

River Crossings

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Hurricanes and Wetland Loss

Two months after Hurricane Katrina slammed into the coasts of Louisiana and Mississippi, the scale of the disaster is increasingly being attributed to the disappearance of the region's swamps and marshes. And there are serious fears that the further destruction of wetlands caused by the storm itself could leave the area even more exposed to future hurricanes.

Federal officials say that hurricanes Katrina and Rita swept away 100 square miles of southeastern Louisiana's coastal marshes — almost quadruple the state's average annual wetland loss over the last decade. The U.S. Geological Survey's (USGS) National Wetlands Research Center, using satellite imagery, found vast swaths of open water where marshes appeared in assessments last year. Many of these areas will become lakes rather than return as wetlands, the center says.

St. Bernard and Plaquemines parishes suffered the largest losses during Katrina, with approximately 39 square miles of wetlands blown away or drowned in Breton Sound, east of Lake Pontchartrain. Scattered wetlands totaling 61 square miles were shredded elsewhere, including the Mississippi River Delta. While Rita caused less severe damage, it spread farther east, destroying wetlands in Texas.

Over the last century, Louisiana has lost approximately 1,900 square miles — an area roughly the size of Delaware — of

coastal land, mostly marshes, according to federal and state estimates. The primary cause of wetland losses is a lack of



The Mississippi River Delta showing shipping channels, wetlands, and sediment deposition (USGS satellite image).

sediment. Dams, levees and navigation projects built over the last century across much of the Mississippi River drainage

basin have reduced available sediment for coastal marshes by 67% USGS officials say.

So a fierce debate is now raging in Louisiana over what steps should be taken to try to reverse the loss of land to the ocean, and how best to protect the state's population. The entire region around New Orleans is built on the sediments deposited by the mighty Mississippi River over thousands of years. The river itself has changed course many times as it naturally seeks the line of least resistance to the Gulf of Mexico — and that is what forms the delta shape.

Deltas are naturally inclined to sink, but before modern human settlement this was counteracted by new deposits of silt dumped on the land as the river flooded each year forming new wetlands. This process was interrupted by a widespread system of man-made embankments or levees which were constructed over the

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past century along major stretches of the river. Additionally, USGS scientists believe that the extraction of oil and gas from rock layers underneath the delta has speeded up the subsidence.

According to Kerry St. Pe of the Barataria Terrebonne National Estuary Programme, the dense cypress swamps which used to provide natural protection have also been degraded by the intrusion of salt water brought further inland by the building of shipping channels. In addition, the silt dredged out from the river has been dumped in deep water on the edge of the continental shelf, instead of being allowed to replenish the wetlands.

“We’ve always said that the cost of not restoring this system was far greater than the cost of restoring it. These two hurricanes (Katrina and Rita) proved that we were absolutely correct,” said St Pe. Before this hurricane season, USGS officials had warned that the state could lose another 700 square miles of wetlands by 2050 unless action was taken to protect them. State and federal officials had estimated that it would cost \$14 billion over the next 40 years to reverse wetland loss. The failure to do so would result in more than \$100 billion in infrastructure costs, they warned.

Sources: Tim Hirsch, *BBC News online*, 11/1/05; *Bloomberg*, 11/1/05; *E&ENews PM*, 11/02/05; and *Greenwire*, 11/1/05

Louisiana Coastal Restoration Effort Lacking

The U.S. Army Corps of Engineers (Corps) plan to restore coastal wetlands in Louisiana should not proceed without a master plan or reconsideration of several large-scale water diversions, including the Mississippi River Gulf Outlet (MRGO) project, says the National Research Council (NRC).

An NRC report, released in early November, says further that while the components of the Louisiana Coastal Area (LCA) plan are scientifically sound, “it is not clear...that in the aggregate, these projects represent a scientifically sound strategy for addressing coastal erosion at the scale of the affected area”. The report adds that the LCA, is not bold enough to reverse land loss due to erosion, nor does it reflect public input or logical project selection.

The report recommends that the Corps pursue the five priority projects the agency and state have outlined in the \$1.9 billion LCA, with the exception of the MRGO outlet. “Of the five features, the justification for MRGO is the most poorly documented and appears to be the weakest,” the report says. Overall, state officials and environmentalists involved in the LCA have supported the NRC recommendations.

The 2004 LCA, drafted with the help of Louisiana state officials and local stakeholders, was designed to showcase a select number of environmental restoration projects that if implemented over the next 5-10 years would provide the foundation for one of the nation’s most extensive and expensive long-term restoration projects.

Advocates for the massive LCA project are expressing hope that the NRC report will spur federal investment in rebuilding

the devastated wetlands and encourage the Corps to drop their plans for the MRGO. “The report doesn’t say anything we haven’t said for the better part of three years,” said Sidney Coffee of the governor’s office on coastal activities. The comprehensive plan recommended by the report would balance environmental, social and economic needs and create a complete vision for coastal Louisiana. “If we don’t draw this map, nature will,” said Dan Walker, the NRC study’s director.

But Coffee said the state’s pre-hurricane requests for a master plan had been shot down by the White House Office of Management and Budget (OMB). Instead the administration “forced” the LCA’s near-term plan, she said. Coffee and others are concerned that OMB will now use the NRC report to slow progress on restoration. “I hope none of it is taken as another excuse for OMB to wait,” Coffee added, explaining that there will always be

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A Message From the Chairman

Strengthening the ties that bind MICRA into an organization is one of the primary goals I want to focus on during my two years as MICRA Chair. The quality of the physical habitat and fisheries of the waters flowing through Kansas, Ohio, and Minnesota does have an impact on the fisheries existing along my state's borders. I sometimes refer to this as the "thread that connects us" – our mutual interest in the fisheries management of the Mississippi, Ohio, Missouri, Arkansas, Red, and Tennessee Rivers. We all have a mutual interest in the management our basin's large river systems. It is the theme upon which MICRA was formed.

I am very excited about the National Fish Habitat Initiative (NFHI). MICRA was an early supporter of the initiative and has submitted comments on the draft NFHI Action Plan, and these are available on our website. MICRA officially joined the NFHI Coalition this past July and I look forward to our direct participation. The formation and energizing of local and regional joint ventures to address habitat degradation problems is one of the central strategies envisioned by the NFHI planners. To me, it is a natural that MICRA and its affiliated sub-basin organizations would take the lead in the restoration of big river habitats within the Mississippi River basin. What better opportunity to employ the "Habitat Beads Concept" and work toward the "Vision for the 21st Century Floodplain" developed as a consequence of the 1993 floods in the Midwest (remember those??). You can learn more about the NFHI by visiting its website at www.fishhabitat.org, or you can access the site from a link on the MICRA website. Information on the "Habitat Beads Concept" and the Vision for the 21st Century Floodplain can be found on the MICRA website.

As of this writing, the public comment period for the injurious listing of black carp is open and our member states are encouraged to submit their comments. Probably no other issue has vexed this organization more than our decision to petition the listing in late 1999. It is no secret that my views on the listing differ from most, if not all, the other members of MICRA. I suspect my argument for a "diploid only" listing was the cause for my less than unanimous election to the MICRA Chairmanship, and the speculation that unclad I actually have short horns, a reptilian tail, and carry a pitchfork about. All that notwithstanding, the need for a comprehensive and integrated national approach to the management of black carp, as well as the whole Asian carp family, remains a critical need. The final draft of the National Asian Carp Management Plan is now in the hands of the Asian Carp Workgroup and is scheduled for presentation to the National Aquatic Nuisance Species Task Force this coming spring. I will be sending this draft out to the entire MICRA membership as soon as we receive clearance from the U.S. Fish and Wildlife Service. In the meantime, a sampling of comment letters on the black carp listing are available on our website.

Finally, it should be no surprise that our winter meeting planned for New Orleans this January has been postponed. Bobby Reed, our Arkansas/Red River Sub-basin representative, has been sending us updates from his home in southwestern Louisiana in the aftermath of Katrina, and I anticipate a late winter meeting, perhaps by early March, a little further upsteam – perhaps in Vicksburg or Natchez. The blooming azaleas of these antebellum towns along the Mississippi might be a good respite for our northern colleagues.



Mike Armstrong
Chief of Fisheries
Arkansas Game and Fish Commission

unanswered questions about the ecosystem since it is constantly in flux.

The NRC report captures the concerns of the environmental planning community, said Mark Davis, executive director of the *Coalition to Restore Coastal Louisiana* and a participant in LCA development. "We always thought we needed something more comprehensive and more thoroughly vetted with more sectors of the public," Davis said. "And it gets it right with MRGO. We think it needs to be gated," said Davis. "It is time to put deep draft (navigation) on the river where nature and industry want it."

For years, Louisiana officials and environmentalists have encouraged the Corps' to abandon its plans for dredging

and repairing the MRGO, which provides a shortcut from the Gulf of Mexico to the Mississippi River for cargo ships. But officials at the Port of New Orleans, which is a hub for cargo shipments traveling along 14,500-miles of inland waterways in the lower Mississippi River Basin, say MRGO provides a critical passageway. "We have facilities (along the outlet) that create significant economic activity," port spokesman Chris Boura said. If the outlet is closed to deep draft navigation, the Corps needs to expedite repairs to an alternative route through the Inner Harbor Navigation Canal to the north, which was authorized in the 1950s, Boura said.

Army Corps spokesman David Hewitt said that the agency appreciated the NRC's input but stopped short of saying how it

would affect plans in Louisiana and whether the agency would neglect MRGO. "The Corps was not in agreement with our visions for MRGO," said Robert Dean, professor of civil and coastal engineering at the University of Florida in Gainesville and a member of the NRC committee.

The proposed LCA/MRGO project calls for construction of 38 miles of rock walls to prevent erosion along the north bank of a deep draft shipping canal. Critics have said the canal causes exceptional environmental damage, including salt water intrusion and habitat loss, but does not draw the shipping traffic it was intended to. The NRC report says that, according to Corps' figures, maintenance

dredging costs up to \$12,000 per ship annually.

The Corps says that the \$108.3 million project is expected to protect 9.9 square miles of marsh over the next 50 years. But the state has asked for nature to be allowed to take its course and once again drain sediment into the canal, closing it off to heavy shipping. Some experts have also said that the canal could have exacerbated the storm surge from Hurricane Katrina.

Coastal wetland loss in Louisiana over the last 50 years accounts for nearly 80% of coastal land loss in the entire country, according to the NRC.

Sources: Tasha Eichenseher, *Greenwire*, 11/9 and 11/10/05; and *E&E News PM*, 11/2/05

Navigation Canal Blamed for Hurricane Deaths

Hurricane Katrina killed 114 people in St. Bernard Parish and flooded every one of its 24,000 homes. Survivors say the destruction was worsened by the Mississippi River Gulf Outlet (MRGO). The canal, known to locals as "Mr. Go", connects New Orleans to the Gulf of Mexico by passing through St. Bernard Parish. Hurricane Katrina pushed a 25-foot wall of water up the MRGO channel and that water broke through the 17.5-foot-high levees protecting the Parish.

The 76-mile-long MRGO was created by the U.S. Army Corps of Engineers (Corps) in 1965. Since then, it has eroded more than 102 square miles of marsh and cypress forests and removed a natural barrier to storm surge, according to Sherwood Gagliano, a geomorphologist who has studied coastal Louisiana for 35 years. Gagliano, president of *Coastal Environments Inc.*, a Baton Rouge, LA based consulting firm that advises companies and local governments on environmental issues, says a square mile of marsh can absorb one foot of storm surge. "We changed the geometry of the land, and the canal became a big, open pipe to the sea," he says.

Parish leaders have long warned the federal government that the canal would devastate their community in a monster hurricane. In fact, the parish council passed more than 20 resolutions over the past 15 years asking Congress and the Corps to close the canal, but their pleas went unheeded. "We knew it would happen, and it did," says Joseph DiFatta, 49, the Republican chairman of the parish council. "There's 114 people in St. Bernard dead because of this." Along with the lives lost and homes destroyed, Katrina battered St. Bernard's 150-boat oyster and shrimping fleet and knocked out its biggest employer, *Chalmette Refining Inc.*, co-owned by *Exxon Mobil Corp.* and *Petroleos de Venezuela SA*, for months.

Restoring the wetlands claimed by the MRGO is essential to protecting St. Bernard as well as New Orleans, says Hassan Mashriqui, a hydraulic engineer and assistant professor at the *Hurricane Center* at Louisiana State University. According to Mashriqui's modelling studies and field observations, the MRGO may have made the storm surge 20% higher, and two or even three times faster as it crashed into the city. "We found out that wherever the Gulf Outlet had eaten up



Map showing approximate route of the MRGO from the Mississippi River to the Gulf of Mexico.

more wetlands and exposed the levee system, that is where much more breaches happened", Mashriqui said. "Where there were tree lines protecting the levees, they were in much better shape. It is fair to say that the Gulf Outlet played some role in making the situation worse", he said.

In 2004, Mashriqui warned federal, state and local officials that eastern New Orleans could suffer massive flooding through the canal network east of the city. That's where the MRGO and the Intracoastal Waterway form an open triangle more than 500 square miles in size between New Orleans and the sea. The channels intersect in St. Bernard and then

connect with the Industrial Canal in New Orleans. Once filled with swamp land, this triangular area is now a virtual extension of the Gulf of Mexico. When a hurricane strikes, the area acts like a massive funnel, says Mashriqui. As the storm surge barrels westward from the Gulf, its volume and force are concentrated between the MRGO on one side and the Intracoastal Waterway on the other. The water then rushes into the Industrial Canal, the funnel's spout, and the city. "If you didn't have the MRGO, you would have had some relief," he said.

Before Katrina struck in August, geomorphologist Gagliano unveiled a \$1 billion plan that would protect St. Bernard and New Orleans from a catastrophic storm surge. He recommended building a levee 80 feet thick across the MRGO about halfway down its course to the Gulf. This used to be the site of a natural ridge that the Corps cut through when it dug the MRGO. The new levee, a giant speed bump for storm surge, would feature a gate for small vessels. A concrete wall 19 miles long and 30 feet high would also be erected north of the MRGO. And fresh water from the Mississippi River would be diverted to deposit silt into the canal, which would help reestablish the wetlands.

"This area is the soft underbelly of the greater New Orleans area, and if we can't produce better perimeter protection, then what we're really telling people is that if they come back, they are taking their chances when the next hurricane comes," Gagliano said. The St. Bernard Parish Council endorsed Gagliano's plan before Katrina hit, and local leaders are demanding that Congress move quickly to

close the canal. "I think we got a shot now better than we ever had before," says state Senator Walter Boasso, a republican who represents St. Bernard Parish. "Big Daddy shouldn't have to pay for everything, but the federal government has a responsibility to make us whole in this," he said. "It built the MRGO, it ruined our marshlands, it ruined our cypress swamps, and those can't be replaced, and now we're looking at 24,000 homes that have to be demolished."

But the canal's closure is by no means assured. The Port of New Orleans ships about 30% of its 10 million tons in cargo annually through the MRGO and the

Intracoastal Waterway. The rest of the port's goods are transported via the Mississippi River. Gary LaGrange, chief executive officer of the port, says faulting the MRGO for St. Bernard's devastation is an emotional response. LaGrange doesn't accept residents' contentions that the canal aggravated the damage to the parish. "I'm not expert enough to make that kind of judgment," LaGrange says. "I don't blame them for how they feel, but we have a mission to get cargo to the open water of the Gulf of Mexico."

The canal was designed by the Corps to provide large vessels using the Mississippi River with a 40-mile shortcut to the Gulf of Mexico. The Corps dredges the MRGO to a depth of 36 feet to accommodate large vessels. Lieutenant Melissa Owens, the U.S. Coast Guard's waterway chief in New Orleans, says the MRGO is open to commercial vessels at a 22-foot depth. It's up to the Corps to decide when to begin dredging again, she says. The Corps is weighing whether to resume dredging, says spokesman Jason Fanselau. The Corps is obliged to consult with the Port of New Orleans before dredging the MRGO, and not with St. Bernard Parish or the city of New Orleans, he said.

The MRGO has become increasingly obsolete in the past decade because vessels have grown so large that they use the deeper, wider Mississippi River. Since 2003, only one deep-water ship a day passes through the canal, according to an economic impact report prepared by *Multi-Quest International Inc.*, a New Orleans-based market research firm. By comparison, more than 16 ships use the river each day on their trips to and from the Gulf. Meanwhile, the Corps spends about \$14 million a year to dredge the channel, or about \$38,000 per deep-water vessel. "Why would you keep this open for one ship a day?" says DiFatta. "At what point does a human life have value?"

Louisiana's U.S. Senators, Republican David Vitter and Democrat Mary Landrieu, have committed themselves to closing the MRGO to deep-water ships. On Sept. 22, they called for a presidential commission to examine the \$40 billion allocated for Corps projects in Louisiana over the next 10 years and redirect some of the funds to mitigating the environmental damage caused by the canal.

The New Orleans shipping industry and the Corps have long resisted shutting down the MRGO, says Billy Tauzin, a former Republican congressman who represented St. Bernard for 25 years. Even though the Corps agreed to carry out numerous environmental impact studies, no major action was ever taken to restore the protective wetlands around the parish.

"Mr. Go was a boon for shipping, but it's been a real net loss for the people of the area," says Tauzin, 62, who retired from Congress last year and now represents the pharmaceutical industry. "It's a project the Corps built and designed, and they are reluctant to close it." Corps spokeswoman Susan Jackson says her agency serves at the direction of Congress and doesn't take positions on the MRGO's future. "It's not a matter of what the Corps wants; it's up to the community and leaders at the parish, state and federal levels," Jackson says. "The Corps is not in a position to say yes or no."

Nine companies, including *Maersk-Sealand*, the world's largest container vessel company and a unit of Danish shipping giant *A.P. Moller Group*, send cargo down the MRGO. LaGrange says that if the waterway were closed to deep-water shipping, those companies would have to send their products to the Mississippi River through the Industrial Canal, a narrow channel that separates St. Bernard from New Orleans. And the Industrial Canal is handicapped by a costly bottleneck — an 82-year-old lock that is so small it takes 10 hours to pass through it.

LaGrange says the port has sought a larger, deep-water lock since 1956 that would provide an alternative to the MRGO. The project has been held up by political infighting and bureaucratic red tape, LaGrange says. "As soon as we have an alternative for those companies to get to the river, we don't care what happens to MRGO," he says.

For four decades, the people of St. Bernard foresaw their doom in the MRGO canal. Now that their worst fears have become reality, the canal may finally become a thing of the past. Yet the hurricane has also forced the parish to face the prospect that it, too, may become a memory.

Source: Edward Robinson and Jay Newton-Small, *Bloomberg*, 11/1/05

Beluga Caviar Imports Banned

The U.S. Fish and Wildlife Service (FWS) in September banned imports of beluga sturgeon caviar from the Caspian Sea after countries exporting the luxury food failed to submit plans for conserving the fish species. The U.S. consumes 60% of the world's beluga caviar, and this ban is the first unilateral restriction on caviar imports by the United States. The rule applies to beluga caviar exports from Azerbaijan, Iran, Kazakhstan, Russia and Turkmenistan.

Beluga sturgeon, a bony fish whose armor-plated body can grow as long as 15 feet and weigh more than a ton, used to be abundant in parts of Eastern Europe and Central Asia. But once the Soviet



Beluga sturgeon (CITES Photo)

Union collapsed in 1991, its control over the beluga industry fell apart as well. Since then beluga sturgeon populations have been decimated by more than a decade of over-fishing and habitat loss, and the species now exists only in the Caspian and Black seas. In the past year, the Black Sea fisheries provided almost 50% of the beluga caviar available in international markets, United Nations figures show.

The Caspian states have been tempted by prices in the West reaching \$1,000 per half-pound of caviar. And the U.N. Convention on the International Trade in Endangered Species (CITES) has said for years that it would impose an international caviar ban if countries did not make good on their promise to help the sturgeon avoid extinction.

Scientists estimate the illegal sturgeon catch in Russia in the early 1990s was up to 12 times the legal catch. With overall declines in sturgeon populations, the illegal catch is now estimated at two to five times the legal catch. A study included in the September issue of the journal *Fish and Fisheries* found sturgeon populations to be severely depleted. Also an article in the September issue of *Science* magazine cited Mohammad Pourkazemi, director of the *International Sturgeon Research*

Institute in Iran, as saying that the most recent survey of the Caspian sturgeon population showed that stocks declined as much as 30% in the last year alone.

While caviar importers warned the ban would only push the trade underground, environmentalists praised the decision. "The U.S. has set an important example for the rest of the world to follow," said Lisa Speer from the *Natural Resources Defense Council*. FWS officials said the Caspian states had benefited from an exemption to the Endangered Species Act of 2004 allowing the importation of beluga sturgeon caviar. But they went on to say that the countries failed to provide the agency with the appropriate information to consider extending the exemption.

Kenneth Stansell, an assistant FWS director, said that despite extensive contacts, the Caspian nations had failed to provide data on conservation efforts. Last October, he said, the wildlife service listed the beluga sturgeon as a threatened species and, in March, required nations that harvested the fish to provide a description of conservation programs by September 6 or face an import ban. Three nations that provide beluga from the Black Sea — Bulgaria, Georgia, and Serbia and Montenegro — have provided information that the wildlife service is reviewing, Mr. Stansell said.

The ban announced by the FWS came slightly less than five years after an initial petition for the action by the environmental group *Caviar Emptor*. Asked about the duration of the ban, Mr. Stansell said, "We affirm our desire to work cooperatively" with the Caspian nations, but he added that any relaxation of the ban would depend on whether the agency received information, and on analysis of that information to see whether it met the conditions of the rules set in March.

Like many importers, Rod Mitchell, owner of *Browne Trading* in Portland, ME, had made an order — 500 pounds of beluga caviar from Kazakhstan — that will now not be shipped. He said he had little in stock and was offering alternatives, including an increasing array of farm-raised caviar from Europe

The alternatives to beluga caviar are the issues that are of concern to Mississippi River Basin fisheries officials. In recent years the eggs or roe of both legally and

illegally taken paddlefish and sturgeon species, native to the Basin, have been used as a surrogate for beluga sturgeon caviar. And unfortunately, it is difficult for the untrained eye to distinguish between male and female paddlefish and sturgeon.



Pile of five discarded paddlefish carcasses, apparently left by a poacher.

Consequently as many as five-six individuals are often sacrificed in the search to find one mature female. States and agencies will need to be especially vigilant now for paddlefish and sturgeon poachers hoping to fill the potential gap in caviar supplies.

Sources: Felicity Barringer and Florence Fabricant, *New York Times*, 9/30/05; Mark Turner, *Financial Times*, 9/30/05; *Agence France-Presse*, 9/29/05; and *Greenwire*, 9/30/05

Great Lakes Asian Carp Barriers in Jeopardy

Two electric barriers intended to keep Asian carp out of the Great Lakes could be shut down because federal officials don't want to pay the electric bills to keep them operating. In early November members of a House-Senate budget committee decided not to pay the roughly \$1 million needed to keep the electrical barriers operating in the Chicago Sanitary and Ship Canal, the last line of defense between Lake Michigan and the carp-infested Illinois River. This decision marks the latest setback for a project that has been repeatedly plagued by construction delays and financial woes.

Tests on the first temporary barrier have shown that a series of electric cables strung across the bottom of the Sanitary and Ship Canal, combined with bursts of air bubbles and piercing sound waves, can persuade the giant carp to avoid the barrier and swim away downstream. With a combination of federal and state funds,

the U.S. Army, Corps of Engineers (Corps) recently built a second, more powerful barrier in the canal near Romeoville. "If this is shut down even for a day, it could be a disaster," said Jennifer Nalbene, campaign director for the advocacy group *Great Lakes United*.

If Congress doesn't set aside money for operation of the barriers in another bill, the Corps is expected to run out of money to keep them operating by May. It then would be up to the State of Illinois to pick up the tab, something state officials say they aren't able to do, either. "This should be a federal responsibility," said Mike Conlin, director of resource conservation at the Illinois Department of Natural Resources. "These barriers are in place to protect all of the Great Lakes, not just the Illinois portion of Lake Michigan."

Authorization for federal barrier operation and maintenance could still come via two other pending bills, one of which — the National Aquatic Invasive Species Act — has been stalled for three years. "It's a big problem," said Marc Gaden, spokesman for the Great Lakes Fishery Commission. "It's troubling because we need to get this taken care of before the carp make it here and with respect to (federal funding), it's hard to know when or if either of those bills are going to pass."

"The Great Lakes governors, environmental organizations and the entire congressional delegation agree, this is the biggest threat to the Great Lakes and this is the best we can do — simply dump the burden on the state of Illinois?" said Dennis Schornack, U.S. chairman of the International Joint Commission, which oversees U.S.-Canada boundary water issues. "I don't want to be the one to tell our grandchildren that the Great Lakes were turned into a carp pond because of foot-dragging and technicalities to dot all the I's and cross all the T's of government bureaucracy," Schornack said.

Members of Congress from Great Lakes states have been trying to secure funding to upgrade the temporary barrier and continue operating both without annual scuffles over who pays the bills. U.S. Rep. Mark Green (R/WI) said he was disappointed that the carp barrier authorization was not included in the conference committee report, and that is one of the reasons he voted against the bill when it went to the full House. Green

has also been pushing for federal legislation that would make it illegal to import or transfer Asian carp across state lines. He said the federal government needs to do more to keep the fish out of the Great Lakes. "The issue of invasive species is not merely an issue for Wisconsin or Illinois but for the entire region, and it is appropriate for the federal government to be taking over the operation of these barriers," he said.



26 lb. Asian carp taken in the Illinois River just 50 miles from Lake Michigan in 2002.

Only about 25 miles of water and the two electric barriers stand between Lake Michigan and the advancing carp, which took less than a decade to spread over most of the Mississippi and Illinois Rivers. Biologists who study the Great Lakes are concerned because the fish can grow up to 110 lbs. in weight and consume up to 40% of its body weight each day, mostly by straining tiny organisms (plankton) out of the water. The plankton provides the base of the food chain for popular sport fish such as bass, walleye, trout and salmon. The carp can also jump nearly 10 feet into the air when disturbed by passing boats. Recreational fishermen along the Illinois River sometimes carry garbage can lids to protect themselves from carp flopping into their boats.

If the carp get into Lake Michigan, scientists fear they could end up causing more ecological and economic damage

than other invasive species that have spread throughout the lakes, such as the sea lamprey and the zebra mussel. Commercial and sport fishing on the Great Lakes is estimated to bring \$4.5 billion to the region each year.

Sources: Michael Hawthorne, *Chicago Tribune*, 11/11/05; and Dan Egan, *Milwaukee Journal Sentinel*, 11/9/05

Snakehead Invasion May Be Permanent

Large numbers of snakeheads are now showing up in the Potomac River (VA and MD) and some of its tributaries. In mid October Mark Hammond, an avid bass fisherman, said the water was alive with snakeheads, thousands of them. He said they were slithering among the minnows, rising up through the concrete blocks that dam Dogue Creek, a Potomac River tributary, like salmon leaping for freedom.

Hammond, 43, has fished the Potomac tributary near Fort Belvoir, VA for three decades, but he never dreamed he would see anything like this. "...You could see them literally coming up along the banks. The ones we caught didn't even put a dent in them," he said. "We would throw one in the cooler, two others would jump out and we'd have to chase them through the woods."

Hammond said he and his companions didn't even need bait. Using fishing poles armed with treble hooks, they snagged the snakeheads by the backs. They dipped in nets and pulled out clumps of them. They worked into the evening using headlamps to guide their work, hoping, as they had heard, that someone might be offering a bounty for the predatory species.

State officials, alarmed by the situation, said the sharp-toothed fish might be prevalent in the 14-mile stretch of the Potomac that extends south from the Woodrow Wilson Bridge near Washington, D.C., to Dogue Creek. "The water is black from these schools of fish," said John Odenkirk, a biologist with the Virginia Department of Game and Inland Fisheries. Odenkirk said he learned about the recent population surge after a Virginia fisherman e-mailed his department

a photograph of his weekend catch — a cooler full of snakeheads. Odenkirk rushed out the next day to see for himself, and he alone netted 112 snakeheads in a 200-meter swath of Dogue Creek. The fish stayed in shallow waters and were mostly feeding on killifish, he said.

When asked whether the department hoped to eradicate the fish, Odenkirk said, "There is no way. It could never be accomplished if we wanted to. We're not even really trying to reduce the numbers." Anglers, environmentalists and state officials are worried that the fish, a native of Asia, which lacks natural predators in the U.S., will take large amounts of food away from native fish species, disrupting the delicate ecosystem in our rivers. "We've got highly desirable species like largemouth bass," said Steve Early, assistant director of fisheries for the Maryland Department of Natural Resources. "Snakeheads are going to compete for food with them".

The northern snakehead, unlike colorful varieties many pet owners have, can survive in colder waters. In 2002, biologists found the species in a Crofton, MD, pond. Concerned that the snakehead would use its ability to walk on land to travel to nearby waterways, biologists dumped the poison rotenone into the pond, which killed more than 120 juvenile snakehead.

But then a year or so ago, a few snakeheads were found in the Potomac River, and now they are showing up in large numbers. Prior to October, Odenkirk said fishers had caught 70 snakeheads in the Potomac River and its tributaries this year. He said there is growing concern that the fish are migrating because they are moving upstream, and such a breeding population could throw the ecosystem out of balance.

**Wanted dead, not alive
INVADING SPECIES**

Northern Snakehead, *Channa argus*



Poster from The Maryland Anglers Network (www.mdangler.net)

Biologists said they don't know why the fish appeared in such great abundance in October. But Early theorized that the dry summer followed by a sudden heavy rainfall created good conditions for them, but he conceded: "We're at square one with understanding the fish." It is a mystery how the fish survive the winter, he said. Also, it is unclear why or how fast the populations spread, he said.

Environmentalists also worry that any disruption to the rivers that feed the Chesapeake Bay will also affect it. "You run the risk of them multiplying and causing problems with the native populations, which are very important for the health of the bay and the health of the rivers," said Erin Fitzsimmons, the Chesapeake coordinator for the *Waterkeeper Alliance*.

The recent snakehead surge is also affecting the region's fishing reputation. "I get asked, 'Has bass fishing been affected?'" said Steve Chaconas, a bass fishing guide on the Potomac. "I say 'No.' Then the next question is, 'Where can we go to catch a snakehead?'" Allan Ellis, promotions manager at *Bass Pro Shops Outdoor World* at Arundel Mills in Hanover, MD said that although gift certificates of up to \$50 were still in effect for bringing in snakeheads, they don't apply in this case. Only "legal methods," not nets or treble hooks, qualify, he said. "We're not going to give out \$4,000 in gift cards for fish caught in nets," he said. "But thank you for your enthusiasm and thank you for ridding the Potomac of this scourge," he said.

Sources: Joshua Partlow, *Washington Post*, 10/11/05; Annie Linskey, *Baltimore Sun*, 10/13/05; and *Greenwire*, 10/11 and 10/13/05

Westslope Cutthroat Trout Restoration

Westslope cutthroat trout, native to the headwaters of the Missouri River in Yellowstone National Park, have been impacted by competing native and non-native species. In Yellowstone and elsewhere, the westslope cutthroat's gene pool has been muddied from breeding with other fish such as Yellowstone cutthroat trout and non-native rainbow trout. In fact, interbreeding has become so common in the park that fisheries biologists haven't found a genetically

pure westslope cutthroat in Yellowstone for years. But park biologists are hoping to change that soon — at least in one small corner.

In late October, Yellowstone officials unveiled a proposal to restore the westslope cutthroat population to Specimen Creek, a relatively small remote stream in the northwest corner of the park. "We're hoping to turn the tide and start bringing these guys back," said Todd Koel, Yellowstone's lead fisheries biologist. To make that happen, they've got to remove all of the hybridized and non-native fish from the creek, and that will likely mean poisoning the fish that are there.



Westslope Cutthroat Trout (FWS Photo)

Koel anticipated some might cringe at the thought of releasing a toxin into one of Yellowstone's pristine streams. But the doses will be small, about 5-10 parts per billion, and temporary. The available toxins, antimycin and rotenone, both degrade easily, Koel said. The poisoning treatment has a track record of success, including when it was used to remove brook trout from Arnica Creek in Yellowstone in 1985 and 1986.

"The big thing for people to understand is...It's been shown to be a safe, effective tool," Koel said. It's also the best chance for restoring westslope cutthroat to Specimen Creek. By just relying on angling or electroshocking — a method using electricity to stun fish so they can be removed — there's a chance that some impure fish would be left behind, which could defeat the purpose of the restoration, organizers said.

Koel said Specimen Creek is a good candidate for westslope cutthroat restoration because it's an out-of-the-way stream that few anglers use and small enough that it can be managed. Park officials are proposing a multiyear project that would include placing beaver dam-type barriers to prevent non-native and hybridized fish from slipping up from the Gallatin River and into Specimen Creek.

Once the unwanted fish are cleared from the creek, it would be restocked with westslope cutthroat eggs, fry and possibly juveniles from the Madison and Gallatin drainages. Park officials say it might also be necessary to remove Yellowstone cutthroat trout from nearby High Lake, where they were stocked in 1937.

The restoration project would bring back a pure version of an iconic and historically important fish in the nation's first national park, said Bruce Farling, executive director of *Montana Trout Unlimited*. "We're definitely strong advocates of it," Farling said. Biologically, the restored population could also be important. Many of the non-natives or hybridized fish in the area have only been in the Yellowstone ecosystem for perhaps 10 or 15 generations, Farling said. Imbedded in the genes of the long-surviving westslope trout is the ability to adapt to changes in climate, drought, predators, disease and other threats to fish, he said. He knows some may worry that similar projects might be attempted in the Madison, Firehole or other rivers popular with anglers, but "That's not going to happen," Farling said.

A recent analysis estimated that the yellowstone cutthroat once plied about 618 miles of stream inside the park. They have been eliminated from about 36% of those waters, according to park officials, and unfortunately, those that have survived have been hybridized. The westslope restoration project is still in the early stages. Park officials expect to release a draft environmental assessment on the plan next summer.

Source: Mike Stark, *Billings Gazette*, 10/28/05

Glen Canyon Fish Restoration Lawsuit

Two environmental groups have filed notice that they intend to sue the U.S. Bureau of Reclamation (BOR) and the U.S. Fish and Wildlife Service (FWS) over the decline and extinction of native fish species below Glen Canyon Dam in Grand Canyon National Park. *The Center for Biological Diversity*, based in Tucson, AZ, and *Living Rivers*, based in Moab, UT, notified the two federal agencies, and the Department of Interior, of their intentions in early November, citing what

they call violations of the Endangered Species Act.

The two groups are leaning heavily on a report released in October by the U.S. Geological Survey (USGS), which concluded that efforts since 1991 to restore the Colorado River below the dam to something resembling its original state “have not produced the hoped for restoration and maintenance” of endangered fish species, such as the federally protected humpback chub. In fact, the study says, three of the original eight native fish species — including the roundtail chub, bonytail chub and Colorado pikeminnow — have been eliminated from the Colorado River in Glen Canyon and the Grand Canyon, while the humpback chub population has declined by 30-60%.



Colorado pikeminnow

“We’ve been waiting patiently for 11 years,” said Robin Silver, board chairman of the *Center for Biological Diversity*. “We think this is a pretty comprehensive study which shows that the Colorado River in the Grand Canyon is being destroyed, and that the Glen Canyon Dam adaptive management plan has been a failure.” BOR spokesman Barry Wirth declined comment, citing the pending litigation.

Congress passed the Grand Canyon Protection Act in 1992 to reverse the decline of the native fish species, and the Glen Canyon Dam adaptive management plan was adopted in 1995 to guide the bureau in implementing recovery guidelines set by the FWS. The focus of those efforts have been a series of flow test experiments that were designed to wash more sediment downstream in a bid to create sandbars and backwaters that serve as habitat for the fish. But those tests have largely failed to deliver the desired results.

Overall, “research and monitoring have conclusively demonstrated a net loss of fine sediment from the Colorado River ecosystem,” the USGS study said. “Closure of Glen Canyon dam eliminated about 84 percent of the sand that historically entered the Grand Canyon.” The

USGS report also identified positive signs. Warmer water coming out of Lake Powell, depleted because of the drought, has — combined with a program to eliminate non-native fish — helped increase the number of juvenile humpback chubs, though their long-term fate is unclear. And the most recent flow test, conducted a year ago, succeeded in pushing sediment downstream and creating sandbars in isolated areas.

But the two environmental groups call it too little, too late. “They issued some hope,” Silver said of the study, “But the 10 thousand-pound gorilla is that they’re showing progress when the flows are naturally low. Without the drought, I don’t think they could say they’ve been successful.”

Source: Joe Baird, *Salt Lake City Tribune*, 11/9/05

More Ivory Billed Woodpecker Evidence

Scientists and advocacy groups involved last year with the rediscovery of the ivory-billed woodpecker — the first confirmed sighting in 60 years — say chances are good that they have found a second bird in the same Arkansas forest. Search leaders with *The Nature Conservancy* (TNC) said in an early November presentation at Emory University that they have confirmed audio evidence of at least one additional ivory-billed



Ivory-billed woodpecker as sketched by Mark Bowers, FWS, Raleigh, NC.

woodpecker in the upper section of the Cache River National Wildlife Refuge and circumstantial evidence of as many as three more birds in the refuge’s lower reaches.

If such evidence leads to more bird discoveries, last year’s woodpecker sighting would no longer be an unexplained anomaly, but the beginning of arguably the greatest species recovery story in U.S. history. Before last year’s random discovery in Arkansas, the last confirmed ivory-billed woodpecker sighting was in Madison County, LA, in 1944. That area, known as the Singer tract, later underwent extensive logging, leading to the bird’s presumed extinction in the United States.

“The ivory-billed discovery is a validation that we’re making a difference,” said Scott Simon, director of the Arkansas chapter of TNC, which along with Cornell University has taken a lead role in both searching for more birds and securing habitat for their possible recovery. So far, in the White River watershed of eastern Arkansas, nonprofit groups, government agencies and private landowners have secured roughly 550,000 acres of bottomland hardwood habitat in Arkansas for woodpeckers and other rare species. They say they need an additional 200,000 acres to reconnect fragmented forests and link the historic habitat of the ivory-billed woodpecker to the Mississippi River, one of the most important bird flyways in the world.

“We still have a lot of work today, and we’ll need a lot of help from our friends to get the job done,” said Gene Sparling, the man credited with finding the sole male woodpecker in the Cache River on a February 2004 kayaking trip. Since that initial finding, Sparling, a soft-spoken amateur naturalist, has earned celebrity status among birders, who have long held the ivory-billed woodpecker as the greatest and most elusive prize in the birding world.

As part of the run-up to this year’s sighting season — which promises to have dozens of ornithologists and hundreds of volunteers camped in the swamps of the Cache and White rivers — experts are taking the ivory-billed woodpecker story on a kind of traveling road show. At an early November presentation, a standing-room-only crowd offered rousing applause to Sparling as he

recounted his ivory-billed woodpecker discovery story. But the easy confidence with which Sparling and others talked about the discovery came after what had been a summer of skepticism over the initial findings, which were published in the journal *Nature* last April.

A team of ornithologists from Yale University and the University of Kansas had planned to publish a paper challenging the findings, but they later recanted after hearing recordings of the male bird provided by Cornell researchers. "The thrilling new sound recordings provide clear and convincing evidence that the ivory-billed woodpecker is not extinct," said Yale's Richard Prum, one of the initial skeptics.

Sparling, now under contract with TNC to help coordinate woodpecker search efforts, said the skepticism from peer scientists came as no surprise, adding that he expected far more challenges to the initial findings. "I would have expected a dozen papers. That's the nature of science," he said. "For the overall scientific community to basically endorse these findings, it's quite remarkable."

Sparling and Simon said this year's woodpecker search team — consisting of about 20 ornithologists and other experts — will cover 5-8% of the Cache River area where ivory-billed woodpeckers are thought to exist. In addition to finding additional birds, they said a top priority will be identifying recent roost holes in trees. Such holes would show conclusively that woodpecker nesting pairs exist in the area.

Advocates also hope to raise an additional \$12 million from private sources to secure federal matching grants from the Interior Department. The U.S. Fish and Wildlife Service (FWS) announced in September that it would add 1,800 acres to the Cache River wildlife refuge under a purchase agreement with TNC. The FWS has also offered \$800,000 in conservation grants for private landholders who aid in the ivory-billed woodpecker's recovery.

But while recovery efforts continue in the Cache River refuge, several water diversion and navigation projects planned by the U.S. Army Corps of Engineers (Corps) threaten to erode forward steps, advocates say. A federal lawsuit filed by the *National Wildlife Federation* and the

Arkansas Wildlife Federation charges that a \$319 million pumping project to provide White River water to Arkansas rice farmers will divert essential water from the bottomland forests where the woodpeckers are believed to exist. Although a Corps project manager said the pump station would have "no significant negative environmental impact", the lawsuit complaint states that the project, known as the Grand Prairie pump station, would divert 158 billion gallons annually, or 1.5% of the White River's normal flow, for agricultural purposes.

Environmentalists also charge that a second Corps project to deepen the White River's channel for improved navigation would harm the bottomland forests by changing the river's hydrologic conditions.

Source: Daniel Cusick, *Greenwire*, 11/7/05

Concern About High Acid Levels in KY Streams

Drainage from land disturbed by mining and road construction has caused acid to rise beyond acceptable levels in portions of at least 35 streams across KY, killing fish and insects. That finding is part of a report by the Kentucky Division of Water (KDOW), which is trying to prevent the acid drainage so that the streams might once again support aquatic life.

Acid drainage is especially of concern in areas where coal and shale have been unearthed, said Andrea M. Fredenburg, environmental control supervisor for the KDOW. "When those layers are exposed to water, we get the problem," she said. Most of the streams with high acid levels are in the coalfields. For example, seven streams in McCreary County in southeastern Kentucky have been affected, as have five streams in Muhlenberg County. The list is expected to grow when acid levels are tested in streams in the Big Sandy River watershed, where coal mining is widespread.

Other counties that had streams on the impacted list were Bell, Clay, Hancock, Harlan, Hopkins, Knox, Letcher, Marion, McLean, Ohio and Pulaski. Maleva Chamberlain, spokeswoman for the KDOW, said the list of streams is part of a water quality report that is sent to

Congress every two years as required by the federal Clean Water Act.

Source: *AP/Lexington Herald-Leader*, 11/17/05

New Fish Contamination Concerns

Federal and state regulators have for years issued warnings about levels of mercury, polychlorinated biphenyls (PCBs) and other industrial chemicals in fish. Now flame-retardant chemicals and compounds used to make stick- and stain-resistant products, including *DuPont's Teflon*, may be among the targets in a widening study of fish tissue contaminants and consumer health risks, according to federal officials. The assessments would be part of a joint attempt by the U.S. Environmental Protection Agency (EPA) and the Food and Drug Administration (FDA) to broaden and clarify information about toxins in fish and to help improve state-by-state fish consumption advisories.

The FDA and EPA signed a five-year agreement in June calling for "close collaboration" in assessing environmental contaminants in fish and shellfish and consumer safety. Then in September EPA managers publicly singled out two relatively new chemicals for mention during a conference in Baltimore on fish contamination: polybrominated diphenyl ethers (PBDE), used as a flame retardant; and perfluorooctanoic acid (PFOA) used to make *DuPont's Teflon* coatings and thousands of other consumer products.

"What they were saying is, they need to know more about the levels" of PFOA in water and fish tissue, said Kerry S. Humphrey, an EPA spokeswoman. Both chemicals were identified during the Baltimore conference as "emerging contaminants" likely to come under scrutiny in fish tissue and public health assessments. And both have been found throughout the environment and in a wide assortment of consumer products, ranging from baby pajamas and mattresses to fast-food packaging, furnishings, clothing and industrial products.

PFOA, a chemical that did not exist decades ago, has turned up in the blood of people and animals around the globe. PBDE, a compound that some scientists have compared with PCBs, has been found in the breast milk of nursing

mothers. Tim Kropp, a senior scientist with *Environmental Working Group*, a nonprofit organization in Washington, D.C., said the EPA was justified in focusing on PFOA, now under consideration for listing as a probable carcinogen. “You have something extremely persistent that’s going to accumulate in people,” Kropp said. “You should always know what the safe level is. There should be some threshold of concern. Since federal officials issue advisories for mercury and PCBs, Kropp said, “they should make the same determinations for things like the *Teflon* chemicals, which are indestructible and in everyone.”

PFOA already has become the focus of lawsuits against *DuPont*, a company that uses the chemical during production of its flagship *Teflon* coatings. In 2001, residents near *DuPont’s* Parkersburg, WV, plant sued the company over concentrations of PFOA — also known as C8 — in local water supplies. The lawsuit became national news when it helped unearth an internal *DuPont* study showing that the company knew in 1981 that C8 was linked with birth defects. Under the terms of a settlement reached in February, the company must pay as much as \$340 million to state residents, including \$70 million earmarked for a study of C8’s effects on human health. But a *DuPont* spokesman said in a prepared statement that the company would reserve comment on the possibility of fish consumption advisories based on PFOA contamination.

Little is known about the specific toxic effects of brominated flame retardants, but some researchers say the increasing presence of the compounds in human tissue is worrisome because they have been associated with cancer and other health problems in animal studies.

The EPA-FDA agreement encourages “uniformity where appropriate” in warnings about consumption of fish from commercial and sport fish catches. FDA regulations in some cases now tolerate higher concentrations of toxic pollutants for consumer products than levels recommended in EPA-backed warnings for public and “subsistence” fishing. Under the pact, both agencies would encourage development of advisories that consider “both risks and benefits of consumption of commercial and noncommercial fish and shellfish.

Sources: Jeff Montgomery, *The (Wilmington, DE) News Journal*, 10/16/2005; and *Greenwire*, 10/18/05

More Hormonal Effects on Fish

Male fish with female characteristics have now been discovered off the coast of Los Angeles and Orange counties, CA, raising concerns that treated sewage released offshore contains hormone-disrupting compounds that are deforming the sex organs of marine life. Since the early 1990s, scientists have found altered hormones or deformed sex organs in alligators in Florida, fish in U.S. and British rivers, frogs in the Midwest, polar bears in the Norwegian Arctic and a variety of other mostly aquatic creatures. But until now, nearly all of the research has been conducted in freshwater environments, mostly rivers and lakes.

But now eleven male bottom-dwelling fish out of 64 caught between Santa Monica and Huntington Beach, CA had ovary tissue in their testes. No such sexual defects were found elsewhere off Southern California, even though fish were collected from Point Conception to the U.S.-Mexico border. Two other studies found other signs of feminized fish in the same ocean areas. Two-thirds of male turbot and sole caught near Orange County’s sewage outfall had egg-producing proteins.

Also, when Dan Schlenk, an aquatic ecotoxicologist at the University of California, Riverside, exposed male halibut in a laboratory to ocean sediment collected off the Palos Verdes Peninsula and Huntington Beach — where huge volumes of sewage effluent are pumped out to sea — all of them developed female egg proteins. But to Schlenk’s surprise, man-made estrogens, not the more potent natural ones, were apparently responsible for feminizing the fish. There was no correlation between natural estrogens and the egg proteins in the fish.

The research team tested 62 man-made contaminants in the wastewater, but only one — oxybenzone, used in sunscreens — stood out, and it was unlikely to be the only culprit. Even widespread chemicals in plastics and detergents called nonylphenols — found in high doses in Orange County’s sediment and implicated in other studies — were not linked to the

amount of egg proteins in the fish, Schlenk said.

Schlenk said it is clear that the ocean floor at the sewage outfalls is contaminated with estrogenic compounds that are feminizing fish. But effects on the overall health and abundance of fish populations and the rest of the marine ecosystem are unknown. “There’s definitely estrogenic activity out there; no doubt,” Schlenk said. “But whether it affects populations of the animals is the question we need to answer.”

Every day, nearly 1 billion gallons of treated wastewater from an area that includes about 9 million people are discharged into deep waters off the Los Angeles area coast. Sewage effluent contains several dozen chemicals — both natural and man-made — that can alter animal hormones, environmental scientists say. Women excrete natural estrogen and man-made forms from birth-control pills, and some industrial chemicals, pesticides and compounds in household items are endocrine disruptors, which mimic hormones.

The wastewater is filtered and processed, but many contaminants remain and settle into ocean sediments, where they are consumed by bottom-feeding organisms. Excessive amounts of estrogens or estrogen mimics can create so-called intersex animals with both male and female genitals. Previously, scientists have shown that some fish with the altered organs were infertile.

But the effect on humans is largely unknown and unproven, even though some studies have linked hormone-mimicking chemicals to reduced sperm counts, altered genitalia in baby boys and premature puberty in girls. One study found that men exposed to agricultural pesticides were more likely to have defective sperm and low sperm counts than those with little or no exposure. Another found that phthalates, used in plastics and beauty products and widely found in people, seemed to alter the reproductive organs of baby boys.

The estrogenic substances in the effluents are not considered a threat to people swimming or surfing on nearby beaches since the outfalls discharge into waters two to seven miles offshore. But eating fish from the area has long been a health concern because the pesticide DDT and

other toxic substances have contaminated the ocean floor. Turbot, sole and other bottom-dwelling fish can ingest those contaminants.

Steve Weisberg, research director for the project, said that the results cannot be considered definitive because of the small numbers of fish, but that “certainly this is some very good information, and the first of its kind.” The most intriguing aspect, he said, is that “we did not find any intersex fish north of Santa Monica Bay or south of Newport Bay, which suggests some association with the presence of the outfalls and contaminated sediments.” He added that “this is also the most highly urbanized portion of Southern California,” which means contaminants from rivers and runoff might also be altering the fish.

Gary Ankley, branch chief of the U.S. Environmental Protection Agency’s National Health and Environmental Effects Research Laboratory, called the feminized fish “a worldwide phenomenon.” “What’s being seen in these fish is not physiologically normal,” he said. “But we are still trying to sort out the significance of this to the fish. Is it just a localized phenomenon, a few individuals around the outfalls that are really impacted? Or does it impact populations as a whole? That is the 64-million dollar question.”

Sources: Marla Cone, *Los Angeles Times*, 11/14/05; Jennifer Bowles, *AP/Riverside Press-Enterprise*, 11/15/05; and *Greenwire*, 11/15/05

Weather Modification Plans

In the late 1940s, *General Electric Co.* researchers dumped dry ice into the clouds over New England that started a snow shower and spurred decades of government research into weather control. The federal effort — which peaked with *Operation STORMFURY*, a bid to diffuse hurricanes by dropping silver iodide into their rainbands — was ended by Congress in 1995, when lawmakers axed the National Oceanic and Atmospheric Administration’s (NOAA) weather change program.

But now, with the Midwest enduring a multi-year drought and the Gulf Coast and southeast Florida battered by unusually strong hurricanes, Congress is

considering what was once unthinkable — resurrecting government efforts to harness weather.

Other nations and private industry have active weather-control programs. China, for one, spends \$100 million annually on weather modification, training 1,500 scientists per year. Beijing has said it plans to use science to ensure clear skies when it hosts the 2008 Olympics. Australian scientists have adopted a tracer technique, developed by NOAA’s now-defunct Atmospheric Modification Program, to measure the effectiveness of cloud-seeding to produce snow, said Jim Golden, who once headed the U.S. weather modification effort. And in the United States, private interests spend \$25-\$30 million a year on weather modification research and development while 10 states run cloud-seeding efforts. Wyoming, for example, is beginning an \$8 million cloud-seeding program to increase its mountain snowpack.

The stakes are growing for successful weather modification — some experts predict that 40% of the world’s population will live in “water-stressed” areas by 2040, with less than 1% of the global water budget coming from precipitation. The stage is set, Golden told a Senate panel in early November, for the federal government to jump-start its own efforts.

At issue is a pair of bills, sponsored by Sen. Kay Bailey Hutchison (R/TX) and Rep. Mark Udall (D/CO) that would create an advisory board within the Commerce Department that would include representatives from NOAA, *American Meteorological Society*, *National Academy of Sciences*, *National Science Foundation*, academia and other interests. The measures would award the panel \$10 million a year for fiscal years 2005 through 2014. Current U.S. spending on weather modification totals less than \$500,000 a year, down from about \$20 million annually in the late 1970s. It is a development that is long overdue, Golden and his fellow witnesses said.

Michael Garstang, a University of Virginia professor who headed a *National Research Council* committee that recently examined the state of weather modification science, said that “there is still no convincing proof of the efficacy of intentional weather modification efforts.” Still, Garstang conceded that recent private-sector advances in the U.S. and

overseas indicate that “a great opportunity exists to coordinate research efforts to address the fundamental questions that will lead to credible scientific results.”

According to Tom DeFelice, who formerly headed the *Weather Modification Association*, expanding U.S. research efforts could eventually lead to improved rainfall forecasts for farmers and help state and local transportation officials predict icing and other dangerous road conditions.

Garstang, DeFelice and Golden said Hutchison’s bill correctly focused on funding new computer models and other research, rather than cloud seeding and other “operational” measures. Existing state programs spend the vast majority of their funds on cloud seeding and other practical projects, rather than research and development, Golden noted, leaving an R&D void best addressed at the federal level. DeFelice said, “I see this bill as the next logical step from the [NRC] report.”

Source: Lauren Morello, *Greenwire*, 11/11/05

Climate Change Update

New international climate data show that 2005 is on track to be the hottest year on record, continuing a 25-year trend of rising global temperatures. Climatologists at NASA’s *Goddard Institute for Space Studies* calculated the record-breaking global average temperature, which now surpasses the 1998 record by 0.1 °F, from readings taken at 7,200 weather stations scattered around the world.

The new analysis comes as University of Colorado and NASA scientists announced that the Arctic sea ice cap shrank this summer to 200 million square miles, 500,000 square miles less than its average area between 1979 and 2000. And a scientist at the National Oceanic and Atmospheric Administration (NOAA) determined that sea surface temperatures in the Gulf of Mexico were higher in August than at any time since 1890, which may have contributed to the intense hurricanes that struck the region this year.

In Greenland glaciers may be approaching an “irreversible meltdown,” due to the warming temperatures, according to a study published in late November in the

journal *Geophysical Research Letters*. Professor Slawek Tulaczyk, of the Department of Earth Sciences at the University of California, Santa Cruz, said the giant Helheim glacier had dropped 100 feet this summer. Over the past four years, the front of the glacier — which has remained in the same place since records began — has retreated four and a half miles.

This research echoes other studies completed on the opposite side of Greenland where the giant Jakobshavn glacier — at four miles wide and 1,000 feet thick the biggest on the landmass — is now moving towards the sea at a rate of 113 feet a year; the normal annual speed of a glacier is just one foot. The studies have found that water from melted ice on the surface is percolating down through holes on the glacier until it forms a layer between it and the rock below, slightly lifting it and moving it toward the sea as if on a conveyor belt. This one glacier alone is reckoned now to be responsible for 3% of the annual rise of sea levels worldwide.

In another study published in the October issue of the journal *Science*, U.S. and European scientists warned that floating ice shelves in both Greenland and Antarctica could collapse and raise ocean levels even faster than previously estimated. “It’s become clear that the West Antarctic Ice Sheet, much of which sits on land that’s actually below sea level, is one of the most vulnerable in the world to these types of rapid breakdowns,” said Peter Clark, professor of geosciences at Oregon State University. “The real problem would occur if these smaller glacial breakups trigger larger ones, and rising sea levels by themselves might cause a feedback mechanism which would further speed up the process.”

Clark warned that the Greenland ice sheet could completely disappear in about 1,000 years, which would raise Earth’s sea level by about 20 feet — with disastrous consequences for coastal areas across the world. “We may be more vulnerable to sea level rise than we thought and it may be more rapid than we have anticipated,” Clark said. “This is an issue we should take very seriously.”

There is also a more immediate danger to northern Europe as the melting ice

threatens to disrupt the Gulf Stream, responsible for Britain’s mild climate. The current, which brings England as much heat in winter as it gets from the sun, is driven by very salty (heavier) water sinking off Greenland. This drives a deep current of cold ocean water southwards, in turn forcing the warm surface water north. Research at the Woods Hole Oceanographic Institute in Massachusetts has shown, that even before the glacial melting started accelerating, the water in the North Atlantic was getting fresher in what it describes as “the largest and most dramatic oceanic change ever measured in the era of modern instruments”. Even before these discoveries, scientists had shortened to even the odds on the Gulf Stream failing this century. When it failed before, 12,700 years ago, Britain was covered in permafrost for 1,300 years.



NASA photos showing minimum Arctic ice cover in 1979 and 2005.

A new Department of Energy (DOE) report, published in the November issue of *The Journal of Climate*, says that global warming will produce a world of profound transformations, some potentially beneficial but many disruptive, and all at a pace rarely seen in nature. Kenneth Caldeira, an author of the study and a climate expert at the Carnegie Institution’s Department of Global Ecology, based at Stanford University said “The question is no longer whether we will need to address this problem, but when we will need to address it”. “We can either address it now, before we severely and irreversibly damage our

climate, or we can wait until irreversible damage manifests itself strongly,” he said. “If all we do is try to adapt, things will get worse and worse.”

The paper’s lead author, Bala Govindasamy of the DOE’s *Lawrence Livermore National Laboratory*, said it might take 20 or 30 years before the scope of the human-caused changes becomes evident, but from then on there is likely to be no debate. The researchers ran a computer model that simulates both the climate system and the flow of heat-trapping carbon into the air in the form of carbon dioxide (CO₂), then back into soils and the ocean. Most simulations of the potential human impact on climate have been confined to studying the next 100 years or so, but in this case the scientists started the calculations in 1870 and let the computers churn away through 2300. The authors stressed that the uncertainties were high over such a time span, and said the study was intended to illustrate broad consequences rather than project specific ones.

In their simulation atmospheric concentration of CO₂, on average, rose about 0.45% per year through 2300. That is slightly less than the current rate, about 0.5%. At that rate, the concentration of CO₂ doubles from pre-industrial levels in 2070, triples in 2120, and quadruples in 2160. The results are sobering, Dr. Caldeira and other climate experts said, because the computer model used in this study tends to produce less warming from a greenhouse-gas buildup than many of the other climate simulations being run by other research teams. It also presumes that plants and the ocean will continue to sop up CO₂ in the future, limiting the amount retained in the atmosphere. Many other independently developed models calculate that at some point, chemical and biological shifts caused by warming would reverse that flow and cause even more greenhouse gases to flood into the atmosphere.

Consistent with many other studies, the DOE model showed that the Arctic would see the most warming, with average annual temperatures in many parts of Arctic Russia and northern North America rising more than 25 °F around 2100. Antarctica would follow suit later, with temperatures there rising sharply around 2200. The impact on vegetation and landscapes would transform large areas of the earth.

In the simulation, at least one ecosystem, the scrubby Arctic tundra largely vanishes as climate zones shift hundreds of miles north. Tundra would decline from about 8% of the world's land area to 1.8%. Alaska, in the model, loses almost all of its evergreen boreal forests and becomes a largely temperate state. But vast stretches of land that were once locked beneath permanent ice cover would open up. The area locked beneath ice would diminish from 13.3% of the planet's total land area to 4.8%. Conditions that nurture tropical and temperate forests could expand substantially, so that the two forest types could grow on nearly 65% of land surfaces instead of 44% now. But the pH of the oceans would fall because of a buildup of carbonic acid from dissolving CO₂, eroding coral reefs and the shells of plankton and other marine life, Dr. Caldeira said.

Several climate scientists not associated with the study said its main benefit was akin to the murky visions of possible futures experienced by Ebenezer Scrooge in "A Christmas Carol." "It's a cautionary tale," said Gerald A. Meehl, a climate modeler at the *National Center for Atmospheric Research* (NCAR) in Boulder, CO, who has conducted similar studies. "The message is not to give up because the changes appear overwhelming, but instead the message should be the longer we wait to do something, the worse the consequences."

Many scientists say it has taken a long time for them to accept the fact that global warming, partly the result of CO₂ and other heat-trapping gases in the atmosphere, could actually shrink the Arctic's summer cloak of ice. But many of those same scientists have concluded that the momentum behind human-caused warming, combined with the region's tendency to amplify change, has put the familiar Arctic past the point of no return. Even with just modest growth in emissions of the greenhouse gases, almost all of the summer sea ice is likely to disappear by late in the century. Some of the simulations, including those run on an advanced model at the NCAR in Boulder, show much of the summer ice disappearing by 2050, said Marika Holland, a scientist there who is working on the sea-ice portion of that model.

Of the various simulations, all done for an international scientific report on climate

trends to be issued in 2007, the only ones that retain much summer sea ice in the Arctic by 2100 are those that assume global greenhouse-gas emissions are held constant at rates measured in 2000 — something that only five years later is already impossible. The other models all produce an Arctic Ocean in summer akin to the "open polar sea" that was sought by oceanographers and explorers in the mid-1800's. "There would definitely be shipping along the Eurasian coast, and the polar bears would have some serious issues," Dr. Holland said. The models are, of course, impressionistic views of a far more complicated Arctic reality, so their projections are uncertain. But what worries field scientists, who form their opinions based on empirical clues embedded in ice or recorded by thermometers, is that observations of change and evidence pointing to past patterns are agreeing with the models.

David Barber, an Arctic expert at the University of Manitoba, said emissions need to be cut quickly to avert even greater damage. Skeptics who use the uncertainties to justify delaying such actions forget that uncertainty cuts both ways, and things could be far worse than forecast, Dr. Barber and others say. "I wish we would have started 50 years ago, but to not start now would be a real tragedy," he said. But, he added, it is important to accept that shrinking summer sea ice over the next century is inevitable and that humans need to adapt.

That inevitability presents a sticky problem for environmental groups, many of which have suggested that cutting greenhouse gases could save the polar bear and Eskimo traditions, both dependent on sea ice. "Even if you would stop every engine right now, there is no escape unless you physically take the CO₂ out of the air again," said Henk Brinkhuis, an expert on past Arctic ecosystems at Utrecht University in the Netherlands. He added that this would have to be done on a vast scale, far beyond simply planting trees or the like. "You may argue for a long time whether this process will take 20, 50 or 100 years, but it doesn't change the fact that it will happen," Dr. Brinkhuis said.

"At this point, people shouldn't be surprised this is happening," said *Goddard Institute for Space Studies* atmospheric scientist David Rind, noting

that 2002, 2003 and 2004 were among the warmest years on record.

Meanwhile, ice core samples taken from nearly two miles below the surface in Antarctica for a study by *European Program for Ice Coring* scientists have shown that levels of greenhouse gases in the atmosphere are higher now than they have been for at least 650,000 years. These findings were published in the November issue of the journal *Science*. The scientists found that levels of CO₂, methane and nitrous oxide in the ice rose substantially over the past few centuries as humans began burning fossil fuels.

Project leader Thomas Stocker from the University of Bern, Switzerland, said the study puts current levels of CO₂ and methane into a long-term context. "We find that CO₂ is about 30% higher than at any time, and methane 130% higher than at any time; and the rates of increase are absolutely exceptional — for CO₂, 200 times faster than at any time in the last 650,000 years." The data eclipses the previous record for ice sampling taken by another Antarctic team that went back 440,000 years. Scientists said the additional 200,000 years is vital because there appears to have been a major climate shift about 420,000 years ago.

"CO₂ and climate are like two people handcuffed to each other," said James White, a geology professor at the University of Colorado, "Where one goes, the other must follow. Leadership may change, or they may march in step, but they are never far from each other. Our current CO₂ levels appear to be far out of balance with climate when viewed through these results, reinforcing the idea that we have significant modern warming to go". The data suggests that another ice age is about 15,000 years away. "Anyone counting on an ice age to head off global warming, or hoping to justify human greenhouse-gas emissions as a useful attempt to head off the next ice age, will find no comfort in the ice-core record," said Richard Alley, a Penn State University geophysicist.

In North Carolina, scientists at Duke University are studying loblolly pines to learn how trees are likely to react as levels of carbon dioxide (CO₂) in the atmosphere continue to increase. The researchers are using machines that release higher levels of CO₂ near some of the loblollies, which

typically grow faster than other trees. The trees exposed to higher CO₂ levels have grown substantially faster. "It's as though we had put the loblollies inside a greenhouse," said Heather McCarthy, a biologist at Duke. "Within two years of their exposure to higher levels of CO₂, the trees' needles hit a major growth spurt. The pines reached maturity faster than their counterparts. They produced cones at younger ages than their cousins growing in lower CO₂ conditions. And the cones contained many more seeds" — as much as 300% more.

Loblolly pines are to the Southeast what sugar maples are to New England or redwoods to California. Some scientists believe that the faster growth may be beneficial to the environment, as trees sequester or store the atmospheric CO₂ in their tissues and thereby ameliorate global warming. That outcome is highly unlikely, said Ram Oren, director of the Duke University project. Oren added, "What's concerning is how this could affect the Southern forest as a whole, and the plants and animals that live there." If the pines do mature and spread more quickly, they might crowd out slower-growing hardwood species such as oaks and hickories, trees perhaps less likely to be affected by rising CO₂ levels. "This could have a cascading effect on a host of species," Oren said. Animals such as black bears and blue jays that rely on acorns from hardwoods might decline as the pines out compete the hardwoods. "Eventually," he said, "the ecosystem might be dominated by loblolly pines."

In another study published in the journal *Nature*, scientists from the University of Wisconsin-Madison (UW-M) estimate that more than 150,000 people will die and 5 million others will fall ill annually as a result of global warming. The study shows that malaria, malnutrition and diarrhea are on the rise as a result of climate change, with poorer countries more susceptible to these weather-related risks. Further they say that global warming will raise the risk and severity of flooding, and reduce the availability of clean drinking water to millions of people.

The regions most at risk from climate change include the Asian and South American Pacific coasts, as well as the Indian Ocean coast and sub-Saharan Africa. This is because climate-sensitive diseases are more prevalent there and

because those regions are most vulnerable to rapid changes in climate, said Jonathan Patz, a professor at the UW-M's *Gaylord Nelson Institute for Environmental Studies*. Large cities are also likely to experience more severe health problems because they produce what scientists refer to as the urban "heat island" effect.

Patz said researchers who have observed West Nile virus' spread across the U.S. have documented a correlation of its movement with hotter and drier weather — the peculiar weather of choice for the primary carrier of the virus, the Culex mosquito. "Climate scientists think that human-induced climate change has amplified the severity of recent extreme events such as Hurricane Katrina and the 2003 European heat wave," which has led to a loss in life, said Tony McMichael, director of the Australian National University's *Centre for Epidemiology and Population Health*, who was not involved in the UW-M study.

In the U.S. climate models suggest average temperatures in the West will be about 1 to 3 °F warmer by 2050 than at present. Total precipitation isn't expected to change by much, but more of it will come as rain rather than snow. At the same time, spring runoff will come about one month earlier in the year. Expanding populations, agricultural and industrial interests, and the need to keep streams flowing to protect vulnerable fish and other species all promise to make the water situation even worse as the climate shifts. "I think this will be one of the first greenhouse gas-related problems that will fall on the civilized world," said Tim Barnett of the *Scripps Institution of Oceanography* in La Jolla, CA. Some parts of the world, including a broad swath of Asia and India, rely heavily on glacial runoff during summer months. That flow is expected to increase as the glaciers recede because of warming, but that just means the "water shortage, when it comes, will likely arrive much more abruptly, in time, with water systems going from plenty to want in perhaps a few decades or less," Barnett said.

Global warming may actually benefit salmon in Norwegian rivers by causing more rainfall that dilutes industrial acids blown from other parts of Europe, according to scientists at the *Norwegian Institute for Water Research* (NIWR). In the past, a Spring thaw used to wash out

large amounts of poisonous nitrates accumulated in winter snows, according to a long-term NIWR study of rain, snow and river acidification. But climate change in the past 20-30 years means that more precipitation falls as rain, washing nitrates more evenly around the year into rivers and curbing a spring surge when salmon smolt are most vulnerable to poisoning.

But warming ocean temperatures may lead to the loss of up to half of the world's coral reefs within the next 40 years, according to a report released by the *World Conservation Union* (IUCN). "Twenty percent of the earth's coral reefs, arguably the richest of all marine ecosystems, have already been effectively destroyed today. Another 30% will become seriously depleted if no action is taken within the next 20-40 years, with climate change being a major factor for their loss," says Carl Gustaf Lundin, head of IUCN Marine Program. Moreover, he added, "Current predictions are that massive coral bleaching will become a regular event over the next 50 years."

Coral bleaching is caused by increased surface temperatures in the high seas and higher levels of sunlight caused by climate change, the report said. As temperatures rise, the algae on which corals depend for food and color die out, causing the coral to whiten, or "bleach." Prolonged bleaching conditions — anything over about 10 weeks — can eventually lead to the death of the coral, according to marine biologists. Measures such as designating "marine protected areas" are key to preventing further degradation by making corals more robust and helping them resist bleaching from warming waters, the report said.

Global warming has already created diplomatic disputes in the Arctic, where five nations (U.S., Canada, Russia, Norway and Denmark) are vying for access to energy supplies and shipping lanes as the polar ice cap continues to recede. The five countries are at odds over territory that includes the Northwest Passage, the Barents Sea and islands near Greenland. The U.S. Geological Survey has said that up to 25% of the world's undiscovered energy supplies are located in the Arctic region. "It's the way the geography works," said Peter Croker, chairman of the U.N.'s Commission on the Limits of the Continental Shelf. "It's the only place where a number of countries

encircle an enclosed ocean. There is a lot of overlap. If you take a normal coastal state, the issues are limited to adjoining states and an outer boundary. In the Arctic, it is quite different.”

Also in recent years, some of the insurance industry’s largest companies have begun siding with environmental groups arguing that global warming exists and that man-made causes are adding to the severity and cost of natural catastrophes. Although no insurer has cited global warming’s increased risks as a reason for raising rates, some are funding their own research on the topic and, in the political realm, are supporting measures to reduce emissions. *American International Group Inc. (AIG)*, the largest U.S. insurer, says however, that while it recognizes the possibility that climate change might be increasing insurance losses, it is awaiting more scientific proof of a link. But the New York-based company is considering a policy of targeting investments toward companies involved in mitigating greenhouse gases. “We take the possibility seriously and efforts to address it seriously,” said Chris Winans, an AIG spokesman.

In Nebraska, for example, a series of droughts in recent years have devastated crops and local economies, draining a tax-funded crop insurance program and leading insurers to ask whether global warming is implicated, said L. Tim Wagner, Nebraska’s insurance commissioner. “It’s more than hurricanes,” Wagner said. “We’re just seeing changes in weather patterns.”

Insurers began to study possible links between climate change and catastrophic losses in the wake of Hurricane Andrew in 1992, which produced a then-record insured loss of \$21.5 billion. The push gained steam after a string of more recent expensive losses, including four major hurricanes last year that created about \$28 billion worth of damage in Florida. The double hit from Katrina, with a new-record loss estimated at \$40 billion or more, and Rita, with losses of at least \$4 billion, has fueled the intra-industry argument. While quick to note that no event or its severity can yet be linked with certainty to climate change, some insurers began to take the position that governments nonetheless should take preventive action to reduce greenhouse emissions in the atmosphere.

Environmental groups say the arrival of insurers, along with a scattering of other corporations pushing for action on climate change, has boosted the anti-global-warming camp’s credibility. “When they’re concerned, it’s worth listening to,” said David Tuft, campaign director for the *Natural Resources Defense Council*, an environmental group.

But hurricanes Katrina and Rita did not dramatically change the public’s view on climate change, according to a *Washington Post-ABC News* poll released in October. About 56% of Americans now believe global warming is occurring, the same results as a similar poll conducted in April. Thirty-nine percent of those surveyed said climate change is to blame for the rash of major hurricanes this year. About 54% said the storm season is an anomaly and just one of those things “that happen from time to time.” Nearly half of the 1,019 adults polled between September 23-27 said climate change must be studied further before the government acts, while 41% said the issue requires “immediate government action.”

Two-thirds of all Democrats said they were convinced global warming was occurring, and nearly as many Republicans disagreed. A narrow majority of Democrats said climate change requires government intervention; but a bigger share of Republicans said it is a long-term problem that does not require quick action.

The poll found that relatively few Americans saw the recent storms as God’s work, and only a fraction of those said the storms were divine punishment. About one in four Americans (23%) viewed the storms as “deliberate acts of God.” Among those who saw a divine hand at work this hurricane season, only 8% believed that God sent the storms to punish sinners. About half said the storms were intended as a “warning,” but one in seven viewed them as tests of faith. Evangelical Christians were only slightly more likely than the general public to see hurricanes as acts of God or to view them as a divine punishment. The margin of sampling error for the overall poll results is plus or minus three percentage points.

Meanwhile, Gulf Coast property owners have filed class-action lawsuits against petroleum companies for the damages and destruction from Hurricane Katrina. One lawsuit filed in the U.S. District Court for

the Eastern District of Louisiana by George Barasich and others “similarly situated” blames *Columbia Gulf Trans-mission, Shell Pipeline, Exxon Mobil Oil*, and others for dredging pipeline canals that eroded marshlands that protected inland communities from Hurricane Katrina and other storms.

A second lawsuit filed in the U.S. District Court for the Southern District of Mississippi by plaintiffs Joseph Cox, Ned Comber and Brenda Comber alleges damages to their properties were caused, in part, by the energy companies’ emissions that contribute to global warming.

But Dave Gardner, a spokesman for *Exxon Mobil Corp.*, dismissed the suits as “a sobering reminder of our litigation-crazed society.” Nevertheless, Gardner added, “We will deal with this spurious, class-action lawsuit, but all of us should be troubled by the levels to which some trial lawyers will stoop.”

Sources: Juliet Eilperin, *Washington Post*, 10/13 and 11/17/05; Ian Sample, *London Guardian*, 11/17/05; Steve Connor, *The London Independent*, 11/17/05; Susanne Rust, *Milwaukee Journal-Sentinel*, 11/16/05; Carl T. Hall, *San Francisco Chronicle*, 11/17/05; *Reuters*, 10/20; and 11/4/05; Andrew C. Revkin, *The New York Times*, 10/25, 10/31, and 11/25/05, Paul Reynolds, *BBC News Online*, 10/25/05; *Agence France-Presse*, 10/21/05; Dean Starkman, *Washington Post*, 10/5/05; Richard Morin, *Washington Post*, 10/2/05; Richard Black, *BBC News*, 11/24/05; Usha Lee McFarling, *Los Angeles Times*, 11/25/05; Cheryl Lyn Dybas, *Washington Post*, 11/21/05; *The London Independent*, 11/20/05; *Greenwire*, 10/3, 10/13, 10/20, 10/21, 10/26, 11/1, 11/3, 11/7, 11/17, 11/21, and 11/28/05

Babbitt Alarmed by “Cycle of Anti-Environmentalism”

The environment has never faced greater political peril in America than it does today, says former Interior Secretary Bruce Babbitt. “History, however, instructs us that the trajectory of environmental protection is moving ever upward over time, even as the trend line occasionally breaks downward,” Babbitt asserts in his new book *“Cities in the Wilderness”*.

A Democrat, Babbitt ran the Interior Department for eight years under President Clinton, who in Babbitt’s words

“protected more acres of land and water than any of his predecessors.” If parts of that legacy are in jeopardy now, as Babbitt says they are, he remains confident that the public, in time, will again demand that the federal government play a stronger role in protecting natural resources.

In his book, Babbitt examines the conservation record of the Clinton era. One failure he highlights was his inability to marshal public support for a plan to ease the threat of catastrophic flooding on the lower Mississippi River. The plan would have required removing some levees on the upper Mississippi, allowing the river to overflow its banks in undeveloped areas, and thus reducing downstream flows and the potential for disaster in places such as New Orleans.

Among his successes, Babbitt cites his partnership with the Republican administration of former California Gov. Pete Wilson to design a program, dubbed *CalFed*, to put an end to the political wars that have raged over management of the state’s largest source of fresh water — the Sacramento-San Joaquin Delta. But Babbitt now says the future of that program, which tries to balance the water needs of the region’s environment, agriculture and cities, is in jeopardy.

With regard to the current Congress and Administration, Babbitt, in a *Los Angeles Times* interview, says we are in the worst down cycle of anti-environmentalism in the history of conservation. It’s really quite striking, he says. In this administration, they presented a friendly face of consensus-building beneath which the systematic destruction of the environmental consensus is actually without parallel. Congress is hell-bent on destroying environmental laws such as the National Environmental Policy Act and the Endangered Species Act, and the administration is egging them on, he said.

The striking thing to me, Babbitt said, is the degree to which they have been tampering with the national park system. That really is, if you will, an indication — nothing is sacred to this administration. Typically, national parks have been absolutely inviolable. The Republicans come to office saying they were going to improve the national parks, but this latest park policy that was put out was simply a broad attempt to commercialize the parks, he said, to alter the basic philosophy of the national parks which has been in effect since 1890.

Environmental issues have been swept up in the current tide of anti-government rhetoric, he said. The prevailing mood of the electorate is intensely anti-Washington. And that has given the Congress and the administration the space, to do things. But I see these cycles in American history, he said, and I’m convinced that before too long, this sort of nihilistic, destructive set of policies is going to yield to public pressure for a more constructive vision.

With regard to the recent hurricanes, Babbitt said that in his judgment, the lack of leadership on the Gulf Coast and in southern Louisiana is a national disgrace. Congress is busy using Katrina as a pretext to cut food stamps and Medicaid rather than dealing with the issue. The president says it’s a local issue. It’s not just a local issue, it’s a national issue that involves the management of the Mississippi River, Babbitt said, which the federal government has been doing for 50 years, which involves the management of offshore oil and gas, which has undermined the integrity of the wetlands.

Now, those issues can’t be dealt with by the mayor of New Orleans, he said. It’s going to have to have national leadership to say, “What are we going to do about the infrastructure issues? What are we going to do about sea level rise?”

Louisiana has got 5 million people; 2 1/2 million live less than 3 feet above sea level down in that delta country. And the consensus for sea-level rise is now between 2 and 3 feet. Those are big scare problems, and we’ve had zero national leadership, he said.

Babbitt describes himself today as a “free agent,” dividing his time between the *World Wildlife Fund*, of which he is a director, and various nonprofit groups working on conservation issues ranging from the Amazon Basin to the Pacific Northwest.

Source: Frank Clifford, *Los Angeles Times*, 11/15/05

Environmental Concerns Poll

Americans are more concerned about environmental protection today than they were the last time they were surveyed on the matter, according to a new *Harris Interactive Poll* released in mid October.

Three-fourths of American adults think that protecting the environment is important and standards cannot be too high. Almost half of all adults surveyed think there is not enough government regulation and involvement in environmental protection, compared with about 19% who said that there is too much regulation and 32% who think it is “just right.” Seventy-one percent of respondents said large corporations are not doing their share to help reduce environmental problems, while 63% also assigned blame to the general public.

The poll of 1,217 adults took place Aug. 9-16 and has a margin of sampling error of plus or minus 3 percentage points.

Sources: *Wall Street Journal*, 10/13/05; and *Greenwire*, 10/13/05

Meetings of Interest

Feb 8-12: *Southern Division American Fisheries Society* Spring Meeting: Water Allocation for Fisheries, San Antonio, TX. See: <http://www.sdafs.org/meetings/2006>. Contact: Dave Terre, dave.terre@tpwd.state.tx.us, (903) 566-1615.

May 7-11: Fifth National Monitoring Conference: Monitoring Networks:

Connecting for Clean Water, San Jose, CA. Contact NWQMC2006@tetrateteach-ffx.com, (410) 356-8993.

May 14-19: 14th International Conference on Aquatic Invasive Species, Key Biscayne, FL. Contact: Elizabeth Muckle-Jeffs, Conference Administrator, 1027

Pembroke Street East, Suite 200 Pembroke ON K8A 3M4, Canada, N.Amer. phone: (800) 868-8776, International phone: (613) 732-7068, Fax (613) 732-3386, email: profedge@renc.igs.net, Web Site: www.icaeis.org

Jun 4-9: American Society of Limnology and Oceanography Summer Meeting:

Global Challenges Facing Oceanography and Limnology, Victoria, British Columbia, Canada. See <http://aslo.org/meetings/victoria2006/>. Contact secor@cbl.umces.edu.

Jun 6-8: Fourth International Reservoir Symposium: Balancing Fisheries Management and Water Uses for Impounded River Systems, Atlanta, GA. Sponsored by the Southern Division AFS Reservoir Committee. Contact Mike Colvin, Mike.Colvin@mdc.co.gov.

Jun 12-16: Symposium on the Ecology of Stream Fish: State of the Art and Future Prospects II, Leon, Spain.

Jun 25-28: International Conference on Rivers and Civilization: Multi-disciplinary Perspectives on Major River Basins, La Crosse, WI. Contact: Jim Wiener, University of Wisconsin-La Crosse, (608) 785-6454, wienr.jame@uwlax.edu

Jul 12-17: American Society of Ichthyologists and Herpetologist Annual Conference, New Orleans, LA. See: www.asih.org/meetings/meetings. Contact: Mark Pyron, mpyron@bsu.edu.

Jul 18-22: Seventh International Congress on the Biology of Fish, St. John's, Newfoundland, Canada. See: www.mun.ca/biology/icbf7. Contact: Kurt Gamperl,

kgamperl@mun.ca, (709) 737-2692.

Aug 6-11: 8th International Conference on Mercury as a Global Pollutant, Madison WI. See: www.mercury2006.org. Contact: James Wiener, wienr.jame@uwlax.edu, (608) 785-6454.

Sep 10-14: *American Fisheries Society* 136th Annual Meeting, Lake Placid, NY. Contact: Betsy Fritz, bfrizt@fisheries.org, (301) 897-8616, ext. 212.

Sep 2-6: American Fisheries Society 137th Annual Meeting, San Francisco, CA. Contact Betsy Fritz, bfrizt@fisheries.org, (301) 897-8616, ext. 212.

Congressional Action Pertinent to the Mississippi River Basin

Climate Change

S. J. RES. 5. Feinstein (D/CA) and 13 Co-Sponsors. Expresses the sense of Congress that the U.S. should act to reduce greenhouse gas emissions.

S. 245. Collins (R/ME) and 5 Co-Sponsors. Provides for the development and coordination of a comprehensive and integrated U.S. research program that assists in understanding, assessing, and predicting human-induced and natural processes of abrupt climate change.

S. 342. McCain (R/AZ) and 12 Co-Sponsors and **H.R. 759.** Gilchrest (R/MD) and 25 Co-Sponsors. Provides for scientific research on abrupt climate change, to accelerate the reduction of greenhouse gas emissions in the U.S. by establishing a market-driven system of greenhouse gas tradeable allowances, to limit greenhouse gas emissions in the U.S. and reduce dependence upon foreign oil, and ensure benefits to consumers from the trading in such allowances.

S. 387. Hagel (R/NE) and 3 Co-Sponsors. Amends the Internal Revenue Code of 1986 to provide tax incentives for the investment in greenhouse gas intensity reduction projects, and for other purposes.

S. 887. Hagel (R/NE) and 6 Co-Sponsors. Amends the Energy Policy Act of 1992 to direct the Secretary of Energy to carry out activities that promote the adoption of technologies that reduce greenhouse gas

intensity and to provide credit-based financial assistance and investment protection for projects that employ advanced climate technologies or systems, and for other purposes.

S. 1151. McCain (R/AZ) and Lieberman (D/CT). Provides for a program to accelerate the reduction of greenhouse gas emissions in the U.S. by establishing a market-driven system of greenhouse gas tradeable allowances.

H. R. 955. Olver (D/MA) and Gilchrest (R/MD). Amends the Clean Air Act to establish an inventory, registry, and information system of U.S. greenhouse gas emissions, and for other purposes.

Conservation

S. 260. Inhofe (R/OK) and **H. R. 2018.** Sullivan (R/OK). Authorizes the Secretary of the Interior to provide technical and financial assistance to private landowners to restore, enhance, and manage private land to improve fish and wildlife habitats through the Partners for Fish and Wildlife Program.

S. 339. Reid (D/NV) and 4 Co-Sponsors and **H. R. 731.** Udall (D/CO) and Otter (R/ID). Reaffirms the authority of States to regulate certain hunting and fishing activities.

S. 421. Lott (R/MS) and Kohl (D/WI). Reauthorizes programs relating to sport fishing and recreational boating safety, and for other purposes.

S. 964. Alexander (R/TN) and 3 Co-Sponsors. The "American Outdoors Act of 2005" provides a conservation royalty from Outer Continental Shelf revenues to establish the Coastal Impact Assistance Program, to provide assistance to States under the Land and Water Conservation Fund Act of 1965, to ensure adequate funding for conserving and restoring wildlife, to assist local governments in improving local park and recreation systems, and for other purposes.

H. R. 524. Berkley (D/NV). Amends the Internal Revenue Code of 1986 to provide incentives for the conservation of water.

Endangered Species Act (ESA)

S. RES. 219 Feinstein (D/CA) and 3 Co-Sponsors. Designates March 8, 2006, as "Endangered Species Day", and encourages the people of the U.S. to become educated about, and aware of, threats to species, success stories in species recovery, and the opportunity to promote species conservation worldwide

H. R. 93. Gilchrest (R/MD). Assists in the conservation of flagship species throughout the world.

H. R. 3824. Pombo (R/CA) and 13 Co-Sponsors. Amends and reauthorize the ESA to provide greater results in conserving and recovering listed species, and for other purposes.

Energy

H. R. 140. McHugh (R/NY). Promotes use of anaerobic digesters by agricultural producers and rural small businesses to produce renewable energy and improve environmental quality.

H. R. 174. Millender-McDonald (D/CA). Encourages greater use of geothermal energy resources.

H. R. 2064. Udall (D/CO). Assures that development of certain Federal oil and gas resources will occur in ways that protect water resources and respect the rights of the surface owners, and for other purposes.

Federal Water Pollution Control Act (FWPCA) Amendments:

S. 912. Feingold (D/WI) and 8 Co-Sponsors and **H.R. 1356.** Oberstar (D/MN) and 125 Co-Sponsors. Amends the FWPCA to clarify the jurisdiction of the U.S. over waters of the U.S.

S. 1400. Chafee (R/RI) and 3 Co-Sponsors. Amends the FWPCA and the Safe Drinking Water Act to improve water and wastewater infrastructure in the U.S. .

H. R. 74. Davis (R/VA). Amends the FWPCA to impose limitations on wetlands mitigation activities carried out through the condemnation of private property.

Invasive Species

S. 363. Inouye (D/HI) and 3 Co-Sponsors. Amends the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 to establish vessel ballast water management requirements, and for other purposes.

S. 507. De Wine (R/OH) and 4 Co-Sponsors and **H. R. 1593.** Ehlers (R/MI). Establishes the National Invasive Species Council, and for other purposes.

S. 770. Levin (D/MI) and 12 Co-Sponsors and **H.R. 1591.** Gilchrest (R/MD) and 4 Co-Sponsors. Amends the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 to reauthorize and improve that Act.

S. 1402. DeWine (R/OH) and 7 Co-Sponsors and **H. R. 3049.** Green (R/WI). *Asian Carp Prevention and Control Act*

amends the Lacey Act, to add certain species of carp to the federal list of injurious species that are prohibited from being imported or shipped.

S. 1541. Akaka (D/HI) and 3 Co-Sponsors. To protect, conserve, and restore public land administered by the Department of the Interior or the Forest Service and adjacent land through cooperative cost-shared grants to control and mitigate the spread of invasive species, and for other purposes.

H. R. 489. Pearce (R/NM). Provides for an assessment of the extent of the invasion of Salt Cedar and Russian Olive on lands in the Western U.S. and efforts to date to control such invasion on public and private lands, including tribal lands, to establish a demonstration program to address the invasion of Salt Cedar and Russian Olive, and for other purposes.



H. R. 1592. Ehlers (R/MI) and 5 Co-Sponsors. Establishes 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.

Mining

S. RES. 64. Jeffords (I/VT) and 7 Co-Sponsors. Expresses the sense of the Senate that the U.S. should prepare a comprehensive strategy for advancing and entering into international negotiations on a binding agreement that would swiftly reduce global mercury use and pollution to levels sufficient to protect public health and the environment.

S. 961. Rockefeller (D/WV) and **H. R. 1600.** Cubin (R/WY) and 4 Co-Sponsors. Amends the Surface Mining Control and Reclamation Act of 1977 to reauthorize and

reform the Abandoned Mine Reclamation Program, and for other purposes.

S. 1701. Thomas (R/WY) and Enzi (R/WY). Amends the Surface Mining Control and Reclamation Act of 1977 to improve the reclamation of abandoned mines.

H. R. 905. Cubin (R/WY). Amends the Mineral Leasing Act to provide for the development of Federal coal resources.

H. R. 1165. Kanjorski (D/PA) and 6 Co-Sponsors. Amends the Internal Revenue Code of 1986 to allow a credit against income tax to holders of bonds issued to finance land and water reclamation of abandoned mine land areas.

H. R. 1265. Udall (D/CO). Provides a source of funding for the reclamation of abandoned hardrock mines, and for other purposes.

H. R. 1266. Udall (D/CO) and Salazar (D/CO). Facilitates the reclamation of abandoned hardrock mines, and for other purposes.

H. R. 2721. Peterson (R/PA) and 16 Co-Sponsors. Amends the Surface Mining Control and Reclamation Act of 1977 to reauthorize collection of reclamation fees, revise the abandoned mine reclamation program and for other purposes.

Public Lands

H. R. 599. Udall (D/CO) and Tancredo (R/CO). Provides a source of funds to carry out restoration activities on Federal lands under the jurisdiction of the Secretary of the Interior or the Secretary of Agriculture, and for other purposes.

H. R. 975. Tancredo (R/CO) and 5 Co-Sponsors. Provides consistent enforcement authority to BLM, NPS, FWS, and FS to respond to violations of regulations regarding the management, use, and protection of public lands under the jurisdiction of these agencies, and for other purposes.

H. R. 3166. Grijalva (D/AZ). Provides compensation to livestock operators who voluntarily relinquish a grazing permit or lease on Federal lands where conflicts with other multiple uses render livestock grazing impractical, and for other purposes.

Water Resources

S. 232. Smith (R/OR). Authorizes the Secretary of the Interior, acting through the Bureau of Reclamation, to assist in the implementation of fish passage and screening facilities at non-Federal water projects, and for other purposes.

S. 353. Conrad (D/ND) and Dorgan (D/ND). Amends the Water Resources Development Act of 1999 to direct the Secretary of the Army to provide assistance to design and construct a project to provide a continued safe and reliable municipal water supply system for Devils Lake, ND.

S. 728. Bond (R/MO) and 17 Co-Sponsors and **H.R. 2864.** Provides for the consideration 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 U.S., and for other purposes.

S. 753. Feingold (D/WI) and McCain (R/AZ). Provides for modernization and improvement of the Corps of Engineers, and for other purposes.

S. 802. Domenici (R/NM) and 10 Co-Sponsors and **H. R. 1386.** Hastings (D/FL) and 24 Co-Sponsors. Establishes a National Drought Council within the Department of Agriculture, to improve national drought preparedness, mitigation, and response efforts, and for other purposes.

S. 1017. Chaffee (R/RI) and 10 Co-Sponsors. Reauthorizes grants for the water resources research and technology institutes established under the Water Resources Research Act of 1984.

H. CON. RES. 120. Schakowsky (D/IL) and 23 Co-Sponsors. Expresses the sense of the Congress with regard to the world's freshwater resources.

H. J. RES. 3. Davis (R/VA). Acknowledges a long history of official depredations and ill-conceived policies by the U.S. Government regarding Indian tribes and offers an apology to all Native Peoples on behalf of the U.S.

H. R. 109. Herseth (D/SD). Provides compensation to the Lower Brule and Crow Creek Sioux Tribes of South Dakota for damage to tribal land caused by Pick-Sloan Projects along the Missouri River.

H. R. 135. Linder (R/GA) and 8 Co-

Sponsors. Establishes the "Twenty-First Century Water Commission" to study and develop recommendations for a comprehensive water strategy to address future water needs.

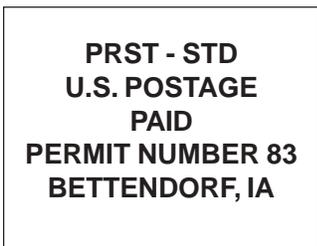
H. R. 391. Leach (R/IA). Directs the Secretary of the Army to convey the remaining water supply storage allocation in Rathbun Lake, IA, to the Rathbun Regional Water Association.

H. R. 487. Pearce (R/NM). Imposes limitations on the authority of the Secretary of the Interior to claim title or other rights to water absent specific direction of law or to abrogate, injure, or otherwise impair any right to the use of any quantity of water.

H. R. 494. Rohrabacher (R/CA). Amends the Water Resources Development Act of 1986 to expand the authority of non-Federal interests to levy harbor fees.

H. R. 1368. Burgess (R/TX) and 2 Co-Sponsors. Provides the Secretary of the Army with additional and enhanced authority with respect to water resources projects, and for other purposes.

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