental carp found their way into the waters of the state, whether the fish that came to Wisconsin were infected, or whether the virus found in Wisconsin is the same strain as that found in North Carolina, Kebus says.

SVC strikes primarily in the spring or fall, when fish immune systems are suppressed due to very cold water temperatures. Clinical signs of SVC are often nonspecific and may include darkening of the skin; exophthalmia (pop-eye); ascites (dropsy); pale gills; hemorrhages in the gills, skin, and eye; and a protruding vent with a thick mucoid (white to yellowish) fecal cast. Internally, edema (fluid build up in organs and body cavity); inflammation; and pinpoint hemorrhages in many organs, including the swim bladder, may be present. The presence of pinpoint hemorrhages in the swim bladder is considered an important indicator of the disease. The intestine is often severely inflamed and may contain significant amounts of mucus. The spleen is often enlarged. Concurrent infection with bacteria, particularly Aeromonas may confuse the diagnosis as fish will show signs of systemic infection such as ascites and hemorrhages. Behaviorally, infected fish may appear lethargic, exhibit decreased respiration rate, and loss of equilibrium. Moribund fish have been reported to lie on their sides, often on the bottom of the tank, and when startled swim up but then return to bottom. Fish are also reported to congregate where there is slow water flow and near pond banks.

Infected fish become diseased and can die within 10 to 17 days. Infected fish can shed the virus in their urine and feces for at least three months, and the virus can survive in the mud for six weeks and in water for two weeks. The virus is transmitted to other fish through the water.

SVC's discovery in Wisconsin started unfolding when DNR fisheries biologist Marty Engel noticed that large numbers of carp in Cedar Lake were dying in the late fall and spring of unknown causes. Engel estimated that through June, more than 2,000 carp died in Cedar Lake. Further reports from the Cedar Lake Management and Rehabilitation District indicate that volunteers removed 10 tons of carp, with many more disposed of by lakeshore residents. Engel was able to collect dying carp for lab analysis, a critical step since live, dying fish are needed to test for bacterial or viral infections. Sue Marcquenski, DNR fish health specialist, examined the fish and suspected SVC because of fluid build up in the fish. She sent tissue samples to the Wisconsin Veterinary Diagnostic Lab in Madison on 5/23/02 for virus testing. That lab isolated the virus and sent it to the University of Arkansas laboratory in Pine Bluff, AR, which had just diagnosed SVC in koi from the North Carolina fish farm.

On 9/10/02, Marcquenski and DNR fisheries crews began sampling carp in Cedar Lake. The virus itself can't be detected in fish in water temperatures above 68 °F, but Marcquenski hopes that antibodies to the virus can. "If we can find antibodies to SVC in carp that we know were previously infected, we can use this same technique to learn whether carp from downstream waters were infected with the virus," Marcquenski says. Such information about the distribution of the virus will help DNR officials decide the feasibility of attempting measures to control or eradicate the disease. Two actions fisheries officials are considering include temporarily banning carp and bait harvest from Cedar Lake.

Virus isolates suspected of being SVC must be sent to the Centre for Environment, Fisheries and Aquaculture in Weymouth, England. Two initial tests conducted on the Wisconsin fish by the Weymouth Lab strongly suggest an SVC diagnosis; scientists expect final confirmation before the end of September through a third test, Marcquenski says. DNR officials have notified the state veterinarian's office and the appropriate USDA officials, who in turn have reported the outbreak to the Office International des Epizooties, as required under the international trade treaty.

State fisheries officials in Minnesota, Iowa, and Illinois, and the U.S. Fish & Wildlife Service have also been notified and are consulting with DNR officials and the Department of Agriculture, Trade and Consumer Protection to learn how the virus came to Wisconsin, how to determine its prevalence and distribution, and how to contain it if possible. "We'll be reviewing our options to contain this disease if it's at all possible," Staggs says.

Source: Wisconsin Department of Natural Resources News Release, 9/10/02; and University of Florida Fact Sheet VM-142
Contacts: Sue Marcquenski (608) 266-2871; Marty Engel (715) 684-2914; or Dr. Myron Kebus, DATCP (608)

Effluent Guidelines for Fish Farms

The USEPA published proposed effluent guidelines for the Concentrated Aquatic Animal Production (CAAP) industry (i.e. fish farms) in the 9/12/02 issue of the Federal Register. Effluent guidelines are industry-specific national regulations by which USEPA restricts discharges of pollutants to surface waters and publicly owned treatment works. They are based on the performance of treatment and control technologies, not on risk or impact to receiving waters.

USEPA's proposed guidelines for aquatic animal production facilities would establish discharge standards for total suspended solids, drugs, chemicals, nonnative species, and pathogens. The guidelines would apply to all facilities producing at least 100,000 pounds annually using recirculating, flow through, or net pen systems. There are currently 222 such facilities, and USEPA estimates annual compliance costs to the industry at $1.5 million. The agency estimates annual benefits of the effluent guidelines at between $22,000 and $113,000.

USEPA is accepting comments on the proposed guidelines through 12/11/02. Additional information is available at http://www.epa.gov/waterscience/guide/aquaculture/.

Pfiesteria Microbe May Not Be Toxic

The tiny organism blamed for killing billions of fish off the U.S. East Coast and for making some fishermen sick may not be toxic, but may simply weaken fish by nibbling holes in their skin, researchers said in early August. The scientists said they found no evidence that Pfiesteria, blamed for high-profile fish kills over the past decade, secretes a deadly toxin, as had been previously believed.

In fact, the strange one-celled organisms do not produce any known poison, chemist

Robert Gawley of the University of Miami and colleagues reported in the Proceedings of the National Academy of Sciences. A second team at the College of William and Mary in Virginia said Pfiesteria may kill by eating little holes in the skin, weakening the fish and leaving them open to infections. Gawley's team tested Pfiesteria by bursting open the organisms in a centrifuge and checking the water they were in.

"The cultures that we centrifuged had been living and killing tilapia (a kind of fish) for eight months," Gawley said. "All you have to do is take a scoop of that water and centrifuge it and all of a sudden it won't kill fish any more." Gawley said his team also considered the findings of a marine biologist at North Carolina State University who has argued that the organisms secrete toxins only after becoming excited by a large group of fish. "If there was a toxin in there, it would be killing the fish. End of story," he said.

Gawley's team also looked at the DNA of Pfiesteria and found no genetic sequence that matched that of any known fish poison. "It may be that at least some of the effects attributed to Pfiesteria are due to other algae," they wrote in their report. Gawley said he did not doubt reports that fishermen and some scientists who work with Pfiesteria have been made sick. The researchers have reported symptoms such as lethargy, sores, blurred vision, severe headaches, kidney and liver dysfunction, difficulty breathing and disorientation. Fish that have been exposed to Pfiesteria also acted disoriented and many had big, open sores.

"Once you have got a bunch of dead fish in there ... there is all sorts of stuff in there besides fish and Pfiesteria," Gawley said. "There are bacteria, there are fungi and all these things could be making God-knows-what." Wolfgang Vogelbein and colleagues at William and Mary and the USEPA said Pfiesteria probably ate little holes in the mucus layer that protects fish and their skin. They tested Pfiesteria by putting them in a tank with fish, and using a permeable membrane to separate them. The Pfiesteria were unable to get to the fish, but any toxin should have been able to pass through the barrier. No fish died, they reported in the journal Nature. "Our findings indicate that fish mortality after Pfiesteria shumwayae exposure results from micropredatory feeding," they wrote.

Source: Maggie Fox, Reuters, 8/6/02

Ban on Beluga

The U.S. government proposed listing the beluga sturgeon as an endangered species in July. This move would make it illegal to import the highly prized beluga caviar. The beluga sturgeon, which would be protected in the U.S. under the Endangered Species Act, inhabits the Caspian and Black Seas, which both border Russia.

The U.S. Fish and Wildlife Service (FWS) says the species is in danger of vanishing because of overharvesting, illegal trafficking and loss of its natural habitat to dam construction and other projects. In its proposal, the agency said, "Sturgeon populations have continued to decline, and the population structure is increasingly skewed toward subadult fish, with a critical lack of spawning-age adult female fish".

The proposal is in response to legal action taken by three environmental groups — the Natural Resources Defense Council (NRDC), the Wildlife Conservation Society and SeaWeb — which petitioned the FWS in December 2000 to declare beluga sturgeon an endangered species.

In April, NRDC filed suit against the FWS in federal district court in New York, saying the Bush administration was failing to adequately protect a species whose population has declined by more than 90% in the past two decades. The groups say that since the U.S. imports 80% of the world's beluga caviar, the listing, which would place a ban on imports, would improve its prospects for survival.

"It's unfortunate that it took a lawsuit to get the Service to propose listing beluga sturgeon," said Andrew Wetzler, an attorney with NRDC. "Now that the Service has finally done the right thing, we'll be monitoring the situation closely to ensure that the Administration stays on track.

The FWS is soliciting public comment on its plan through Oct. Experts estimate legal trade in the black fish eggs to be worth more than $100 million a year. The illegal catch in Russia, Azerbaijan, Kazakstan and Turkmenistan is believed to be 10 times larger. On the world's legal wholesale market, a kilogram of caviar, or 2.2 pounds, costs an average of $500. Premium beluga caviar costs twice that much

Source: CNN.com, 7/31/02

Halting the Invasion: State Tools for Invasive Species Management

"Halting the Invasion: State Tools for Invasive Species Management" is a new report, released by the Environmental Law Institute (ELI), that analyzes the current legal tools available at the state level to combat invasive species. From defining which species will be considered "invasive", to outlining ways to ensure early detection and rapid response, to widespread infestation; state laws offer effective means by which to protect the nation's agriculture and sustain biodiversity of our natural environment.

"Although states have many tools available to address the menacing problem of invasive species, few tools are in place," said Jessica Wilkinson, Director of ELI's State Biodiversity Program. "This report will provide state activists and agency personnel with the ability to evaluate the tools they have at their disposal and determine where they need to improve upon the laws and policies they currently have on the books."

The report identifies 17 state tools to effectively prevent, regulate, control, and manage invasive species as well as enforce and implement existing laws. It also offers three examples of model state programs and provides specific recommendations on improvements states could make to their existing invasive species tools with the hope that all states will strive to achieve the outlined gold standard.

Finally, the report includes a CD-ROM that has detailed information on each states' laws and regulations related to invasive species. The state-specific summaries can be accessed through ELI's website at http://www2.eli.org/research/invasives/index.cfm. The report and CD-ROM may be ordered from ELI for $20.00 plus shipping by calling (800) 433-5120, via email from Pressrequest@eli.org , or online at http://www.eli.org.

For more information about ELI's State Biodiversity Program or the Environmental Law Institute, contact Jessica Wilkinson at (609) 818-0518. ELI is an independent, nonprofit research and educational organization based in Washington, D.C. The Institute serves the environmental profession in business, government, the private bar, public interest organizations, academia and the press.

Meetings of Interest

Nov 12-14: Symposium on the Effects of Fishing and Benthic Habitats: Linking Geology, Biology, Socioeconomics, and Management, Tampa, FL. Contact Peter Barnes, pbarnes@usgs.gov.

Dec. 3-5: Midwest Fisheries Conference, Bettendorf, IA. See: www.fw.umn.edu/ncdafs. Contact Chris Guy, chrisgy@ksu.edu. (785) 532-6634.

Feb. 12-16: AFS 11th Annual Southern Division Midyear Meeting, Wilmington, NC. Contact Kent Nelson, nelsonk3@earthlink.net (252) 752-5425.

Feb. 18-21: Aquaculture America 2003: New Frontiers in Aquaculture, Louisville, KY. See: http://iep.water..ca.gov/calfed/scicnf/2003/index.htm. Contact worldaqua@aol.com, (760) 432-4270.

Mar. 23-27: The Future of Aquatic Ecosystems, Zurich, Switzerland. Organized by the Foundation for Environmental Conservation and Swiss Federal Institute of Environmental Science & Technology (EAWAG). See http://www.icef.eawag.ch. Contact: icef@eawag.ch

July 6-11: Ninth International Conference on River Research and Applications, New South Wales, Australia. See: http//:www.conlog.com.au/NISORS. Contact Ms. Elizabeth Medley, conference@conlog.com.au or A/Professor Martin Thoms, thoms@scides.canberra.edu.au

Aug. 10-14: AFS 133rd Annual Meeting, Quebec City, Quebec, Canada. Contact Betsy Fritz, bfritz@fisheries.org. (301) 897-8616, ext. 212.

Aug 21-22: Maritime Environmental Engineering Technical Symposium 2003. Arlington, VA. Contact David Breslin, BreslinDA@navsea.navy.mil

May 2-6: Fourth World Fisheries Congress — Reconciling Fisheries with Conservation: The Challenge of Managing Aquatic Ecosystems, Vancouver, British Columbia. See: www.worldfisheries2004.org. Contact fish2004@advance-group.com, (800) 555-1099.

Congressional Action Pertinent to the Mississippi River Basin

Corps of Engineers

S. 646: Feingold (WI) , S. 1987: Smith (NH) and 2 Cosponsors and H. R. 1310: Kind (WI) and 13 Cosponsors. To provide for reform of the Corps of Engineers, and for other purposes.

H. R. 2353: Tancredo (C)) and 5 Cosponsors. To revise certain policies of the Army Corps of Engineers for the purpose of improving the Corps' community relations, and for other purposes.

H. R. 5428: Young (AK) and 3 Cosponsors. To provide for the conservation and development of water and related resources, to authorize the Secretary of the Army to construct various projects for improvements to rivers and harbors of the United States, and for other purposes.

Endangered Species Act (ESA) Amendments:

- S. 911: Smith (OR) and Baucus (MT). To reauthorize the ESA of 1973.
- S. 347: Thomas (CA). To improve the listing, recovery planning, and delisting; and for other purposes.
- S. 1912: Smith (OR), H. R. 2829: Walden (OR) and 6 Cosponsors and H.R. 4840: Hansen (UT) and 2 Cosponsors. To require the Secretary of the Interior and the Secretary of Commerce to give greater weight to scientific or commercial data that is empirical or has been field-tested or peer-reviewed, and for other purposes.
- S. 2604: Enzi (WY). To amend the Endangered Species Act of 1973 to require the Federal Government to assume all costs relating to implementation of and compliance with that Act.
- H. R. 1402 and 1404: Thomas (CA). To reform the regulatory process under the ESA and to reform provisions relating to liability for civil and criminal penalties under the Act.
- H. R. 2409: Otter (ID) and Simpson (ID). To vest in the Secretary of the Interior functions under that ESA with respect to species of fish that spawn in fresh or estuarine waters and migrate to ocean waters, and species of fish that spawn in ocean waters and migrate to fresh waters.
- H. R. 3705, 3706 and 3707: Pombo (CA). To amend the ESA to require the Secretary of the Interior to use the best sound science available, provide a public right-to-know for landowners, and improve protections for endangered species habitats.
- H. R. 4579: Miller (CA) and 77 Cosponsors. To ensure the recovery of our Nation's declining biological diversity; reaffirm and strengthen the commitment to protect wildlife; safeguard our children's economic and ecological future; and provide assurances to local governments, communities, and individuals in planning and economic development efforts.

Federal Water Pollution Control Act (FWPCA) Amendments:

- S. 678: Bond (MO) and H. R. 325 : Tanner (TN) and 11 Cosponsors. To establish a program for fisheries habitat protection, restoration, and enhancement, and for other purposes.
- H. R. 1474: Jones (NC) and 16 Cosponsors. To address wetlands mitigation banking, and for other purposes.
- H. R. 1750: Dingell (MI) and 29 Cosponsors. To authorize funding for the State water pollution control revolving fund program for fiscal years 2002 through 2006.
- H. R. 668: Kelly (NY) and 15 Cosponsors and H. R. 3792: Kelly (NY) and Tauscher (CA). To authorize appropriations for State water pollution control revolving funds, and for other purposes.
- H. R. 4572: Dingell (MI). To increase certain criminal penalties, and for other purposes.
- H. R. 4683: Pallone (NJ) and Shays (CT). To clarify that fill material cannot be comprised of waste.

Fish and Wildlife

S. 531: Lincoln (AR) and Dorgan (ND) and H. R. 1013: Deal (GA) and 3 Cosponsors. To promote recreation on Federal lakes, to require Federal agencies responsible for managing Federal lakes to pursue strategies for enhancing recreational experiences of the

public, and for other purposes.

S. 1314: Breaux (LA) and Hutchison (TX); H. R. 3104: Peterson (MN) and 5 Cosponsors; and H. R. 3547: Peterson (MN) and Green (TX). To protect the public's ability to fish for sport, and for other purposes.

S. 1328: Landrieu (LA). "Conservation and Reinvestment Act".

H. R. 3558: Rahall (WV) and 2 Cosponsors. To protect, conserve, and restore native fish, wildlife, and their natural habitats on Federal lands through cooperative, incentive-based grants to control, mitigate, and eradicate harmful nonnative species, and for other purposes.

H. R. 3570: Bereuter (NE). To direct the Secretary of the Interior to monitor the health of the Missouri River and measure biological, chemical, and physical responses to changes in river management and other significant variables.

H.R. 3727: Peterson (MN), and 7 Cosponsors. To authorize the Interior Secretary to issue regulations under the Migratory Bird Treaty Act that would allow states to establish hunting seasons for double-crested cormorants.

Forestry

S. 2670: Kyl (AZ) and 4 Cosponsors and H.R. 5086: Hayworth (AZ) and 7 Cosponsors. To establish institutes to conduct research on the prevention of, and restoration from, wildfires in forest and woodland ecosystems of the interior West.

S. 2871: Torricelli (NJ) and 6 Cosponsors and H.R. 5279: Eshoo (CA) and 23 Cosponsors. To amend the Forest and Rangeland Renewable Resources Planning Act of 1974 and related laws to strengthen the protection of native biodiversity and ban clearcutting on Federal land, and to designate certain Federal land as ancient forests, roadless areas, watershed protection areas, special areas, and Federal boundary areas where logging and other intrusive activities are prohibited.

H. R. 1494: McKinney (GA) and 109 Cosponsors. To save taxpayers money, reduce the deficit, cut corporate welfare, protect communities from wildfires, and protect and restore America's natural heritage by eliminating the fiscally wasteful and ecologically destructive commercial logging program on Federal public lands, restoring native biodiversity in our Federal public forests, and facilitating the economic recovery and diversification of communities affected by the Federal logging program.

H. R. 2119: Simpson (ID). To establish a program to designate, restore, and sustain historic native forests on National Forest System lands, and for other purposes.

Mining

S. 675: Enzi (WY) and Thomas (WY) and H. R. 1710 and H.R. 2952: Cubin (WY). To ensure the orderly development of coal, coalbed methane, natural gas, and oil in "common areas" and the Dispute Resolution Area of the Powder River Basin, WY and MT, and for other purposes.

H. R. 297: Rahall (WV). To foster the reclamation of abandoned coal mine sites in order to protect public health and safety, and for other purposes.

H. R. 1085: Rahall (WV). To address certain anachronistic provisions of the general mining laws, and for other purposes.

H. R. 4078: Udall (CO). To provide for the reclamation of abandoned hardrock mines, and for other purposes.

H. R. 4748: Rahall (WV) and 9 Cosponsors. To modify the requirements applicable to locatable minerals on public domain lands, consistent with the principles of self-initiation of mining claims, and for other purposes.
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H. R. 4802: Cubin (WY). To amend the Surface Mining Control and Reclamation Act of 1977 to increase the incentives for States and Indian tribes to achieve reclamation priorities under that Act with respect to coal mining, and for other purposes.

Nonindigenous Aquatic Nuisance Species Act (NISA) Amendments:

- S. 1034: Stabenow (MI) and 12 Cosponsors. To require the Secretary of Transportation to promulgate and review regulations to ensure, to the maximum extent practicable, that vessels entering the Great Lakes do not spread nonindigenous aquatic species, to require treatment of ballast water and its sediments through the most effective and efficient techniques available, and for other purposes.
- H. R. 2732: Baird (WA) and 22 Cosponsors. To prevent the westward spread of aquatic nuisance species by directing the Secretary of the Interior to prevent westward spread of such species across and beyond the 100th meridian, monitor water bodies, and provide rapid response capacity in certain Western States, and for other purposes.
- H. R. 3558: Gilchrest (MD) and Underwood (Guam). To protect, conserve, and restore native fish, wildlife, and their natural habitats on Federal lands through cooperative, incentive-based grants to control, mitigate, and eradicate harmful nonnative species, and for other purposes.
- H. R. 5395: Ehlers (MI) and 41 Cosponsors. To establish marine and freshwater research, development, and demonstration programs to support efforts to prevent, control, and eradicate invasive species, as well as to educate citizens and stakeholders and restore ecosystems.
- H. R. 5396: Gilchrest (MD) and 41 Cosponsors. To amend the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 to reauthorize and improve that Act.

Public Lands

H. R. 883: Young (AK). To preserve the sovereignty of the U.S. over public lands and acquired lands owned by the U.S., and to preserve State sovereignty and private property rights in non-Federal lands surrounding those public lands and acquired lands.

H. R. 1381: Udall (CO). To direct the Secretary of the Interior to establish the Cooperative Landscape Conservation Program.

H. R. 3962: Peterson (PA) and 5 Cosponsors. To limit the authority of the Federal Government to acquire land for certain Federal agencies in counties in which 50% or more of the total acreage is owned by the Federal Government and under the administrative jurisdiction of such agencies.

Water

S. 350: Chaffee (RI) and 55 Cosponsors. To amend the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 to promote the cleanup and reuse of brownfields, to provide financial assistance for brownfields revitalization, to enhance State response programs, and for other purposes

S. 446: Crapo (ID) and Craig (ID) and H. R. 1156: Simpson (ID) and 4 Cosponsors. To preserve the authority of States over water within their boundaries, to delegate to States

the authority of Congress to regulate water, and for other purposes.

S. 447: Crapo (ID) and 2 Cosponsors and H. R. 705, Simpson and 6 Cosponsors. To subject the United States to imposition of fees and costs in proceedings relating to State water rights adjudications.

S. 1137: Harken (IA) and Grassley (IA) and H. R. 2372: Boswell. To direct the Secretary of the Army to convey the remaining water supply storage allocation in Rathbun Lake, Iowa, to the Rathbun Regional Water Association.

S. 1148: Burns (MT) and H. R. 2202: Rehberg (MT). To convey the Lower Yellowstone Irrigation Project, the Savage Unit of the Pick-Sloan Missouri Basin Program, and the Intake Irrigation Project to the appurtenant irrigation districts.

S. 1255: Wyden (OR) and Brownback (KS). To encourage the use of carbon storage sequestration practices in the United States.

S. 1537: Bingaman (NM) and 2 Cosponsors. To authorize the Secretary of the Interior to conduct a hydrogeologic mapping, modeling, and monitoring program for the High Plains Aquifer and to establish the High Plains Aquifer Coordination Council to facilitate groundwater conservation in the High Plains.

S. 1538: Bingaman (NM) and 2 Cosponsors and H. R. 3121: Moran (KS) and Udall (NM). To further continued economic viability in the communities on the High Plains by promoting sustainable groundwater management of the Ogallala Aquifer.

S. 1961: Graham (FL) and 3 Cosponsors. To improve the financial and environmental sustainability of U.S. water programs

S. 2118: Jeffords (VT). To amend the Toxic Substances Control Act and the Federal Insecticide, Fungicide, and Rodenticide Act to implement the Stockholm Convention on Persistent Organic Pollutants and the Protocol on Persistent Organic Pollutants to the Convention on Long-Range Transboundary Air Pollution.

S. 2853: Johnson (SD) and Dorgan (ND). To direct the Secretary of the Interior to establish the Missouri River Monitoring and Research Program, to authorize the establishment of the Missouri River Basin Stakeholder Committee, and for other purposes.

H. R. 1800: Kind (WI) and 20 Cosponsors. To establish the Upper Mississippi River Stewardship Initiative to monitor and reduce sediment and nutrient loss in the Upper Mississippi River.

H. R. 2694: Horn (CA). To redesignate the Environmental Protection Agency as the Department of Environmental Protection, and for other purposes

H. R. 3561: Linder (GA) and 2 Cosponsors. To establish the Twenty-First Century Water Policy Commission.

H. R. 3480: Kind (WI) and 16 Cosponsors. To promote Department of the Interior efforts to provide a scientific basis for the management of sediment and nutrient loss in the Upper Mississippi River Basin.

H. R. 4709: Slaughter (NY). To amend the Public Health Services Act to authorize the Director of the National Institute of Environmental Health Sciences to conduct and coordinate a research program on hormone disruption.

Wild and Scenic Rivers

H. R. 4808: Herger (CA) and Doolittle (CA). To amend the Wild and Scenic Rivers Act to ensure congressional involvement in the process by which rivers that are designated as wild, scenic, or recreational rivers by an act of the legislature of the State or States through which they flow may be included in the national wild and scenic rivers system, and for other purposes.

Source: U.S. Congress On Line

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